



United Arab Emirates



Public Consultation

TRA Regulations – Unmanned Aeronautical Radio Systems

Commencement Date: 08 October 2017

Response Date: 02 November 2017

Telecommunications Regulatory Authority (TRA)
P O Box 26662, Abu Dhabi, United Arab Emirates (UAE)
www.tra.gov.ae



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 issue TRA Regulations- UAS 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;

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 recognises 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.



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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 **22 to 24 October 2017** so that formal comments can still be received by **3.00pm on 02 November 2017**.



Consultation Schedule

Milestone	Due Date	Notes
Closing Date for Initial Responses	02 November 2017	All responses to this consultation should be properly received by no later than <u>15.00 noon</u> 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.	26 October 2017	<p>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.</p> <p>Requests for extension should be submitted by e-mail to the e-mail address shown above.</p> <p>The TRA will not consider any requests for extension which the TRA receives after <u>15.00 noon</u> on the date stated here.</p> <p>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.</p>
Publication of Initial Responses	08 November 2017	The TRA will publish non-confidential responses (PDF documents) on its website on this date and will invite comments on those responses.
Closing Date for Comments on Responses	15 November 2017	The TRA will not consider Comments on Responses which the TRA receives after <u>15:00 noon</u> on the date stated here.



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1 Introduction

- 1.1 At the outset it should be noted that the TRA intend to issue its Regulations on Unmanned Aeronautical Radio Systems. 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 in recent years there has been an increase in the use of UAS across the UAE and there is a need to publish spectrum regulations for such devices to clarify the frequencies and associated attributes under which they can operate.
- 1.3 As such, the TRA acknowledges that the total number of stakeholders in the telecommunications sector is increasing and that their relative interests may also be growing or changing. Accordingly, the TRA considers that the inputs of all industry stakeholders 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.



2 Matters for Discussion and Consultation

Article (1)

Scope of Document

- 1.1 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 This document comprises technical regulations for the authorization and operation of Unmanned Aeronautical Radio Systems. . It shall be read in conjunction with the following documents available from the TRA website at www.tra.gov.ae:
 - 1.2.1 Spectrum Allocation and Assignment Regulations
 - 1.2.2 Spectrum Fees Regulations
 - 1.2.3 Interference Management Regulations
 - 1.2.4 National Frequency Plan and National Table of Frequency Allocation

Question 1: Do you have any proposed modifications/additions/suppressions to Scope of Regulations.

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 Telecom Law and its Executive Order as amended (Federal Law by Decree No. 3 of 2003 as amended 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 have the meanings ascribed to them below:
 - 2.1.1 **“Aeronautical Mobile Service”** A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate: emergency, position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.



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- 2.1.2 “**Aeronautical Mobile Satellite Service**” means a mobile-satellite service in which mobile earth stations are located on board aircraft.
- 2.1.3 “**Mobile-satellite service**” means a radiocommunication service between mobile earth stations and one or more space stations, or between space stations used by this service; or– between mobile earth stations by means of one or more space stations.
- 2.1.4 “**Applicant**” means any Person who has applied for a License or an Authorization in accordance with the Telecom Law or other Regulatory Instruments issued by the Authority.
- 2.1.5 “**Application**” means the request for issuance of a License or an Authorization, received at the Authority on prescribed forms as per the procedure in vogue.
- 2.1.6 “**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.
- 2.1.7 “**Authority (TRA)**” means the General Authority for Regulating the Telecommunication Sector known as Telecommunications Regulatory Authority (TRA) established pursuant to the provisions of Article 6 of Federal Law by Decree No. 3 of 2003.
- 2.1.8 “**Authorized User**” means a Person that has been granted an Authorization by the TRA.
- 2.1.9 “**CAR**” Civil Aviation Regulations issued by the General Civil Aviation Authority in the UAE.
- 2.1.10 “**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. (Ref: TRA Spectrum allocation regulations)
- 2.1.11 “**National Frequency Plan**” means Radio Frequency Allocation plan for the UAE.
- 2.1.12 “**Control and Non-Payload Communication (CNPC)**” links means radio links used for the control of unmanned aircraft systems UAS.
- 2.1.13 “**Earth Station**” means a station located either on the Earth's surface or within the major portion of the Earth's atmosphere and is intended for communication with one or more space stations, or with one or more stations of the same kind by means of one or more reflecting satellites or other objects in space.



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- 2.1.14 **“Frequency Spectrum Fees”** means the fees to be paid to the Authority. It has two components: Application Fees and Frequency Fees.
- 2.1.15 **“Application Fees”** means the fees paid for the request for processing a new, renew or modification of a Licence or an Authorization, received at the TRA as per the procedure.
- 2.1.16 **“Frequency Fees”** means the fees to be paid to the Authority, on the issue, modify, or renewal of an Authorization.
- 2.1.17 **“General Civil Aviation Authority (GCAA)”** means the Civil Aviation Authority of the UAE.
- 2.1.18 **“International Mobile Telecommunication (IMT)”** means Public Land Mobile (Cellular) system.
- 2.1.19 **“ITU”** means the International Telecommunication Union, a leading United Nations agency for information and communication technologies.
- 2.1.20 **“Low Power Wireless Equipment (LPWE) or Low Power Device”** Any Wireless Equipment which is not within the identified frequency range or radiated power exceeds the maximum radiated power criteria identified in this Regulation, will then be treated as any other fixed or mobile station. Spectrum charges identified for fixed or mobile services shall apply.
- 2.1.21 **“Notifying & Registering”**: Any frequency assignment that may cause or receive interference to or from stations of other administrations shall be notified to the ITU in order to be recorded in the Master International Frequency Register (MIFR) and obtain international recognition.
- 2.1.22 **“Radio Frequency”** means radiated electromagnetic energy measured in Hz or cycles per second.
- 2.1.23 **“Radio Regulations (RR)”** means a publication issued by the ITU, adopted by the World Radiocommunication Conference and ratified by the UAE.
- 2.1.24 **“Short Range Device (SRD)”** means fixed, mobile or portable devices for various radio applications operating with technical conditions
- 2.1.25 **“Station”** means one or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a radiocommunication service.
- 2.1.26 **“UAE”** means the United Arab Emirates including its territorial waters and the airspace above.



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- 2.1.27 **“Ultra Wide Band (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
- 2.1.28 **“Unmanned Aeronautical Radio Systems”** means any radio system used to communicate with a UAS
- 2.1.29 **“Unmanned Aeronautical Systems (UAS)”** means aircraft systems including Drones or Remotely Piloted Aircraft Systems (RPAS) that are capable of operating without an internal pilot and are tethered by a radio control link.
- 2.1.30 **“Federal Law by Decree”** means the Federal Law by Decree No. (3) of 2013 regarding the Organisation of the Telecommunications Sector as amended.

Question 2: Do you have any proposed modifications/additions/suppressions to Definitions.

Article (3)

Uses related to Unmanned Aeronautical Radio Systems

- 3.1 Radio systems for Unmanned Aeronautical Systems (UAS) are allowed, but not limited to the following:
- 3.1.1 Aeronautical Mobile Service (Ground-to-Air / Air-to-Ground)
 - 3.1.2 Mobile Satellite Service (Space-to-Earth, Earth-to-Space)
- 3.2 All Authorized users shall comply with the rules and regulations issued by the GCAA.

Question 3: Do you agree that the TRA has clearly stated all the possible type of UAS radio system usage?



Article (4)

Technical Conditions

4.1 The following tables give guidance on frequency ranges for Unmanned Aeronautical Radio Systems, their use and applicable usage conditions. The Categories of UAS are as defined in CAR Part VIII Subpart 10 as issued by the GCAA. The GCAA may update their CAR and the latest version is the one that applies.

4.1.1 The table below is an extract from the Ultra Wide Band (UWB) and Short Range Device (SRD) Regulations and require Class Authorization. It reproduces those frequencies which apply to all Categories of UAS, for all purposes (e.g. CNPC, telemetry and payload). It includes those frequencies dedicated to model control, as well as frequencies which can be used by any, non-specific, short range device. The TRA may update the UWB and SRD Regulations and the latest version is the one that applies.

Frequency Range	Usage	Conditions of Use
26.957 – 27.283 MHz	Non-specific	EN 300 330 (10 mW e.r.p.)
34.995 – 35.225 MHz	Model control	EN 300 220 (100 mW e.r.p. 10 kHz channels)
40.665, 40.675, 40.685, 40.695 MHz	Model control	EN 300 220 (100 mW e.r.p. ≤ 10 kHz channels)
72.000 – 72.250 MHz	Model control	EN 300 220 (10 mW e.r.p. ≤ 10 kHz channels)
138.2 – 138.45 MHz	Non-specific	EN 300 220 (≤ 10 mW e.r.p.)
433.05 – 434.79 MHz	Non-specific	EN 300 220 (1 mW e.r.p. or 10 mW e.r.p. with ≤ 10% duty cycle)
863 - 870 MHz	Non-specific	EN 300 220 (25 mW e.r.p. ≤ 0.1% duty cycle or LBT, ≤ 100 kHz channels)
870.0 – 875.4 MHz	Non-specific	EN 300 220 (10 mW e.r.p. or 25 mW e.r.p. ≤ 1% duty cycle, ≤ 600 kHz channels)
2400 – 2483.5 MHz	Non-specific	EN 300 440 (10 mW e.i.r.p.)
5725 – 5875 MHz	Non-specific	EN 300 440 (50 mW e.i.r.p.)
13.4 – 14 GHz	Non-specific	EN 300 440 (25 mW e.i.r.p.)
17.1 – 17.3 GHz	Non-specific	EN 300 440 (100 mW e.i.r.p.)
57 – 64 GHz	Non-specific	EN 305 550 (100 mW e.i.r.p.)
122 – 123 GHz	Non-specific	EN 305 550 (100 mW e.i.r.p.)
244 – 246 GHz	Non-specific	EN 305 550 (100 mW e.i.r.p.)



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4.1.2 The table below lists those frequencies which apply only to Category 1B, 2 and 3 UAS for which the equipment will need an authorization from the TRA and will be treated as a Low Power Wireless Equipment as per the Frequency Spectrum Fees Regulations.

Frequency Range	Usage	Conditions of Use
26.957 – 27.283 MHz	Model control (airborne only)	100 mW e.r.p.
433.05 – 434.79 MHz	Model control (airborne only)	100 mW e.r.p.
863 – 870 MHz	Model control (airborne only)	50 mW e.r.p.
870.0 – 875.4 MHz	Model control (airborne only)	50 mW e.r.p.
2400 – 2483.5 MHz	Model control (airborne only)	100 mW e.i.r.p.
5725 – 5875 MHz	Model control (airborne only)	100 mW e.i.r.p.

4.1.3 The table below lists those frequencies which apply to Category 3 UAS only, and for which the equipment will need an authorization from the TRA.

Frequency Range	Usage	Conditions of Use
5030 – 5091 MHz	CNPC	As authorized Refer ITU Radio Regulations Chapter II, Article 5, footnotes 5.443C and 5.443D
10.95 – 11.2 GHz 11.45 – 11.7 GHz 12.5 – 12.75 GHz	CNPC (Space to Earth)	As authorized Refer ITU Resolution 155 (WRC-15)
14.0 – 14.5 GHz	CNPC (Earth to Space)	As authorized
19.7 – 20.2 GHz	CNPC (Space to Earth)	As authorized
29.5 – 30.0 GHz	CNPC (Earth to Space)	As authorized

Question 4: Do you agree with the above frequency bands and usage restrictions?

- 4.2 In addition to the above, UAS may also operate on IMT services provided by authorized Licensees in the UAE.
- 4.3 UAS operating in controlled airspace may also need an Aircraft License provided by the TRA. In this case, the Aeronautical Radio Systems regulations apply.

Question 5: Do you have any further comments concerning the proposed authorization approach?



Article (5)

Spectrum Coordination and Notification

- 5.1 Coordination of Radio Frequencies for the radio stations at the national, regional and international levels shall be made through the Authority, as it is the sole body responsible for Radio Frequency coordination.
- 5.2 Notifying and Registering of Radio Frequencies of these Stations in the ITU shall be made through the Authority according to the procedures outlined in the Radio Regulations.
- 5.3 The applicant shall support the coordination procedures.

Question 6: Do you have any proposed modifications/additions/suppressions to this Article.

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.