
Regulations

Unmanned Aircraft Radio Systems

Version 2.0

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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.

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- 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 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.

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- 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 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.

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- 2.1.28 **“Unmanned Aircraft Systems”** or **“(UAS)”** means aircraft systems including drones or remotely piloted aircraft systems that are operated with no pilot on board 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) consists of the following subsystems:
- 3.1.1 Unmanned Aircraft (UA) subsystem (i.e. the aircraft itself);
- 3.1.2 Unmanned Aircraft Control Station (UACS) subsystem;
- 3.1.3 Air Traffic Control (ATC) communications subsystem (not necessarily relayed through the UA);
- 3.1.4 Sense and Avoid (S&A) subsystem;
- 3.1.5 Payload subsystem (e.g. video camera).
- 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);
- 3.2.2 Mobile Satellite Service (Space-to-Earth, Earth-to-Space);
- 3.2.3 Fixed Satellite Service (Space-to-Earth, Earth-to-Space).
- 3.3 All Authorized Users shall comply with the CAR and publications issued by the GCAA.
- 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 The following tables give guidance on frequency ranges for Unmanned Aircraft Radio Systems, their use and applicable usage conditions. The categories of UAS are as defined in CAR Part IV (Unmanned Aircraft) as issued by the GCAA. The GCAA may update their CAR and the latest version is the one that applies.

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4.1.1 Table 1 is an extract from the Ultra Wide Band (UWB) and Short Range Device (SRD) Regulations and requires Class Authorization. It reproduces those frequencies which apply to all 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 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
26.995 MHz, 27.045 MHz, 27.095 MHz, 27.145 MHz, 27.195 MHz	Non-specific short range devices	100 mW e.r.p	≤ 0.1 %	≤ 10 kHz	EN 300 220-2
26.995 MHz, 27.045 MHz, 27.095 MHz, 27.145 MHz, 27.195 MHz	Model Control	100 mW e.r.p		≤ 10 kHz	EN 300 220-2
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
40.665 MHz, 40.675 MHz, 40.685 MHz, 40.695 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

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.

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.

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Frequency Range	Usage	Transmit power / Magnetic field	Duty cycle ¹	Channel spacing	Reference
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 modulation larger than 250 kHz			EN 300 220-2
863 - 870 MHz	Non-specific short range devices	25 mW e.r.p	≤ 0.1 % or LBT + AFA		EN 300 220
865 MHz - 868 MHz	Non-specific short range devices	25 mW e.r.p	≤ 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	≤ 1% or LBT +AFA		EN 300 220-2
869.4 MHz - 869.65 MHz	Non-specific short range devices	500 mW e.r.p	≤ 10% or LBT +AFA		EN 300 220-2
870 MHz - 875.8 MHz	Non-specific short range devices	25 mW e.r.p	≤ 1 %	≤ 600 kHz	EN 300 220-2
875.8 MHz - 876 MHz	Non-specific short range devices	25 mW e.r.p	≤ 0.1 %	≤ 200 kHz	EN 300 220-2

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Frequency Range	Usage	Transmit power / Magnetic field	Duty cycle ¹	Channel spacing	Reference
915 MHz - 915.2 MHz	Non-specific short range devices	25 mW e.r.p	≤ 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	≤ 1%	≤ 600 kHz except for the 4 channels identified in note where # 400 kHz applies	EN 300 220-2
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 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

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4.1.2 Table 2 below lists those frequencies which apply to UAS for which the equipment will need an Authorization from the Authority.

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.
5030 – 5091 MHz	CNPC	ITU Radio Regulations Chapter II, Article 5, footnotes 5.443C and 5.443D As Authorized
5725 – 5875 MHz	Model control (airborne only)	100 mW e.i.r.p.
10.95 – 11.2 GHz	CNPC (Space to Earth)	ITU Resolution 155 (WRC-15) As Authorized
11.45 – 11.7 GHz		
12.5 – 12.75 GHz		
14.0 – 14.5 GHz	CNPC (Earth to Space)	Resolution 155 (WRC-15) 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: Frequencies available to UAS for which the equipment requires an Authorization

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4.1.3 UAS related equipment using frequencies listed in Table 2 above will be treated as a Low Power Device as per the Frequency Spectrum Fees Regulations.

4.1.4 For Applications including power levels or frequency range are outside those permitted in Table 2 above, the Authority may consider the application on a case-by-case basis as Private Mobile Radio (Ground-to-Air).

4.2 In addition to the above, UAS may also operate on IMT networks using service provided by licensed telecom operators in the UAE.

4.3 UAS operating in controlled airspace may also need an Aircraft Radio License provided by the Authority. In this case, the Aeronautical Radio Systems regulations apply.

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.

Article (6)

Validation and Publication

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