**Public Consultation**

**TRA Regulations – Ultra-Wide Band and Short Range Devices**

**Commencement Date: 13 August 2020**

**Response Date: 17 September 2020**

**Preface and Notes to Potential Respondents**

In keeping with its values of transparency and sector engagement, the TRA wishes to review and study the impact of regulatory instruments issued by it to keep abreast of developments to better involve all stakeholders. The TRA strives to meet the needs of the sector and seeks the views and feedback from the sector for the revision of the regulations. The purpose of this document is to invite comments from stakeholders regarding the TRA’s intention to revise TRA Regulations on Ultra-Wide Band and Short Range Devices version 3.0 in accordance with the Telecom Law.

Stakeholders who wish to respond to this consultation should do so in writing to the TRA on or before the response date stated on the front cover of this document. The comments which are contained in any response to this consultation should be clearly identified with respect to the specific question in this consultation to which such comments refer. Any comments which are of a general nature and not in response to a particular question should be clearly identified as such.

Responses to this consultation should be made in writing and provided electronically in MS Word format and Adobe PDF format, on or before the response date stated on the front cover of this document. Responses must be accompanied by the full contacts details (contact name, e-mail address and phone and fax numbers) of the respondent to:

[spectrumconsultation@tra.gov.ae](mailto:spectrumconsultation@tra.gov.ae);

Executive Director Spectrum Affairs

Telecommunications Regulatory Authority

P.O. Box 26662

Abu Dhabi, UAE

Respondents are advised that it will be the general intention of the TRA to publish in full the responses received to this consultation. Additionally, the TRA may, at its discretion generate and publish a “Summary of Responses” document at the conclusion of this consultation. Accordingly, the Summary of Responses may include references to and citations (in whole or in part) of comments which have been received. The TRA recognizes that certain responses may include commercially sensitive and confidential information which the respondent may not wish to be published. In the event that a response contains confidential information, it shall be the responsibility of the respondent to clearly mark any information which is considered to be of a confidential nature.

In any event the respondent shall be required to submit two versions of its response to the TRA as follows:

A full copy of its response in MS Word format with any confidential information clearly marked. The TRA will not publish the Word document and will only use it for internal purposes.

A publishable copy of its response in Adobe PDF format. The TRA will publish the PDF version in its entirety. Thus, the respondent should take care to redact any commercially sensitive and confidential information in the PDF version of its response.

By participating in this consultation and by providing a PDF version of its response the respondent expressly authorizes the TRA to publish the submitted PDF version of its response in full.

It should be noted that none of the ideas expressed or comments made in this consultation document will necessarily result in formal decisions by the TRA and nothing contained herein shall limit or otherwise restrict the TRA’s powers to regulate the telecommunications sector at any time.

If any person or entity seeks to clarify or discuss any part of these Regulations can request for a meeting in writing again to the above E-mail and then TRA will set the meetings in the period from 06 to 07 September 2020 so that formal comments can still be received by 15.00 noon on 17 September 2020.

**Consultation Schedule**

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| **Milestone** | **Due Date** | **Notes** |
| |  | | --- | | Closing Date for Initial Responses | | 17 September 2020 | |  | | --- | | All responses to this consultation should be properly received by no later than 15.00 noon on the closing date. Responses are to be submitted in electronic format as set out in this consultation document. | |
| |  | | --- | | Latest date for requests for extension to the due date for Initial Responses. | | 10 September 2020 | |  | | --- | | Stakeholders wishing to secure an extension to the Closing Date for Initial Responses may apply in writing to the TRA for such an extension. The request should set out the rationale for the request.  Requests for extension should be submitted by e-mail to the e-mail address shown above.  The TRA will not consider any requests for extension which the TRA receives after 15.00 noon on the date stated here.  The TRA will consider requests to extend the Closing Date for Initial Responses and will take into account such factors as:  the number of such requests received; the rationale for such requests; and the effect on the overall time-scale of the particular project in question. In the event that the TRA extends the Closing Date for Initial Responses, the TRA will publish the revised closing date on its website. | |

1. **Introduction**

1.1 The TRA intend to revise its Regulations on Ultra-Wide Band and Short Range Devices version 3.0. As such, all readers are informed that this document outlines the draft version of these regulations in order to give this document context and to enable the TRA to ask pertinent questions. All text in this consultation document should be read and interpreted as text and not as recording decisions of the TRA.

1.2 The TRA notes that there were recent updates in difference references standards from ETSI and ITU-R recommendations related to these devices and with the anticipated increase in the use of UWB and SRDs across the UAE and there is a need to update relevant parts of these regulations to provide more clarity on the frequencies and associated attributes under which they can operate.

1.3 As such, the TRA seeks to consider inputs of all industry stakeholders regarding these changes, which are increasingly relevant and valuable in the TRA’s exercise of its duties and legal mandates.

1.4 Additionally, the TRA strives to follow the principles of transparency, fairness and openness in dealings with customers, partners and other stakeholders and, therefore considers that it is important to take into account the views of those who have a legitimate interest in the outcomes of the TRA’s regulation.

1.5 In the ensuing text, significant changes are marked as follows:

* Additions are highlighted in yellow
* Deletions are ~~struck-through and highlighted in grey~~

1. **Matters for Discussion and Consultation**

**Article (1)**

**Scope of Document**

* 1. These regulations are issued in accordance with the provisions of the UAE Federal Law by Decree No 3 of 2003 (Telecom Law) as amended and its Executive Order.

1.2 These regulations comprise regulatory provisions and technical conditions for the authorization and use of Ultra-Wide Band and Short Range Devices under Class Authorization for various applications. These regulations shall be read in conjunction with the following regulatory instruments issued by the TRA and available on TRA’s website at [www.tra.gov.ae](http://www.tra.gov.ae):

1.1.1 Spectrum Allocation and Assignment Regulations

1.1.2 Spectrum Fees Regulations

1.1.3 Interference Management Regulations

1.1.4 National Frequency Plan including National Table of Frequency Allocation

1.1.5 Services Ancillary to Broadcast Production, Program Making & Special Events (PMSE) Regulations

1.1.6 Unmanned Aircraft Radio Systems (UAS) Regulations

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| Question 1: Do you have any comments concerning the Scope of the Document? |

**Article (2)**

**Definitions**

2.1 The terms, words and phrases used in these Regulations shall have the same meaning as is ascribed to them in the UAE Federal Law by Decree No 3 of 2003 (Telecom Law) as amended and its Executive Order; unless these Regulations expressly provide otherwise for, or the context in which those terms, words and phrases are used in these Regulations indicates otherwise. The following terms and words shall be interpreted, as follows:

2.1.1 **“AFA”** means Adaptive Frequency Agility.

2.1.2 **“APC”** means Automatic or Adaptive Power Control.

2.1.3 **“Authorization”** or **“Frequency Spectrum Authorization”** means a valid frequency spectrum authorization issued by the TRA and permits the use of radio frequency subject to terms and conditions as stipulated by the TRA.

2.1.4 **“Authority”** or **“TRA”** means the General Authority for Regulating the Telecommunication Sector of the UAE known as Telecommunications Regulatory Authority (TRA) established pursuant to the provisions of Article 6 of Federal Law by Decree No. 3 of 2003 (as amended).

2.1.5 **“Broadband Radio Access Networks”** means networks using equipment complying with technical specifications as set out in ETIS EN 301 893 and ETSI EN302 567. This includes equipment based on IEEE 802.11 family of standards.

2.1.6 **“Class Authorization”** means the Authorization which permits the operation of wireless equipment by any Person within designated frequency bands subject to the terms and conditions stipulated by the TRA.

2.1.7 **“Cordless Telephony”** includes cordless telephones; cordless telecommunication systems and the cordless systems providing communications within the Curtilage of any premises.

2.1.8 **“Curtilage”** means a partially or entirely enclosed area such as a courtyard, atrium, close, compound, court, enclosure, quadrangle, square, patio or yard.

2.1.9 **“DAA”** means Detect And Avoid.

2.1.10 **“DFS”** means Dynamic Frequency Selection.

2.1.11 **“DECT”** means Digital Enhanced Cordless Telecommunications in accordance with applicable European Telecommunications Standards Institute (ETSI) standards.

2.1.12 **“ETSI”** means the European Telecommunications Standards Institute that produces globally-applicable standards for Information and Communications Technologies (ICT), including fixed, mobile, radio, converged, broadcast and Internet technologies.

2.1.13 **“FHSS”** means Frequency Hopping Spread Spectrum which is a spread spectrum technique in which the transmitter signal occupies a number of frequencies in time, each for some period of time.

2.1.14 **“IEEE”** means the Institute of Electrical and Electronics Engineers.

2.1.15 **“ITU”** means the International Telecommunication Union, a leading United Nations agency for information and communication technologies.

2.1.16 **“LBT”** means Listen Before Talk which is a mechanism by which an equipment applies clear channel assessment before using the channel.

2.1.17 **“Person”** will include ‘juridical entities’ as well as ‘natural persons’.

2.1.18 **“PMR 446”** means Private Mobile Radio 466 which is a land mobile radio (i.e. walkie talkie) that operate in the 466 MHz frequency range with technical characteristics as specified in the regulation on Ultra-Wide Band and Short Range Devices for this frequency range.

2.1.19 **“PMR over WLAN”** means Private Mobile Radio over Wireless Local Area Networks which is a land mobile radio (i.e. walkie talkie) and base stations (access points) operating in the 2.4 GHz and 5 GHz frequency range based on IEEE 802.11 family of standards.

2.1.20 **“PMSE”** means Programme Making and Special Events, i.e. those uses of the radio spectrum which support the production of content and for certain special events.

2.1.21 **“RFID”** means Radio Frequency Identification which is a system that enables data to be transmitted by a transponder (tag) via radio signals which are received by an RFID interrogator and processed according to the needs of a particular application.

2.1.22 **“RLAN”** means Radio Local Area Network which is a network with equipment complying with technical specifications as set out in ETSI EN 301 893 and ETSI EN302 567. This includes equipment based on IEEE 802.11 family of standards.

2.1.23 **“Short Range Device”** or **“SRD”** means fixed, mobile or portable devices for various radio applications operating with technical conditions as defined in Article 4.

2.1.24  **“TPC”** means Transmit Power Control which is a technique in which the transmitter output power is controlled resulting in reduced interference to other systems.

2.1.25 **“UAE”** or **“State”** means the United Arab Emirates including its territorial waters and the airspace above.

2.1.26 **“Ultra-Wide Band”** or **“UWB”** Devices mean that employ spreading of the radio energy over a very wide frequency band, with a very low power spectral density operating with technical conditions as defined in Article 4.

2.1.27 **“Wideband Data Transmission”** equipment means equipment complying with technical specifications as set out in ETSI EN 300 328. This includes equipment based on IEEE 802.11 family of standards.

2.1.28 **“WLAN”** means Wireless Local Area Network of connected equipment connected without the use of wires using IEEE 802.11 family of standards.

2.1.XX **“Heritage Recreation and Hobbies”** means activities which are closely linked to traditions and heritage of the UAE such as (Camel racing, hunting, falconry, etc) or personal hobbies and activities such as (off-roading, scuba diving, motor biking, cycling, etc)

2.1.XX **“ITS”** or **“Intelligent Transport Systems”** means the integration of information and communication technologies (ICTs) and applications that can achieve a reduction in traffic and pedestrian fatalities, and enhance transport infrastructure systems, through the realization of future automated driving.

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| Question 2: Do you have any comments regarding the definitions, or any other suggestions for modifications, additions or updates? |

Article (3)

**Uses related to UWB and SRD**

3.1 The following Wireless Equipment are covered by this regulation:

3.1.1 Ultra-Wide Band (UWB)

3.1.2 Short Range Devices (SRD)

3.2 For the usage of Ultra-Wide Band and Short Range Devices the following conditions apply

3.2.1 The usage is allowed under Class Authorization.

3.2.2 The usage is allowed on a non-interference and non-protection basis.

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| Question 3: Do you have any comments regarding the uses indicated above? |

**Article (4)**

**Technical Conditions**

4.1. The technical conditions as given in these regulations shall apply on the use of SRD. The following table gives guidance on available frequency ranges and major usage conditions:

| **Frequency range** | **Usage** | **Transmit power / Magnetic field** | **Duty cycle[[1]](#footnote-1)** | **Channel spacing** | **Reference** |
| --- | --- | --- | --- | --- | --- |
| 9 kHz – 59.75 kHz | Inductive applications | 72 dBµA/m at 10m |  |  | EN 300 330 |
| 59.75 kHz – 60.25 kHz | Inductive applications | 72 dBµA/m at 10m |  |  | EN 300 330 |
| 60.25 kHz - 90 kHz | Inductive applications | 72 dBµA/m at 10m |  |  | EN 300 330 |
| 9 kHz - 315 kHz | Active Medical Implants and their associated peripherals | 30 dBµA/m at 10m | ≤ 10 % |  | EN 302 195 |
| 90 kHz - 140 kHz | Inductive applications | 42 dBµA/m at 10m |  |  | EN 300 330 |
| 140 kHz - 148.5 kHz | Inductive applications | 37.7 dBµA/m at 10m |  |  | EN 300 330 |
| 148.5 kHz - 5000 kHz | Inductive applications | -5 dBµA/m at 10 m |  |  | EN 300 330 |
| 315 kHz- 600 kHz | Active Medical Implants and their associated peripherals | -5 dBµA/m at 10m | ≤ 10 % |  | EN 302 536 |
| 400 kHz - 600 kHz | Inductive applications | -5 dBµA/m at 10 m |  |  | EN 300 330 |
| 456.9 kHz - 457.1 kHz | Tracking, tracing and data acquisition | 7 dBµA/m at 10 m |  | No modulation allowed | EN 300 718 |
|  |  |  |  |  |  |
| 3155 kHz - 3400 kHz | Inductive applications | 13.5 dBµA/m at 10m |  |  | EN 300 330 |
| 5000 kHz - 30 MHz | Inductive applications | -5 dBµA/m at 10 m |  |  | EN 300 330 |
| 6765 kHz - 6795 kHz | / Inductive applications | 42 dBµA/m at 10m |  |  | EN 300 330 |
|  |  |  |  |  |  |
| 7400 kHz - 8800 kHz | Inductive applications | 9 dBµA/m at 10m |  |  | EN 300 330 |
| 10200 kHz - 11000 kHz | Inductive applications | 9 dBµA/m at 10m |  |  | EN 300 330 |
| 11810 kHz - 12660 kHz | Inductive applications | -16 dBµA/m at 10m |  |  | EN 300 330 |
| 12500 kHz - 20000 kHz | Active Medical Implants and their associated peripherals | -7 dBµA/m at 10m | ≤ 10 % |  | EN 300 330 |
| 13553 kHz - 13567 kHz | Non-specific short range  devices | 42 dBµA/m at 10m |  |  | EN 300 330 |
| RFID and EAS | 60 dBµA/m at 10m |  |  | EN 300 330 |
| 13567 kHz - 13660 kHz | Inductive applications | 27 dBµA/m at 10m |  |  | EN 300 330 |
| 13660 kHz - 13710 kHz | Inductive applications | 9 dBµA/m at 10m |  |  | EN 300 330 |
| 13710 kHz - 14010 kHz | Inductive applications | -3.5 dBµA/m at 10m |  |  | EN 300 330 |
| 14010 kHz - 14460 kHz | Inductive applications | -10 dBµA/m at 10m |  |  | EN 300 330 |
| 14460 kHz - 15310 kHz | Inductive applications | -16 dBµA/m at 10m |  |  | EN 300 330 |
| 26957 kHz - 27283 kHz | Non-specific short range  devices | 42 dBµA/m at 10m  10 mW e.r.p |  |  | EN 300 330 |
| 26995, 27045, 27095, 27145, 27195 kHz | Non-specific short range  devices | 100 mW e.r.p | ≤ 0.1 % | ≤ 10 kHz | EN 300 220 |
| 29.7 MHz - 47.0 MHz | Radio microphone applications | 10 mW e.r.p |  | ≤ 50 kHz | EN 300 422 |
| 30 MHz - 37.5 MHz | Active Medical Implants and their associated peripherals | 1 mW e.r.p | ≤ 10 % |  | EN 302 510 |
| 34.995 MHz - 35.225 MHz | Model control | 100 mW e.r.p |  | 10 kHz | EN 300 220 |
| 40.66 MHz - 40.7 MHz | Non-specific short range  devices | 10 mW e.r.p |  |  | EN 300 220 |
| 40.665, 40.675, 40.685, 40.695 MHz | Model control | 100 mW e.r.p |  | ≤ 10 kHz | EN 300 220 |
| 72 MHz - 72.25 MHz | Model control | 10 mW e.r.p |  | ≤ 10 kHz | EN 300 220 |
| 87.5 MHz - 108 MHz | Wireless audio applications | 50 nW e.r.p |  | ≤ 200 kHz | EN 301 357 |
| 138.2 MHz - 138.45 MHz | Non-specific short range  devices | ≤ 10 mW e.r.p |  |  | EN 300 220 |
| 169.4 MHz - 169.475 MHz | Non-specific short range  devices | 10 mW e.r.p | ≤ 0.1 % |  | EN 300 220 |
| Tracking, tracing and data acquisition | 500 mW e.r.p | ≤ 10 % | ≤ 50 kHz | EN 300 220 |
| Aids for the hearing impaired | 500 mW e.r.p | ≤ 10 % | ≤ 50 kHz | EN 300 422 |
| 169.475 MHz - 169.4875 MHz | Non-specific | 10 mW e.r.p | ≤ 0.1 % |  | EN 300 220 |
| Aids for the hearing impaired | 10 mW e.r.p |  | ≤ 50 kHz | EN 300 422 |
| 169.4875 MHz - 169.5875 MHz | Non specific short range  devices | 10 mW e.r.p | ≤ 0.001% (06h00 - 24h00) ≤ 0.1% (00h00 - 06h00) | Non-specific | EN 300 220 |
| Aids for the hearing impaired | 500 mW e.r.p |  | ≤ 50 kHz | EN 300 422 |
| 169.5875 MHz - 169.8125 MHz | Non-specific short range  devices | 10 mW e.r.p | ≤ 0.1 % |  | EN 300 220 |
| Aids for the hearing impaired | 10 mW e.r.p |  | ≤ 50 kHz | EN 300 422 |
| 169.4 MHz - 174 MHz | Aids for the hearing impaired | 10 mW e.r.p |  | ≤ 50 kHz | EN 300 422 |
| 312 MHz - 315 MHz | Keyless car entry | 50 mW e.r.p |  |  | EN 300 220 |
| 401 MHz - 402 MHz | Active Medical Implants and their associated peripherals | 25 uW e.r.p |  | ≤ 100 kHz | EN 302 537 |
| 402 MHz – 405 MHz | Active Medical Implants and their associated peripherals | 25 uW e.r.p |  | ≤ 300 kHz | EN 301 839 |
| 405 MHz - 406 MHz | Active Medical Implants and their associated peripherals | 25 uW e.r.p |  | ≤ 100 kHz | EN 302 537 |
| 433.05 MHz - 434.79 MHz | Non-specific short range  devices | 1 mW e.r.p |  |  | EN 300 220 |
| Non-specific short range  devices | 10 mW e.r.p | ≤ 10 % |  | EN 300 220 |
| LPD 433 | 10 mW e.r.p |  | 25 kHz | EN 300 220 |
| 446 MHz - 446.2 MHz | PMR 446 | 500 mW |  |  | TS 102 490 |
| 823 MHz – 826 MHz | Radio microphones and IEM | Maximum 20 mW e.i.r.p. |  |  |  |
| 826 MHz – 832 MHz | Radio microphones and IEM | Maximum 100 mW e.i.r.p. |  |  |  |
| 863 MHz – 870 MHz | Radio microphones and IEM | Maximum 50 mW e.i.r.p. |  |  |  |
| 863 MHz - 870 MHz | Non-specific short range  devices | 25 mW e.r.p | ≤ 0.1 % or LBT |  | EN 300 220 |
| SRD860 | 10 mW e.r.p |  | 25 kHz |  |
| 865 MHz – 868 MHz | Tracking, tracing & data acquisition | 500 mW e.r.p.  Transmissions only permitted within the bands:  865,6- 865,8 MHz, 866,2-866,4 MHz, 866,8-867,0 MHz and 867,4- 867,6 MHz.  and APC | ≤ 10 % for network access points  ≤ 2,5 % otherwise | ≤ 200 kHz | EN 303 204 |
| 868.7 MHz – 869.2 MHz | Automatic Meter Reading | 25 mW e.r.p |  |  | EN 300 220 |
| 869.4 MHz - 869.65 MHz | Non-specific short range  devices | 500 mW e.r.p | ≤ 10% or LBT +AFA | ≤ 25 kHz.[[2]](#footnote-2) | EN 300 220 |
| 865 MHz - 865.6 MHz | RFID | 100 mW e.r.p |  | ≤ 200 kHz | EN 302 208 |
| 865.6 MHz - 867.6 MHz | RFID | 2 W e.r.p |  | ≤ 200 kHz | EN 302 208 |
| 867.6 MHz - 868 MHz | RFID | 500 mW e.r.p |  | ≤ 200 kHz | EN 302 208 |
| 868 MHz-868.6 MHz | Non-specific short range  devices | 25 mW e.r.p | ≤ 1% or LBT  +AFA |  | EN 300 220 |
| 870 MHz - 875.4 MHz | Non-specific short range  devices | 10 mW e.r.p |  |  | EN 300 220 |
| 870 MHz - 875.8 MHz | Non-specific short range  devices | 25 mW e.r.p | ≤ 1 % | ≤ 600 kHz | EN 300 220 |
| 870 MHz - 876 MHz | Non-specific short range  devices | 25 mW e.r.p | ≤ 0.1 % | ≤ 200 kHz | EN 300 220 |
| 870 MHz - 875.6 MHz | Tracking, tracing and data acquisition | 500 mW e.r.p and APC | ≤ 10 % for network access points  ≤ 2.5 % otherwise | ≤ 200 kHz | EN 303 204 |
|  |  |  |  |  |  |
| 915 MHz - 921 MHz | Non-specific short range  devices | 25 mW e.r.p | ≤ 0.1 % | ≤ 200 kHz | EN 300 220 |
| 915.2 MHz– 920.8 MHz | Non-specific short range  devices | 25 mW e.r.p. except for the 4 channels identified in note where 100 mW e.r.p. applies[[3]](#footnote-3) | ≤ 1% | ≤ 600 kHz except  for the 4 channels  identified in note where # 400 kHz  applies | EN 300 220 |
| 915 MHz - 921 MHz | RFID | 4 W e.r.p |  | ≤ 400 kHz | EN 302 208 |
| 1785 MHz - 1804.8 MHz | Radio microphone applications and IEM | 50 mW e.i.r.p |  |  | EN 300 422 |
| 1795 MHz - 1800 MHz | Wireless audio applications | 20 mW e.i.r.p |  |  | EN 301 357 |
| 1880 MHz - 1900 MHz | DECT applications including Cordless Telephony  Radio microphones Using DECT technology only | 250 mW e.i.r.p |  |  | ITU-R M.1033-1 EN 300 175 |
| 2400 MHz – 2483.5 MHz | Wideband Data Transmission (e.g. WLAN, PMR over WLAN) | 100 mW e.i.r.p. |  |  | EN 300 328 |
| Non specific short range  devices | 10 mW e.i.r.p |  |  | EN 300 440 |
| Radiodetermination applications | 25 mW e.i.r.p |  |  | EN 300 440 |
| 2446 MHz - 2454 MHz | RFID | 500 mW e.i.r.p |  |  | EN 300 761 EN 300 440 |
| RFID | 4 W e.i.r.p | ≤ 15% + FHSS |  | EN 300 440 |
| 2483.5 MHz – 2500 MHz | Active Medical Implants | 10 dBm e.i.r.p |  |  | EN 301 559 |
| 4500 MHz - 7000 MHz | Tank level probing radar | -41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure |  |  | EN 302 372 |
| 5150 MHz - 5875 MHz | Indoor conference systems. | 160 mW e.i.r.p |  |  |  |
| 5150 MHz - 5250 MHz | Broadband Radio Access Networks (e.g. RLAN). | 100 mW e.i.r.p without TPC  200 mW e.i.r.p with TPC |  |  | EN 301 893  TPC: EN 301 893 |
| 5250 MHz - 5350 MHz | Broadband Radio Access Networks (e.g. RLAN). | 100 mW e.i.r.p without TPC  200 mW e.i.r.p with TPC |  |  | EN 301 893  TPC/DFS: EN 301 893 (Table D.1) |
| 5470 MHz - 5725 MHz | Broadband Radio Access Networks (e.g. RLAN) | 500 mW e.i.r.p without TPC  1W e.i.r.p with TPC and DFS[[4]](#footnote-4) |  |  | EN 301 893  TPC/DFS: EN 301 893 (Table D.1) |
| 5725 MHz –  5875 MHz | Wireless Access Systems | 2W e.i.r.p (10 MHz channel)  4W e.i.r.p (20 MHz channel) |  |  | EN 302 502 |
| 5725 MHz - 5875 MHz | Non-specific short range  devices | 50 mW e.i.r.p |  |  | EN 300 440 |
| Tracking, tracing and data acquisition | 400 mW e.i.r.p |  | ≥ 1 MHz and ≤ 20 MHz | EN 303 258 |
|  |  |  |  |  |  |
| 8500 MHz - 10.6 GHz | Tank level probing radar | -41.3 dBm/MHz e.i.r.p. outside the enclosed test tank structure |  |  | EN 302 372 |
| 9200 MHz - 9975 MHz | Radiodetermination applications | 25 mW e.i.r.p |  |  | EN 300 440 |
| 10.5 GHz - 10.6 GHz | Radiodetermination applications | 500 mW e.i.r.p |  |  | EN 300 440 |
| 13.4 GHz - 14 GHz | Non-specific short range  devices | 25 mW e.i.r.p |  |  | EN 300 440 |
| 17.1 GHz - 17.3 GHz |  |  |  |  |  |
| Radiodetermination applications | 400 mW (26 dBm) e.i.r.p |  |  | EN 300 440 |
| 24 GHz - 24.25 GHz | Non-specific short range  devices | 100 mW e.i.r.p |  |  | EN 300 440 |
|  |  |  |  |  |
| 24.05 GHz - 27 GHz | Tank level probing radar | 20W (43 dBm) e.i.r.p. |  |  | EN 302 372 |
| 57 GHz - 64 GHz | Non-specific short range  devices | 100 mW e.i.r.p;  13 dBm/MHz e.i.r.p. |  |  | EN 305 550 |
| Tank level probing radar | 20W (43 dBm) e.i.r.p. |  |  | EN 302 372 |
| 57 GHz - 66 GHz | Broadband Radio Access Networks (e.g. RLAN) | 10 W (40 dBm) e.i.r.p | Spectrum sharing mechanism (e.g. LBT, DAA) |  | EN 302 567 |
| 75 GHz - 85 GHz | Tank level probing radar | -41.3 dBm/MHz e.i.r.p. |  |  | EN 302 372 |
| Radiodetermination applications | 2500 mW (34 dBm, measured in 50 MHz) e.i.r.p |  |  | EN 302 729 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 122 GHz - 123 GHz | Non-specific short range  devices | 100 mW e.i.r.p |  |  | EN 305 550 |
| 244 GHz - 246 GHz | Non-specific short range  devices | 100 mW e.i.r.p |  |  | EN 305 550 |

**Table 1: guidance on available frequency ranges and major usage conditions on the use of UWB and SRD**

4.1.1 The technical conditions as given in these regulations shall apply on the use of frequencies for ITS and RSTT networks and equipment. The following table gives guidance on available frequency ranges and major usage conditions:

| **Frequency range** | **Usage** | **Transmit power / Magnetic field** | **Duty cycle[[5]](#footnote-6)** | **Channel spacing** | **Reference** |
| --- | --- | --- | --- | --- | --- |
| 984 kHz - 7484 kHz | Railway applications | 9 dBµA/m at 10m | ≤ 1.0 % |  | EN 302 608  ERC 70-03 |
| 7300 kHz - 23000 kHz | Railway applications | -7 dBµA/m at 10m |  |  | EN 302 609  ERC 70-03 |
| 26957 kHz - 27283 kHz | Non-specific short range  devices | 42 dBμA/m at 10 m |  |  | ERC 70-03 |
| 869-871 MHz | RFID  ETC (Electronic Toll Collection) |  |  |  | Report ITU-R M.2445 |
| 870 MHz - 875.8 MHz | Transport and traffic telematics | 500 mW e.r.p (vehicle to vehicle)  100 mW e.r.p. (in vehicle application) | ≤ 0.1 % | ≤ 500 kHz | EN 300 220 |
| 5795 MHz - 5815 MHz | Transport and traffic telematics | 2 W e.i.r.p for active and 8 W e.i.r.p. for passive systems |  |  | EN 300 674  ERC 70-03 |
| 5 855-5 925 MHz | Intelligent Transport Systems (ITS) | 2 W e.i.r.p. for active and 8 W e.i.r.p. for passive systems |  |  | ITU-R M.2121 |
| 76 GHz - 77 GHz | Railway applications and Transport and traffic telematics  short-range radar for ground-based applications, including automotive radars. | 55 dBm e.i.r.p peak |  |  | EN 301 091  ITU-R M.2057  ERC 70-03 |
| 77 – 81 GHz | short-range radar for ground-based applications, including automotive radars. | 55 dBm e.i.r.p peak |  |  | EN 302 264 |

**Table 2: guidance on available frequency ranges and major usage conditions on the use of frequencies for ITS and RSTT networks and equipment**

*NOTE1: Use of frequency band 24 GHz - 24.25 GHz for Automotive radars is only valid for existing systems before 1 January 2019.*

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| Question 4: Do you agree with the above frequency bands and usage restrictions to be applied on the use of frequencies for uses indicated?  Do you have any proposed modifications/additions/suppressions to these frequency bands or usage restrictions in the above Table 1 and Table 2? |

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| Question 5: Do you think that there should be a specific modification related to RLAN/WLAN uses based on the recent developments of relate standards (e.g. IEEE 802.11 family of standards)?  Kindly provide details on proposed uses and related technical conditions. |

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| Question 6: In your opinion, what are the other uses of frequencies for wireless equipment related to different activities such as Heritage Recreation and Hobbies that can be added?  Kindly provide details on those uses such as:  - Activity Name and nature.  - Wireless equipment used in the activity with brand, model and vendors/suppliers.  - Purpose of the wireless equipment such as safety, data feed/control, voice communication, video, ...etc.  - Area of usage such as dessert, within cities, open sea, sky, ...etc.  - Technical characteristics and usage restrictions to these uses? |

4.2 Generic UWB devices shall comply with EN 302 065 -1.

4.2.1 The maximum value of mean power spectral density shall not exceed the values as given in the following table:

|  |  |  |
| --- | --- | --- |
| **Frequency range [GHz]** | **Without mitigation techniques EIRP [dBm/MHz]** | **With mitigation techniques EIRP [dBm/MHz]** |
| f ≤ 1.6 | -90 | -90 |
| 1.6 < f ≤ 2.7 | -85 | -85 |
| 2.7 < f ≤ 3.1 | -70 | -70 |
| 3.1 < f ≤ 3.4 | -70 | -41.3 (notes 1+2) |
| 3.4 < f ≤ 3.8 | -80 | -41. 3 (notes 1+2) |
| 3.8 < f ≤ 4.2 | -70 | -41. 3 (notes 1+2) |
| 4.2 < f ≤ 4.8 | -70 | -41. 3 (notes 1+2) |
| 4.8 < f ≤ 6.0 | -70 | -70 |
| 6.0 < f ≤ 8.5 | -41.3 | -41.3 |
| 8.5 < f ≤ 0 | -65 | -41. 3 (note 2) |
| 0 < f ≤ 10.6 | -65 | -65 |
| f > 10.6 | -85 | -85 |

*NOTE 1: Within the band 3.1 GHz to 48 GHz, devices implementing Low Duty Cycle (LDC) mitigation technique TS 102 754 and CEPT report 45 are permitted to operate with a maximum mean e.i.r.p. spectral density of -41.3 dBm/MHz and a maximum peak e.i.r.p. of 0 dBm defined in 50 MHz.*

*NOTE 2: Within the bands 3.1 GHz to 4.8 GHz and 8.5 GHz to 9 GHz, devices implementing Detect And Avoid (DAA) mitigation technique TS 102 754 and CEPT report 45 are permitted to operate with a maximum mean e.i.r.p. spectral density of -41.3 dBm/MHz and a maximum peak e.i.r.p. of 0 dBm defined.*

4.2.2 Generic UWB devices shall not exceed the maximum peak power limits as given in the table below:

|  |  |  |
| --- | --- | --- |
| ***Frequency range [GHz]*** | ***Without mitigation techniques defined in 50 MHz EIRP [dBm]*** | ***With mitigation techniques defined in 50 MHz EIRP [dBm]*** |
| *f ≤ 1.6* | *-50* | *-50* |
| *1.6 < f ≤ 2.7* | *-45* | *-45* |
| *2.7 < f ≤ 3.1* | *-45* | *-45* |
| *3.1 < f ≤ 3.4* | *-36* | *0 (notes 1+2)* |
| *3.4 < f ≤ 3.8* | *-40* | *0 (notes 1+2)* |
| *3.8 < f ≤ 4.2* | *-30* | *0 (notes 1+2)* |
| *4.2 < f ≤ 4.8* | *-30* | *0 (notes 1+2)* |
| *4.8 < f ≤ 6.0* | *-30* | *-30* |
| *6.0 < f ≤ 8.5* | *0* | *0* |
| *8.5 < f ≤ 9* | *-25* | *0 (notes 2)* |
| *9 < f ≤ 10.6* | *-25* | *-25* |
| *f > 10.6* | *-45* | *-45* |

*NOTE 1: Within the band 3.1 GHz to 4.8 GHz, devices implementing Low Duty Cycle (LDC) mitigation technique TS 102 754 and CEPT report 45 are permitted to operate with a maximum mean e.i.r.p. spectral density of -41.3 dBm/MHz and a maximum peak e.i.r.p. of 0 dBm defined in 50 MHz.*

*NOTE 2: Within the bands 3.1 GHz to 4.8 GHz and 8,5 GHz to 9 GHz, devices implementing Detect And Avoid (DAA) mitigation technique TS 102 754 and CEPT report 45 are permitted to operate with a maximum mean e.i.r.p. spectral density of -41.3 dBm/MHz and a maximum peak e.i.r.p. of 0 dBm defined in 50 MHz*

4.3 UWB devices for location tracking shall comply with EN 302 500-1.

4.3.1 The maximum mean EIRP spectral density shall not exceed the values as given in the following table:

|  |  |
| --- | --- |
| ***Frequency range [GHz]*** | ***Maximum mean EIRP spectral density [dBm/MHz]*** |
| *f ≤ 1.6* | *-90* |
| *1.6 < f ≤ 2.7* | *-85* |
| *2.7 < f ≤ 3.4* | *-70* |
| *3.4 < f ≤ 3.8* | *-80* |
| *3.8 < f ≤ 4.8* | *-70* |
| *4.8 < f ≤ 6.0* | *-70* |
| *6.0 < f ≤ 8.5* | *-41.3* |
| *8.5 < f ≤ 9* | *-41.3 (see note)* |
| *9 < f ≤ 10.6* | *-65* |
| *f > 10.6* | *-85* |

*NOTE: Operation is subject to the implementation of DAA. If DAA is not implemented, the following applies: 8.5 GHz to 9 GHz ≤-65 dBm/MHz.*

4.3.2 The maximum peak EIRP shall not exceed the values as given in the following table:

|  |  |
| --- | --- |
| ***Frequency range [GHz]*** | ***Maximum peak EIRP [dBm, measured in 50 MHz bandwidth]*** |
| *f ≤ 1.6* | *-50* |
| *1.6 < f ≤ 2.7* | *-45* |
| *2.7 < f ≤ 3.4* | *-36* |
| *3.4 < f ≤ 3.8* | *-40* |
| *3.8 < f ≤ 4.8* | *-30* |
| *4.8 < f ≤ 6.0* | *-30* |
| *6.0 < f ≤ 8.5* | *-0* |
| *8.5 < f ≤ 9* | *-0 (see note)* |
| *9 < f ≤ 10.6* | *-25* |
| *f > 10.6* | *-45* |

*NOTE: Operation is subject to the implementation of DAA. If DAA is not implemented, the  
 following applies: 8.5 GHz to 9 GHz ≤-25 dBm (measured in 50 MHz bandwidth).*

4.3.3 In order to protect Radio Astronomy Services; in the frequency range 2.69 GHz to 2.70 GHz and in the frequency range 4.8 to 5 GHz; the total radiated power density has to be below -65 dBm/MHz.

4.4 UWB devices for Building Material Analysis shall comply with EN 302 435-1.

4.4.1 The values of undesired emissions shall not exceed the values as given in the following table:

|  |  |  |
| --- | --- | --- |
| ***Frequency range (GHz)*** | ***Limit values of undesired emissions (dBm/MHz)*** | |
| ***without LBT*** | ***with LBT*** |
| *f ≤ 1.215 (notes 1 and 2)* | *-85* | *-85* |
| *1.215 f ≤ f <1.73 (notes 1 and 2)* | *-85* | *-70* |
| *1.73 f ≤ f <2.2 (note1)* | *-65* | *-65* |
| *2.2 f ≤ f <2.5* | *-50* | *-50* |
| *2.5 f ≤ f <2.69* | *-65* | *-50* |
| *2.69 f ≤ f <2.7* | *-55* | *-55* |
| *2.7 f ≤ f <3.4* | *-70* | *-50* |
| *3.4 f ≤ f <4.8* | *-50* | *-50* |
| *4.8 f ≤ f <5.0* | *-55* | *-55* |
| *5.0 f ≤ f <8.5* | *-50* | *-50* |
| *f ≥ 8.5* | *-85* | *-85* |

*NOTE 1: In some frequency ranges the UWB emissions limits are very low power radio signals,  
 comparable with the power limits of emissions from digital and analogue circuitry  
 (other emissions, see clause 8.3.2.3 of EN 302 435-1.). If it can be clearly  
 demonstrated that an emission from the ultra-wideband device is not the ultra-  
 wideband emission identified in this table (e.g. by disabling the device's UWB   
 transmitter) or it can clearly be demonstrated that it is impossible to differentiate  
 between other emissions (OE) and the UWB transmitter emissions (UE) within the  
 measurement uncertainty, then emission shall be considered as other emissions (OE)  
 (see clause 8.3.2 of EN 302 435-1.).*

*NOTE 2: If, after optimization of the measurement set-up as described in clauses 6.1,7.1 and 8.2.2 of EN 302 435-1, it is still not possible to identify any OE or UE emission above the noise floor, than it is considered that the UE limit is fulfilled.*

|  |
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| Question 7: Do you have any further comments concerning the above provisions and technical conditions on UWB devices? |

**3. General comments**

3.1 Further to the specific matters discussed, and questions asked above, please identify any additional issues which you feel are relevant for consideration in this consultation. Please provide specific support and/or explanation of your viewpoints as well as recommendations regarding how such issues might be resolved.

1. Duty Cycle technical details should be taken from the mentioned reference documents in the table [↑](#footnote-ref-1)
2. The completely stated frequency band may be used as one wideband channel for high-speed data transmission. [↑](#footnote-ref-2)
3. The available channel centre frequencies are 916.3 MHz, 917.5 MHz, 918.7 MHz and 919.9 MHz, The channel bandwidth is 400 kHz [↑](#footnote-ref-3)
4. Slave devices without a Radar Interference Detection shall comply with the limits for the Band 5150MHz-5250 [↑](#footnote-ref-4)
5. Duty Cycle technical details should be taken from the mentioned reference documents in the table [↑](#footnote-ref-6)