

EXPLANATORY NOTE

(This is not part of the License or 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. 1 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:

- (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.

**FORM OF INDIVIDUAL LICENSE FOR THE USE OF 2.4 GHz AND 5 GHz FREQUENCY
SPECTRUM BANDS INTENDED TO BE GRANTED BY THE TELECOMMUNICATIONS
REGULATORY AUTHORITY**

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 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.1 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 neighbouring countries, including but not limited to the provision of information to the Authority, and the reduction of emission levels of Radiocommunications Stations.
- 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, or otherwise.

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.

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;
- (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.

- 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 (and other relevant provisions) 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.
- 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. LICENSE FEES

- 10.1 There shall be no license fees payable in respect of the 2.4 GHz and 5 GHz License (whether for the initial year or subsequent years thereafter).
- 10.2 Nothing in this License shall in any way be construed to imply or to otherwise relieve any Person from paying the applicable fees to the relevant authority, as may be the case, in respect of the spectrum as distinct from the 2.4 GHz and 5 GHz License to use such spectrum.

11. DURATION AND RENEWAL

- 11.1 This License is valid for a period of five (5) years from the deemed grant date, as determined in accordance with the Regulation.
- 11.2 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.

12. MODIFICATION, REVOCATION AND TERMINATION

- 12.1 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.
- 12.2 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 15.2 below.

12.3 This License shall terminate automatically upon the expiry of its term if it is not renewed in accordance with section 11.2 above.

13. FORCE MAJEURE

13.1 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.

13.2 The Authority may suspend those obligations referred to under section 13.1 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.

14. DISPUTE RESOLUTION

14.1 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.

14.2 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 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*.

15. NOTICES

15.1 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.

15.2 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.

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:

Band	Range	Specific Restrictions and Conditions
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.
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.

SCHEDULE B

TECHNICAL SPECIFICATIONS FOR SECTION 4.1(a) OF THE LICENSE

1 Definitions

In this Schedule, unless the context otherwise demands:

“DFS” means dynamic frequency selection;

“EIRP” means equivalent isotropic 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 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;
- (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
- (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
- (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.

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