

Produkte  
Products

<b>Prüfbericht - Nr.:</b> 14026758 001		Seite 1 von 16 Page 1 of 16	
<i>Test Report No.:</i>			
<b>Auftraggeber:</b> <i>Client:</i>	AvantWave Limited 3 Rd. Floor, Photonics centre No. 2 Science Park Avenue East Hong Kong Science Park Shatin Hong Kong		
<b>Gegenstand der Prüfung:</b> <i>Test Item:</i>	Bluetooth Module		
<b>Bezeichnung:</b> <i>Identification:</i>	BTR60X	<b>Serien-Nr.:</b> <i>Serial No.:</i>	Engineering sample
<b>Wareneingangs-Nr.:</b> <i>Receipt No.:</i>	00110503143-001	<b>Eingangsdatum:</b> <i>Date of Receipt:</i>	17.05.2011
<b>Prüfart:</b> <i>Testing Location:</i>	Hong Kong Productivity Council HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong <b>TÜV Rheinland Hong Kong Ltd.</b> 8/F., Niche Centre, 14 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong		
<b>Prüfgrundlage:</b> <i>Test Specification:</i>	FCC Part 15 Subpart C ANSI C63.4-2003 CISPR 22:1997		
<b>Prüfresultat:</b> <i>Test Results:</i>	Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage. The above mentioned product was tested and passed.		
<b>Prüflaboratorium:</b> <i>Testing Laboratory:</i>	TÜV Rheinland Hong Kong Ltd. 9-10/F., Emperor International Square, 7 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong		
<b>geprüft/ tested by:</b>		<b>kontrolliert/ reviewed by:</b>	
03.08.2011	Joey Leung Test Engineer	03.08.2011	Sharon Li Assistant Manager
<b>Datum</b> <i>Date</i>	<b>Name/Stellung</b> <i>Name/Position</i>	<b>Unterschrift</b> <i>Signature</i>	<b>Unterschrift</b> <i>Signature</i>
<b>Sonstiges:</b> FCCID: XQN-BTR60X Other Aspects			
<b>Abkürzungen:</b> P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet		<b>Abbreviations:</b> P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested	
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.			

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**www.tuv.com**

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## Product information

### Manufacturers declarations

	<b>Transceiver</b>
Operating frequency range	2402 - 2480 MHz
Type of modulation	GFSK; Pi/4 DQPSK; 8 DPSK
Number of channels	79
Channel separation	1 MHz
Type of antenna	Integral
Antenna gain (dBi)	-2
Power level	fix
Type of equipment	stand alone radio device
Connection to public utility power line	No
Nominal voltage	V <sub>nor</sub> : 3.3 V
Independent Operation Modes	Page scan Inquiry scan Connection state - ACL Link Connection state - SCO Link

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## Product function and intended use

The test item is a Bluetooth Module based on the Bluetooth technology.

Bluetooth is a short-range radio link intended to be a cable replacement between portable and/or fixed electronic devices.

Bluetooth operates in the unlicensed ISM Band at 2.4GHz. With the introduction of the enhanced data rate (EDR) feature, the data rates can be up to 3 Mb/s.

An increase in the peak data rate beyond the basic rate of 1 Mb/s is achieved by modulating the RF carrier using phase shift keying (PSK) techniques, resulting in an increase of two to three times the number of bits per symbol. The 2 Mb/s EDR packets use a Pi/4-DQPSK modulation and the 3 Mb/s EDR packets use 8DPSK modulation.

## Submitted documents

Circuit Diagram  
Block Diagram  
Bill of material  
User Manual  
Label Artwork

## Remark

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases.

## Special accessories and auxiliary equipment

### Additional accessory used for testing

The product has been tested together with the following additional accessory:

1. AC/DC Power adaptor  
Model number: KSD10-050-0500  
Input: 100-240VAC, 50/60Hz, 0.3A  
Output: 5VDC 500mA
2. LPT and UART cable provided by client

## List of Test and Measurement Instruments

### Hong Kong Productivity Council (Registration number: 90656)

#### Radiated Emission

Equipment	Manufacturer	Type	S/N	Due Date
Semi-anechoic Chamber	Frankonia	Nil	Nil	25-May-12
Test Receiver	R & S	ESU26	100050	26-May-12
Bi-conical Antenna	R & S	HK116	100241	05-May-13
Log Periodic Antenna	R & S	HL223	841516/020	06-May-13
Coaxial cable 50ohm	Rosenberger	RTK081-05S-05S-10m	LA2-001-10M / 001	08-Dec-11
Microwave amplifier 0.5-26.5GHz, 25dB gain	HP	83017A	3950M00241	03-Oct-11
High Pass Filter (cutoff freq. =1000MHz)	Trilithic	23042	9829213	30-Oct-11
Horn Antenna	EMCO	3115	9002-3351	11-May-13
FSP 30 Spectrum Analyser	R & S	FSP 30	100286	17-Sep-12
Active Loop Antenna	EMCO	6502	9107-2651	19-Apr-12

### TÜV Rheinland Hong Kong Ltd.

#### Conducted Emission

Equipment	Manufacturer	Type	S/N	Due Date
Test Receiver	Rohde & Schwarz	ESCS30	100201	11 Jan 12
LISN	Rohde & Schwarz	ESH3-Z5	100230	11 Jan 12

## Results FCC Part 15 – Subpart C

Subclause 15.203 – Antenna Information				Pass		
Requirement:	No antenna other than that furnished by the responsible party shall be used with the device					
Results:	Permanent attached antenna					
Verdict:	Pass					

Subclause 15.204 – Antenna Information				Pass		
Requirement:	Provide information for every antenna proposed for the use with the EUT					
Results:	a) Antenna type:		Integral			
	b) Manufacturer and model no:		N.A.			
	c) Gain with reference to an isotropic radiator:		-2 dBi			
Verdict:	Pass					

Subclause 15.207 – Disturbance Voltage on AC Mains				Pass		
Test Port: AC mains input port of the adaptor						
Applied Voltage: 120VAC						
Adaptor Model: KSD10-050-0500						
Mode of operation: Transmitting mode						
Live measurement						
Frequency range (MHz)	Frequency (MHz)	Quasi-peak dBµV	Average dBµV	Limit QP (dBµV)	Limit AV (dBµV)	Verdict
0,15 – 0,5	0.187	44.2	24.9	66 - 56	56 - 46	Pass
	0.268	39.7	25.0			Pass
> 0,5 - 5	0.359	40.2	28.2	56	46	Pass
	0.421	38.1	26.0			Pass
> 5 - 30	No peak found	---	---	60	50	Pass
Neutral measurement						
Frequency range (MHz)	Frequency (MHz)	Quasi-peak dBµV	Average dBµV	Limit QP (dBµV)	Limit AV (dBµV)	Verdict
0,15 – 0,5	0.185	45.1	22.3	66 - 56	56 - 46	Pass
	0.372	39.5	22.7			Pass
> 0,5 - 5	1.962	27.5	9.5	56	46	Pass
	2.351	25.8	8.9			Pass
> 5 - 30	No peak found	---	---	60	50	Pass
Results:	The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz does not exceed the limits. For test Results plots refer to Appendix 1, page 2-3.					

Subclause 15.247 (a)(1) – Carrier Frequency Separation		Pass
Requirement:	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 2/3*20dB bandwidth of the hopping channel, whichever is greater.	
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (hopping on), 8DPSK Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 100 kHz / 300 kHz Supply voltage : 3.3VDC from DC power supply Temperature : 23°C Humidity : 50%		
Results:	Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and packet types.  The centre frequencies of the hopping channels are separated by more than the 2/3*20dB bandwidth. For test Results plots refer to Appendix 1, page 4.	
Verdict:	Pass	

Subclause 15.247 (a)(1)(iii) – Number of hopping channels		Pass
Requirement:	Frequency hopping systems operating in the 2400MHz-2483.5MHz bands shall use at least 15 hopping frequencies.	
Test Specification	: FCC Part 15 Subpart A – Subclause 15.31	
Mode of operation	: Tx mode (hopping on), GFSK	
Port of testing	: Temporary antenna port	
Detector	: Peak	
RBW/VBW	: 1 MHz / 3 MHz	
Supply voltage	: 3.3VDC from DC power supply	
Temperature	: 23°C	
Humidity	: 50%	
Results:	The total number of hopping frequencies is more than 15. For test Results plots refer to Appendix 1, page 5.	
Verdict:	Pass	



Subclause 15.247 (a)(1)(iii) – Time of Occupancy (Dwell Time)		Pass
Requirement:	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.	
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (hopping on), DH5 packet Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 1 MHz / 3 MHz Supply voltage : 3.3VDC from DC power supply Temperature : 23°C Humidity : 50%		
Results: Time period calculation = 0.4 x 79 = 31.6s Dwell time = 64 x 2.912 x 10 <sup>-3</sup> = 186.37 x 10 <sup>-3</sup> <= 400 x 10 <sup>-3</sup> s  For test protocols please refer to Appendix 1, page 6.		
Verdict:	Pass	

Subclause 15.247 (a) – 20 dB Bandwidth		Pass	
Requirement:	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 2/3*20dB bandwidth of the hopping channel, whichever is greater.		
Test Specification	: FCC Part 15 Subpart A – Subclause 15.31		
Mode of operation	: Tx mode (2402MHz, 2441MHz, 2480MHz), (8DPSK)		
Port of testing	: Temporary antenna port		
Detector	: Peak		
RBW/VBW	: 30 kHz / 100 kHz		
Supply voltage	: 3.3VDC from DC power supply		
Temperature	: 23°C		
Humidity	: 50%		
Results:	Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and packet types.  For test protocols refer to Appendix 1, page 7-9.		
8 DPSK Modulation			
Frequency (MHz)	20 dB left (MHz)	20 dB right (MHz)	20dB bandwidth (MHz)
2402	0.648	0.612	1.260
2441	0.648	0.618	1.266
2480	0.642	0.624	1.266

**GFSK Modulation**

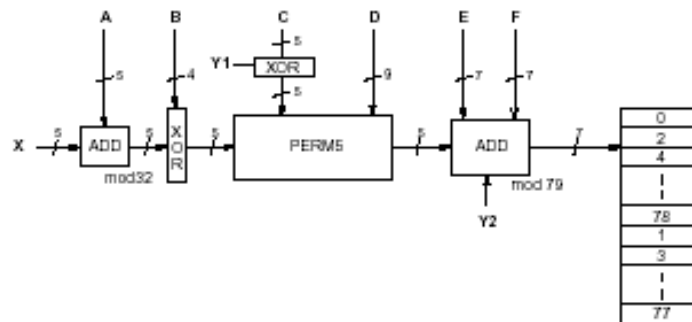
Frequency (MHz)	20 dB left (MHz)	20 dB right (MHz)	20dB bandwidth (MHz)
2402	0.420	0.468	0.888
2441	0.468	0.402	0.870
2480	0.462	0.408	0.870

**Subclause 15.247 (a) – Hopping Sequence**
**Pass**

Requirement: The hopping sequence is generated and provided with an example.

**Hopping sequence**

The channel is represented by a pseudo-random hopping sequence hopping through the 79 RF channels. The hopping sequence is unique for the piconet and is determined by the Bluetooth device address of the master. The X input determines the phase in the 32-hop segment, whereas Y1 and Y2 selects between master-to-slave and slave-to-master transmission. The inputs A to D determine the ordering within the segment, the inputs E and F determine the mapping onto the hop frequencies.



**Example data:**

Hop sequence {k} for CONNECTION STATE:

CLK start: 0x0000010

ULAP: 0x00000000

#ticks: 00 02 | 04 06 | 08 0a | 0c 0e | 10 12 | 14 16 | 18 1a | 1c 1e |

```

0x0000010: 08 66 | 10 70 | 12 19 | 14 23 | 16 01 | 18 05 | 20 33 | 22 37 |
0x0000030: 24 03 | 26 07 | 28 35 | 30 39 | 32 72 | 34 76 | 36 25 | 38 29 |
0x0000050: 40 74 | 42 78 | 44 27 | 46 31 | 48 09 | 50 13 | 52 41 | 54 45 |
0x0000070: 56 11 | 58 15 | 60 43 | 62 47 | 32 17 | 36 19 | 34 49 | 38 51 |
0x0000090: 40 21 | 44 23 | 42 53 | 46 55 | 48 33 | 52 35 | 50 65 | 54 67 |
0x00000b0: 56 37 | 60 39 | 58 69 | 62 71 | 64 25 | 68 27 | 66 57 | 70 59 |
0x00000d0: 72 29 | 76 31 | 74 61 | 78 63 | 01 41 | 05 43 | 03 73 | 07 75 |
0x00000f0: 09 45 | 13 47 | 11 77 | 15 00 | 64 49 | 66 53 | 68 02 | 70 06 |
0x0000110: 01 51 | 03 55 | 05 04 | 07 08 | 72 57 | 74 61 | 76 10 | 78 14 |
0x0000130: 09 59 | 11 63 | 13 12 | 15 16 | 17 65 | 19 69 | 21 18 | 23 22 |
0x0000150: 33 67 | 35 71 | 37 20 | 39 24 | 25 73 | 27 77 | 29 26 | 31 30 |
0x0000170: 41 75 | 43 00 | 45 28 | 47 32 | 17 02 | 21 04 | 19 34 | 23 36 |
0x0000190: 33 06 | 37 08 | 35 38 | 39 40 | 25 10 | 29 12 | 27 42 | 31 44 |
0x00001b0: 41 14 | 45 16 | 43 46 | 47 48 | 49 18 | 53 20 | 51 50 | 55 52 |
0x00001d0: 65 22 | 69 24 | 67 54 | 71 56 | 57 26 | 61 28 | 59 58 | 63 60 |
0x00001f0: 73 30 | 77 32 | 75 62 | 00 64 | 49 34 | 51 42 | 57 66 | 59 74 |
0x0000210: 53 36 | 55 44 | 61 68 | 63 76 | 65 50 | 67 58 | 73 03 | 75 11 |
0x0000230: 69 52 | 71 60 | 77 05 | 00 13 | 02 38 | 04 46 | 10 70 | 12 78 |
0x0000250: 06 40 | 08 48 | 14 72 | 16 01 | 18 54 | 20 62 | 26 07 | 28 15 |
0x0000270: 22 56 | 24 64 | 30 09 | 32 17 | 02 66 | 06 74 | 10 19 | 14 27 |
0x0000290: 04 70 | 08 78 | 12 23 | 16 31 | 18 03 | 22 11 | 26 35 | 30 43 |
0x00002b0: 20 07 | 24 15 | 28 39 | 32 47 | 34 68 | 38 76 | 42 21 | 46 29 |
0x00002d0: 36 72 | 40 01 | 44 25 | 48 33 | 50 05 | 54 13 | 58 37 | 62 45 |
0x00002f0: 52 09 | 56 17 | 60 41 | 64 49 | 34 19 | 36 35 | 50 51 | 52 67 |
0x0000310: 38 21 | 40 37 | 54 53 | 56 69 | 42 27 | 44 43 | 58 59 | 60 75 |
0x0000330: 46 29 | 48 45 | 62 61 | 64 77 | 66 23 | 68 39 | 03 55 | 05 71 |
0x0000350: 70 25 | 72 41 | 07 57 | 09 73 | 74 31 | 76 47 | 11 63 | 13 00 |
0x0000370: 78 33 | 01 49 | 15 65 | 17 02 | 66 51 | 70 67 | 03 04 | 07 20 |
0x0000390: 68 55 | 72 71 | 05 08 | 09 24 | 74 59 | 78 75 | 11 12 | 15 28 |
0x00003b0: 76 63 | 01 00 | 13 16 | 17 32 | 19 53 | 23 69 | 35 06 | 39 22 |
0x00003d0: 21 57 | 25 73 | 37 10 | 41 26 | 27 61 | 31 77 | 43 14 | 47 30 |
0x00003f0: 29 65 | 33 02 | 45 18 | 49 34 | 19 04 | 21 08 | 23 20 | 25 24 |

```

**Subclause 15.247 (a) – Equal Hopping Frequency Use**
**Pass**

Requirement: Each of the transmitter's hopping channels is used equally on average.

Equal hopping frequency use

The EUT complies with the Bluetooth RF specifications. For details refer to the Bluetooth standard.

**Subclause 15.247 (a) – Receiver Input Bandwidth**
**Pass**

Requirement: The associated receiver(s) complies with the requirement that its input bandwidth matches the bandwidth of the transmitted signal.

Receiver input bandwidth

The receiver bandwidth is equal to the receiver bandwidth in the 79 hopping channel mode, which is 1 MHz. The receiver bandwidth was verified during Bluetooth RF conformance testing.

<b>Subclause 15.247 (a) – Receiver Hopping Capability</b>	<b>Pass</b>
Requirement: The associated receiver has the ability to shift frequencies in synchronisation with the transmitted signals.	
Receiver hopping Capability The EUT complies with the Bluetooth RF specifications. For details refer to the Bluetooth standard.	

Subclause 15.247 (b)(1) – Peak Output Power					Pass
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz) Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 3 MHz / 10 MHz Supply voltage : 3.3VDC from DC power supply Temperature : 23°C Humidity : 50%					
Requirement:		For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 Watt. For all other frequency hopping systems in the 2400 – 2483.5 MHz band: 0.125 Watts.			
Results:		For test protocols please refer to Appendix 1, page 10-14.			
GFSK Modulation					
Frequency (MHz)	Maximum peak output power (dBm)	Cable attenuation (dB)	Output power (dBm)	Limit (W/dBm)	Verdict
2402	-2.98	3.52	0.540	1 / 30.0	Pass
2441	-2.58	3.65	1.070	1 / 30.0	Pass
2480	-2.92	3.60	0.680	1 / 30.0	Pass
Pi/4 DQPSK Modulation					
Frequency (MHz)	Maximum peak output power (dBm)	Cable attenuation (dB)	Output power (dBm)	Limit (W/dBm)	Verdict
2402	-3.59	3.52	-0.070	1 / 30.0	Pass
2441	-3.07	3.65	0.580	1 / 30.0	Pass
2480	-3.53	3.60	0.070	1 / 30.0	Pass
8 DPSK Modulation					
Frequency (MHz)	Maximum peak output power (dBm)	Cable attenuation (dB)	Output power (dBm)	Limit (W/dBm)	Verdict
2402	-3.16	3.52	0.360	1 / 30.0	Pass
2441	-2.71	3.65	0.940	1 / 30.0	Pass
2480	-2.98	3.60	0.620	1 / 30.0	Pass

<b>Subclause 15.247 (d) – Band edge compliance of conducted emissions</b>		<b>Pass</b>
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (2402MHz, 2480MHz), 8DPSK Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 100 kHz / 300 kHz Supply voltage : 3.3VDC from DC power supply Temperature : 23°C Humidity : 50%		
<b>Requirement:</b>	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.	
<b>Results:</b>	Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and packet types.  There is no peak found outside any 100 kHz bandwidth of the operating frequency band. For test protocols refer to Appendix 1, page 15-16.	

<b>Subclause 15.205 – Band edge compliance of radiated emissions</b>		<b>Pass</b>
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (2402MHz, 2480MHz), 8DPSK Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 1 MHz / 3 MHz Supply voltage : 3.3VDC from DC power supply Temperature : 23°C Humidity : 50%		
<b>Requirement:</b>	Radiated emissions which fall in the restricted bands, as defined in 15.205 (a), must also comply with the radiated emission limits specified in 15.209(a).	
<b>Results:</b>	There is no peak found in the restricted bands. For test protocols refer to Appendix 1, page 17-20.	

<b>Subclause 15.247 (d) – Spurious Conducted Emissions</b>					<b>Pass</b>
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz), 8DPSK Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 100 kHz / 300 kHz Supply voltage : 3.3VDC from DC power supply Temperature : 23 °C Humidity : 50 %					
<b>Requirement:</b> In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.					
<b>Results:</b> Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and packet types.  There is no peak found outside any 100kHz bandwidth of the operating frequency band in the three transmit frequency. All three transmit frequency modes comply with the limit stated in subclause 15.247(d). For test protocols refer to Appendix 1, page 21-22.					
<b>Operating frequency (MHz)</b>	<b>Spurious frequency (MHz)</b>	<b>Spurious Level (dBm)</b>	<b>Reference value (dBm)</b>	<b>Delta (dB)</b>	<b>Verdict</b>
2402	7250	-49.76	-4.24	-45.52	Pass
2441	9700	-49.48	-7.69	-41.79	Pass
2480	8950	-49.16	-4.52	-44.64	Pass

<b>Subclause 15.247 (c) – Spurious Radiated Emissions</b>		<b>Pass</b>
Test Specification : ANSI C63.4 – 2003 Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz), 8DPSK Port of testing : Enclosure Detector : Peak RBW/VBW : 100 kHz / 300 kHz for $f < 1$ GHz 1 MHz / 3 MHz for $f > 1$ GHz Supply voltage : 3.3VDC from DC power supply Temperature : 23°C Humidity : 50%		
Requirement: In any 100kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in section 15.205(a), must also comply with the radiated emission limits specified in section 15.205(c).		
<b>Results:</b> Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and packet types.  All three transmit frequency modes comply with the field strength within the restricted bands. There is no spurious found below 30MHz.		
Tx frequency 2402MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
114.875	35.59	43.5 / A
240.975	36.64	46.0 / A
359.800	35.09	46.0 / A
481.050	34.87	46.0 / A
647.100	36.41	46.0 / A
750.225	36.32	46.0 / A
1601.950	38.82	54.0 / A
3203.995	39.03	54.0 / A
4803.950	58.41	74.0 / P
4803.950	44.15	54.0 / A
Tx frequency 2402MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
114.875	33.41	43.5 / A
143.975	31.68	43.5 / A
240.975	40.49	46.0 / A
359.800	34.61	46.0 / A
481.050	31.57	46.0 / A
750.225	35.26	46.0 / A
1602.000	45.33	54.0 / A
3203.995	36.94	54.0 / A
4803.950	41.04	54.0 / A

Tx frequency 2441MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
114.875	31.71	43.5 / A
240.975	39.58	46.0 / A
265.225	31.65	46.0 / A
359.800	30.70	46.0 / A
750.225	32.54	46.0 / A
893.300	34.53	46.0 / A
1628.350	39.05	54.0 / A
3256.120	39.58	54.0 / A
4882.100	57.48	74.0 / P
4882.100	44.87	54.0 / A
Tx frequency 2441MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
124.575	30.22	43.5 / A
240.975	33.55	46.0 / A
359.800	31.74	46.0 / A
481.050	36.56	46.0 / A
614.425	32.57	46.0 / A
750.225	30.31	46.0 / A
1628.380	44.82	54.0 / A
3256.120	36.58	54.0 / A
4882.100	61.27	74.0 / P
4882.100	45.80	54.0 / A
Tx frequency 2480MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
30.000	35.52	40.0 / A
114.875	30.94	43.5 / A
240.975	33.16	46.0 / A
359.800	32.21	46.0 / A
481.050	35.50	46.0 / A
619.275	32.61	46.0 / A
1654.380	40.01	54.0 / A
3308.120	39.30	54.0 / A
4960.100	59.09	74.0 / P
4960.100	45.20	54.0 / A
Tx frequency 2480MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
49.400	23.99	40.0 / A
114.875	31.45	43.5 / A
240.975	37.59	46.0 / A
272.500	31.32	46.0 / A
359.800	31.23	46.0 / A
750.225	32.51	46.0 / A
1654.380	45.83	54.0 / A
3308.112	36.73	54.0 / A
4960.100	40.74	54.0 / A