
Public Consultation

Review of TDRA Regulations for Interference Management (V1.0), and Spectrum Monitoring and Enforcement (V1.0)

Commencement Date: 12th September 2022

Response Date: 7th October 2022

Preface and Notes to Potential Respondents

In keeping with its values of transparency, collaboration and commitment to the advancement of the UAE, TDRA wishes to review the Regulations relating to spectrum interference, management and enforcement. TDRA strives to meet the needs of the sector and seeks the views and feedback from the sector for the revision of the Regulations. The purpose of this document is to invite comments from stakeholders on the Regulations and the possible changes in order to revise the following Regulations:

- Interference Management Regulation V1.0, 2008
- Spectrum Monitoring and Enforcement Regulation V1.0, 2008

The comments which are contained in any response to this consultation should be clearly identified with respect to the specific question in this consultation to which such comments refer. Any comments which are of a general nature and not in response to a particular question should be clearly identified as being of a general nature.

Responses to this consultation should be made in writing. The respondent shall be required to submit two versions of its response to TDRA as follows:

- A full copy of its response in MS Word format with any confidential information clearly marked. TDRA will not publish the Word document and will only use it for internal purposes.
- A publishable copy of its response in Adobe PDF format. TDRA will publish the PDF version in its entirety. Thus, the respondent should take care to redact any commercially sensitive and confidential information in the PDF version of its response.

By participating in this consultation and by providing a PDF version of its response the respondent expressly authorizes TDRA to publish the submitted PDF version of its response in full and any reference to the submission in the Summary of Responses may be published in summary or in full.

These submissions must be made on or before the response date stated on the front cover of this document. Responses must be accompanied by the full contacts details (contact name, e-mail address and phone numbers) of the respondent and emailed to:

spectrumconsultation@tdra.gov.ae;

Executive Director Spectrum Affairs
Telecommunications and Digital Government Regulatory Authority (TDRA)
P.O. Box 26662
Abu Dhabi, UAE

Respondents are advised that it will be the general intention of TDRA to publish the responses received to this consultation. Additionally, TDRA may, at its discretion generate and publish a “Summary of Responses” document at the conclusion of this consultation. The Summary of Responses may include references to and citations (in whole or in part) of comments which have been received. TDRA recognizes that certain responses may include commercially sensitive and confidential information which the respondent may not wish to be published (see above).

It should be noted that none of the ideas expressed or comments made in this consultation document will necessarily result in formal decisions by TDRA and nothing contained herein shall limit or otherwise restrict TDRA’s powers in relation to the telecommunications sector in the UAE nor the content of any revised Regulations.

If any person or entity wishes to clarify or discuss any part of this Consultation, they may request a meeting in writing again to the above e-mail and then TDRA will set the meetings in the period from **19-22 September 2022**, so that formal comments can still be received by **7th October 2022**.

Milestone	Due Date	Notes
Closing Date for Initial Responses	7th October 2022	All responses to this consultation should be properly received by no later than <u>15.00</u> on the closing date. Responses are to be submitted in electronic format as set out in this consultation document.
Latest date for requests for extension to the closing date	22nd September 2022	<p>Stakeholders wishing to secure an extension may apply in writing to TDRA for such an extension. The request should set out the rationale for the request.</p> <p>Requests for extension should be submitted by e-mail to the e-mail address shown above.</p> <p>TDRA will not consider any requests for extension which TDRA receives less than one week prior to the closing date, and it will take the following factors into account in considering any request for an extension to the closing date:</p> <ul style="list-style-type: none"> • the number of such requests received; • the rationale for such requests; and • the effect on the overall time-scale of the particular project in question. <p>In the event that TDRA extends the closing date, TDRA will publish the revised closing date on its website.</p>

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1. Introduction to the public consultation

Spectrum is a valuable but finite national resource. The TDRA is responsible for the management of this resource and authorizes the use of radio spectrum to qualifying applicants, subject to terms and conditions. Its responsibilities in this regard include ensuring that radiocommunications can operate with a minimum of interference and that when interference does occur the TDRA has the necessary tools to address it including the power to monitor the use of spectrum, or to put various management processes and procedures in place that enable complaints to be made and, if appropriate, to be investigated and enforcement action taken to solve the interference or other issue complained about.

Spectrum interference can affect any radiocommunications service. Interference can be caused unintentionally, from poor equipment installations or faulty equipment. Interference can also be caused by equipment that is in use illegally, either without the correct authorization or because it is equipment that is not legally permitted to be used within the UAE. Equipment, such as mobile phone repeaters, are a common source of interference.

The duty to manage this resource includes obligations and powers under the Telecommunications Law and Executive Order, 2003, as amended, to:

- approve and carry out inspections of telecommunications apparatus including wireless transmission stations;
- conduct investigations into interference complaints;
- request information when needed, in support of an investigation or to conduct an investigation;
- prescribe controls to prevent interference with communications in the UAE by radio, electrical or other means;
- ensure that persons to whom authorizations have been issued comply with terms, conditions and requirements in relation to the use of frequencies assigned to them which may require it to carry out monitoring activities;
- revoke authorizations in certain circumstances which shall include on expiry of the authorization; and
- enforcement, which may include identifying instances where referral to a Court for the adjudication of the matter must take place.

The TDRA is undertaking a review of the Interference Management Regulations, 2008, and the Spectrum Monitoring and Enforcement Regulations, 2008. In particular, the TDRA is considering whether changes need to be made to:

- bring these Regulations into line with the other relevant TDRA regulations;
- reflect the practical steps for spectrum enforcement in accordance with the Telecommunications Law and Executive Order, 2003, as amended, to date;
- give effect to the objectives of Radiocommunications Policy, 2019, in relation to spectrum assignment and use; and
- align with best international practice.

Updating these Regulations to take account of market conditions, current practices and technological developments requiring the use of radio spectrum is an important

part of the TDRA vision and mandate, ensuring that the UAE remains “the global leading country in ICT”. The TDRA needs to prioritize the matters that should fall within these Regulations in order to manage spectrum, its own resources, and to respond to “harmful interference” issues arising in an effective and efficient manner now and in the future.

The TDRA has also published the Regulations for “Permissible Non-Ionizing Radiation Limits V2.0 dated 27th December 2021. These regulations cover the issues of Electro-Magnetic Field (EMF) exposure and Non-Ionizing Radiation Protection. These subjects are not, therefore, covered in the Interference Management and Spectrum Monitoring and Enforcement Regulations.

The TDRA Regulations can be accessed on the TDRA website at <https://tdra.gov.ae/en/about/tdra-sectors/telecommunication/regulatory-affairs-department/regulations-and-ruling#regulations>

Please be aware that there is some overlap between the questions, but that repetition or similarity is required in order to assess different aspects of each Regulation in this public consultation.

The TDRA is also considering the merger of the two Regulations due to the high level of interdependence between them, as all cases of harmful interference, for example, will lead to monitoring and then enforcement.

Question 1:	What is your view on combining the two Regulations so that interference management is addressed in all its forms, in one Regulation? Kindly support your response with the pros and cons.
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2. Interference Management Regulations, 2008

2.1 Summary

This Regulation currently describes the common types of interference that may be experienced and specifically what harmful interference is; the likely causes of interference; the effect of interference on various services; the procedure for making a complaint about interference; steps that the TDRA may take to prevent, investigate and eliminate harmful interference; and ultimately, how the TDRA might act against any person causing interference if they do not refrain from their activities, or do not comply with orders issued by the TDRA.

2.1 Interference Management Regulatory Objectives

The Interference Management Regulation currently lists the following objectives:

- “1) To prevent interference through spectrum management;
- 2) To eliminate or minimize harmful interference to Authorized Users;
- 3) To protect frequencies for emergency and disaster use from misuse;
- 4) To perform spectral measurements in case of interference;
- 5) To arbitrate and decide in the event of mutual interference for shared Frequency Spectrum Authorizations.
- 6) To localize and identify installation and usage of un-authorized wireless equipment;
- 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;
- 8) To localize un-authorized installation of GSM Jammers;
- 9) In case of interference, verify adherence to the terms and conditions and the technical parameters of the authorization; and
- 10) To advise on interference mitigation techniques.”

Whilst the list of objectives covers a range of matters relevant to interference management, this list may be too broad for effective interference management.

Question 2:	Do these objectives cover the full scope of matters the TDRA should take account of in relation to interference? If not, please provide your suggestions.
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The kind of problems that TDRA considers to be addressed by this Regulation include harmful interference, over-spill, unauthorized use, non-compliance to authorized parameters, or use of apparatus that is not type-approved.

Question 3:	<p>(a) Please indicate which interference issues you consider to be most problematic.</p> <p>(b) What are the priority cases for interference resolution?</p>
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2.2 Categorizing types and severity of interference

The Regulation contains a definition of “harmful interference” which reads, “*Interference which impairs the functioning of a radiocommunication service or which materially degrades or obstructs or repeatedly interrupts radiocommunication*”. Interference can occur as a result of natural phenomena but may not impact a service to a significant degree nor hamper communications in such a way that it requires a positive, immediate or timely intervention to mitigate or terminate it.

The ITU Radio Regulations (RR) define “harmful interference” as “*Interference which endangers the functioning of a radio-navigation service or other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with Radio Regulations*”. The key difference between the two definitions is that the word “**impairs**” is used in the TDRA Regulations and the word “**endangers**” is used in the RR. The ITU definition is intended to protect safety services from interference, but also to ensure that radiocommunications services are not degraded, obstructed or repeatedly interrupted; while the TDRA definition applies in relation to all authorized radiocommunication services. Benchmarking against other countries (e.g. USA and UK) indicates that interference complaints are only dealt with if they concern “harmful interference”. This is in relation to safety services, as well as consumer and enterprise services, but the types of complaints are not necessarily addressed in the same way.

Question 4:	Do you consider the definition of “harmful” interference as it currently stands in the Spectrum Interference Management Regulations to continue to be appropriate? If not, provide reasons why not; and/or provide a substitute or amendment to the definition.
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There are other possible ways to categorize types of interference and the time it takes the TDRA to respond to each one, such as defining services that are or might be affected (e.g. if emergency services and air traffic control are affected, this requires a response within 24 hours) or defining the interests of certain groups that might be affected (e.g. if public safety or economic interests are affected, this requires a response within 48-72 hours). It may also be useful to list the type of interference that should not be addressed by TDRA at all, since it is occasional or minor.

Question 5:	Should additional categories of interference that receive different treatment be included? If so, please indicate what those might be. For example, should different categories receive attention but perhaps over a longer timeframe (also see Question 3 in this regard)?
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2.3 Sources of interference

The most common sources of interference are, in TDRA’s experience, boosters (including repeaters and amplifiers of mobile signals), jamming equipment and faulty apparatus. However, interference sources may also include two-way radio and PMR,

television amplifiers and power sources. As currently set out in the Regulation, in the Gulf area, ducting is a special phenomenon which can allow signals to propagate to very long distances and can cause interference. Unauthorized use of frequencies, or operating equipment at odds with the requirements identified in an authorization may also cause interference.

The Regulation currently deals with susceptibility to interference in Article 5, which states, “*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.”*

Question 6:	These issues were appropriate and relevant for inclusion in the 2008 Regulation. Are these issues still relevant in your view? Please give reasons. If not, please suggest any other issues which you consider should be included.
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2.4 Interference Complaints Procedure

When interference is suspected, typically a complaint is submitted to the TDRA for investigation. The TDRA receives interference complaints via several online channels such as its online portal, and telephone or email. Once a complaint is received the TDRA prioritizes the complaint based on the severity of the interference and impact on the service, with emergency services and safety of life being given the highest priority. Urgent matters receive urgent attention, and a team is dispatched to investigate immediately if the threshold criteria for these matters have been met.

Question 7:	Do you have any comments on the procedures for making an interference complaint and the actions taken by the TDRA in response? When providing your response please indicate if you are an Authorized User and if you have had cause to submit an interference complaint to the TDRA previously, and what your views about the process are.
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2.5 Resolving interference complaints

Once a complaint has been made or an investigation by TDRA has indicated that further action is required in relation to harmful interference, TDRA must identify the source of interference if it is not already known, and then proceed to deal with it. The TDRA may need the assistance of the complainant to identify the source. If it becomes clear that the source is located on private property, the Regulations currently provide in Article 13.2.3 that the TDRA, “*may carry out the physical inspection of sites reasonably suspected as a source of interference*”.

The TDRA obtains a warrant through the judicial officer within TDRA to enter onto private property, and if necessary, to switch off, seize and remove offending apparatus. In addition, if it becomes clear that the person or entity causing the interference is doing so in breach of the terms of an authorization or without an authorization, TDRA may initiate prosecution proceedings.

These matters (entry onto private property and seizure) are currently addressed in each of the Spectrum Interference Management Regulations and the Spectrum Enforcement and Monitoring Regulations.

Question 8:	The TDRA proposes to set out the type of violation and possible actions to be taken in one Regulation. Do you agree with this approach? (also see Question 1 in this regard)?
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3. Spectrum Monitoring and Enforcement Regulations, 2008

3.1 Summary

This Regulation currently describes the role of the TDRA in monitoring the use of radio spectrum; the planning, co-ordination and enforcement activities of the TDRA in relation to radio spectrum; surveillance and inspection powers that may be used; liaison with international spectrum management agencies; and the powers of the TDRA in relation to a breach of the Law or any regulation pertaining to the use of spectrum including unauthorized use of spectrum and radiocommunications apparatus.

3.2 Objectives for monitoring and enforcement

The list of monitoring and enforcement objectives is set out in Article 2 of this Regulation and the possible actions that may be taken are set out in Article 11 of this Regulation. They include some of the following objectives:

- To eliminate or minimize Harmful Interference to Authorized Users;
- To verify adherence to the terms and conditions and the technical parameters of the Frequency Spectrum Authorization;
- To measure the field strength levels of emissions and electromagnetic compatibility studies for sharing between different radio services;
- To measure adjacent channel power, necessary bandwidth, spurious emissions and out of band emissions;
- To detect the illegal users;
- To localize and identify installation and usage of un-authorized Wireless Equipment;
- To measure the radiation levels to verify health and safety standards;
- To participate in International Monitoring programs;
- To monitor frequencies where requests to do so are received from the ITU or any other Administration (State);
- To work with the dealers authorized by the Authority for market surveillance.

There is some overlap between these objectives and those set out in the Spectrum Interference Management Regulation. The TDRA is considering creating a shorter more general list of objectives which addresses monitoring and enforcement of spectrum and mitigation and elimination of interference in one regulation.

Question 9:	<p>(a) Do you agree with the proposed approach to include a shorter more general list of objectives in the regulations? If you do not agree, please explain why not.</p> <p>(b) Are there any additional objectives that you believe should be specified or taken into consideration?</p>
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3.3 Actions to be taken by the TDRA

The Spectrum Monitoring and Enforcement Regulations provide for general monitoring and enforcement actions that may be taken by the TDRA including in relation to data exchanges with other countries, and the sale and distribution of wireless equipment (or radiocommunications apparatus).

As indicated in the previous section, TDRA is considering creating one unified regulation that deals with interference management, the exchange of data with neighboring countries, and apparatus. However, the inspection of wireless equipment and registration of authorized dealers in wireless equipment may be dealt with in a separate “Type Approval” framework. No wireless equipment may be sold or used in the UAE unless it meets the legislated requirements and unless the dealer or distributor is listed on the TDRA register.

Question 10:	Do you agree that all regulatory provisions that relate to spectrum monitoring and interference management could be incorporated into one regulation? If not, please give reasons (also see Questions 1 and 8 in this regard).
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3.4 Characteristics of enforcement

Enforcement means both the implementation of existing rules, and ensuring that those rules are complied with at all times. Spectrum enforcement refers to inspection and compliance to the legal (under the Telecommunications Law) and regulatory framework related to spectrum.

In some cases, the Telecommunications Law enables TDRA to take action against persons or entities that are not compliant. However, such persons or entities may have innocently or without intent, acquired apparatus that is not type-approved for use in the UAE, for example, mobile boosters/ repeaters, or may be not in full compliance to the authorized parameters in the authorization. In some cases, the user may not have a valid authorization (because it has expired or is under renewal) or no authorization at all.

Question 11:	The TDRA’s approach may be to educate the person or entity about the need for type-approval and compliance with the relevant authorization. In case of delays in, or absence of compliance, the TDRA may initiate prosecution. The outcome will nonetheless be that the source of any interference is removed and that compliance will be achieved. Do you agree with this approach or propose any different approach?
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The TDRA wishes to revisit its’ approach to non-compliance or to distinguish the type of action it may take to enforce compliance depending on the likely effect of the non-compliance and type of non-compliance.

Enforcement measures in the case of a failure to renew will thus be different from those in the case of harmful interference.

Question 12:	As the TDRA is also considering creating categories of interference by severity and allocating time to respond accordingly, do you agree that it would be appropriate to match the enforcement action to the severity of the non-compliance? If you do not agree, please give reasons.
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3.5 Enforcement actions in the case of interference

The approach TDRA is considering would require a complainant to ensure that all of the following qualifying criteria exist before making a complaint about interference:

- (i) The interference is severe and qualifies as harmful interference,
- (ii) multiple stations experience interference simultaneously,
- (iii) there are no alternative back-up channels, and
- (iv) significant numbers of users experiencing a loss of service.

The TDRA currently issues a “show cause order” under Article 11 of the Spectrum Management and Enforcement Regulations.

Question 13:	<p>(a) Is a ‘show cause order’ sufficient or should additional administrative tools such as fixed penalties and equipment seizure be considered?</p> <p>(b) Do you agree with the threshold criteria to be met for a complaint about harmful interference before any action will be taken?</p>
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3.4 Monitoring Compliance

The TDRA has a number of ways in which it can monitor compliance with authorized parameters in the spectrum authorization and the technical and regulatory conditions in the spectrum regulatory framework. These include spectrum measurements, monitoring, drive tests, inspection of authorized stations, requests for submission of documents, and technical details of the apparatus. These are consistent with the methods used in other countries.

Question 14:

- (a) Do you consider these activities to be sufficient in relation to monitoring compliance? If not, please advise what you suggest.
- (b) If you disagree with the outcome of a TDRA monitoring exercise, how do you currently address this issue with TDRA?

4. General

These are questions that are of a general nature, although they relate to the subject matter of the consultation. Please answer these questions where possible, in addition to the questions asked in sections 2 and 3 above.

Question 15	Further to the specific matters discussed, and questions asked above, please identify any additional issues which you feel are relevant for consideration in this consultation. Please provide specific support and/or explanation of your viewpoints as well as recommendations regarding how such issues might be resolved.
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