

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

A Consultation issued by the Telecommunications Regulatory Authority on the 2.4 GHz and 5 GHz Frequency Licensing Regulation

9 July 2006

The address for responses to this document is:

The General Director,  
Telecommunications Regulatory Authority (TRA),  
P.O. Box 10353, Manama, Kingdom of Bahrain

Alternatively, e-mail responses may be sent to the Authority's email address at [consult@tra.org.bh](mailto:consult@tra.org.bh)

The deadline for responses is 5 p.m. on 20 July 2006

**Purpose:** To provide a mechanism for the light-touch licensing of 2.4 GHz and 5 GHz spectrum in the Kingdom of Bahrain.



هيئة  
تنظيم  
الاتصالات  
Telecommunications  
Regulatory  
Authority

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

### **Introduction**

In the spectrum policy document “Spectrum Policy and Planning – A Joint Policy Issued by the Telecommunications Regulatory Authority (TRA) and the Ministry of Transportation of the Kingdom of Bahrain (MoT) dated 27 June 2006, the TRA and the MoT proposed that spectrum from the 2.4 GHz and 5 GHz bands be managed in the Kingdom of Bahrain under a light-touch licensing regime and that the current Government use of these bands be scaled down. As a result of this policy decision, the TRA needs to consider how it is to introduce light-touch licensing.

Every person wishing to use radio frequency spectrum in the Kingdom of Bahrain must hold a frequency license from the TRA, as required by section 43 of the law promulgated by Legislative Decree No. 48 of 2002 (the “**Telecommunications Law**”). To obtain a frequency license, a person must apply to the TRA in accordance with the procedures set out in section 44 of the Telecommunications Law.

In order to create a simple and efficient system enabling every owner or operator of a WiFi hotspot or WiMAX/WLAN equipment to apply for and obtain a frequency license in compliance with the Telecommunications Law, the TRA proposes a web-based application mechanism. The TRA has determined that this is the most administratively efficient method that it can devise under the Telecommunications Law to enable the grants of frequency licenses in the 2.4 GHz and 5 GHz frequency spectrum in compliance with the Telecommunications Law. It proposes to set out the application mechanism in a regulation (a draft of which is attached to this consultation document), which will state that upon the completion of an online application process, applicants will be deemed to have been granted a frequency license upon the terms included in the regulation, unless they hear otherwise from the TRA within fourteen (14) days of their application.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

Section 52 of the Telecommunications Law requires the TRA to establish and maintain one or more registers of, *inter alia*, licenses granted and details of the licensees. Such registers are available to the public for inspection. It is proposed that for the purposes of this proposed license that, should it be necessary, the TRA will only make available each licensee's name and the location of where the radiocommunications equipment will be used.

This consultation includes the draft of the Regulation which the TRA proposes to issue in order to regulate the licensing of 2.4 GHz and 5 GHz spectrum. The TRA will also issue with the Regulation the notice required under the Telecommunications Law to set the application fees and fees payable on the grant of the relevant license to zero. It should therefore be noted that the TRA and the Ministry of Transportation do not intend to charge any fees for the application or grant of 2.4 GHz and 5 GHz frequency licenses or for the use of this spectrum. However, entities that use the licensed spectrum to provide a public telecommunications service will be required to hold a telecommunications service license or licenses and to account for the revenue generated by using the licensed spectrum under the license conditions of their telecommunications services license.

The Ministry of Transportation (the Radiocommunications Authority for the purposes of section 42(a) of the Telecommunications Law), in consultation with the TRA, has fixed the terms upon which 2.4 GHz and 5 GHz spectrum will be restricted in terms of the maximum power that the relevant Radiocommunications Equipment can emit. The TRA has therefore set the maximum power and the equipment standards that should be applied to such equipment. These aspects of the Regulation (included in Article 3) are therefore not subject to this Consultation.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

### **Consultation**

*The TRA seeks interested parties' opinions on the following:*

- *Does the automated on-line application system proposed by the draft Regulation meet the needs of the telecommunications industry and the people of the Kingdom of Bahrain for a simple and efficient frequency license application process for the 2.4 GHz frequency spectrum and for the 5 GHz (Band A or Band C) frequency spectrum, taking into account the requirement of the Telecommunications Law as it currently stands?*

### **Next steps**

The TRA welcomes comments on this Consultation and draft Regulation. Interested parties may answer all or any of the questions set out in this document. The TRA welcomes comments on any other issues related to this draft Regulation which interested parties may wish to raise, other than comments on Article 3 of the draft Regulation. The deadline for receipt of responses is 5 p.m. on Thursday 20 July 2006.

Following receipt of responses, the TRA will review these and issue a Report on responses received. Depending on the nature of the responses received, the TRA will also issue either a final regulation, or, if appropriate, a further draft regulation with a shorter consultation period, after which the TRA will review comments received and then issue a final regulation.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

### DRAFT REGULATION

#### **Definitions**

Unless otherwise defined in this Regulation, any word, phrase or expression shall, unless the context so requires, have the meaning given to it in the Telecommunications Law and the terms below shall have the following meaning:

**“Application”** means an application for a Frequency License made in accordance with Article 2 of this Regulation;

**“Commercial Company Law”** means the commercial companies law promulgated by Legislative Decree No. 21 of 2001;

**“2.4 GHz and 5 GHz License”** means the form of license for spectrum in the 2.4 GHz and 5 GHz bands set out in Annex A to this Regulation, being the terms under which a Person will be deemed to be licensed by the Authority on completing an application;

**“2.4 GHz and 5 GHz Licensee”** means a Person deemed to be a holder of a 2.4 GHz and 5 GHz License pursuant to the terms of this Regulation;

**“Regulation”** means this Regulation No. [ ] of 2006 on 2.4 GHz and 5 GHz Frequency Licensing;

**“Telecommunications Law”** means the Legislative Decree No. 48 of 2002 promulgating the telecommunications law of the Kingdom of Bahrain;

**“WiFi Hotspot”** means a wideband transmission system using spread spectrum modulation techniques (and for the avoidance of doubt, the use of the label “WiFi” in this definition shall not imply any particular standard or technology); and

**“WiMAX/WLAN Equipment”** means equipment for wireless metropolitan area networks or for wireless local area networks on a fixed or nomadic basis (and for

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

the avoidance of doubt, the use of the label “WiMAX/WLAN” in this definition shall not imply any particular standard or technology).

### **Article 1 - Scope**

- 1.1 Pursuant to section 43 of the Telecommunications Law, any Person who wishes to use Radiocommunications Equipment in the Kingdom associated with a Telecommunications Network must obtain a Frequency License for the relevant spectrum, whether for Public Telecommunications Services or for private use only. Consequently, any Person wishing to operate a WiFi Hotspot or WiMAX/WLAN Equipment in the Kingdom must obtain a Frequency License.
- 1.2 Persons wishing to obtain a 2.4 GHz and 5 GHz License may apply by way of an online application mechanism under which the Authority will consider for the grant pursuant to section 44 of the Telecommunications Law and the powers of the Authority under sections 3 and 45 of the Telecommunications Law Frequency Licenses for spectrum in the 2.4 GHz and 5 GHz bands, being in the frequency ranges 2400 – 2483.5 MHz, 5150 – 5350 MHz (Band A) and 5725 – 5850 MHz (Band C), provided that use of the licensed spectrum is within the power limits set out in this Regulation.

### **Article 2 – Application Process**

- 2.1 The following classes of Persons shall be entitled to apply for a 2.4 GHz and 5 GHz License pursuant to this Regulation:
  - (a) juristic entities incorporated in the Kingdom or branches of foreign companies licensed to operate in the Kingdom in accordance with the Commercial Companies Law; and
  - (b) nationals of the Kingdom or any other Gulf Co-operation Council member state or holders of a Central Population Registry card issued by the Kingdom’s Central Informatics Organization.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

2.2 Any Person who wishes to apply for a 2.4 GHz and 5 GHz License pursuant to this Regulation must complete the application form for that purpose, made available by the Authority on its website (<http://www.tra.org.bh>). Any Person who wishes to apply for a license must provide, as a minimum, the following information:

- (a) the name of the individual applicant or company;
- (b) the Person's Central Population Registry or Commercial Registry Number (for a company);
- (c) the Person's contact details;
- (d) location and address of where the Person will be operating the radiocommunications equipment using the assigned spectrum; and
- (e) details of other licenses issued by the Authority and held by that Person and the license number.

2.3 Once a Person has provided all the information requested in the Authority's application form and submitted the Authority's application form in accordance with its requirements then:

- (a) that Person shall be deemed to have made a written application for the purposes of section 44 of the Telecommunications Law (an **"Application"**);
- (b) that application will be approved by the Authority and the Person will be the holder of the relevant 2.4 GHz and 5 GHz License, unless the Authority notifies the Person that the application has been rejected within fourteen (14) days of the date of the application.

2.4 Upon completion of an Application, the Person's details will be entered onto the Authority's register of holders of Frequency Licenses, which

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

register shall be made available for inspection by the public at the offices of the Authority during the Authority's normal business hours.

- 2.5 Persons who use with the permission of the 2.4 GHz and 5 GHz Licensee terminal Radiocommunications Equipment in connection with WiFi Hotspots or in connection with WiMAX/WLAN Equipment operating under a 2.4 GHz and 5 GHz License shall be deemed by the Authority to be sub-licensees of the 2.4 GHz and 5 GHz Licensee. The 2.4 GHz and 5 GHz Licensee shall be at all times responsible and liable for the acts and omissions of sub-licensees who use its WiFi Hotspots or WiMAX/WLAN Equipment.

### **Article 3 – Technical Criteria**

A 2.4 GHz and 5 GHz Licensee may only operate Radiocommunications Equipment under a 2.4 GHz and 5 GHz License if that Radio Equipment adheres to the applicable emission standards and technical specifications or requirements specified by the Authority for the purposes of section 4.1(a) of the 2.4 GHz and 5 GHz License, as set out in Annex B to this Regulation

### **Article 4 – Type Approvals**

Nothing in this Regulation shall be implied to relieve any Person from obtaining any approvals required under section 38 of the Telecommunications Law for any Radiocommunications Equipment used in connection with any Frequency License.

### **Article 5 – Adherence to the Licensing Conditions**

- 5.1 The Authority expressly reserves its right to enforce the provisions of the Telecommunications Law against any Person using Radiocommunications Equipment without a Frequency License.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

5.2 Nothing in this Regulation shall exempt any holder of any other telecommunications license or license for the provision of telecommunications services or Frequency License from complying in full with the terms and conditions of that license.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

### Annex A – 2.4 GHz and 5 GHz License

#### 1. GRANT OF LICENSE

- 1.1 The Telecommunications Regulatory Authority under the terms of the Regulation shall be deemed to have granted this frequency license (the **“License”**) by which the Authority permits the use on a non-exclusive basis by the holder (that Person being a **“Licensee”**) of the radio frequency spectrum described in Schedule A (the **“Assigned Radio Frequency Spectrum”**) for the sole purpose of using Radiocommunications Equipment operating at the Assigned Radio Frequency Spectrum as part of its Telecommunications Network in the Licensed Area.
- 1.2 Where the Licensee is a Licensed Operator, the Licensee shall not use the Assigned Radio Frequency Spectrum unless the telecommunications license(s) or license(s) for the provision of telecommunications services of the Licensee are valid and current.
- 1.3 Where the Licensee is not a Licensed Operator, the Licensee shall not use the Assigned Radio Frequency Spectrum for the provision of Telecommunications Services other than to itself.
- 1.4 This License shall be subject to the provisions herein stated, the law promulgated by Legislative Decree No. 48 of 2002 (the **“Telecommunications Law”**) and any regulations issued thereunder.

#### 2. DEFINITIONS

- 2.1 For the purposes of this License:
  - (a) a meaning or definition provided for any capitalized word, phrase or expression under the Telecommunications Law shall also be

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

applicable to such capitalized word, phrase or expression in this License; unless the context requires otherwise; and

- (b) the following terms and expressions shall have the following meanings unless the context requires otherwise:

**“Licensed Area”** means the territory of the Kingdom of Bahrain; and

**“Regulation”** means Regulation No. [ ] of 2006 on 2.4 GHz and 5 GHz Frequency Licensing.

### 3. USE OF RADIO FREQUENCY SPECTRUM

3.1 Without derogating from section 49 of the Telecommunications Law, the Licensee shall take all necessary steps to ensure that the use of the Assigned Radio Frequency Spectrum is safe and does not cause harmful interference to the other existing Radiocommunications Stations and Telecommunications Networks operating in the same area or radio frequency band and in other areas or radio frequency bands.

3.2 The Licensee shall take all appropriate measures to ensure that its Radiocommunications Stations and equipment comprised therein are adequately protected from interference that may be caused by Radiocommunications Stations and Telecommunications Networks operating in the same area or radio frequency band or in other areas or radio frequency bands.

3.3 The Licensee shall co-operate with the Authority for the purposes of assisting the Authority in coordinating and managing the efficient use of radio frequencies in relation to neighboring countries, including but not limited to the provision of information to the Authority, and the reduction of emission levels of Radiocommunications Stations.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

3.4 Subject to applicable law, this section 3 and section 4, the use of any part of the Assigned Radio Frequency Spectrum (including the provisioning for a guard band(s)) shall be at the discretion of the Licensee and the Authority shall have no responsibility for managing, or liability in connection with, harmful interference caused by other lawful users of the Assigned Radio Frequency Spectrum.

3.5 Without derogating from the provisions of section 47 of the Telecommunications Law, where required for the efficient use of radio frequency spectrum in the Licensed Area, the Licensee shall migrate in accordance with the requirements specified by the Authority, from time to time, in relation thereto, by way of regulation.

#### **4. RADIOCOMMUNICATIONS EQUIPMENT**

4.1 The Licensee shall ensure that the Radiocommunications Equipment comprised in any of its Radiocommunications Stations:

- (a) at all times complies with all applicable emission standards and technical specifications or requirements specified by the Authority, from time to time, in the Regulation and in relation thereto; and
- (b) is designed and constructed, used and maintained so as not to cause any undue interference even when in use in compliance with the Telecommunications Law and its regulations.

4.2 The Licensee shall ensure that the Radiocommunications Stations and equipment comprised therein that are operated within the Assigned Radio Frequency Spectrum are not used for unlawful purposes or misused in any way.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

4.3 The Licensee shall ensure that all Persons using its Radiocommunications Equipment comprised in any of its Radiocommunications Stations are made aware of the relevant terms of this License together with any other relevant telecommunications license or license for the provision of telecommunications services and comply with such terms.

### **5. NO RADIO FREQUENCY SPECTRUM TRADING**

5.1 The Licensee shall not, except with the prior written approval of the Authority, assign, transfer, trade, sell or otherwise dispose of the whole or any part of the rights, privileges, duties and/or obligations under this License to any Person or Persons.

### **6. RADIO FREQUENCY SPECTRUM SHARING**

6.1 The Licensee shall not, except with the prior written approval of the Authority, authorize any Person or Persons to operate a Radiocommunications Station and/or Telecommunications Network within the Assigned Radio Frequency Spectrum

### **7. ANTI-COMPETITIVE PRACTICES**

7.1 Without derogating from section 65 of the Telecommunications Law, the Licensee shall not, alone or together with others, engage in or continue or knowingly acquiesce in any anti-competitive practices and, in particular, the Licensee shall:

- (a) not engage in anti-competitive cross-subsidization;
- (b) not abuse any dominant position;

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

- (c) not enter into exclusive arrangements with any Person or Persons for the location of facilities using the Assigned Radio Frequency Spectrum;
- (d) not enter into any agreements, arrangements or undertakings with any Person, which have as their objective or cause the fixing of prices or other restraint on competition; and
- (e) where the Licensee is a Licensed Operator:
  - (i) not use information obtained from competitors if the objective or effect of such use is anti-competitive;
  - (ii) make available to other Licensed Operators on a timely basis technical information about essential facilities and other commercially relevant information that is necessary for them to provide service; and
  - (iii) not (whether in respect of the tariffs or other terms applied or otherwise) show undue discrimination against particular persons or persons of any class or description as respects the provision of any licensed service.

### **8. RADIOCOMMUNICATIONS AND FREQUENCY ASSIGNMENT**

8.1 The Licensee shall ensure that the Radiocommunications Equipment comprised in any of its Radiocommunications Stations is designed and constructed, used and maintained, so as not to cause any undue interference even when in use in compliance with the rules from time to time established by the Authority.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

- 8.2 The Licensee shall not permit or suffer any person to use its Radiocommunications Equipment comprised in any of its Radiocommunications Stations unless the person is under the control of, and authorised by, the Licensee.
- 8.3 The Licensee shall ensure that all persons using Radiocommunications Equipment in connection with the Licensee's Radiocommunications Stations are made aware of the relevant terms of this License and other applicable Licenses and comply with such terms.
- 8.4 Without derogating from section 77 of the Telecommunications Law, the Licensee shall permit any person authorised by the Authority to have access to any of its Radiocommunications Stations and to inspect or test its Radiocommunications Equipment at any reasonable time or whenever an emergency situation exists, at any time, for the purpose of verifying compliance with the terms of the License, the provisions of the Telecommunications Law and regulations issued thereunder or for the purpose of investigating sources of radiocommunications interference.

### **9. REQUIREMENT TO PROVIDE INFORMATION AND INSPECTION**

- 9.1 Without derogating from section 77 of the Telecommunications Law, the Licensee is required to maintain such information as will enable the Authority to carry out its functions under the Telecommunications Law in such manner as the Authority may from time to time request. The Authority shall have the right to request the Licensee to submit periodic reports, statistics and other data, as well as request additional information in order to effectively supervise and enforce the terms of this License, the provisions of the Telecommunications Law and the regulations issued thereunder.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

9.2 Without derogating from section 77 of the Telecommunications Law, the Licensee shall permit a Person authorized by the Authority to have access to any of its Radiocommunications Stations and to inspect or test its Radiocommunications Equipment at any reasonable time or whenever an emergency situation exists, at any time, for the purpose of verifying compliance with the terms of this License, or investigating sources of harmful Radiocommunications interference.

### **10. DURATION AND RENEWAL**

10.1 This License is valid for a period of five (5) years from the deemed grant date, as determined in accordance with the Regulation.

10.2 The Authority shall have no obligation whatsoever to renew this License or to grant the Assigned Frequency Spectrum to the Licensee upon a new request by the Licensee for that spectrum.

### **11. MODIFICATION, REVOCATION AND TERMINATION**

11.1 The terms of the whole or any part of this License may be modified or revoked by the Authority at any time. When the Authority intends to amend or revoke the whole or any part of this License, it shall give the Licensee thirty (30) days' notice of the amendment or revocation. The notice shall state the following:

- (a) that the Authority intends to amend or revoke the whole or any part of the License, setting out the effect of the amendment or revocation;
- (b) the reasons that justify the amendment or revocation; and
- (c) that the Licensee is entitled to respond in writing to the Authority during the notice period specified by the Authority in the notice.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

11.2 After consideration of the responses submitted during the notice period, the Authority shall issue the appropriate decision, which shall be issued in the same manner as for notices, as set out at section 14.2 below.

11.3 This License shall terminate automatically upon the expiry of its term if it is not renewed in accordance with section 10.2 above.

### **12. FORCE MAJEURE**

12.1 If the Licensee is prevented from performing any of its obligations under this License because of force majeure, the Licensee shall notify the Authority of the obligations it is prevented from performing as soon as practicable after it becomes aware of such force majeure.

12.2 The Authority may suspend those obligations referred to under section 12.1 and the Licensee will not be liable to perform those obligations, for so long as the force majeure continues, only if and to the extent that the inability to perform could not have been prevented by taking steps specifically required under the law or this License or other reasonable precautions, and the inability cannot reasonably be circumvented by the Licensee at its expense through the use of alternate sources, work-around plans or other means.

### **13. DISPUTE RESOLUTION**

13.1 All disputes between the Licensee and the Authority arising out of this License shall be resolved in accordance with the provisions of Chapter XVI of the Telecommunications Law.

13.2 The courts of the Kingdom of Bahrain shall have jurisdiction over disputes between the Licensee and other Licensed Operators in connection with telecommunications activities which they are licensed to conduct, provided, however, that a party to such dispute may require the dispute to be referred

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

to arbitration, in which case, unless the parties agree otherwise and provided that such agreement is not contrary to Chapter VII of the Civil and Commercial Procedural Law of 1971, the provisions of sections 67 to 71 of the Telecommunications Law shall apply *mutatis mutandis*.

### **14. NOTICES**

- 14.1 All notices to be sent by the Licensee to the Authority shall be satisfied if sent by registered mail with acknowledgement of delivery to the Authority at P.O. Box 10353, Manama, Kingdom of Bahrain or such other address as notified to the Licensee with at least fifteen (15) days notice before the change of address takes effect.
- 14.2 All notices to be sent by the Authority shall be published on its website and in two daily newspapers of the Kingdom of Bahrain (one Arabic and one English) or in the Official Gazette or in such other manner that ensures that such notice is brought to the knowledge of the Licensee.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

### SCHEDULE A

#### ASSIGNMENT OF RADIO FREQUENCY SPECTRUM

The Assigned Radio Frequency Spectrum means, unless otherwise specified below, the range of radio frequencies between the upper and lower frequency limits of the radio frequency bands specified in the table below:

<b>Band</b>	<b>Range</b>	<b>Specific Restrictions and Conditions</b>
2.4 GHz	2400 – 2483.5 MHz	EIRP, using frequency hopping, less than -10 dBW (100 mW)/100kHz. EIRP, using other forms of spread spectrum, - 20dBW(10mW)/MHz.
5 GHz Band A	5150 – 5250 MHz	Maximum mean EIRP 200 mW (-7 dBW) with max mean EIRP density 0.25mW/25kHz in any 25 kHz band. Indoor use only.
5 GHz Band A	5250 – 5350 MHz	Maximum mean EIRP 200mW (-7dBW) with max mean EIRP density 10mW/MHz in any 1 MHz band. TPC to be used, or 3dB reduction in power limits. DFS to be used, to include near uniform spreading over available channels. Indoor use only.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

5 GHz Band C	5725 – 5850 MHz	EIRP 2 W (3dBW) with a PSD not exceeding 100 mW/MHz (-10 dBW/MHz). Equipment to deploy DFS and TPC. Fixed/nomadic use only.
-----------------	-----------------	--------------------------------------------------------------------------------------------------------------------------------

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

### **Annex B – Technical Specifications for section 4.1(a) of the License**

#### 1 Definitions

In this Annex, unless the context otherwise demands:

“**DFS**” means dynamic frequency selection;

“**EIRP**” means equivalent isotropically radiated power, as defined in the 2001 edition of the Radio Regulations published under Article 13 of the Constitution of the International Telecommunications Union; and

“**TPC**” means transmitter power control.

#### 2 2.4 GHz Technical Specifications

Licensees using 2.4 GHz spectrum shall adhere to the following emission standards and technical specifications or requirements:

- (a) the maximum EIRP of any transmitter used in connection with a WiFi Hotspot is limited to -10 dBW(100mW)/100 kHz if using frequency hopping, and -20 dBW(10mW)/MHz if using other spread spectrum techniques ; and
- (b) the Radiocommunications Equipment used in connection with the WiFi Hotspot must comply with the following standards:
  - (i) the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 (Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications) and IEEE standard 802.11b (Higher-Speed Physical Layer

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

Extension in the 2.4 GHz Band) or 802.11g (Further Higher Data Rate Extension in the 2.4 GHz Band); or

- (ii) the European Technical Standards Institute (ETSI) standards EN 300 328-1 and EN 300 328-2 on electromagnetic compatibility and radio spectrum matters; wideband transmission systems; data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques; or
- (iii) such other standards as the Authority may so declare as acceptable for application in the Kingdom of Bahrain by way of a notice on the Authority's website.

### 3 5 GHz Band A Technical Specifications

Licensees using 5 GHz Band A spectrum shall adhere to the following emission standards and technical specifications or requirements:

- (a) the maximum mean EIRP of any transmitter used in connection with the Radiocommunications Equipment shall be limited to:
  - (i) 200 mW (-7 dBW) in the sub-band 5150-5250 MHz, with maximum mean EIRP density of 0.25mW/25kHz in any 25 kHz band; and
  - (ii) 200mW(-7dBW)/MHz in the sub-band 5250-5350 MHz in any 1 MHz band if transmitter power control (TPC) is deployed, or, if TPC is not used, the above EIRP limit must be reduced by 3dB;
- (b) the WiMAX/WLAN Equipment deployed in the sub-band 5250-5350 MHz must operate DFS, to include near uniform spreading over available channels;

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

- (c) the WiMAX/WLAN Equipment must be deployed for indoor use only;  
and
- (d) the WiMAX/WLAN Equipment shall comply with the following standards:
  - (i) the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 (Part 11/Amendment 1:2000(E): Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications – Amendment 1: High-speed Physical Layer in the 5 GHz band) and IEEE standard 802.11h (Spectrum and Transmit Power Management Extensions in the 5GHz band in Europe); or
  - (ii) IEEE standard 802.16 for local and metropolitan area networks (Part 16: Air Interface for Fixed Broadband Wireless Access Systems); or
  - (iii) the European Technical Standards Institute (ETSI) standards EN 301 489 on electromagnetic compatibility and radio spectrum matters; electromagnetic compatibility standard for radio equipment and services: Part 17: specific conditions for Wideband data and High Performance Radio Local Area Networks (HIPERLANs) and draft ETSI standard EN 301 893 on broadband radio access networks: 5GHz high performance RLAN: Part 2 harmonised EN covering essential requirements of article 3.2 of the R&TTE Directive; or
  - (iv) UK Interface Requirement 2006 – Short Range, Broadband, Data Services (High performance RLAN) operating in the frequency range 5150-5725 MHz; or

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

- (v) such other standards as the Authority may so declare as acceptable for application in the Kingdom of Bahrain by way of a notice on the Authority's website.

### 4 5 GHz Band C Technical Specifications

Licensees using 5 GHz Band C spectrum shall adhere to the following emission standards and technical specifications or requirements:

- (a) the maximum EIRP of any transmitter used in connection with the Radiocommunications Equipment shall be limited to 2 W with a maximum power spectrum density of less than or equal to 100 mW/MHz (-10 dBW/MHz)
- (b) the WiMAX/WLAN Equipment must operate DFS and TPC techniques, with access point antenna systems not to be installed at heights greater than 30 metres above ground level;
- (c) the WiMAX/WLAN Equipment must be deployed for fixed/nomadic use only and not for Mobile Radiocommunications; and
- (d) the WiMAX/WLAN Equipment shall comply with the following standards:
  - (i) the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 (Part 11/Amendment 1:2000(E): Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications – Amendment 1: High-speed Physical Layer in the 5 GHz band) and IEEE standard 802.11h (Spectrum and Transmit Power Management Extensions in the 5GHz band in Europe); or

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

- (ii) IEEE standard 802.16 for local and metropolitan area networks (Part 16: Air Interface for Fixed Broadband Wireless Access Systems); or
- (iii) the European Technical Standards Institute (ETSI) standards EN 301 489 on electromagnetic compatibility and radio spectrum matters: electromagnetic compatibility standard for radio equipment and services: Part 17: specific conditions for Wideband data and High Performance Radio Local Area Networks (HIPERLANs) and draft ETSI standard EN 301 893 on broadband radio access networks: 5GHz high performance RLAN: Part 2 harmonised EN covering essential requirements of article 3.2 of the R&TTE Directive: or
- (iv) UK Radio Interface Requirement 2007 – Fixed Broadband Services operating in the frequency range 5725-5850 MHz; or
- (v) such other standards as the Authority may so declare as acceptable for application in the Kingdom of Bahrain by way of a notice on the Authority's website.

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

### DRAFT EXPLANATORY NOTE

*(This is not part of the Regulation)*

This Explanatory Note is issued by the Authority to explain the purpose of the 2.4 GHz and 5 GHz Frequency Licensing Regulation (Regulation No. [ ] of 2006)(the “**Regulation**”). It is provided for information purposes only. Terms defined in the Regulation have the same meaning in this Explanatory Note.

The Regulation sets out the terms under which the Authority will grant or be deemed to have granted a license pursuant to section 44 of the Telecommunications Law in connection with frequency spectrum in the 2.4 GHz and 5 GHz bands (as detailed in the Regulation).

**ALL PERSONS WHO OPERATE WIFI HOTSPOTS OR WIMAX/WLAN EQUIPMENT**, INCLUDING INDIVIDUALS, GOVERNMENT OR PUBLIC ORGANIZATIONS, COMPANIES OR PARTNERSHIPS (OTHER THAN THE BAHRAIN DEFENCE FORCES AND OTHER STATE SECURITY ORGANISATIONS) **MUST OPERATE UNDER A FREQUENCY LICENSE**, WHETHER THE WIFI HOTSPOT OR WIMAX/WLAN EQUIPMENT IS USED FOR PRIVATE USE OR FOR THE PROVISION OF A PUBLIC TELECOMMUNICATIONS SERVICE (section 43 of the Telecommunications Law).

In order to simplify the licensing requirements for operators of WiFi Hotspots or WiMAX/WLAN Equipment, operators who comply with the application process for a 2.4 GHz and 5 GHz License as set out in this Regulation shall be deemed have been granted a 2.4 GHz and 5 GHz License, unless the Authority notifies them otherwise within the period set out in the Regulation.

Potential operators of WiFi Hotspots, WiMAX or WLAN Equipment under a 2.4 GHz and 5 GHz License must note the following:

# CONSULTATION

## 2.4 GHz and 5 GHz Frequency Licensing Regulation

- (a) any 2.4 GHz and 5 GHz License for spectrum in the 2.4 GHz or 5 GHz bands IS NOT EXCLUSIVE;
- (b) the operator's use of spectrum in the 2.4 GHz or 5 GHz bands MAY BE SUBJECT TO INTERFERENCE and NO STEPS WILL BE TAKEN to deal with any interference unless the interference arises out of the illegal use of the relevant Radiocommunications Equipment; and
- (c) the Authority WILL BE UNDER NO OBLIGATION TO GRANT ANY RENEWAL OR A NEW FREQUENCY LICENSE. An applicant may therefore be in possession of WiFi Hotspot equipment or WiMAX/WLAN Equipment that it will not be able to use legally once its 2.4 GHz and 5 GHz License expires. DEPLOYMENT AND OPERATION OF ANY EQUIPMENT UNDER A FREQUENCY LICENSE IS ENTIRELY AT THE RISK OF THE OPERATOR.