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# Regulations

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## Fixed Radio Systems

Version 2.0

Document Date: 18 May 2016

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## 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 of Fixed Radio. It shall be read in conjunction with the following documents available from the TRA website at [www.tra.gov.ae](http://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

## 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 **“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.
  - 2.1.2 **“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.
  - 2.1.3 **“Authority (TRA)”** means the General Authority for Regulating the Telecommunication Sector known as Telecommunications Regulatory

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Authority (TRA) established pursuant to the provisions of Article 6 of Federal Law by Decree No. 3 of 2003.

- 2.1.4 **“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.
- 2.1.5 **“Authorized User”** means a Person that has been granted an Authorization by the Authority.
- 2.1.6 **“Automatic Meter Reading (AMR)”** means technology of automatically collecting consumption, diagnostic, and status data from water meter or energy metering devices (gas, electric) and transferring that data to a central database for billing, troubleshooting, and analysing.
- 2.1.7 **“Assignment (of a radio frequency or radio frequency channel)”** means an Authorization given by The Authority for a radio station to use a radio frequency or radio frequency channel under specified conditions.
- 2.1.8 **“Broadband Radio Access Networks (BRAN)”** 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.
- 2.1.9 **“Broadband Wireless Access (BWA)”** means technologies that provide broadband data access by wireless means to consumer and business markets.
- 2.1.10 **“CCDP”** means co-channel dual-polarization transmission to provide two parallel communication channels over the same link with orthogonal polarizations
- 2.1.11 **“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.
- 2.1.12 **“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 **“Fixed Wireless Access”** means a wireless access application in which the location of the end-user termination and the network access point to be connected.

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- 2.1.14 **“Fixed Satellite Service (FSS)”** 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 **“IEEE”** means the Institute of Electrical and Electronics Engineers.
- 2.1.16 **“ITU”** means the International Telecommunication Union, a leading United Nations agency for information and communication technologies.
- 2.1.17 **“Mesh Network”** is a way to route data, voice and instructions between nodes. It allows for continuous connections and reconfiguration around broken or blocked paths by ‘hopping’ from node to node until the destination is reached.
- 2.1.18 **“MIMO”** means Multiple Input Multiple Output
- 2.1.19 **“Person”** will include ‘juridical entities’ as well as ‘natural persons’.
- 2.1.20 **“Point-to-Point link”** means communication provided by a single connection between two stations located at specified fixed points, or multiple cascaded links made by a number of intermediate repeaters with or without partial payload drop insert through radio relay.
- 2.1.21 **“Point-to-Multipoint (PMP)”** is a method of communication between a series of transceivers through a central transceiver.
- 2.1.22 **“Radar”** means Radio Detection and Ranging.
- 2.1.23 **“Radiocommunication Service”** means the transmitting or receiving of Radio Frequencies which may be used for the conveyance of data, or messages or voice or visual images, or for the operation or control of machinery or apparatus.
- 2.1.24 **“Radio Local Area Network (RLAN)”** equipment means 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.
- 2.1.25 **“Radiolocation Service”** means a service (like Radar) that uses radio signals to detect and locate distant objects like aircraft.
- 2.1.26 **“Radio Regulations (RR)”** means a publication issued by the ITU, adopted by the World Radiocommunication Conference and ratified by the UAE.
- 2.1.27 **“Secondary Basis”** means Radiocommunication Service which shall not cause harmful interference to stations of Primary Services and cannot

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claim protection from harmful interference from stations of Primary Services. This service appears as lower case in the National Spectrum Plan.

- 2.1.28 **“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.
- 2.1.29 **“Supervisory Control and Data Acquisition (SCADA)”** systems are used for process monitoring and control, including the gathering of data in real time from remote location in order to control equipment and conditions. SCADA is used in power plants as well as in oil and gas refining, telecommunication, transportation, and water and waste control.
- 2.1.30 **“Wideband data transmission”** equipment means equipment complying with technical specifications as set out in ETIS EN 300 328. This includes equipment based on IEEE 802.11 family of standards.
- 2.1.31 **“Wireless Local Area Networks (WLAN)”** means network of connected equipment connected without the use of wires using IEEE 802.11 family of standards.
- 2.1.32 **“UAE”** means the United Arab Emirates including its territorial waters and the airspace above.
- 2.1.33 **“XPIC”** means cross polarization interference cancellation.

**Article (3)**

**Uses related to Fixed Radio**

- 3.1 The Application for Fixed Radio can be made for the following:
- 3.1.1 Point-to-point links
  - 3.1.2 Fixed wireless access and Broadband wireless access
  - 3.1.3 Point-to-multipoint (PMP) links, Mesh, and SCADA
- 3.2 The applicant shall apply for fixed radio authorization in accordance with these regulations.

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**Article (4)**

**Technical Conditions**

- 4.1 The fixed radio stations shall be operated in accordance to the provisions of the Radio Regulations and relevant ITU-R Recommendations. The following table provides guidance on available frequency ranges and preferred ITU-R Recommendations. For more information on channel arrangements please refer to the guidelines separately published by TRA.
- 4.2 The following table is not an exhaustive list for fixed radio. The national frequency allocation table shall be the reference for fixed radio allocations and assignments.

Frequency range	Usage	ITU-R Rec
230-380 MHz 406.1-450 MHz	FWA, PMP, Mesh, and SCADA (in rural areas on a Secondary basis and when higher frequency ranges are not suitable)	
868.7 – 869.65 MHz	Automatic Meter Reading and Utility Applications	
2025-2110 MHz	Point-to-Point	ITU-R F.1098
2200-2290 MHz	Point-to-Point	ITU-R F.1098
2400-2483.5 MHz	Point-to-Point on a Secondary basis Point-to-Multipoint on a Secondary basis Wideband data transmission (e.g. WLAN)	
3400-3600 MHz	Fixed Wireless Access	ITU-R F.1488
3600-3800 MHz	Fixed Wireless Access Point-to-Point	ITU-R F.1488
4400-5000 MHz	Point-to-Point Point-to-Multipoint	ITU-R F.1099
5650-5725 MHz	Point-to-Point on a Secondary basis Point-to-Multipoint on a Secondary basis	

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5725-5925 MHz	Point-to-Point (with protection to fixed Satellite Service) Point-to-Multipoint (with protection to fixed Satellite Service)	
5925-8750 MHz	Point-to-Point	5.925 - 6.425 GHz: ITU-R F.383 6.425 - 7.11 GHz: ITU-R F.384 7.11 - 7.725 GHz: ITU-R F.385 7.725 - 8.725 GHz: ITU-R F.386
10-10.68 GHz	Point-to-Point	ITU-R F.747
10.7-11.7 GHz	Broadband Wireless Access	ITU-R F.387
11.7-13.25 GHz	Point-to-Point Broadband Wireless Access	11.7 - 12.75 GHz: ITU-R F.746 12.75 - 13.25 GHz: ITU-R F.497
13.4-14.4 GHz	Point-to-Point Broadband Wireless Access	
14.4-15.35 GHz	Point-to-Point Broadband Wireless Access	ITU-R F.636
15.7-17.3 GHz	Point-to-Point with preference for Radiolocation	
17.3-23.6 GHz	Point-to-Point	17.7-19.7 GHz: ITU-R F.595 21.2-23.6 GHz: ITU-R F.637
24.25-29.5 GHz	Point-to-Point Broadband Wireless Access	ITU-R F.748
31-31.3 GHz	Point-to-Point	ITU-R F.746
31.5-43.5 GHz	Point-to-Point	31.8 - 33.4 GHz: ITU-R F.1520 36.0 - 40.5 GHz: ITU-R F.749 40.5 - 43.5 GHz: ITU-R F.2005
47.2 – 50.2 GHz	Point-to-Point	
50.4-52.6 GHz	Point-to-Point	51.4 - 52.6 GHz: F.1496
55.78-66 GHz	Point-to-Point	ITU-R F.1497
71-76 GHz / 81-86 GHz	Point-to-Point	ITU-R F.2006
92 - 94 GHz	Point-to-Point	ITU-R F.2004

- 4.3 The links shall be planned based on a mean propagation availability of 99.9% for the overall link budget calculation, taking into account relevant ITU-R Recommendations. The operational EIRP will be determined on the basis of the minimum power required to meet the propagation availability requirements of the applicant and will be specified as an authorization condition.
- 4.4 The TRA encourages the use of hot standby and space diversity for backbone links to improve the service availability and the use of system features like CCDDP with XPIC or use of advanced antenna systems (MIMO etc.) to improve spectral

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efficiency. To ensure the efficient usage of frequency, frequency diversity is generally not preferred. For the use of frequency diversity, Applicant shall provide technical justification with the Application.

- 4.5 Space diversity (including the use of advanced antenna systems such as MIMO) will be considered as the same link. Frequency diversity is considered as multiple links.
- 4.6 The lower frequency bands are known to have propagation characteristics suitable for longer hop lengths. To avoid congestion in the lower bands, Applicants shall use where possible the higher frequency bands. Only where the required hop length and availability cannot be achieved in the higher frequency bands the lower frequency bands shall be considered.
- 4.7 Only directive antennas shall be allowed for point-to-point links.
- 4.8 For point-to-point links the TRA encourages the use of radio systems, including antennas, that comply with the appropriate specifications set out in ETSI EN 302 217 Series "Fixed Radio Systems - Characteristics and requirements for point-to-point equipment and antennas". The equipment should meet ETSI spectral efficiency class 2 or above.
- 4.9 For point-to-multipoint systems the TRA encourages the use of systems, including antennas, that comply with the appropriate specifications set out in ETSI EN 302 306 series "Fixed Radio Systems - Multipoint Equipment and Antennas".

**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.