
Regulations

Unmanned Aircraft Radio Systems

Version 1.0

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TRA Regulations for Unmanned Aircraft Radio Systems, Version 1.0

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 Aircraft 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
 - 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

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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**” 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 (License)**” means a license given to an aircraft by the TRA to permit the operation of all radio equipment on the aircraft necessary for communication, navigation and surveillance purposes.
- 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 (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.
- 2.1.7 “**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.
- 2.1.8 “**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.

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- 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.
- 2.1.11 “**Control and Non-Payload Communication (CNPC)**” links means radio links used for the control of unmanned aircraft systems (UAS).
- 2.1.12 “**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.
- 2.1.13 “**General Civil Aviation Authority (GCAA)**” means the Civil Aviation Authority of the UAE.
- 2.1.14 “**International Mobile Telecommunication (IMT)**” means Public Land Mobile (Cellular) system.
- 2.1.15 “**ITU**” means the International Telecommunication Union, a leading United Nations agency for information and communication technologies.
- 2.1.16 “**Low Power Device (LPD)**” means devices that operate in the frequencies defined for Ultra Wide Band and Short Range Devices regulations issued by the TRA but which use an agreed, higher power levels.
- 2.1.17 “**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.
- 2.1.18 “**Private Mobile Radio (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.
- 2.1.19 “**Radio Regulations (RR)**” means a publication issued by the ITU, adopted by the World Radiocommunication Conference and ratified by the UAE.
- 2.1.20 “**Remotely Piloted Aircraft System (RPAS)**” means a remotely piloted aircraft, its associated remote pilot station(s), the required command and control links and any other components as specified in the type design.

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- 2.1.21 “**Short Range Device (SRD)**” means fixed, mobile or portable devices for various radio applications operating with technical conditions in the latest version of TRA Regulations for Ultra Wide Band and Short Range Devices.
- 2.1.22 “**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.
- 2.1.23 “**UAE**” means the United Arab Emirates including its territorial waters and the airspace above.
- 2.1.24 “**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 in the latest version of TRA Regulations for Ultra Wide Band and Short Range Devices.
- 2.1.25 “**Unmanned Aircraft Radio Systems**” means any radio system associated with a UAS.
- 2.1.26 “**Unmanned Aircraft Systems (UAS)**” means aircraft systems including Drones or Remotely Piloted Aircraft Systems (RPAS) that are operated with no pilot on board and tethered by a radio control link.
- 2.1.27 “**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)
- 3.3 All Authorized Users shall comply with the CAR and publications issued by the GCAA.
- 3.4 Any data collection process by UAS shall adhere to the data privacy and protection regulatory framework in the UAE.

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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 and RPAS 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 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 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 effective radiated power (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 effective isotropic radiated power (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.)

TABLE 1: Frequencies available to all UAS categories

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4.1.2 Table 2 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 Device 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.

TABLE 2: Frequencies available to UAS categories 1B, 2 and 3

4.1.3 For Category 1B, 2 and 3 UAS for which the power levels or frequency range are outside those permitted in Table 2 above, the TRA may consider the application on a case-by-case basis as Private Mobile Radio (Ground-to-Air).

4.1.4 Table 3 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	ITU Radio Regulations Chapter II, Article 5, footnotes 5.443C and 5.443D As Authorized
10.95 – 11.2 GHz 11.45 – 11.7 GHz 12.5 – 12.75 GHz	CNPC (Space to Earth)	ITU Resolution 155 (WRC-15) As Authorized
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 3: Frequencies available to category 3 UAS only

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- 4.2 In addition to the above, UAS may also operate on IMT networks using service provided by authorized operators in the UAE.
- 4.3 UAS operating in controlled airspace may also need an Aircraft Radio License provided by the TRA. 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.