
Regulations

Unmanned Aircraft Radio Systems

Version 3.0

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TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

Article (1)

Legal Reference

- 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 and the provisions of the UAE Federal Law by Decree No 26 of 2022 on “Regulating civil uses of unmanned aircraft and related activities”.
- 1.2 This document comprises technical regulations for the authorization of radio frequencies for Unmanned Aircraft Radio Systems. These regulations shall be read in conjunction with the following documents available from the TDRA website at www.tdra.gov.ae:
 - 1.2.1 Spectrum Allocation and Assignment Regulations
 - 1.2.2 Frequency Spectrum Fees Regulations
 - 1.2.3 Spectrum Monitoring and Enforcement Regulations
 - 1.2.4 National Frequency Plan including National Table of Frequency Allocation
 - 1.2.5 Earth Station Regulations
 - 1.2.6 Aeronautical Radio Systems Regulations
 - 1.2.7 Ultra Wide Band (UWB) and Short Range Devices (SRD) Regulations

Article (2)

Definitions

- 2.1 The terms, words and phrases used in these Regulations shall have the same meaning as ascribed to them in the Telecom Law (Federal Law by Decree No. 3 of 2003 as amended) and its Executive Order unless these Regulations expressly provide otherwise for or the context in which those terms. In addition, these Regulations expressly provide for the meaning and context in which those terms shall be interpreted, as follows:
 - 2.1.1 **“Aeronautical Mobile Service”** means 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.
 - 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 **“Aircraft Radio License”** or **“License”** means a license given to an aircraft by the Authority to permit the operation of all radio equipment on the aircraft necessary for communication, navigation and surveillance purposes.

TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

- 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 **“Authority”** or **“TDRA”** means the General Authority for Regulating the Digital Government and Telecommunication Sector known as Telecommunications and Digital Government Regulatory Authority (TDRA) established pursuant to the provisions of Federal Law by Decree No. 3 of 2003 (as amended).
- 2.1.7 **“Authorization”** means a valid frequency spectrum authorization issued by the Authority and permits the use of radio frequency subject to terms and conditions as stipulated by the Authority.
- 2.1.8 **“Authorized User”** means a Person that has been granted a Radio Frequency Spectrum Authorization by the Authority or is using Authorized Wireless Equipment.
- 2.1.9 **“Authorized Wireless Equipment”** means Wireless Equipment approved for use in the UAE by the Authority on specified terms and conditions.
- 2.1.10 **“CAR”** Civil Aviation Regulations issued by the General Civil Aviation Authority in the UAE.
- 2.1.11 **“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 Authority.
- 2.1.12 **“Control and Non-Payload Communication”** or **“CNPC”** links means radio links used for the command and control “C2” 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.
- 2.1.14 **“FSS”** or **“Fixed-Satellite Service”** means a radiocommunication service between Earth Stations at given positions, when one or more Satellites are used; the given position may be a specified fixed point or any fixed point within specified areas.
- 2.1.15 **“GCAA”** means the General Civil Aviation Authority of the UAE.
- 2.1.16 **“International Mobile Telecommunication”** or **“IMT”** means the generic term used by the ITU to designate broadband mobile systems. It encompasses IMT-2000, IMT- Advanced and IMT-2020 collectively. International regulations and global standards are adopted worldwide

TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

to enable the global harmonization and implementation of different generations of broadband mobile networks (e.g. 3G, 4G, 5G, etc.).

- 2.1.17 **“ITU”** means the International Telecommunication Union, which is the United Nations specialized agency for information and communication technologies (ICTs).
- 2.1.18 **“Low Power Device”** or **“LPD”** means devices that operate in the frequencies defined for Ultra Wide Band and Short Range Devices regulations issued by the Authority but which use an agreed, higher power levels than SRDs.
- 2.1.19 **“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.
- 2.1.20 **“Person”** will include ‘juridical entities’ as well as ‘natural persons’.
- 2.1.21 **“Private Mobile Radio”** or **“PMR”** are radio communications systems for terrestrial use. They consist of a network of radios which may contain one or more base stations, repeaters, vehicle mounted radio and handheld including walkie-talkie. The base station and repeaters are fixed while vehicle mounted radio and handheld are mobile.
- 2.1.22 **“Radio Regulations”** or **“RR”** means a publication issued by the ITU, adopted by the World Radiocommunication Conference and ratified by the UAE.
- 2.1.23 **“Short Range Device”** or **“SRD”** means fixed, mobile or portable devices for various radio applications operating with technical conditions in the latest version of TDRA Regulations for Ultra Wide Band and Short Range Devices.
- 2.1.24 **“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.
- 2.1.25 **“UAE”** 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 in the latest version of TDRA Regulations for Ultra Wide Band and Short Range Devices.
- 2.1.27 **“Unmanned Aircraft Radio Systems”** means any radio system associated with a UAS.
- 2.1.28 **“Unmanned Aircraft Systems”** or **“(UAS)”** means aircraft systems, including a broad spectrum of aircraft, from Drones, and model radio-controlled aircraft, to highly complex Remotely Piloted Aircraft

TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

Systems “RPAS”, and highly automated or autonomous UA and tethered by a radio control link.

2.1.29 **“Wireless Equipment”** means a category of Telecommunication Apparatus used for Radiocommunication Service (including a Station).

2.1.30 **“WRC”** means World Radiocommunication Conference of the ITU.

Article (3)

Uses related to Unmanned Aircraft Radio Systems

3.1 An Unmanned Aircraft System (UAS) may consist of, but is not limited to, the following subsystems:

3.1.1 Unmanned Aircraft (UA) subsystem (i.e. the aircraft itself);

3.1.2 Unmanned Aircraft Ground Control Station (UAGCS) subsystem;

3.1.3 Air Traffic Control (ATC) communications subsystem (not necessarily relayed through the UA);

3.1.4 Unmanned Traffic Management (UTM) subsystem, where applicable, to assist unmanned aircraft operations in segregated or integrated airspace

3.1.5 Sense and Avoid (S&A) / Detect and Avoid (DAA) subsystem;

3.1.6 Payload subsystem (e.g. video camera);

3.1.7 Control and Non-Payload Communications (CNPC) subsystem;

3.1.8 Weather Radar.

3.2 Radio systems for Unmanned Aircraft Systems (UAS) are allowed, but not limited to the following:

3.2.1 Aeronautical Mobile Service (Ground-to-Air / Air-to-Ground, which may be used interchangeably);

3.2.2 Mobile Satellite Service (Space-to-Earth, Earth-to-Space);

3.2.3 Fixed Satellite Service (Space-to-Earth, Earth-to-Space);

3.2.4 Aeronautical Mobile Satellite Service;

3.2.5 Radiolocation Service;

3.2.6 Mobile Service (including IMT).

3.3 All Authorized Users shall comply with the CAR and publications issued by the GCAA, and local civil aviation authorities, provided that, in the event of any inconsistency, GCAA publications shall prevail.

TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

- 3.4 All Authorized Users shall comply with requirements specified by the Ministry of Industry and Advanced Technology (MOIAT) for the products of Unmanned Aircraft Systems (UAS) and drones.
- 3.5 Any data collection process by UAS shall adhere to the data privacy and protection regulatory framework in the UAE.

Article (4)

Technical Conditions

- 4.1 For UAS operating in any frequency band within the scope of the Aeronautical Radio Systems Regulations, an UAS Authorization from the Authority is required. In such cases, the provisions of the Aeronautical Radio Systems Regulations shall apply.
- 4.2 For UAS operating only in the frequency bands and associated technical conditions listed in Table 1 below, a Class Authorization is required. Table 1 is an extract from the Ultra Wide Band (UWB) and Short Range Device (SRD) Regulations and reproduces those frequencies applicable to UAS operations, including but not limited to 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 Authority may update the UWB and SRD Regulations and the latest version is the one that applies.

Frequency Range	Usage	Transmit power / Magnetic field	Duty cycle ¹	Channel spacing	Reference
13.553 MHz – 13.567 MHz	Non-specific short range devices	42 dBμA/m at 10m			EN ² 300 330
26.957 – 27.283 MHz	Non-specific short range devices	42 dBμA/m at 10m or 10 mW e.r.p			EN 300 220-2 EN 300 330
26.990 MHz – 27.0 MHz, 27.040 MHz – 27.050 MHz, 27.090 MHz – 27.100 MHz, 27.140 – 27.150 MHz, 27.190 – 27.200 MHz	Non-specific short range devices	100 mW e.r.p	≤ 0.1 %	≤ 10 kHz	EN 300 220-2
26.990 – 27.0 MHz, 27.040 – 27.050 MHz,	Model Control	100 mW e.r.p		≤ 10 kHz	EN 300 220-2

¹ Duty Cycle technical details should be taken from the mentioned reference documents in the table.

² Refers to standards issues by the European Telecommunications Standards Institute "ETSI" that produces globally-applicable standards for Information and Communications Technologies (ICT), including fixed, mobile, radio, converged, broadcast and Internet technologies.

TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

Frequency Range	Usage	Transmit power / Magnetic field	Duty cycle ¹	Channel spacing	Reference
27.090 – 27.100 MHz, 27.140 – 27.150 MHz, 27.190 – 27.200 MHz					
34.995 – 35.225 MHz	Model control	100 mW e.r.p		≤ 10 kHz	EN 300 220-2
40.66 MHz - 40.7 MHz	Non-specific short range devices	10 mW e.r.p			EN 300 220-2
40.66 – 40.67 MHz, 40.67 – 40.68 MHz, 40.68 – 40.69 MHz, 40.69 – 40.7 MHz	Model control	100 mW e.r.p		≤ 10 kHz	EN 300 220-2
72.000 – 72.250 MHz ³	Model control	10 mW e.r.p		≤ 10 kHz	
138.2 – 138.45 MHz	Non-specific short range devices	10 mW e.r.p	≤ 0.1 %		EN 300 220-2
169.4 MHz - 169.4875 MHz	Non-specific short range devices	10 mW e.r.p	≤ 0.1 %		EN 300 220-2
169.4875 MHz - 169.5875 MHz	Non-specific short range devices	10 mW e.r.p	≤ 0.001% (06h00 - 24h00) ≤ 0.1% (00h00 - 06h00)		EN 300 220-2
169.5875 MHz - 169.8125 MHz	Non-specific short range devices	10 mW e.r.p	≤ 0.1 %		EN 300 220-2
433.05 – 434.79 MHz	Non-specific short range devices	10 mW e.r.p	≤ 10 %		EN 300 220-2
433.05 MHz - 434.79 MHz	Non-specific short range devices	1 mW e.r.p -13 dBm/10 kHz power spectral density for bandwidth			EN 300 220-2

³ New approvals for model control applications using 72 MHz – 72.25 MHz will not be granted from 1 January 2021, existing class authorizations for model control applications using 72 MHz – 72.25 MHz can be renewed.

TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

Frequency Range	Usage	Transmit power / Magnetic field	Duty cycle ¹	Channel spacing	Reference
		modulation larger than 250 kHz			
863 - 870 MHz	Non-specific short range devices	25 mW e.r.p	$\leq 0.1\%$ or LBT + AFA		EN 300 220
865 MHz - 868 MHz	Non-specific short range devices	25 mW e.r.p	$\leq 1\%$ or LBT +AFA	≤ 300 kHz	EN 300 220-2
868 MHz - 868.6 MHz	Non-specific short range devices	25 mW e.r.p	$\leq 1\%$ or LBT +AFA		EN 300 220-2
868.7 MHz – 869.2 MHz	Non-specific short-range devices	25 mW e.r.p	$\leq 0.1\%$ or LBT +AFA		EN 300 220-2
869.4 MHz - 869.65 MHz	Non-specific short range devices	500 mW e.r.p	$\leq 10\%$ or LBT +AFA		EN 300 220-2
869.7 MHz – 870 MHz	Non-specific short-range devices	25 mW e.r.p	$\leq 1\%$ duty cycle or LBT +AFA		EN 300 220-2
870 MHz - 875.8 MHz	Non-specific short range devices	25 mW e.r.p	$\leq 1\%$	≤ 600 kHz	EN 300 220-2
875.8 MHz - 876 MHz	Non-specific short range devices	25 mW e.r.p	$\leq 0.1\%$	≤ 200 kHz	EN 300 220-2
915 MHz - 915.2 MHz	Non-specific short range devices	25 mW e.r.p	$\leq 0.1\%$	≤ 200 kHz	EN 300 220-2
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 ⁴	$\leq 1\%$	≤ 600 kHz except for the 4 channels identified in note where # 400 kHz	EN 300 220-2

⁴ 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

TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

Frequency Range	Usage	Transmit power / Magnetic field	Duty cycle ¹	Channel spacing	Reference
				applies	
920.8 MHz – 921 MHz	Non-specific short range devices	25 mW e.r.p	≤ 0.1 %	≤ 200 kHz	EN 300 220-2
2400 – 2483.5 MHz	Non-specific short range devices	10 mW e.i.r.p			EN 300 440
5725 – 5875 MHz	Non-specific short range devices	25 mW 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
57 – 64 GHz	Non-specific short range devices	100 mW e.i.r.p			EN 305 550
122 – 123 GHz	Non-specific short range devices	100 mW e.i.r.p			EN 305 550
244 – 246 GHz	Non-specific short range devices	100 mW e.i.r.p			EN 305 550

TABLE 1: Frequencies available to UAS for which the equipment requires Class Authorization

- 4.3 For UAS operating in the frequency bands and associated conditions listed in Table 2 below, an UAS Authorization from the Authority is required. In such cases, the provisions of the Aeronautical Radio Systems Regulations shall apply.

Frequency Range	Usage	Conditions of Use
5030 – 5091 MHz	CNPC	ITU Radio Regulations Chapter II, Article 5, footnotes 5.443C and 5.443D As Authorized
10.95 – 11.2 GHz	CNPC (Space to Earth)	ITU Resolution 155 (Rev WRC-19) As Authorized
11.45 – 11.7 GHz		
12.5 – 12.75 GHz		
14.0 – 14.5 GHz	CNPC	Resolution 155 (WRC-15)

TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

Frequency Range	Usage	Conditions of Use
	(Earth to Space)	As Authorized
19.7 – 20.2 GHz	CNPC (Space to Earth)	ITU Resolution 156 (WRC-15) As Authorized
29.5 – 30.0 GHz	CNPC (Earth to Space)	ITU Resolution 156 (WRC-15) As Authorized

TABLE 2: CNPC frequencies available to UAS for which the equipment requires an Authorization

- 4.3.1 For unmanned aircraft onboard radio equipment operating in the frequencies specified in Table 2, the TDRA application under the UAS Authorization shall apply.
- 4.3.2 For Unmanned Aircraft Ground Control Station radio equipment operating in the frequencies specified in Table 2 for direct links with the aircraft, the TDRA application for Aeronautical Mobile Ground-to-Air Authorization shall apply.
- 4.3.3 For Unmanned Aircraft Ground Control Station radio equipment operating in the frequencies specified in Table 2 for satellite links (Earth-to-Space), the TDRA Application for Earth Station/VSAT shall apply, subject to application of ITU-R Resolutions 155 and 156 as identified in Table 2 satellite allocations for CNPC use.
- 4.4 For UAS operating in frequency ranges or under technical conditions not meeting those specified in Tables 1 and 2 above, the Authority may consider the application on a case-by-case basis.
- 4.5 In addition to the above, UAS may also operate on IMT networks using service provided by licensed telecom operators in the UAE.

Article (5)

Spectrum Coordination and Notification

- 5.1 Coordination of radio frequencies for the radio stations at the national, regional and international levels – including, where required, with ICAO – 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.

Article (6)

Validation and Publication

TDRA Regulations for Unmanned Aircraft Radio Systems, Version 3.0

- 6.1 These regulations should be published in the official gazette and shall be effective as of the date of their publication.