



For

**Interference Management**

Version 1.0

Issue Date: 23 July 2008

---

Copyright © 2008 Telecommunications Regulatory Authority (TRA). All rights reserved.  
P O Box 26662, Abu Dhabi, United Arab Emirates (UAE)  
[www.tra.gov.ae](http://www.tra.gov.ae)

---

## Article (1) Definitions

- 1.1 In applying these Regulations, the following terms shall have the following meanings unless the context requires otherwise, whereas any term undefined in the following shall be defined in line with the Federal Law by Decree No. 3 of 2003, its Executive Order and Radiocommunications Policy:
- 1.1.1 “**Allocation**” means the entry of a designated frequency or frequency band in the National Spectrum Plan for use by one or more users for a terrestrial or space radiocommunication service in the UAE.
  - 1.1.2 “**Applicant**” means any Person who has applied for a License or an Authorization in accordance with the Telecom Law or other Policy Instruments issued by the Authority.
  - 1.1.3 “**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.
  - 1.1.4 “**Assigned frequency**” means the centre of the frequency band assigned to a station by the Authority.
  - 1.1.5 “**Assigned frequency band**” means the frequency band within which the emission of a station is authorized by the Authority.
  - 1.1.6 “**Authorization**” means a Frequency Spectrum Authorization granted by the Authority.
  - 1.1.7 “**Authorized User**” means a Person that has been granted a Frequency Spectrum Authorization by the Authority.
  - 1.1.8 “**Class Authorization**” means the Frequency Spectrum 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.
  - 1.1.9 “**Harmful Interference**” means Interference which impairs the functioning of a radiocommunication service or which materially

degrades or obstructs or repeatedly interrupts Radiocommunication.

- 1.1.10 “**International Regulations**” means Regulations, rules, standards, specifications, definitions, recommendations or agreements recognized by the UAE at the international level.
- 1.1.11 “**ITU**” means International Telecommunication Union, a leading United Nations agency for information and communication technologies.
- 1.1.12 “**National Spectrum Plan**” means Radio Frequency Allocation plan for the UAE approved by the Supreme Committee and any modifications thereof.
- 1.1.13 “**National Telecom Policy**” means the Policy issued by the Supreme Committee regarding the telecom sector.
- 1.1.14 “**Person**” will include ‘juridical entities’ as well as ‘natural persons’.
- 1.1.15 “**Primary Services**” means Radiocommunication Services having a higher priority and protection from harmful interference when notified than secondary Radiocommunication Services. The name of these Radiocommunication Services appears as capital letters in the National Spectrum Plan.
- 1.1.16 “**Radiocommunication Service**” means the transmitting or receiving of Radio Frequency 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.
- 1.1.17 “**Radio Frequency**” means radiated electromagnetic energy measured in Hz or cycles / sec.
- 1.1.18 “**Frequency Spectrum Authorization**” means an authorization, which permits the use of Radio Frequency subject to terms and conditions as stipulated by the Authority.
- 1.1.19 “**Radio Regulations**” means a publication by ITU, adopted by the World Radiocommunication Conference and ratified by the UAE.

- 1.1.20 “**Regulatory Instruments**” means any instrument issued by the Authority under its powers, and includes without limitation; Regulations, violation decisions, directives, instructions, guidance and recommendations and regulatory policies.
- 1.1.21 “**Secondary Services**” means Radiocommunication Services which shall not cause harmful interference to stations of Primary Services. These services appear as lower case in the National Spectrum Plan.
- 1.1.22 “**Station**” means an installation operated by an Authorized User, for carrying on a Radiocommunication Service.
- 1.1.23 “**Temporary Authorization**” means Frequency Spectrum Authorization issued by the Authority which permits the use of assigned frequency for a period up to 90 days.
- 1.1.24 “**The Authority**” 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.
- 1.1.25 “**UAE**” means the United Arab Emirates including its territorial waters and the airspace above.
- 1.1.26 “**Wireless Equipment**” means a category of Telecommunication Apparatus used for Radiocommunication service.

## Article (2)

### Interference Management

- 2.1 Interference management will be performed by the Authority to meet the following broad objectives:
- 2.1.1 To prevent interference through spectrum management;
- 2.1.2 To eliminate or minimize harmful interference to Authorized Users;
- 2.1.3 To protect frequencies for emergency and disaster use from mis-use;
- 2.1.4 To perform spectral measurements in case of interference;

- 2.1.5 To arbitrate and decide in the event of mutual interference for shared Frequency Spectrum Authorisations.
- 2.1.6 To localize and identify installation and usage of un-authorized wireless equipment;
- 2.1.7 To monitor frequencies if request received from International Telecommunication Union (ITU) or any other Country (Administration) on harmful interference from a station within UAE;
- 2.1.8 To localize un-authorized installation of GSM Jammers;
- 2.1.9 In case of interference, verify adherence to the terms and conditions and the technical parameters of the authorization; and
- 2.1.10 To advise on interference mitigation techniques.

### Article (3)

#### Types of interference

- 3.1 Interference may prevent reception altogether, may cause only a temporary loss of a signal, or may affect the quality of the signal as required by the equipment. The two most common types of interference are due to electrical noise or radio noise:-
  - 3.1.1 **Radio noise**: further details are available in ITU-R Recommendation P-372.
  - 3.1.2 **Electrical noise**: Power lines or electrical equipment may cause electrical interference. The Authority will issue an Electromagnetic Compliance (EMC) Policy aimed to reduce the risks of electrical interference.
- 3.2 However, the interference elimination requires a comprehensive set of direct and indirect steps. The indirect steps are pre-emptive and covered in the Regulations for Spectrum Monitoring and Enforcement issued by the Authority. The direct steps are the main focus of these Regulations and provide interference resolution mechanism for existing authorized services subjected to harmful radio interference. The Authority while assigning and allocating the frequencies performs adequate technical planning to protect the existing assignments. The technical parameters found to be suitable are specified in the Radio Frequency Authorization. Any violation of these parameters will cause interference.

- 3.3 The interference analysis may require complainants of interference to provide detailed technical data while applying to the Authority. For this purpose the Authority will publish an interference complaint form to guide the Authorized Users for providing the relevant information. If required information is not provided, the Authority may not be able to evaluate the harmful interference.

#### Article (4)

##### Common causes of interference

- 4.1 The reasons for interference can be many. However, some of the more frequently found reasons are listed below for the Authorized Users' guidance. The Authorized Users should endeavour to avoid these common causes of interference:
- 4.1.1 **Electrical interference:** It is a common cause of interference and proper shielding, earthing can safeguard against such interference.
  - 4.1.2 **Spurious and Out of band emissions:** Appendix 3 of Radio Regulations sets the conditions for the spurious and out of band emissions. These conditions shall be observed to avoid spurious and out of band emissions.
  - 4.1.3 **Transmitter tolerance:** Appendix 2 of Radio Regulations sets the tolerance or the deviation allowed for the transmitters from the centre frequencies. All transmitters shall conform to these tolerance values.
  - 4.1.4 **Authorized radiated power:** It is important for all users to conform to the authorized radiated power as exceeding the specified power will cause interference to other systems.
  - 4.1.5 **Antenna patterns and orientation:** The Authority performs the sharing analysis while assigning frequencies based on the antenna height, radiation patterns and orientation. Any change in the specified parameters can cause interference to other systems.
  - 4.1.6 **Enhanced Propagation due to weather and environmental conditions:** In certain parts of the year, due to weather conditions, the propagation conditions vary and the systems can pick signals from far reaching transmitters. In the Gulf area, ducting is a special phenomenon which can allow signals to propagate to very long distances and can cause harmful interference.

**4.1.7 Un-authorized operation:** There is no unlicensed frequency band in the UAE. The establishment of all wireless equipment needs the Authority Frequency Authorization as specified in the Authority policies. The use of any device based on the assumption that it is allowed in any other country does not imply its usage in the UAE unless specified by the Authority.

**4.1.8 National Spectrum Plan:** The NSP identifies the frequency ranges and the priority of use. The Radiocommunication Policy will elaborate on this framework. Selection of equipment or use of frequencies not in conformance with the NSP will cause harmful interference.

## Article (5)

### Interference susceptibility

- 5.1 The technical parameters authorized by the Authority do not account for interference susceptibility of the Wireless Equipment. However, as the equipment selection is the prerogative of the Authorized User, therefore the Authorized User has to evaluate the equipment for interference susceptibility.
- 5.2 The level of interference caused by out-of-band emissions depends on the interference susceptibility of the receiver. Therefore, a receiver should have a minimum level of performance and the Authorized Users shall comply with the standards of spurious and out of band emissions.
- 5.2 For further information on noise and sensitivity of receivers and receiver selectivity, the Authorized Users may refer to the relevant ITU-R Recommendations. However, the Authority recommends that Authorized Users shall consider following parameters while selecting their equipment:-
- Sensitivity;
  - Dynamic range;
  - Minimum discernible signal (MDS);
  - SINAD;
  - adjacent channel selectivity;
  - blocking;
  - Inter modulation immunity; and
  - Spurious response immunity.

## **Article (6)**

### **Identifying the source of interference**

- 6.1 An Authorised User making a complaint of interference (“the Complainant”) is required to provide details of the interference as detailed above. Localizing the source of interference is a challenging task. The Authority will use direction finders to localize the source of interference. However, for certain types of emissions and moving sources of interference, the interference localization can take longer monitoring sessions involving more than one monitoring station.
- 6.2 The Complainant will assist the Authority where possible to complete this task. The Authority will specify the extent of support required depending on the requirement. In certain cases, such support may be limited to access to the Complainant’s network or system.

## **Article (7)**

### **Periodicity and levels of interference**

- 7.1 The Complainant is required to provide details of the periodicity and levels of interference. This information is required for allocation of the monitoring resources and conduct monitoring session.
- 7.2 If the periodicity of interference is very infrequent, partial resources may be assigned or guidance to perform measurements can be advised by the Authority.

## **Article (8)**

### **Permitted or acceptable Interference**

- 8.1 The National Spectrum Plan allows more than one Radiocommunication Service in certain frequency bands on Primary or Secondary basis. For the Radiocommunication Services having the same priority status in the National Spectrum Plan, the Authority shall determine the order of priority while making the assignment.
- 8.2 Radiocommunication Service that operate on Secondary Basis i.e. non-interference, non-protected and shared-use basis make it the Authorised Users' responsibility to ensure that their radio operations do not cause in-



interference to other Authorised Users. Such users cannot claim protection from interference.

### **Article (9)**

#### **Interference to public receivers and mobile handsets**

- 9.1 Wireless Equipment is also susceptible to common forms of man-made noise or electrical interference. Interference to such devices should be reported to and dealt with by the service provider. The Authority will not under normal circumstances entertain such complaints.

### **Article (10)**

#### **Interference to space services**

- 10.1 Space services can be broadly categorized as space stations and earth stations. The Authority is the focal point for the resolution of all cases of interference either to or from any of the UAE satellite or earth stations.
- 10.2 In issuing a Frequency Spectrum Authorization for space service, the Authority will clearly specify the Authorised User's obligations for the coordination and control of the Radio Frequency interference. On receipt of any report of interference from any UAE based satellite operator or earth station, the Authority will investigate the nature of interference and take appropriate measures to resolve the issue.
- 10.3 Interference complaints received by the Authority from other administrations, regarding UAE- based space services shall be investigated and appropriately resolved by the Authority.

### **Article (11)**

#### **Interference to public safety systems**

- 11.1 Public safety systems like aircraft flight safety, radio-navigational system frequencies, GMDSS (Global Maritime Distress and Safety System), EPIRB (Emergency Position Indicating Radio Beacon), disaster and safety systems, police, fire brigade, civil defence, international distress and safety systems, search and rescue, etc all require highest availability and any case of interference in the assigned frequency ranges for these sys-

tems shall be given the highest priority by the Authority for adequate resolution of the harmful interference.

## Article (12)

### Procedure for making Interference Complaints

- 12.1 All interference complaints must be lodged with the Authority using specified form which is available at the Authority offices and can also be downloaded from the Authority website [www.tra.gov.ae](http://www.tra.gov.ae)
- 12.2 In case there is harmful interference to the frequency assigned for public safety and distress services, the interference complaints can immediately lodged to the following:-

#### Monitoring Section

Spectrum & International Affairs  
Telecommunications Regulatory Authority  
Phone: +971 2 6262222  
Email: [interference@tra.gov.ae](mailto:interference@tra.gov.ae)  
Fax : +971 2 6118484

## Article (13)

### Actions by the Authority

- 13.1 When a complaint of interference is received, the Authority will analyze the provided information for adequacy to initiate action. The Authority will categorize the complaint in the following and action will be initiated accordingly:-
- 13.1.1 Interference to public safety.
  - 13.1.2 Interference within UAE
  - 13.1.3 Interference from outside UAE.
  - 13.1.4 Interference to outside UAE.
  - 13.1.5 Space services interference.
- 13.2 To ascertain the source of interference and to eliminate the same, the Authority:-

- 13.2.1 may perform radio frequency monitoring to identify and localise the source of interference.
- 13.2.2 may carry out an enforcement inspection on the facilities of the Authorized User suspected to be the source of interference to form an independent analysis of the complaint.;
- 13.2.3 may carry out the physical inspection of sites reasonably suspected as a source of interference.
- 13.3 Interference complaints to public safety and distress services will be given the priority. The Authority will initiate immediate action even with minimum or nil preliminary information and take all necessary steps to investigate and resolve the interference.
- 13.4 In case the interference complaint has been made by Administrations or the Organizations abroad, the suspected Authorised Users will be informed of all details of the interference complaint and asked for clarification within specified period. The Authority may ask for cessation of transmission.
- 13.5 The response to the complaints from outside the UAE shall only be formalized after the response of the Authorized User and the Authority analysis. If the source of interference is not confirmed and only the complainant gives the frequency being interfered, then TRA will prepare adequate monitoring task for the monitoring station to perform measurement, analysis and direction finding of the source of interference.
- 13.6 Whenever the Authority ascertains to its satisfaction that harmful interference has occurred due to a breach of any of the following:
  - 13.6.1 Violation of the authorization terms and conditions issued by the Authority to an Authorized user,
  - 13.6.2 Un-authorized use of radio spectrum,
  - 13.6.3 Un-authorized installation or establishment of radio equipment,
  - 13.6.4 Un-authorized import of the wireless equipment; and/or
  - 13.6.5 Violation of any of the Authority policies, rules, regulations and guidelines.

- The Authority shall proceed against the entity (person or an organization) causing the interference (“Interfering User”) by sending the Interfering User an inquiry letter (“Inquiry Letter”).
- 13.7 The Inquiry Letter issued as per the 13.6 above will give Interfering User the opportunity to provide a written explanation for such breach and justify why the Authority should not proceed legally against the violation as established by the Authority within three (3) calendar days from the issuance of the Inquiry Letter. Based on the Interfering User’s response, the Authority shall determine if the Interfering User’s violation was wilful or whether it occurred due to reasons beyond the control of the Interfering User.
- 13.8 In the event of wilful violations by an Interfering User, the Authority will initiate action against the Interfering User according to the Federal Law by Decree No. 3 of 2003 and its Executive Order.

#### **Article (14)**

##### **Coordination for interference analysis**

- 14.1 The Authority while resolving the cases of interference may also take into account the following options and avail the appropriate option based on the nature of the interference and frequency range of the interfering signal:
- 14.1.1 Coordinated use of the monitoring facilities of other organizations within UAE.
- 14.1.2 Coordinated use of the monitoring facilities of other administrations,
- 14.1.4 Approach the administration which has jurisdiction over the station believed to be the cause of harmful interference as per the provisions of ITU-R Radio Regulations.
- 14.1.5 Coordinate with US CENTCOM TCCC.
- 14.1.6 Coordinate with GCC Telecom Bureau for assignments of GCC countries within the range subjected to interference for analysis and resolution.

#### **Article (15)**

## Spectrum Monitoring and Enforcement

- 15.1 Interference management is a subset of spectrum enforcement with prime task of localization and elimination of harmful interference. Since interference management is a specialized area, therefore these Regulations deals with the related issues. The Authority Spectrum Enforcement Regulations may be referred to for details of enforcement.