

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Xeeek(Xiamen) Medical Equipment Co., Ltd.

Deep breathing training device
Model No.: X1

FCC ID: 2AIL5-X1

Prepared for : Xeeek(Xiamen) Medical Equipment Co., Ltd
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Report No. : ATE20160678
Date of Test : Apr 20, 2016-Jun 20, 2016
Date of Report : Jun 20, 2016

TABLE OF CONTENTS

Description	Page
Test Report Certification	
1. GENERAL INFORMATION	5
1.1. Description of Device (EUT).....	5
1.2. Carrier Frequency of Channels	6
1.3. Accessory and Auxiliary Equipment	6
1.4. Description of Test Facility	6
1.5. Measurement Uncertainty.....	7
2. MEASURING DEVICE AND TEST EQUIPMENT	8
3. OPERATION OF EUT DURING TESTING	9
3.1. Operating Mode	9
3.2. Configuration and peripherals	9
4. TEST PROCEDURES AND RESULTS	10
5. POWER LINE CONDUCTED MEASUREMENT	11
5.1. Block Diagram of Test Setup.....	11
5.2. Power Line Conducted Emission Measurement Limits.....	11
5.3. Configuration of EUT on Measurement	11
5.4. Operating Condition of EUT	11
5.5. Test Procedure	12
5.6. Power Line Conducted Emission Measurement Results	13
6. 6DB&99%DB BANDWIDTH MEASUREMENT	19
6.1. Block Diagram of Test Setup.....	19
6.2. The Requirement For Section 15.247(a)(2).....	19
6.3. EUT Configuration on Measurement	19
6.4. Operating Condition of EUT	19
6.5. Test Procedure	19
6.6. Test Result	20
7. MAXIMUM CONDUCTED (AVERAGE) OUTPUT POWER	31
7.1. Block Diagram of Test Setup.....	31
7.2. The Requirement For Section 15.247(b)(3).....	31
7.3. EUT Configuration on Measurement	31
7.4. Operating Condition of EUT	31
7.5. Test Procedure	31
7.6. Test Result	32
8. POWER SPECTRAL DENSITY MEASUREMENT.....	38
8.1. Block Diagram of Test Setup.....	38
8.2. The Requirement For Section 15.247(e).....	38
8.3. EUT Configuration on Measurement	38
8.4. Operating Condition of EUT	38
8.5. Test Procedure	38
8.6. Test Result	39
9. BAND EDGE COMPLIANCE TEST	45
9.1. Block Diagram of Test Setup.....	45
9.2. The Requirement For Section 15.247(d)	45

9.3.	EUT Configuration on Measurement	45
9.4.	Operating Condition of EUT	45
9.5.	Test Procedure	45
9.6.	Test Result	46
10.	RADIATED SPURIOUS EMISSION TEST	63
10.1.	Block Diagram of Test Setup.....	63
10.2.	The Limit For Section 15.247(d)	64
10.3.	Restricted bands of operation	65
10.4.	Configuration of EUT on Measurement	65
10.5.	Operating Condition of EUT	66
10.6.	Test Procedure	66
10.7.	The Field Strength of Radiation Emission Measurement Results	67
11.	CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST	92
11.1.	Block Diagram of Test Setup.....	92
11.2.	The Requirement For Section 15.247(d)	92
11.3.	EUT Configuration on Measurement	92
11.4.	Operating Condition of EUT	92
11.5.	Test Procedure	92
11.6.	Test Result	93
12.	ANTENNA REQUIREMENT.....	99
12.1.	The Requirement	99
12.2.	Antenna Construction	99

Test Report Certification

Applicant : XeeK(Xiamen) Medical Equipment Co., Ltd
Manufacturer : XeeK(Xiamen) Medical Equipment Co., Ltd
EUT Description : Deep breathing training device
(A) MODEL NO.: X1
(B) Trade Name.: XEEK
(C) POWER SUPPLY: AC 100-240V 50/60Hz (Powered by Adapter)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247 ANSI C63.10-2013

The EUT was tested according to DTS test procedure of Apr 08, 2016 KDB558074 D01 DTS Meas Guidance v03r05 for compliance to FCC 47CFR 15.247 requirements

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

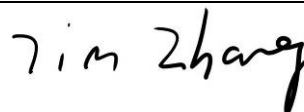
Date of Test :

Apr 20, 2016-Jun 20, 2016

Date of Report :

Jun 20, 2016

Prepared by :



(Tim.zhang, Engineer)

Approved & Authorized Signer :



(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product Name	: Deep breathing training device
Model Number	: X1
Frequency Range	: 802.11b/g/n(20MHz): 2412-2462MHz
Number of Channels	: 802.11b/g/n (20MHz):11
Antenna Gain	: 2.5dBi
Type of Antenna	: Integral Antenna
Power Supply	: AC 100-240V 50/60Hz (Powered by Adapter)
Adapter information	: Model:WTA0501000USA1 Input:100-240V~50/60Hz 0.2A Output:5.0V 1.0A
Data Rate	: 802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: 65, 58.5, 52, 39, 26, 19.5, 13, 6.5 Mbps
Modulation Type	: CCK, OFDM
Applicant	: XeeK(Xiamen) Medical Equipment Co., Ltd
Address	: Room 1203, NO.893 Haicang Road, Haicang District, Xiamen, Fujian, China.
Manufacturer	: XeeK(Xiamen) Medical Equipment Co., Ltd
Address	: Room 1203, NO.893 Haicang Road, Haicang District, Xiamen, Fujian, China.
Date of sample received	: Apr 20, 2016
Date of Test	: Apr 20, 2016-Jun 20, 2016

1.2.Carrier Frequency of Channels

802.11b, 802.11g, 802.11n (20MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	---	---

1.3.Accessory and Auxiliary Equipment

N/A

1.4.Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC
The Registration Number is 752051

Listed by Industry Canada
The Registration Number is 5077A-2

Accredited by China National Accreditation Committee
for Laboratories
The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD
Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.
Science & Industry Park, Nanshan, Shenzhen, Guangdong
P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty
(9kHz-30MHz) = 3.08dB, k=2

Radiated emission expanded uncertainty
(30MHz-1000MHz) = 4.42dB, k=2

Radiated emission expanded uncertainty
(Above 1GHz) = 4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 10, 2016	Jan. 09, 2017
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 10, 2016	Jan. 09, 2017
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 10, 2016	Jan. 09, 2017
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 10, 2016	Jan. 09, 2017
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 14, 2016	Jan. 13, 2017
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 14, 2016	Jan. 12, 2017
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 10, 2016	Jan. 09, 2017
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 10, 2016	Jan. 09, 2017
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 10, 2016	Jan. 09, 2017
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 10, 2016	Jan. 09, 2017

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: **1.802.11b Transmitting mode**

Low Channel: 2412MHz

Middle Channel: 2437MHz

High Channel: 2462MHz

2.802.11g Transmitting mode

Low Channel: 2412MHz

Middle Channel: 2437MHz

High Channel: 2462MHz

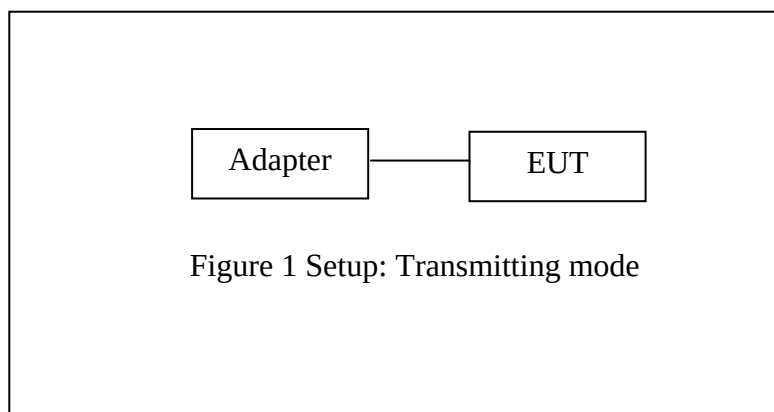
3.802.11n (20MHz) Transmitting mode

Low Channel: 2412MHz

Middle Channel: 2437MHz

High Channel: 2462MHz

3.2.Configuration and peripherals

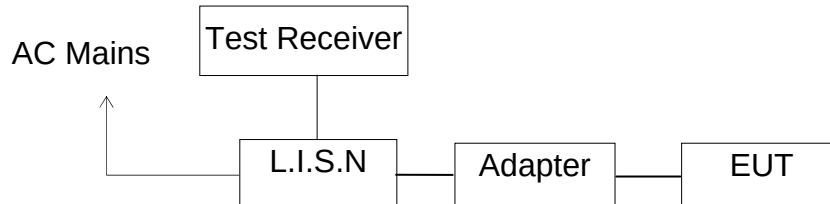


4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Power Line Conducted Emission	Compliant
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.247(d)	Conducted Spurious Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. POWER LINE CONDUCTED MEASUREMENT

5.1. Block Diagram of Test Setup



(EUT: Deep breathing training device)

5.2. Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0
NOTE1: The lower limit shall apply at the transition frequencies. NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

5.3. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in test mode and measure it.

5.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

5.6.Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

Test mode : WIFI communicating(AC 120V/60Hz)								
MEASUREMENT RESULT: "XQKK004_fin"								
4/23/2016 8:57AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.380000	42.30	10.7	58	16.0	QP	L1	GND	
0.435000	40.40	10.7	57	16.8	QP	L1	GND	
3.940000	45.10	11.1	56	10.9	QP	L1	GND	
MEASUREMENT RESULT: "XQKK004_fin2"								
4/23/2016 8:57AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.375000	36.50	10.7	48	11.9	AV	L1	GND	
0.430000	34.60	10.7	47	12.7	AV	L1	GND	
3.870000	35.30	11.1	46	10.7	AV	L1	GND	
MEASUREMENT RESULT: "XQKK003_fin"								
4/23/2016 8:53AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.375000	45.90	10.7	58	12.5	QP	N	GND	
0.425000	46.50	10.7	57	10.8	QP	N	GND	
3.960000	44.30	11.1	56	11.7	QP	N	GND	
MEASUREMENT RESULT: "XQKK003_fin2"								
4/23/2016 8:53AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.380000	38.60	10.7	48	9.7	AV	N	GND	
0.420000	37.90	10.7	47	9.5	AV	N	GND	
3.890000	36.40	11.1	46	9.6	AV	N	GND	

Test mode : WIFI communicating(AC 240V/60Hz)								
MEASUREMENT RESULT: "XQKK005_fin"								
4/23/2016 9:01AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.420000	44.50	10.7	57	12.9	QP	L1	GND	
0.780000	42.00	10.8	56	14.0	QP	L1	GND	
3.990000	47.80	11.1	56	8.2	QP	L1	GND	
MEASUREMENT RESULT: "XQKK005_fin2"								
4/23/2016 9:01AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.430000	38.10	10.7	47	9.2	AV	L1	GND	
0.885000	33.80	10.8	46	12.2	AV	L1	GND	
4.060000	38.10	11.1	46	7.9	AV	L1	GND	
MEASUREMENT RESULT: "XQKK006_fin"								
4/23/2016 9:05AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.420000	47.00	10.7	57	10.4	QP	N	GND	
0.790000	44.10	10.8	56	11.9	QP	N	GND	
3.990000	48.40	11.1	56	7.6	QP	N	GND	
MEASUREMENT RESULT: "XQKK006_fin2"								
4/23/2016 9:05AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.430000	37.30	10.7	47	10.0	AV	N	GND	
0.940000	35.70	10.8	46	10.3	AV	N	GND	
3.750000	38.70	11.1	46	7.3	AV	N	GND	

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

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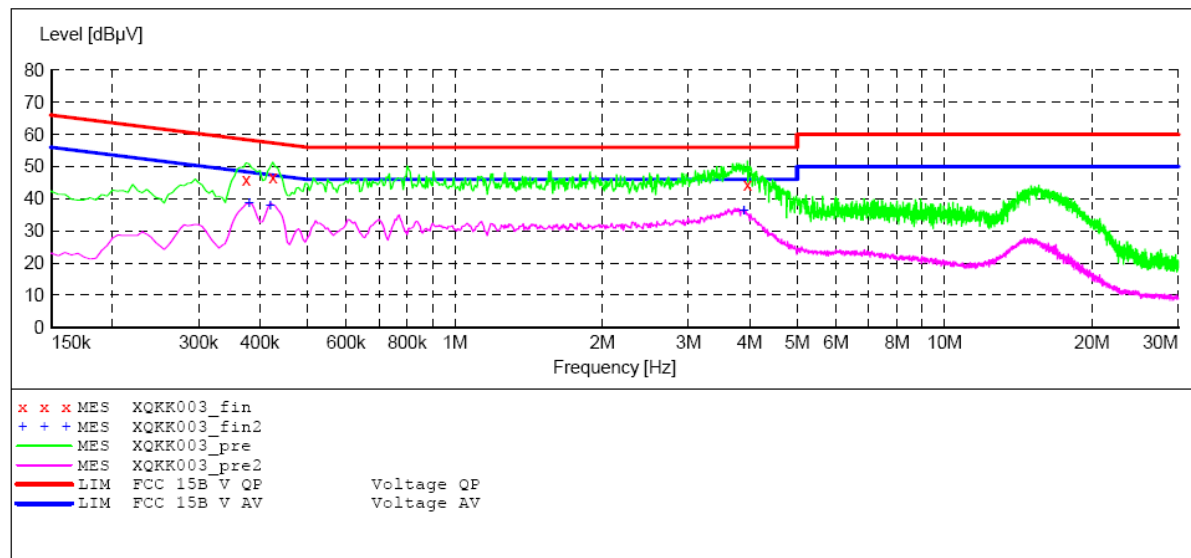
CONDUCTED EMISSION STANDARD FCC PART15

EUT: Deep breathing training device M/N:X1
 Manufacturer: Keep
 Operating Condition: WIFI OPERATION
 Test Site: 1#Shielding Room
 Operator: star
 Test Specification: N 120V/60Hz
 Comment: Report No.:ATE20160678
 Start of Test: 4/23/2016 / 8:50:23AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "XQKK003_fin"

4/23/2016 8:53AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.375000	45.90	10.7	58	12.5	QP	N	GND
0.425000	46.50	10.7	57	10.8	QP	N	GND
3.960000	44.30	11.1	56	11.7	QP	N	GND

MEASUREMENT RESULT: "XQKK003_fin2"

4/23/2016 8:53AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.380000	38.60	10.7	48	9.7	AV	N	GND
0.420000	37.90	10.7	47	9.5	AV	N	GND
3.890000	36.40	11.1	46	9.6	AV	N	GND

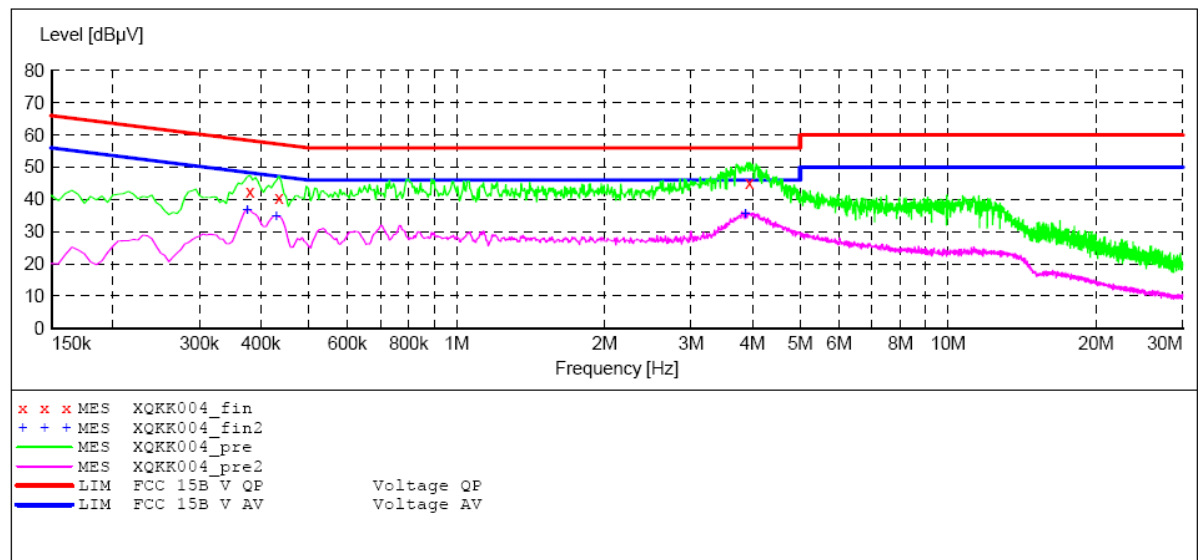
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CONDUCTED EMISSION STANDARD FCC PART15

EUT: Deep breathing training device M/N:X1
 Manufacturer: Xieep
 Operating Condition: WIFI OPERATION
 Test Site: 1#Shielding Room
 Operator: star
 Test Specification: L 120V/60Hz
 Comment: Report No.:ATE20160678
 Start of Test: 4/23/2016 / 8:54:31AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "XQKK004_fin"

4/23/2016 8:57AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.380000	42.30	10.7	58	16.0	QP	L1	GND
0.435000	40.40	10.7	57	16.8	QP	L1	GND
3.940000	45.10	11.1	56	10.9	QP	L1	GND

MEASUREMENT RESULT: "XQKK004_fin2"

4/23/2016 8:57AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.375000	36.50	10.7	48	11.9	AV	L1	GND
0.430000	34.60	10.7	47	12.7	AV	L1	GND
3.870000	35.30	11.1	46	10.7	AV	L1	GND

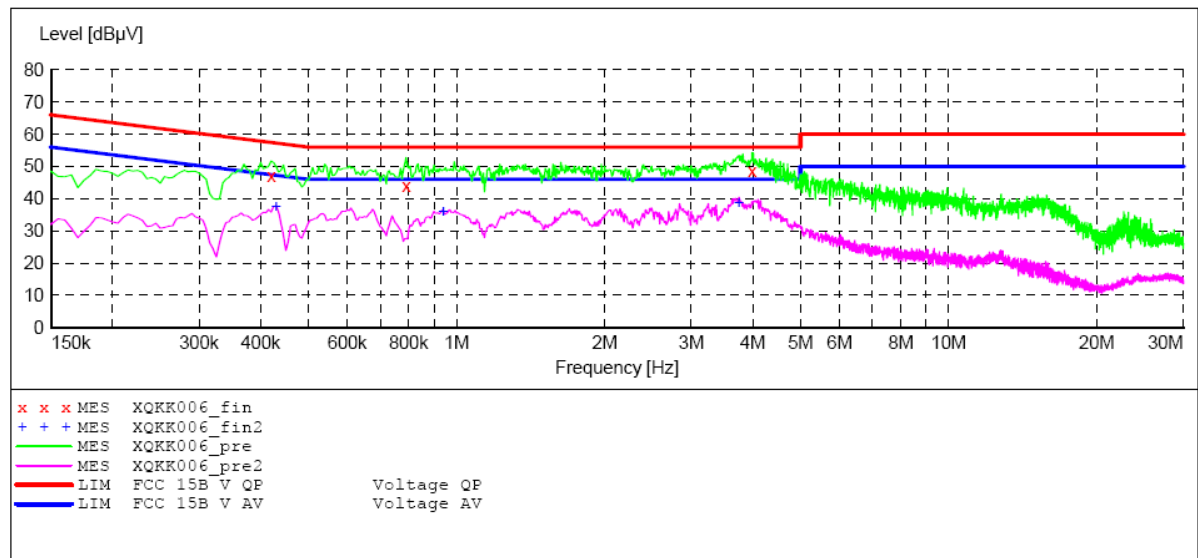
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART15

EUT: Deep breathing training device M/N:X1
 Manufacturer: Xeeep
 Operating Condition: WIFI OPERATION
 Test Site: 1#Shielding Room
 Operator: star
 Test Specification: N 240V/60Hz
 Comment: Report No.:ATE20160678
 Start of Test: 4/23/2016 / 9:02:03AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "XQKK006_fin"

4/23/2016 9:05AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.420000	47.00	10.7	57	10.4	QP	N	GND
0.790000	44.10	10.8	56	11.9	QP	N	GND
3.990000	48.40	11.1	56	7.6	QP	N	GND

MEASUREMENT RESULT: "XQKK006_fin2"

4/23/2016 9:05AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.430000	37.30	10.7	47	10.0	AV	N	GND
0.940000	35.70	10.8	46	10.3	AV	N	GND
3.750000	38.70	11.1	46	7.3	AV	N	GND

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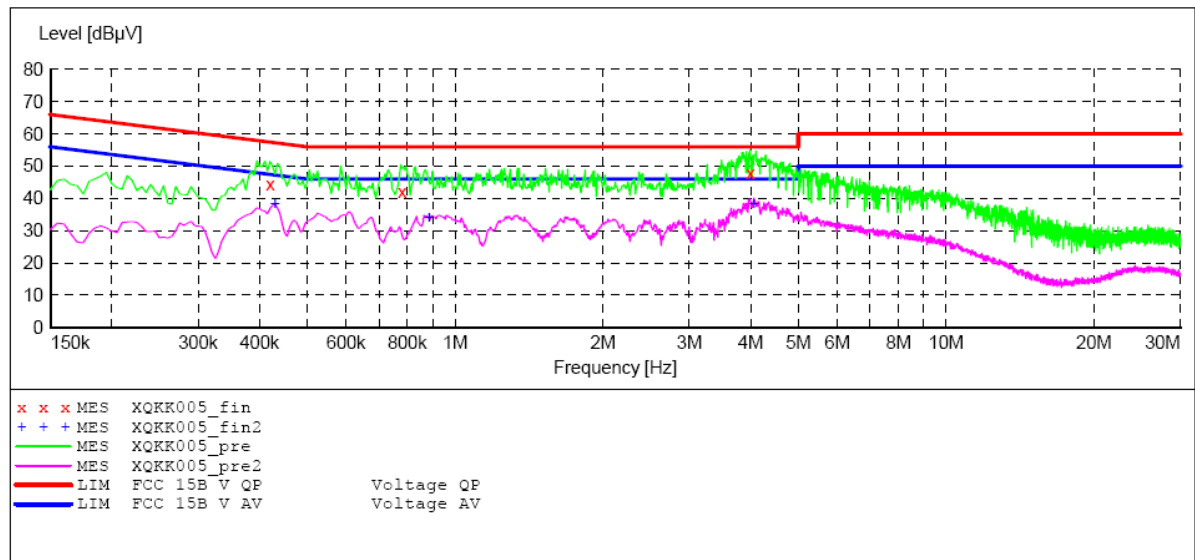
CONDUCTED EMISSION STANDARD FCC PART15

EUT: Deep breathing training device M/N:X1
 Manufacturer: Xeeep
 Operating Condition: WIFI OPERATION
 Test Site: 1#Shielding Room
 Operator: star
 Test Specification: L 240V/60Hz
 Comment: Report No.:ATE20160678
 Start of Test: 4/23/2016 / 8:58:15AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB_STD_VTERM2 1.70

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	Average			
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
			Average			



MEASUREMENT RESULT: "XQKK005_fin"

4/23/2016 9:01AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.420000	44.50	10.7	57	12.9	QP	L1	GND
0.780000	42.00	10.8	56	14.0	QP	L1	GND
3.990000	47.80	11.1	56	8.2	QP	L1	GND

MEASUREMENT RESULT: "XQKK005_fin2"

4/23/2016 9:01AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.430000	38.10	10.7	47	9.2	AV	L1	GND
0.885000	33.80	10.8	46	12.2	AV	L1	GND
4.060000	38.10	11.1	46	7.9	AV	L1	GND

6. 6DB&99%DB BANDWIDTH MEASUREMENT

6.1. Block Diagram of Test Setup



6.2. The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4. Operating Condition of EUT

6.4.1. Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

6.5. Test Procedure

DTS bandwidth

1. Set resolution bandwidth (RBW) = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

99%dB bandwidth

1. Set resolution bandwidth (RBW) = 1%-5% OBW.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Once the reference level is established, the equipment is conditioned with typical modulating signals to produce the worst-case (i.e., the widest) bandwidth. Unless otherwise specified for an unlicensed wireless device, Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth

6.6.Test Result

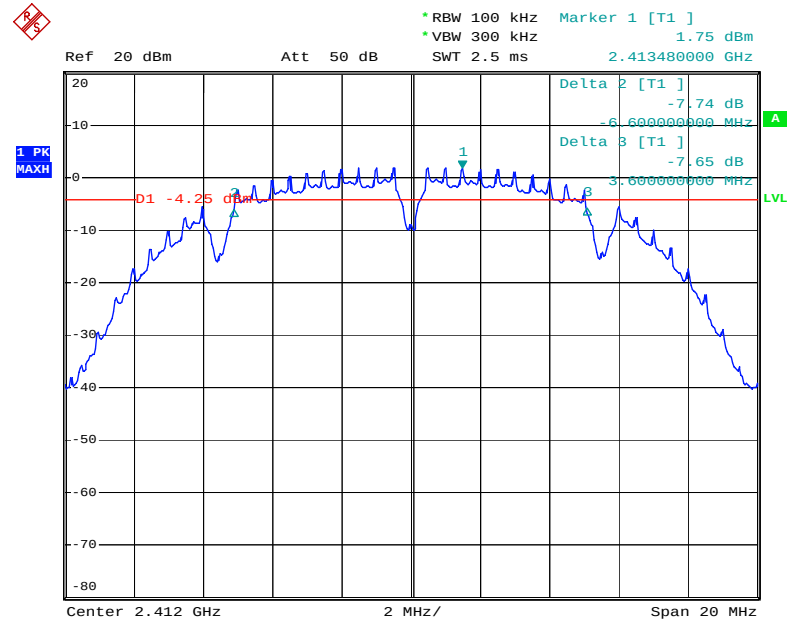
The test was performed with 802.11b				
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99%dB Bandwidth (MHz)	Limit (MHz)
Low	2412	10.20	13.988	> 0.5MHz
Middle	2437	10.16	13.936	> 0.5MHz
High	2462	10.20	13.936	> 0.5MHz

The test was performed with 802.11g				
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99%dB Bandwidth (MHz)	Limit (MHz)
Low	2412	16.35	17.108	> 0.5MHz
Middle	2437	16.25	17.108	> 0.5MHz
High	2462	16.30	17.108	> 0.5MHz

The test was performed with 802.11n (Bandwidth: 20 MHz)				
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99%dB Bandwidth (MHz)	Limit (MHz)
Low	2412	17.65	18.180	> 0.5MHz
Middle	2437	17.70	18.180	> 0.5MHz
High	2462	17.65	18.180	> 0.5MHz

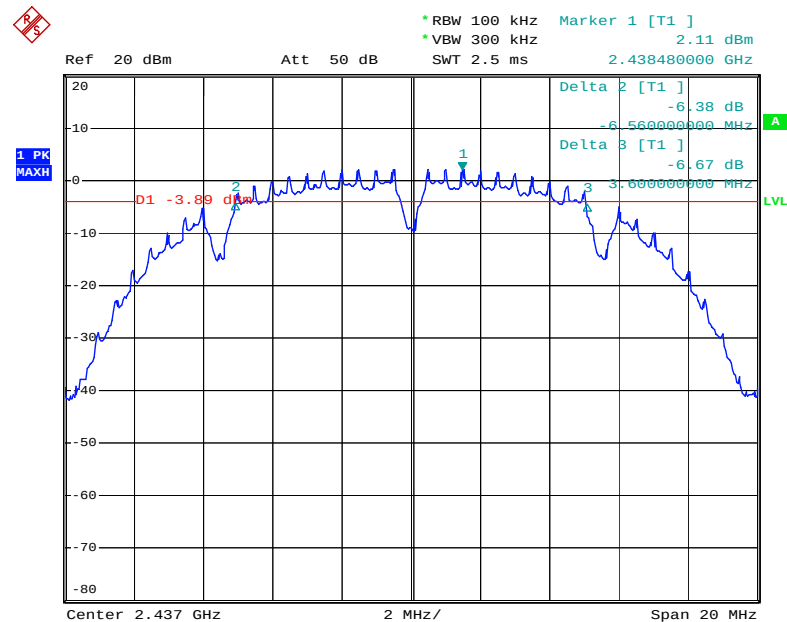
The spectrum analyzer plots are attached as below.

6dB Bandwidth 802.11b Channel Low 2412MHz



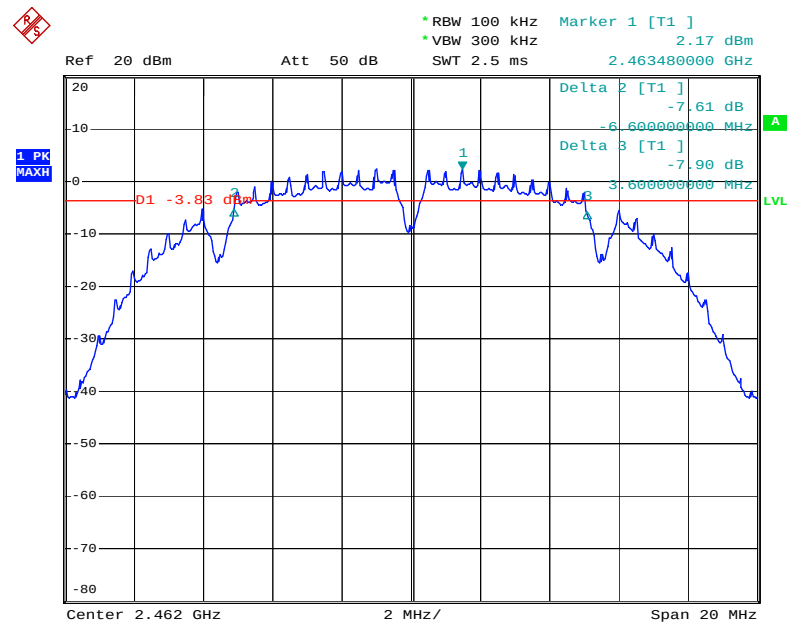
Date: 20.Jun.2016 15:48:29

802.11b Channel Middle 2437MHz



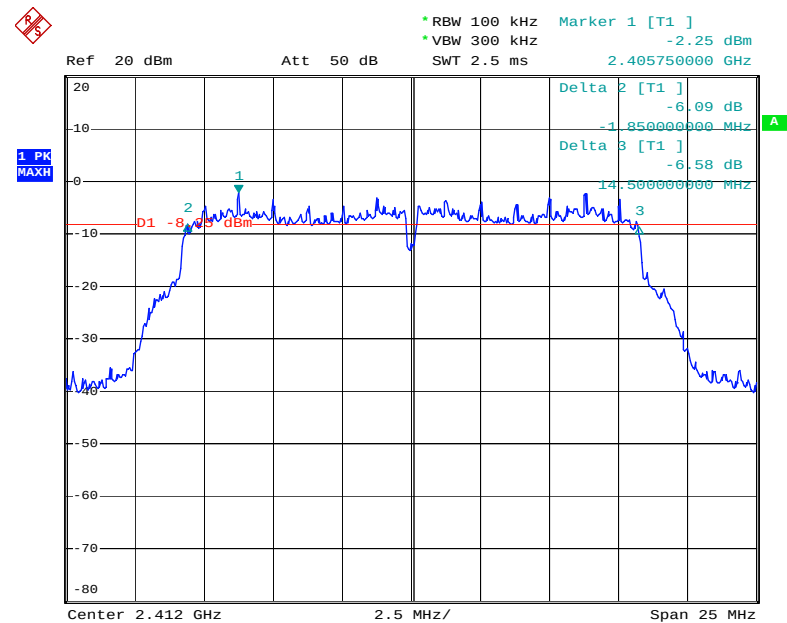
Date: 20.Jun.2016 15:50:10

802.11b Channel High 2462MHz



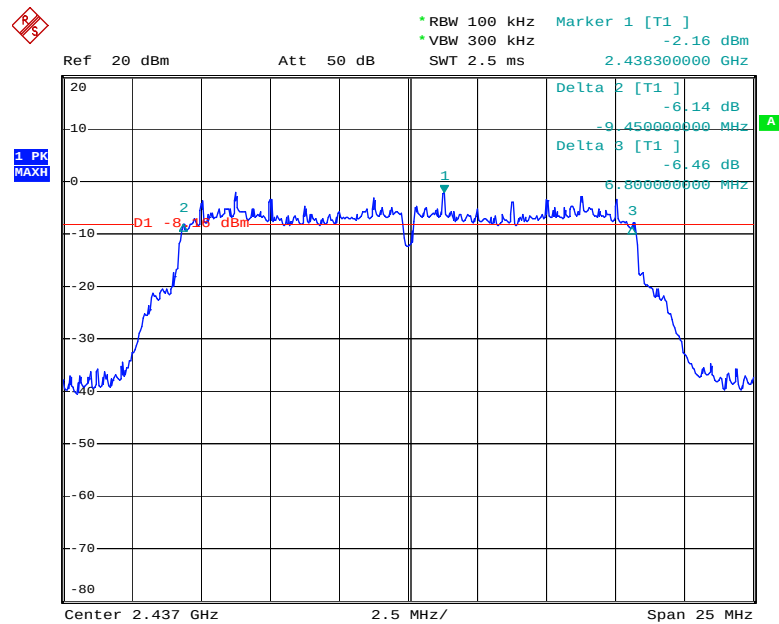
Date: 20. Jun. 2016 15:51:23

802.11g Channel Low 2412MHz



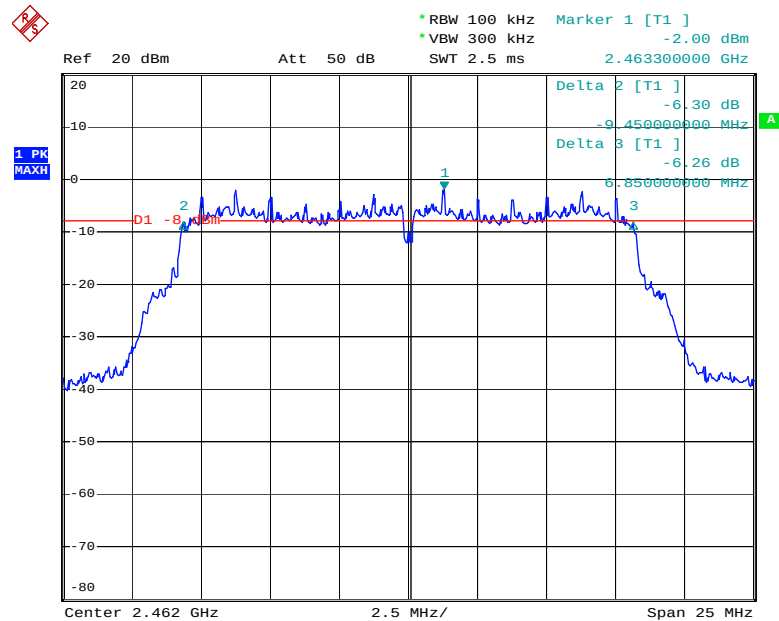
Date: 14. MAY. 2016 14:03:59

802.11g Channel Middle 2437MHz



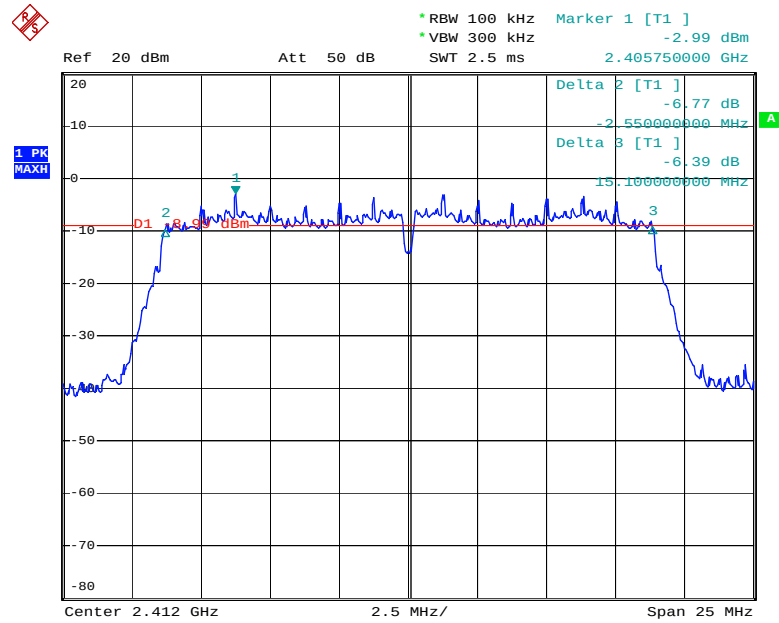
Date: 14.MAY.2016 14:05:19

802.11g Channel High 2462MHz



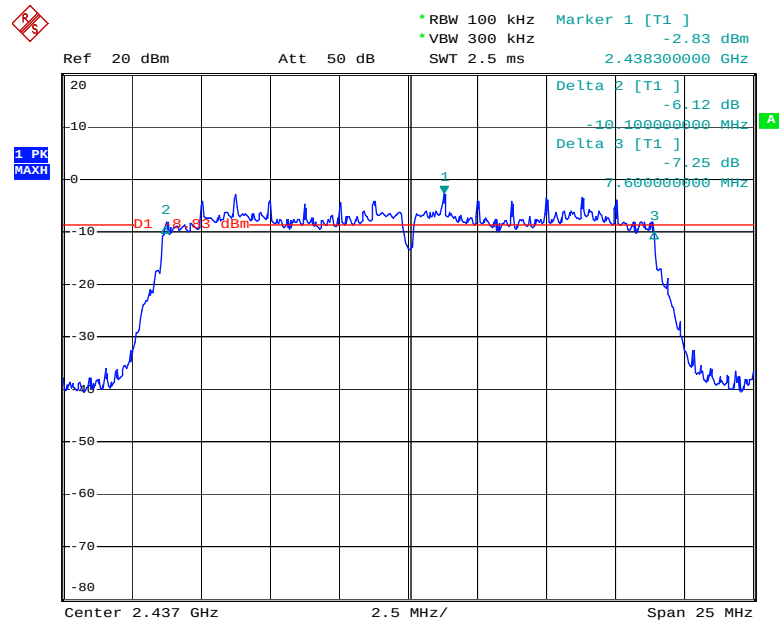
Date: 14.MAY.2016 14:06:29

802.11n Channel Low 2412MHz (20MHz)



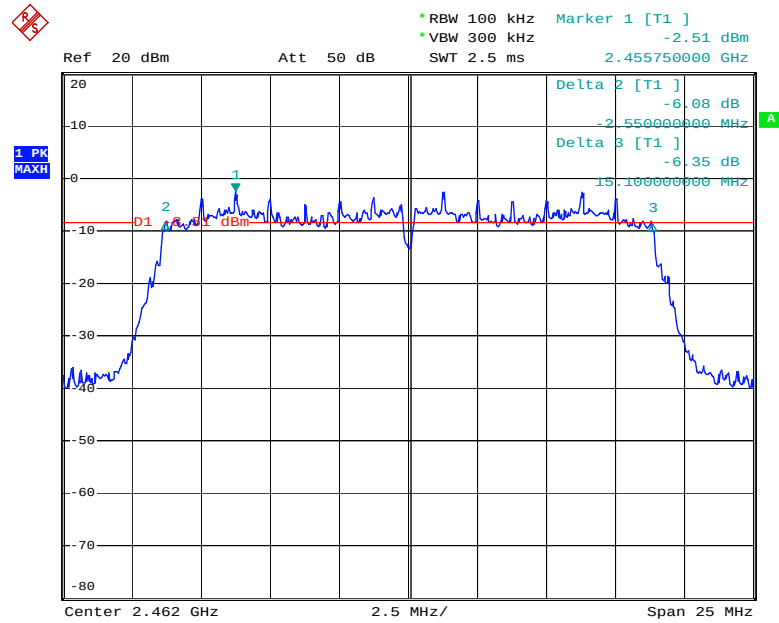
Date: 14.MAY.2016 14:07:36

802.11n Channel Middle 2437MHz(20MHz)



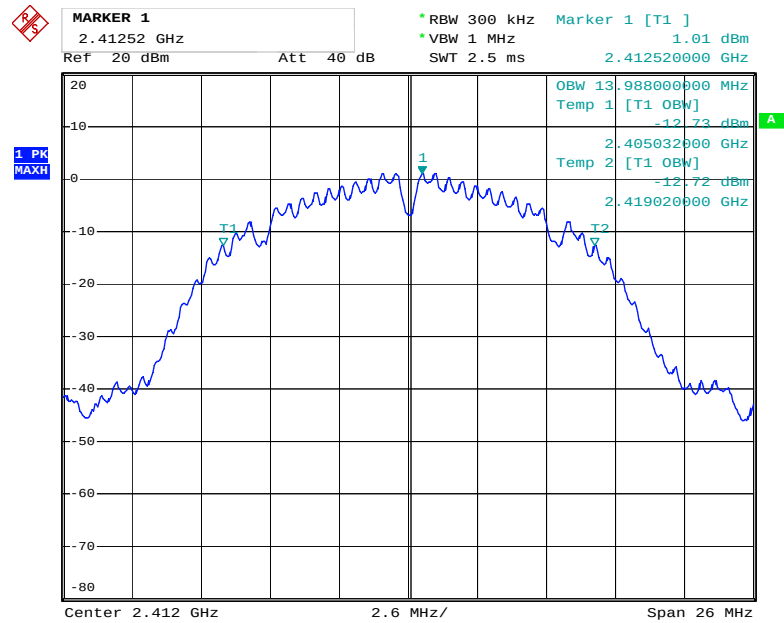
Date: 14.MAY.2016 14:09:18

802.11n Channel High 2462MHz(20MHz)



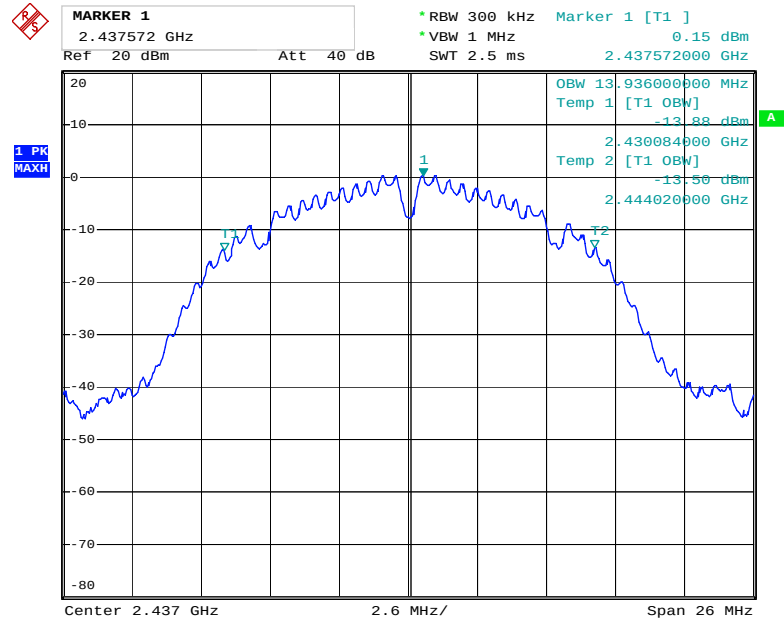
Date: 14.MAY.2016 14:11:06

99% Bandwidth 802.11b Channel Low 2412MHz



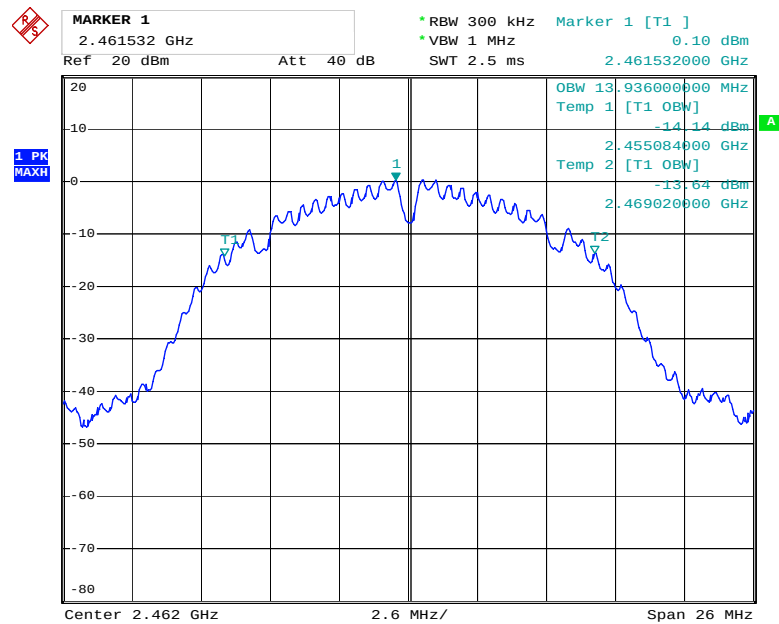
Date: 25.MAY.2016 03:33:50

802.11b Channel Middle 2437MHz



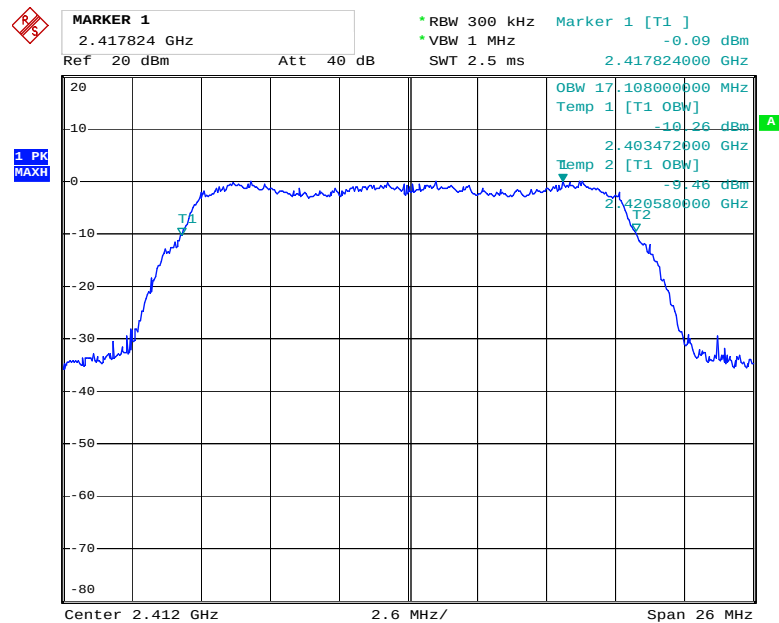
Date: 25.MAY.2016 03:35:36

802.11b Channel High 2462MHz



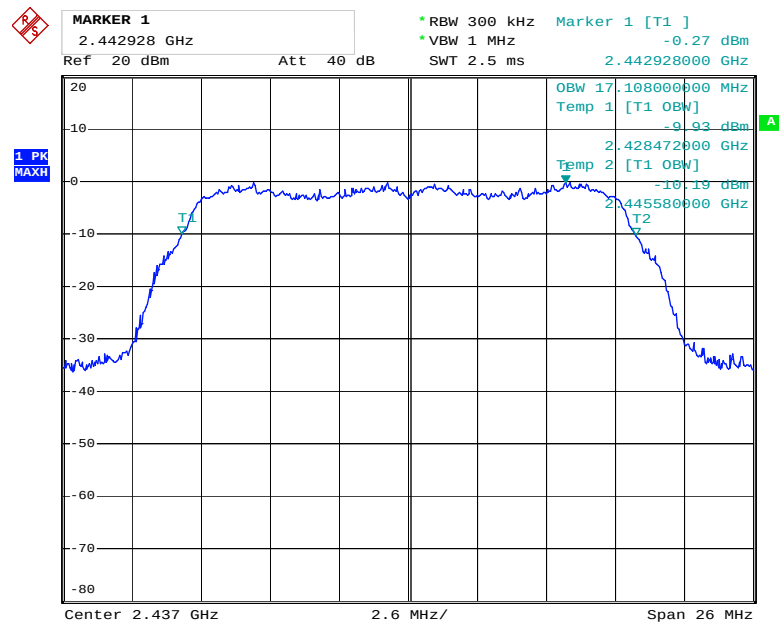
Date: 25.MAY.2016 03:36:17

802.11g Channel Low 2412MHz



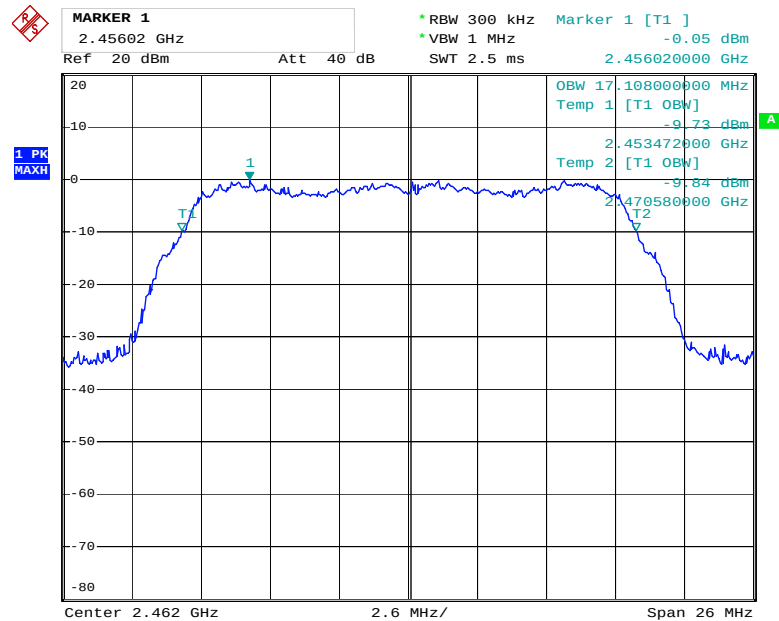
Date: 25.MAY.2016 03:26:05

802.11g Channel Middle 2437MHz



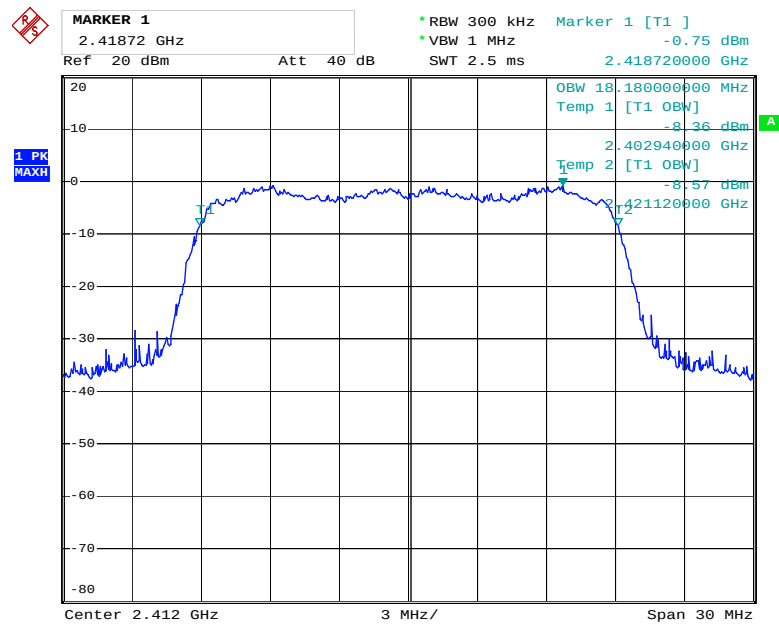
Date: 25.MAY.2016 03:27:28

802.11g Channel High 2462MHz



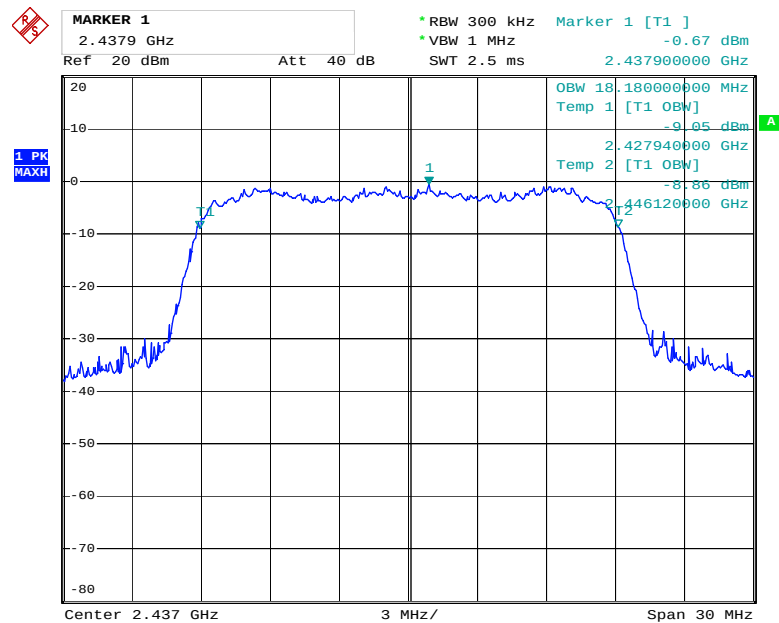
Date: 25.MAY.2016 03:29:14

802.11n Channel Low 2412MHz (20MHz)



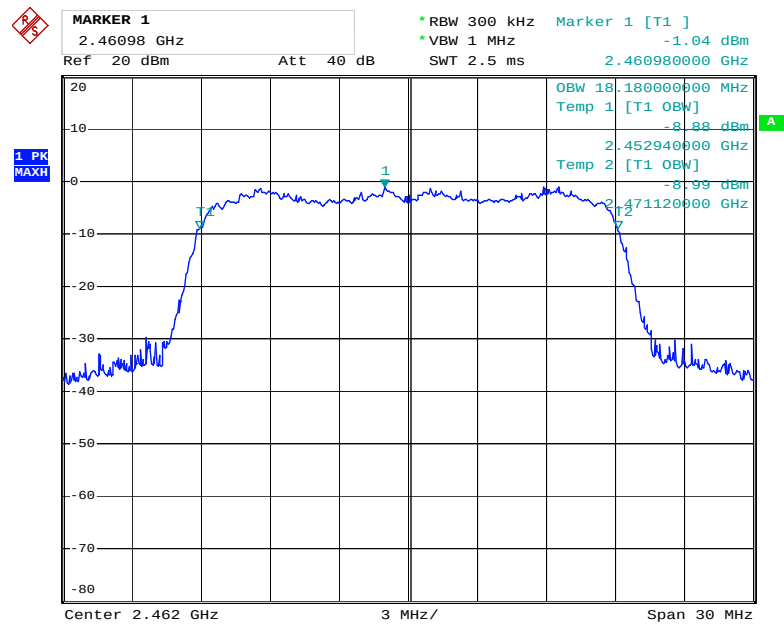
Date: 25.MAY.2016 03:38:25

802.11n Channel Middle 2437MHz(20MHz)



Date: 25.MAY.2016 03:40:06

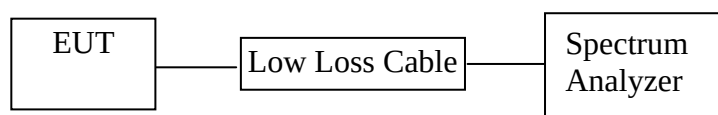
802.11n Channel High 2462MHz(20MHz)



Date: 25.MAY.2016 03:41:03

7. MAXIMUM CONDUCTED (AVERAGE) OUTPUT POWER

7.1. Block Diagram of Test Setup



7.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

7.3. EUT Configuration on Measurement

The equipment is installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as Section 7.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

7.5. Test Procedure

7.5.1. The EUT was tested according to DTS test procedure of Apr 08, 2016 KDB558074 D01 DTS Meas Guidance v03r05 for compliance to FCC 47CFR 15.247 requirements.

7.5.2. The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.3. Set RBW = 1-5% of the OBW, not to exceed 1 MHz, VBW $\geq 3 \times$ RBW, Sweep time = auto, Set span to at least 1.5 times the OBW, Detector = RMS.

7.5.4. Measurement the Maximum conducted (average) output power.

7.6.Test Result

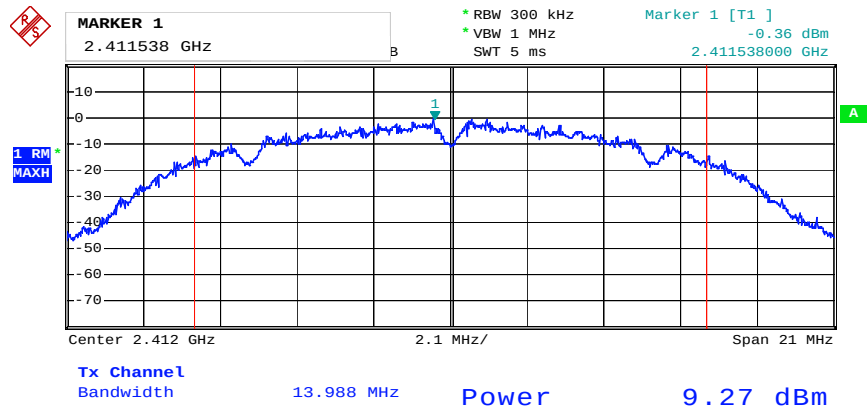
The test was performed with 802.11b				
Channel	Frequency (MHz)	Ave output power (dBm)	Ave output power (mW)	Limits dBm / W
Low	2412	9.27	8.45	30 dBm / 1 W
Middle	2437	9.34	8.59	30 dBm / 1 W
High	2462	9.29	8.49	30 dBm / 1 W

The test was performed with 802.11g				
Channel	Frequency (MHz)	Ave output power (dBm)	Ave output power (mW)	Limits dBm / W
Low	2412	8.70	7.41	30 dBm / 1 W
Middle	2437	8.51	7.10	30 dBm / 1 W
High	2462	8.68	7.38	30 dBm / 1 W

The test was performed with 802.11n (20MHz)				
Channel	Frequency (MHz)	Ave output power (dBm)	Ave output power (mW)	Limits dBm / W
Low	2412	8.23	6.65	30 dBm / 1 W
Middle	2437	8.20	6.61	30 dBm / 1 W
High	2462	8.29	6.75	30 dBm / 1 W

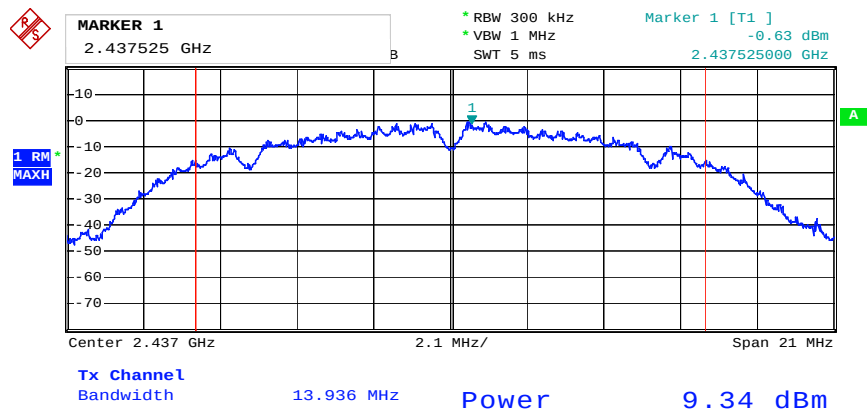
The spectrum analyzer plots are attached as below.

802.11b Channel Low 2412MHz



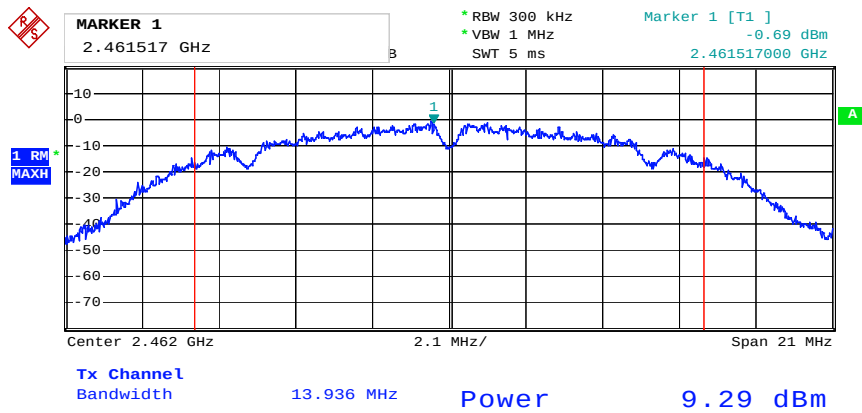
Date: 25.MAY.2016 04:01:55

802.11b Channel Middle 2437MHz



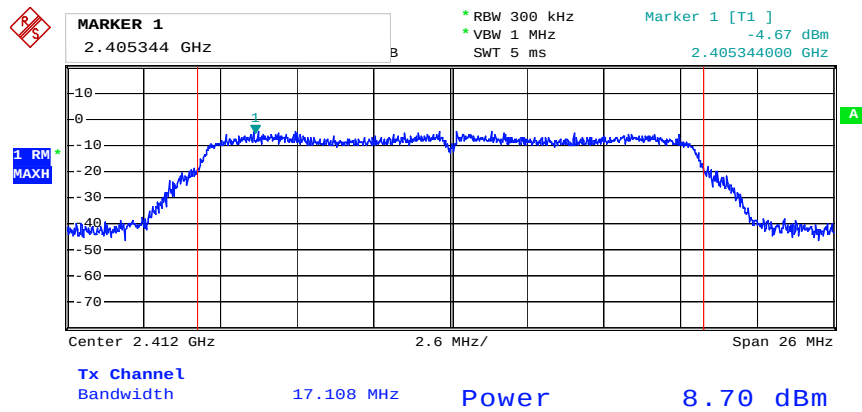
Date: 25.MAY.2016 04:03:21

802.11b Channel High 2462MHz



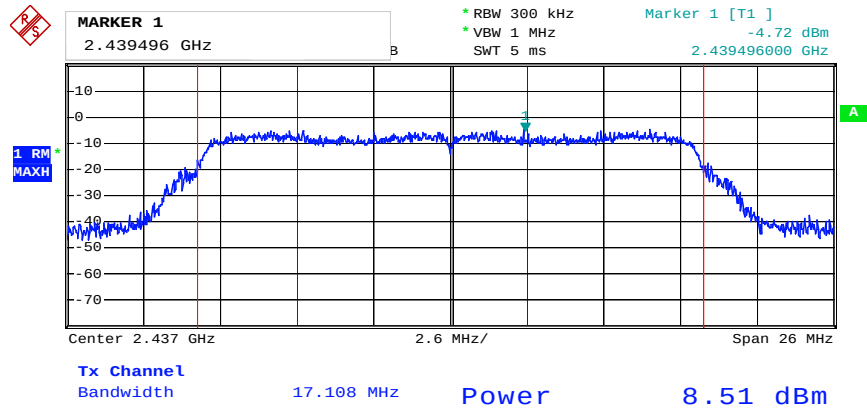
Date: 25.MAY.2016 04:04:09

802.11g Channel Low 2412MHz



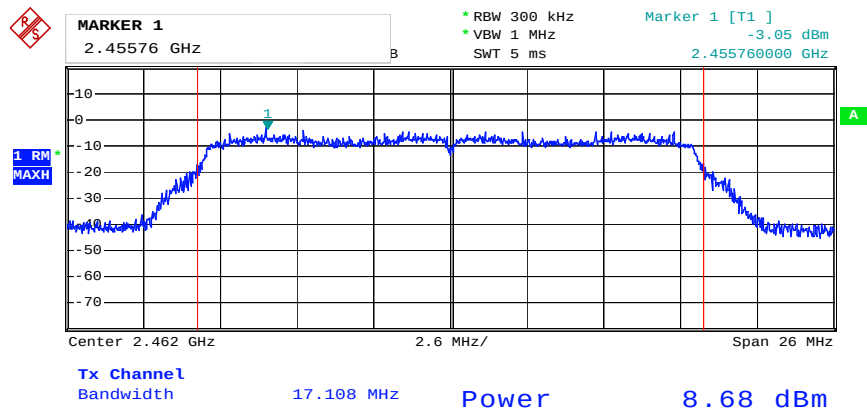
Date: 25.MAY.2016 04:05:43

802.11g Channel Middle 2437MHz



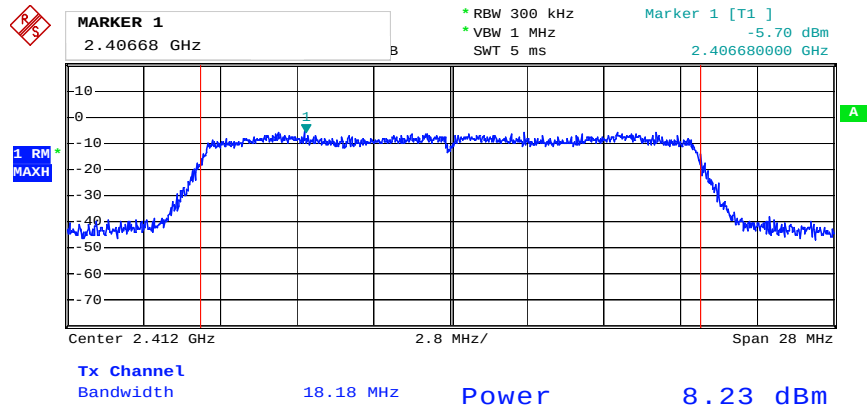
Date: 25.MAY.2016 04:06:16

802.11g Channel High 2462MHz



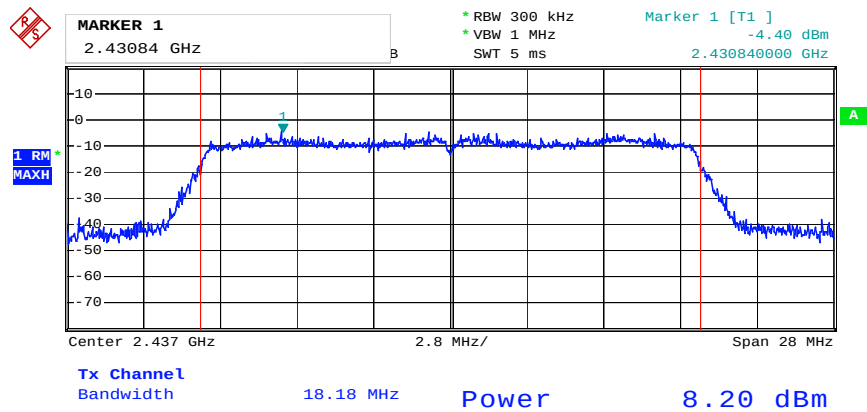
Date: 25.MAY.2016 04:06:57

802.11n Channel Low 2412MHz (20MHz)



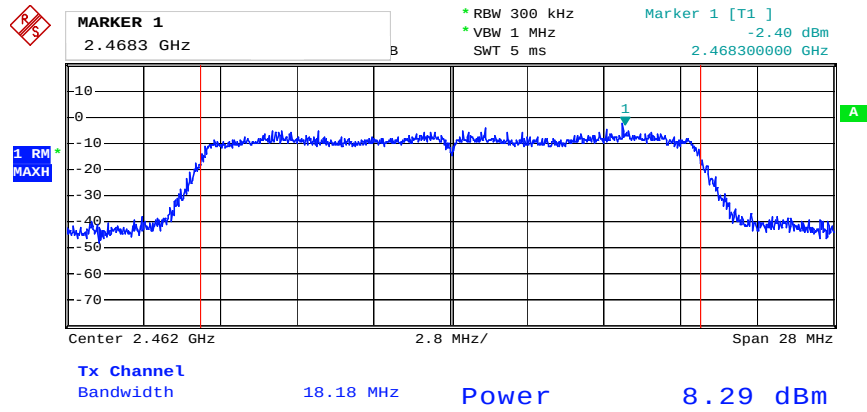
Date: 25.MAY.2016 04:08:11

802.11n Channel Middle 2437MHz (20MHz)



Date: 25.MAY.2016 04:08:47

802.11n Channel High 2462MHz (20MHz)



Date: 25.MAY.2016 04:09:20

8. POWER SPECTRAL DENSITY MEASUREMENT

8.1. Block Diagram of Test Setup



8.2. The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4. Operating Condition of EUT

8.4.1. Setup the EUT and simulator as shown as Section 8.1.

8.4.2. Turn on the power of all equipment.

8.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

8.5. Test Procedure

8.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

8.5.2. Measurement Procedure PKPSD:

This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to at least 1.5 times the OBW.
3. Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.

4. Set $VBW \geq 3 \times RBW$.
5. Detector = power averaging (RMS) or sample detector (when RMS not available).
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

8.5.3.Measurement the maximum power spectral density.

8.6.Test Result

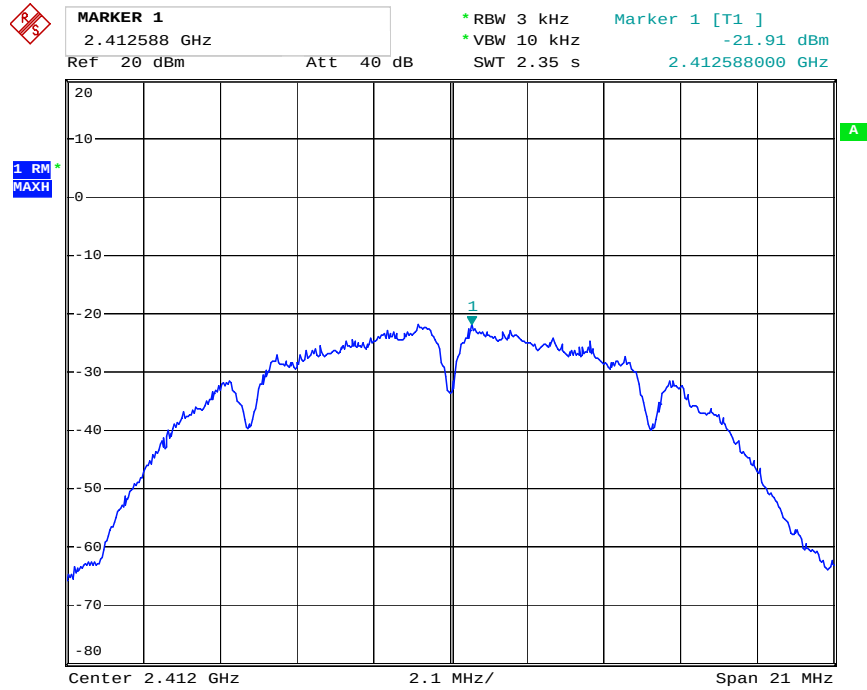
The test was performed with 802.11b			
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
Low	2412	-21.91	8 dBm
Middle	2437	-21.25	8 dBm
High	2462	-21.72	8 dBm

The test was performed with 802.11g			
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
Low	2412	-25.06	8 dBm
Middle	2437	-25.10	8 dBm
High	2462	-25.26	8 dBm

The test was performed with 802.11n (20MHz)			
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
Low	2412	-25.55	8 dBm
Middle	2437	-26.09	8 dBm
High	2462	-26.20	8 dBm

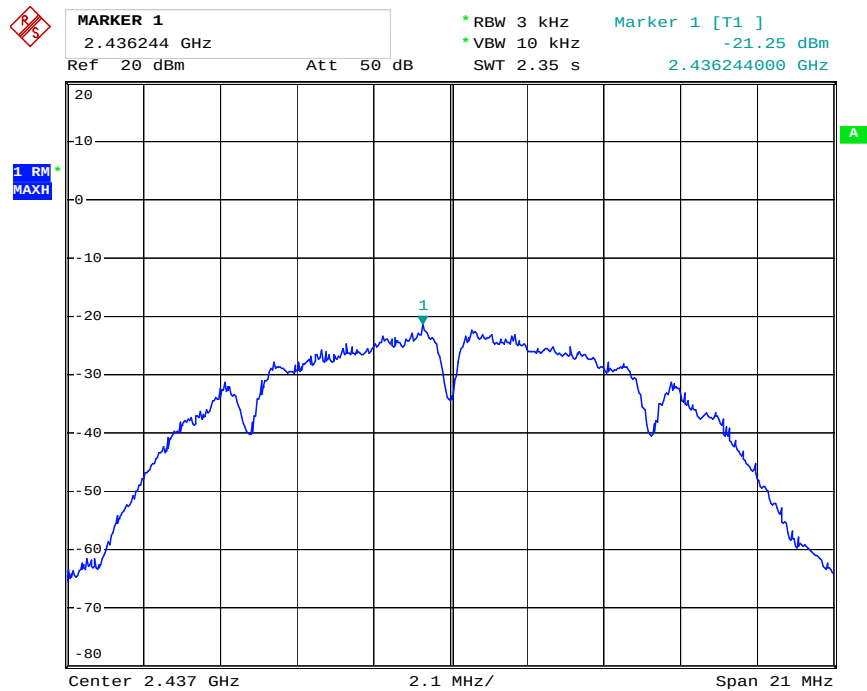
The spectrum analyzer plots are attached as below.

802.11b Channel Low 2412MHz



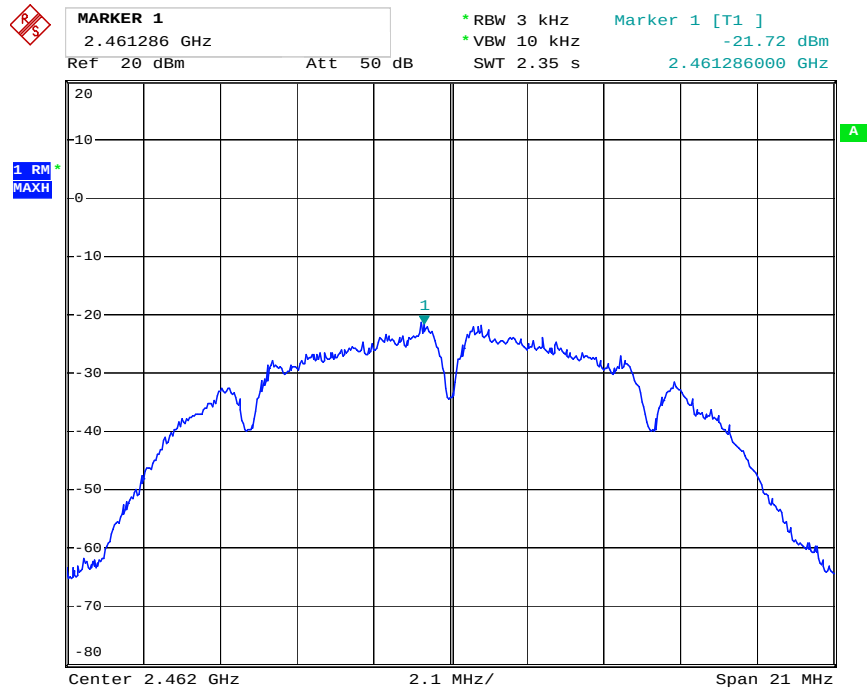
Date: 25.MAY.2016 03:47:00

802.11b Channel Middle 2437MHz



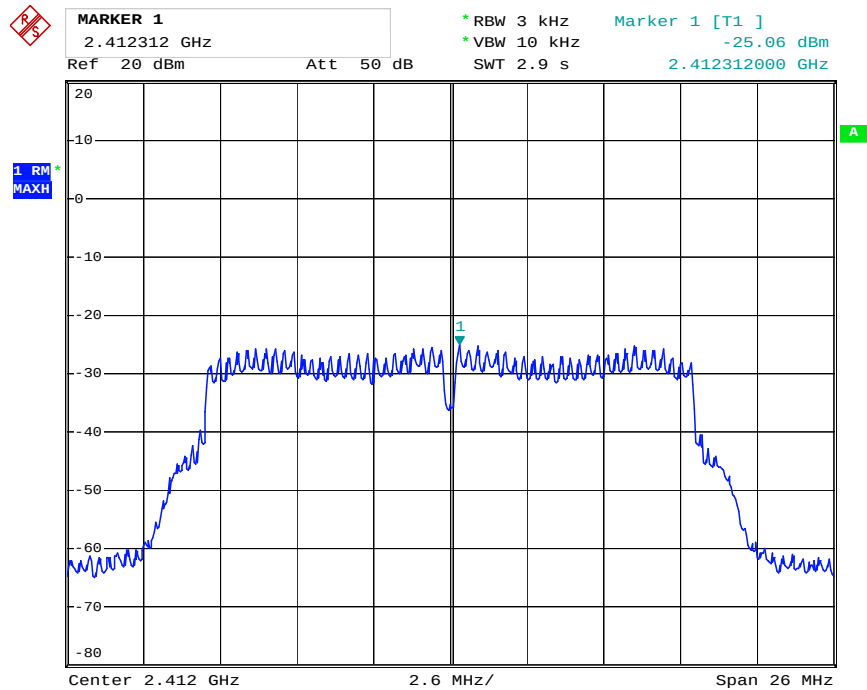
Date: 25.MAY.2016 03:47:56

802.11b Channel High 2462MHz



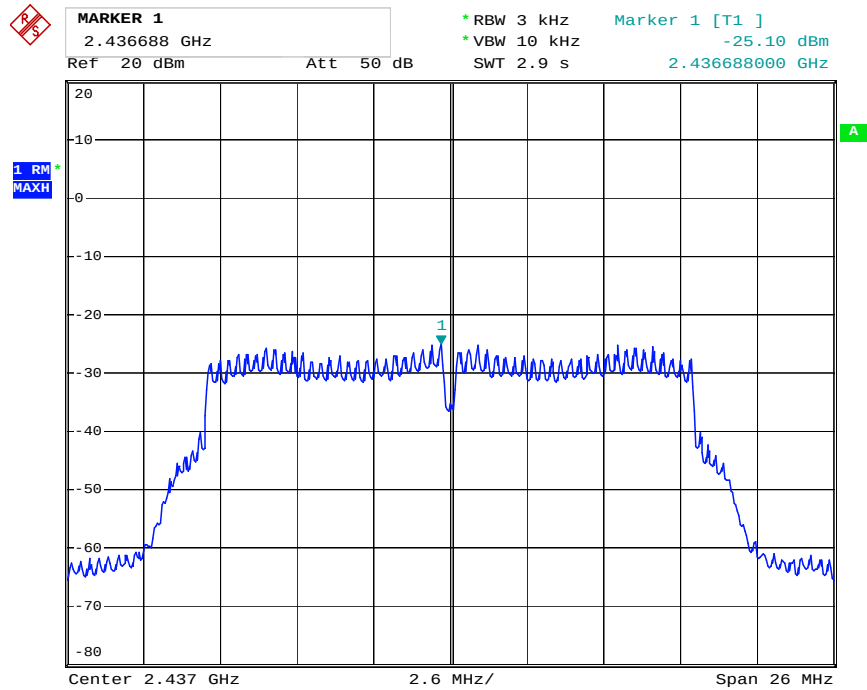
Date: 25.MAY.2016 03:48:47

802.11g Channel Low 2412MHz



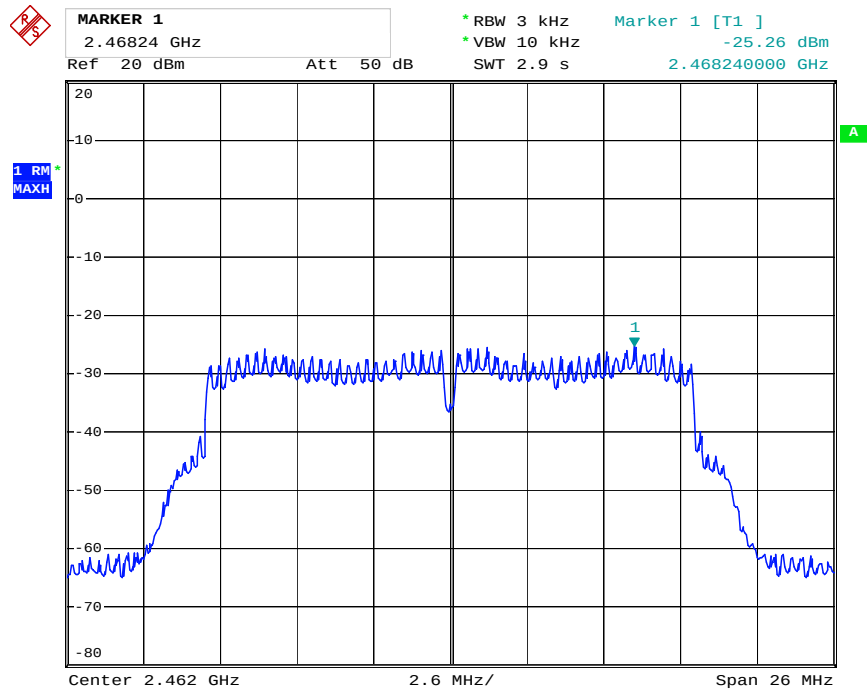
Date: 25.MAY.2016 03:50:01

802.11g Channel Middle 2437MHz



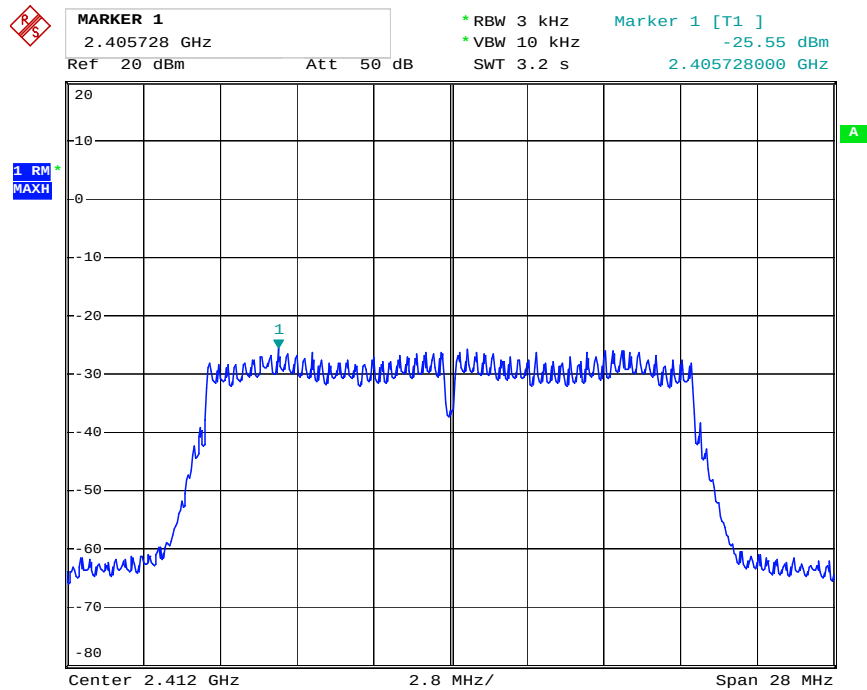
Date: 25.MAY.2016 03:50:57

802.11g Channel High 2462MHz



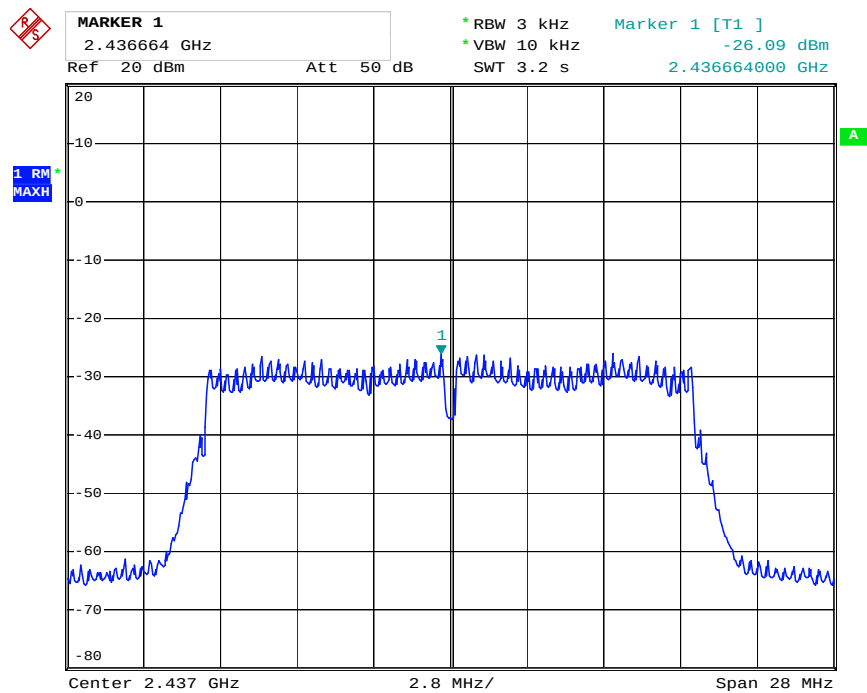
Date: 25.MAY.2016 03:51:51

802.11n Channel Low 2412MHz (20MHz)



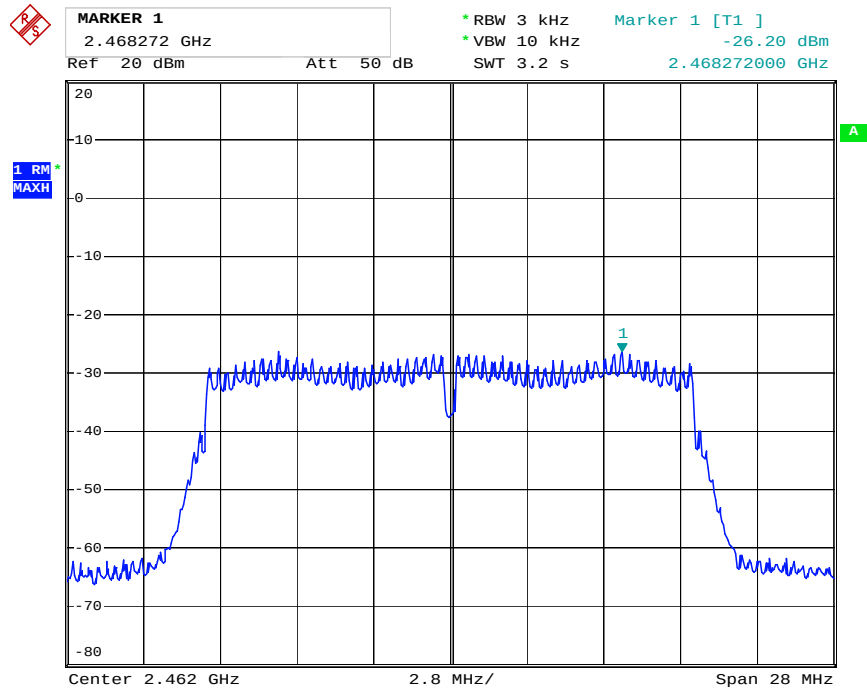
Date: 25.MAY.2016 03:53:05

802.11n Channel Middle 2437MHz (20MHz)



Date: 25.MAY.2016 03:54:08

802.11n Channel High 2462MHz(20MHz)



Date: 25.MAY.2016 03:55:02

9. BAND EDGE COMPLIANCE TEST

9.1. Block Diagram of Test Setup



9.2. The Requirement For Section 15.247(d)

Section 15.247(d): 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. 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 15.209(a).

9.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.4. Operating Condition of EUT

9.4.1. Setup the EUT and simulator as shown as Section 9.1.

9.4.2. Turn on the power of all equipment.

9.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462MHz. We select 2412MHz, 2462MHz TX frequency to transmit.

9.5. Test Procedure

Conducted Band Edge:

9.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

9.5.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz.

Radiate Band Edge:

9.5.3. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.

9.5.4. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

9.5.5. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

9.5.6. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

9.5.7. RBW=1MHz, VBW=3MHz

9.5.8. The band edges were measured and recorded.

9.6. Test Result

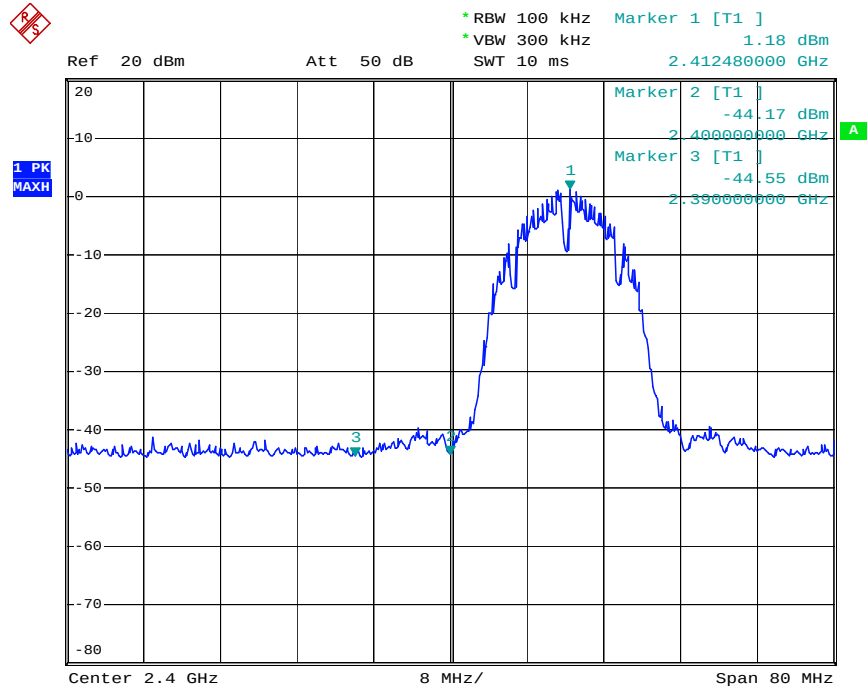
The test was performed with 802.11b		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2400.00	37.33	> 20dBc
2483.50	40.69	> 20dBc

The test was performed with 802.11g		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2400.00	45.35	> 20dBc
2483.50	46.24	> 20dBc

The test was performed with 802.11n (20MHz)		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2400.00	37.33	> 20dBc
2483.50	40.69	> 20dBc

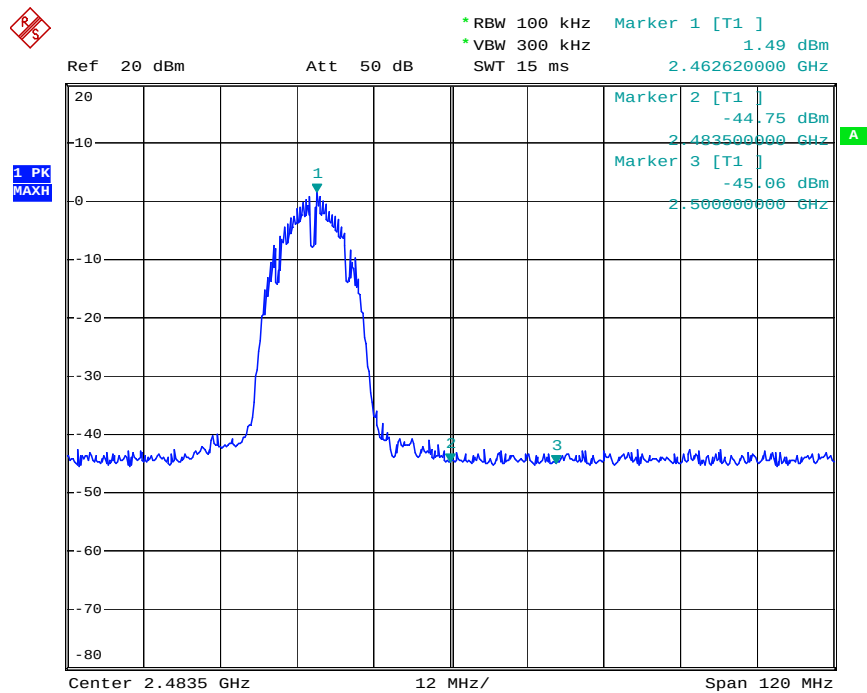
The worst case conduct band edge data

802.11b Channel Low 2412MHz



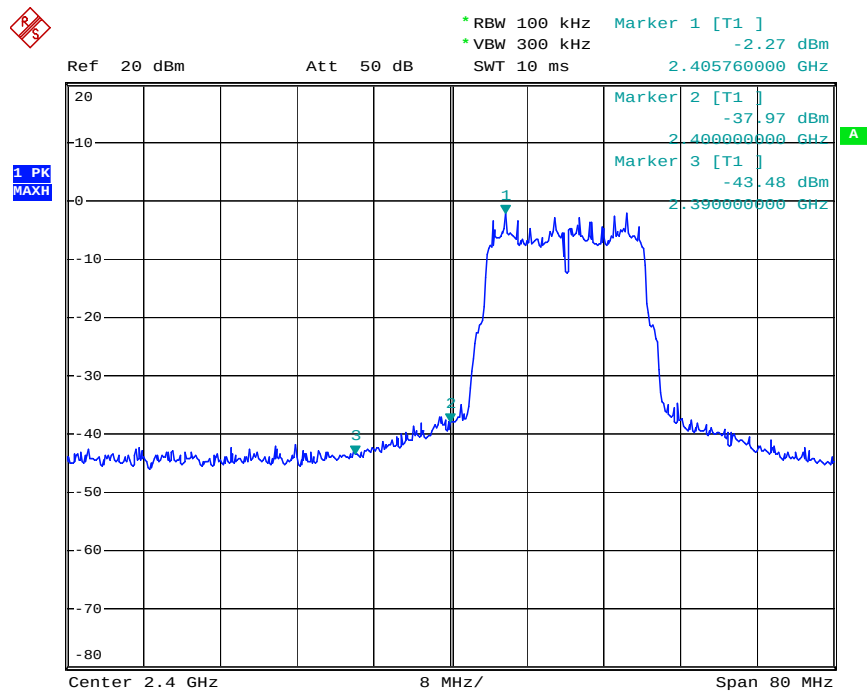
Date: 14.MAY.2016 14:25:34

802.11b Channel High 2462MHz



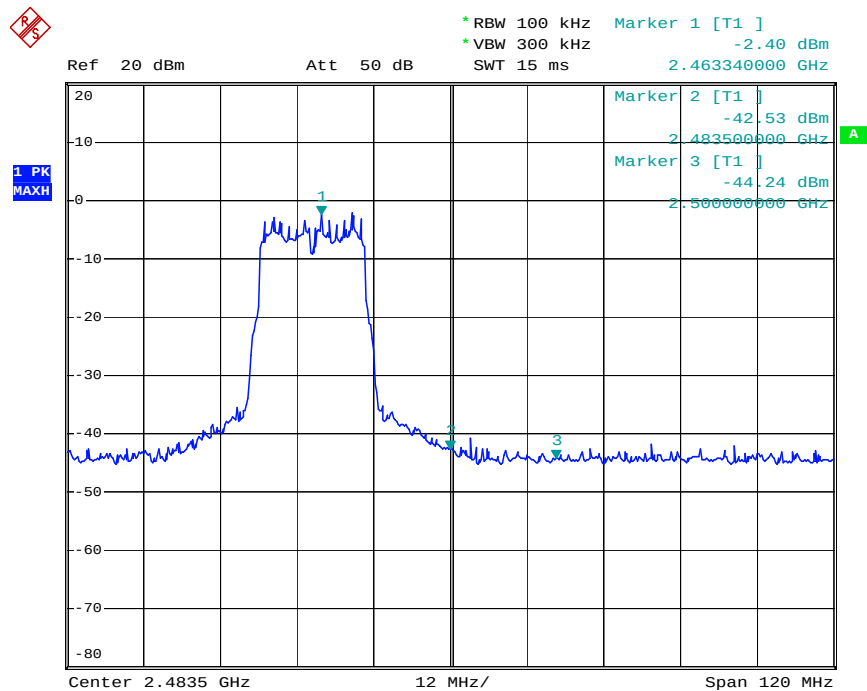
Date: 14.MAY.2016 14:27:34

802.11g Channel Low 2412MHz



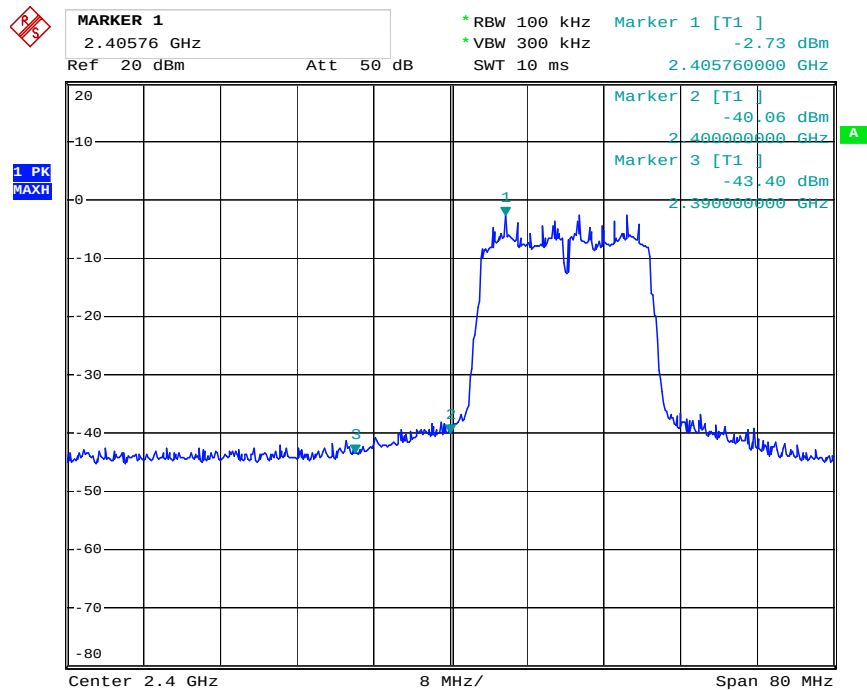
Date: 14.MAY.2016 14:26:19

802.11g Channel High 2462MHz



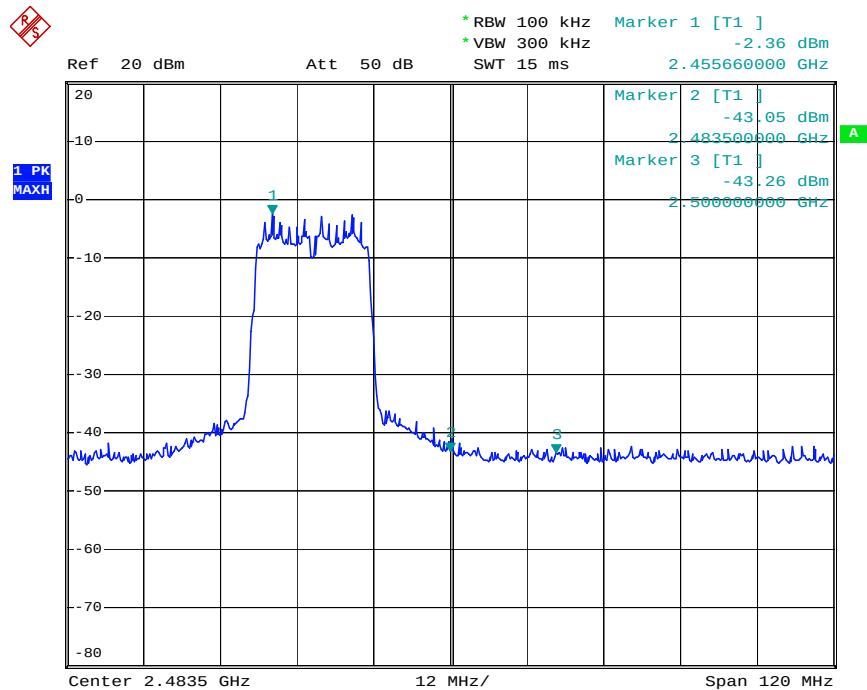
Date: 14.MAY.2016 14:28:11

802.11n Channel Low 2412MHz (20MHz)



Date: 14.MAY.2016 14:26:52

802.11n Channel High 2462MHz (20MHz)



Date: 14.MAY.2016 14:29:00

Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:
$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$
3. Display the measurement of peak values.

Test Procedure:

The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

Let the EUT work in TX modes then measure it.

We select 2412MHz, 2462MHz TX frequency to transmit(802.11b/g/n20 mode).

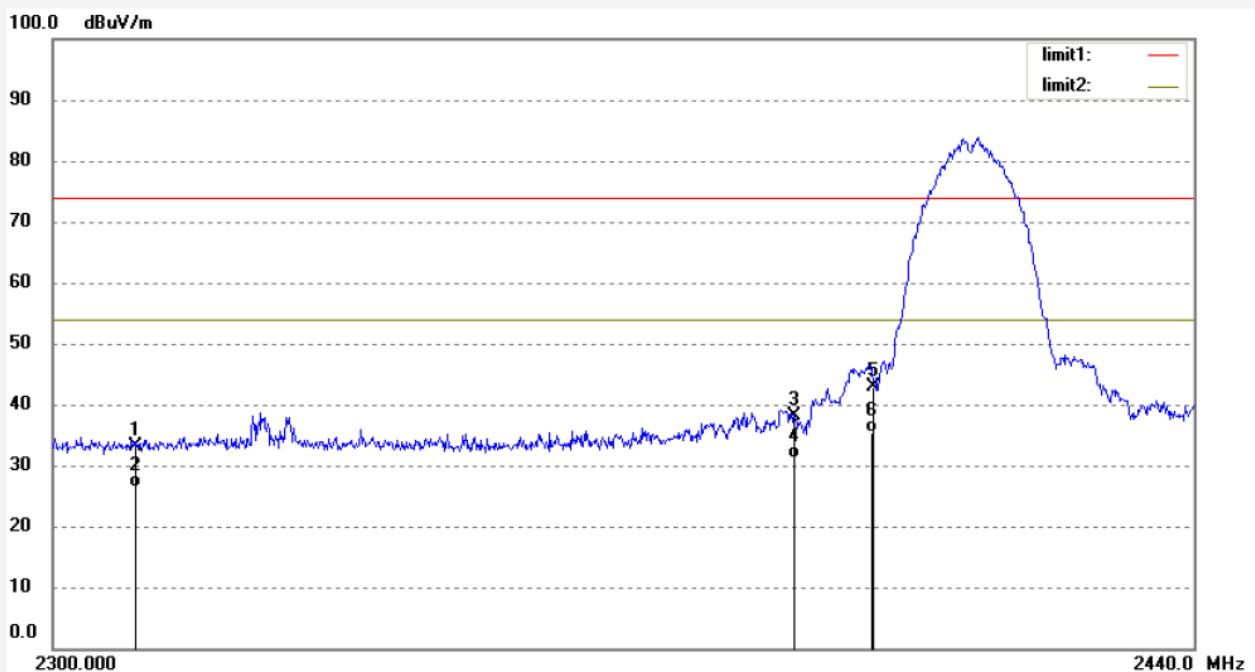
During the radiated emission test, the spectrum analyzer was set with the following configurations:

- 1.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
- 2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- 3.All modes of operation were investigated and the worst-case emissions are reported.

Job No.: STAR2016 #742
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 1(802.11b)
Model: X1
Manufacturer: XeeK

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 15/44/28
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678



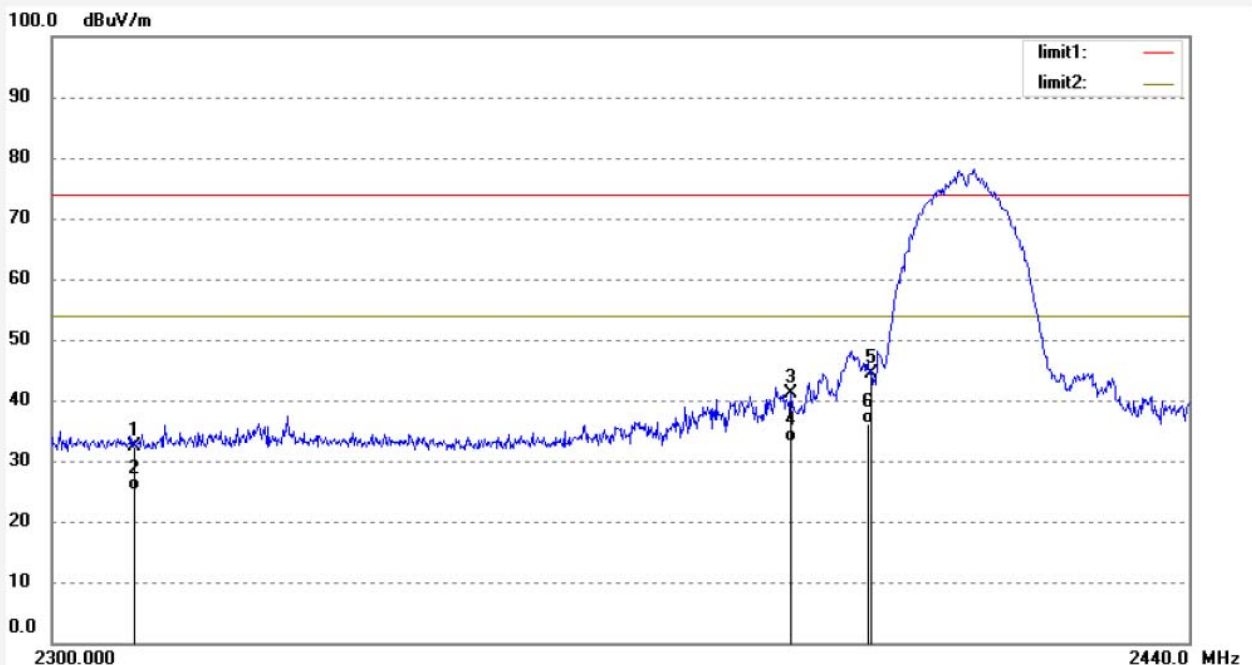
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1	2310.000	41.02	-7.87	33.15	74.00	-40.85	peak			
2	2310.000	34.22	-7.87	26.35	54.00	-27.65	peak			
3	2390.000	45.74	-7.64	38.10	74.00	-35.90	peak			
4	2390.000	38.71	-7.64	31.07	54.00	-22.93	peak			
5	2400.000	50.54	-7.61	42.93	74.00	-31.07	peak			
6	2400.000	43.00	-7.61	35.39	54.00	-18.61	peak			

Note: Average measurement with peak detection at No.2&4&6

Job No.: STAR2016 #741
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 1(802.11b)
Model: X1
Manufacturer: Xeeek

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 15/40/54
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678



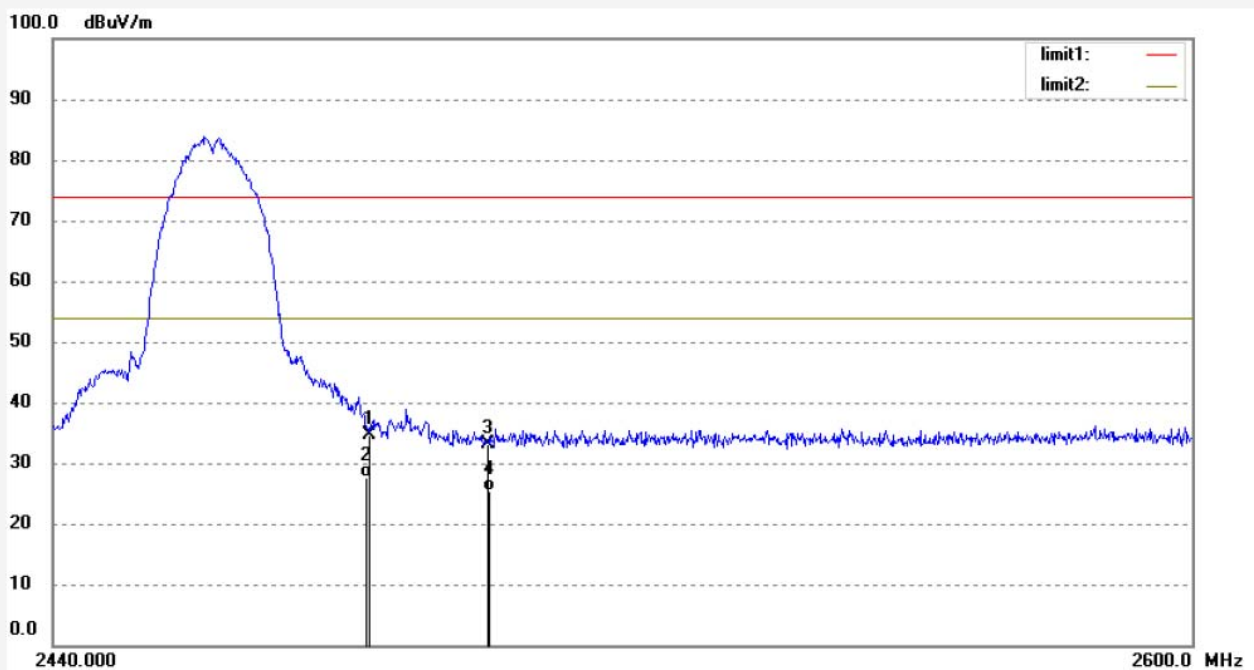
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	40.27	-7.87	32.40	74.00	-41.60	peak			
2	2310.000	32.98	-7.87	25.11	54.00	-28.89	peak			
3	2390.000	48.89	-7.64	41.25	74.00	-32.75	peak			
4	2390.000	40.78	-7.64	33.14	54.00	-20.86	peak			
5	2400.000	51.94	-7.61	44.33	74.00	-29.67	peak			
6	2400.000	43.69	-7.61	36.08	54.00	-17.92	peak			

Note: Average measurement with peak detection at No.2&4&6

Job No.: STAR2016 #743
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 11(802.11b)
Model: X1
Manufacturer: XeeK

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 15/51/58
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678



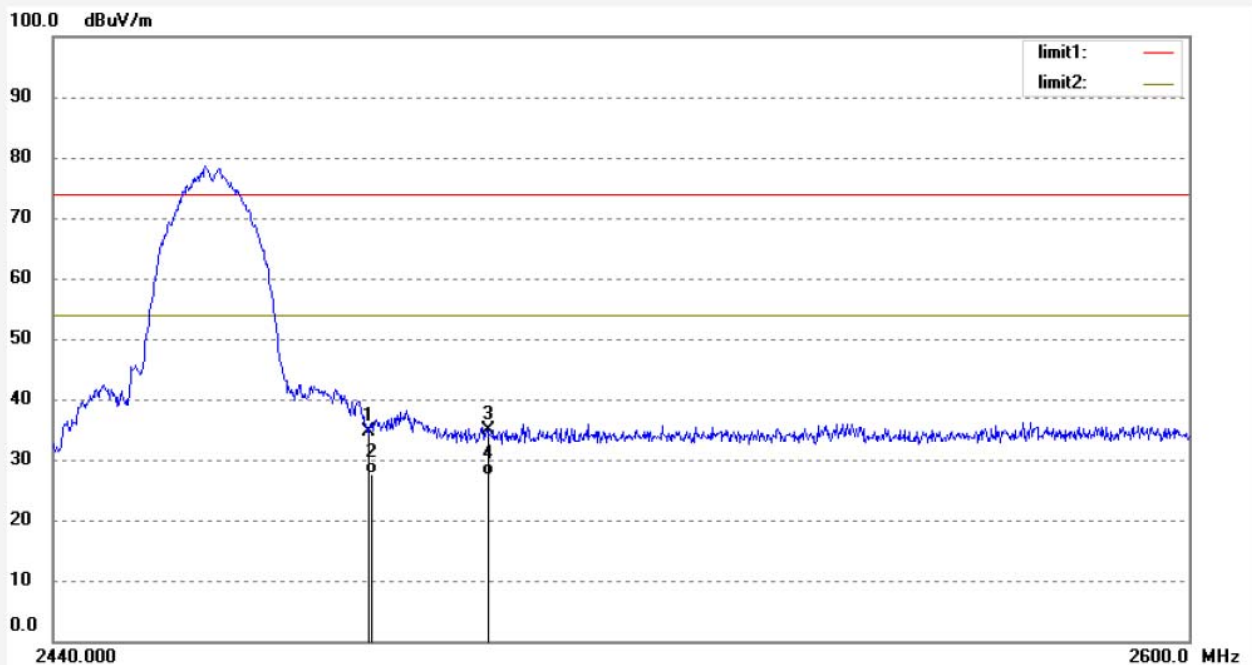
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	42.07	-7.37	34.70	74.00	-39.30	peak			
2	2483.500	35.11	-7.37	27.74	54.00	-26.26	peak			
3	2500.000	40.42	-7.32	33.10	74.00	-40.90	peak			
4	2500.000	32.70	-7.32	25.38	54.00	-28.62	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2016 #744
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 11(802.11b)
Model: X1
Manufacturer: XeeK

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 15/57/01
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678

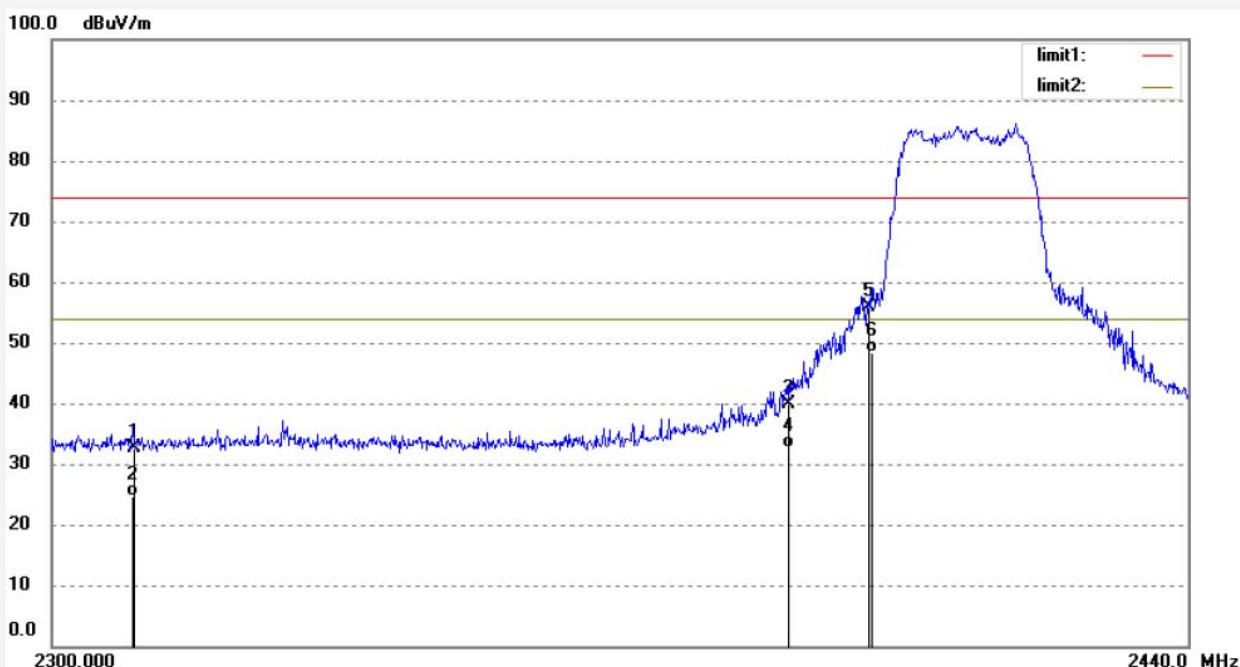


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	42.05	-7.37	34.68	74.00	-39.32	peak			
2	2483.500	35.00	-7.37	27.63	54.00	-26.37	peak			
3	2500.000	42.24	-7.32	34.92	74.00	-39.08	peak			
4	2500.000	34.62	-7.32	27.30	54.00	-26.70	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2016 #747	Polarization: Horizontal
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 16/05/07/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 16/13/30
EUT: Deep breathing training device	Engineer Signature: star
Mode: TX Channel 1(802.11g)	Distance: 3m
Model: X1	
Manufacturer: Xeeek	

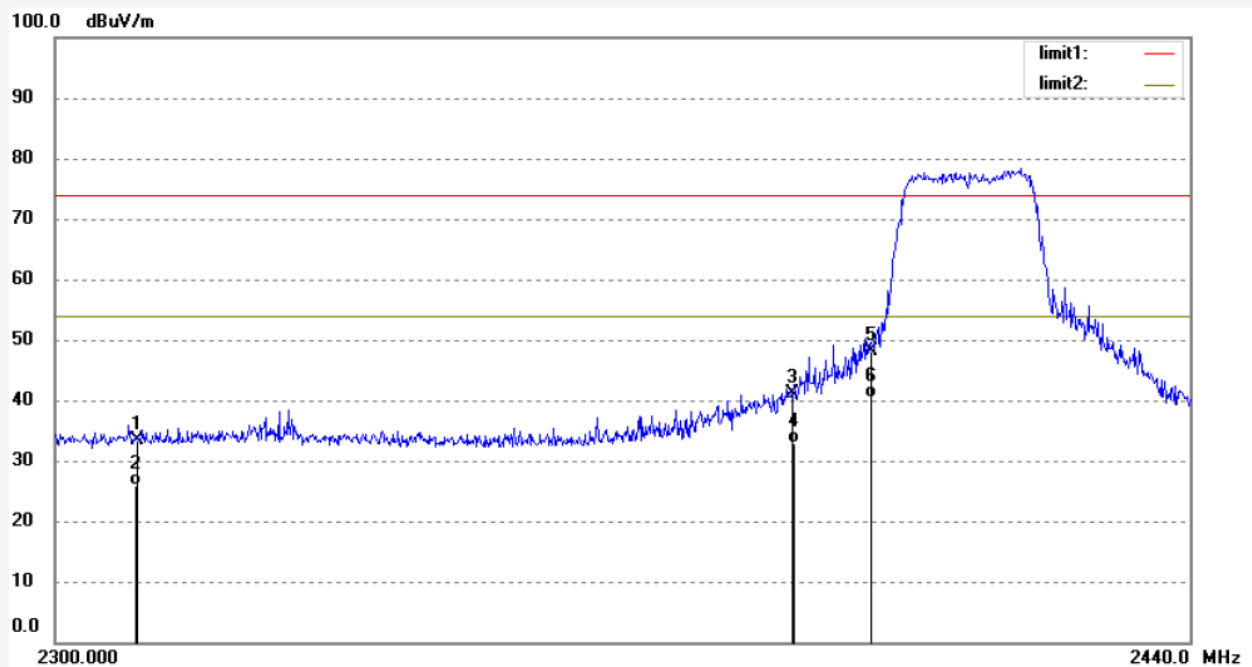
Note: Report No.:ATE20160678



Note: Average measurement with peak detection at No.2&4&6

Job No.: STAR2016 #748	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 16/05/07/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 16/17/00
EUT: Deep breathing training device	Engineer Signature: star
Mode: TX Channel 1(802.11g)	Distance: 3m
Model: X1	
Manufacturer: XeeK	

Note: Report No.:ATE20160678



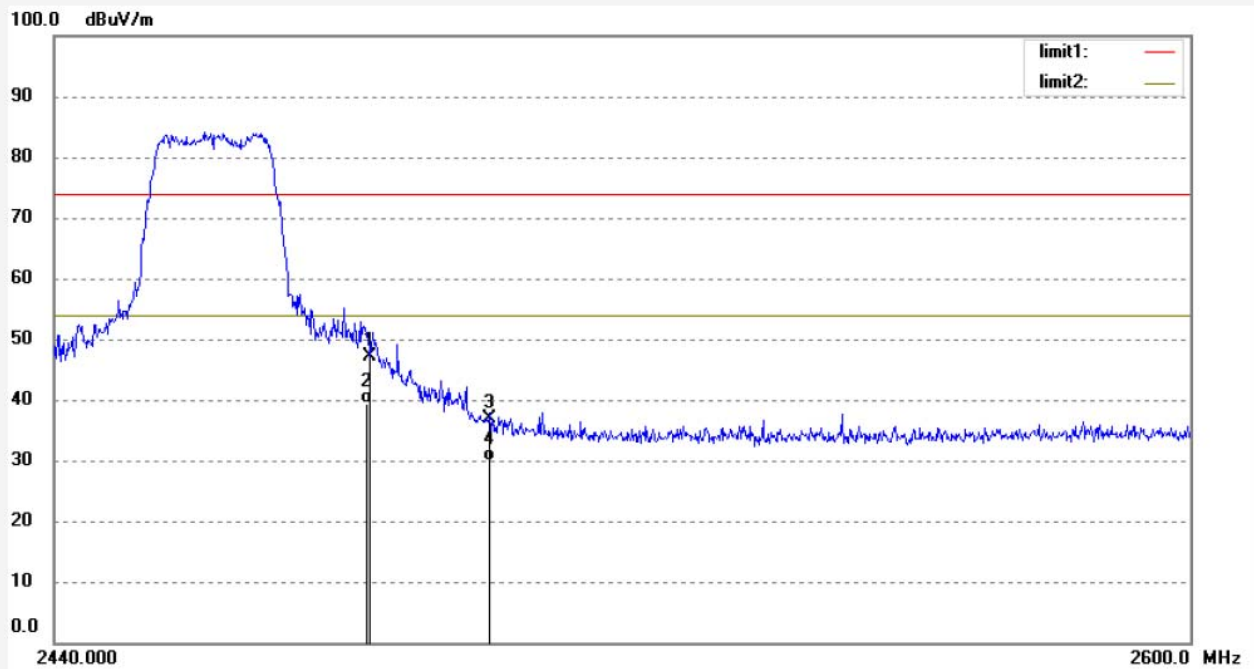
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	41.20	-7.87	33.33	74.00	-40.67	peak			
2	2310.000	33.67	-7.87	25.80	54.00	-28.20	peak			
3	2390.000	48.77	-7.64	41.13	74.00	-32.87	peak			
4	2390.000	40.63	-7.64	32.99	54.00	-21.01	peak			
5	2400.000	55.80	-7.61	48.19	74.00	-25.81	peak			
6	2400.000	48.01	-7.61	40.40	54.00	-13.60	peak			

Note: Average measurement with peak detection at No.2&4&6

Job No.: STAR2016 #746
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 11(802.11g)
Model: X1
Manufacturer: Xeeek

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 16/08/36
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	54.40	-7.37	47.03	74.00	-26.97	peak			
2	2483.500	46.70	-7.37	39.33	54.00	-14.67	peak			
3	2500.000	44.13	-7.32	36.81	74.00	-37.19	peak			
4	2500.000	37.14	-7.32	29.82	54.00	-24.18	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2016 #745

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Deep breathing training device

Mode: TX Channel 11(802.11g)

Model: X1

Manufacturer: XeeK

Polarization: Vertical

Power Source: AC 120V/60Hz

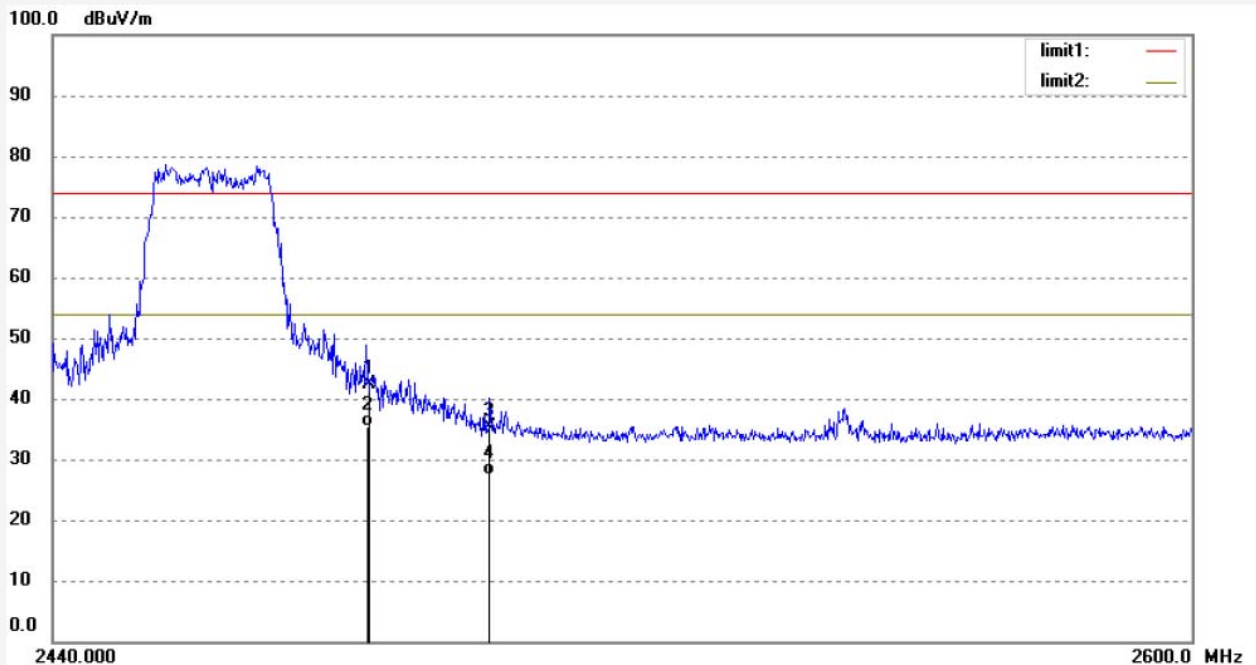
Date: 16/05/07/

Time: 16/03/30

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20160678



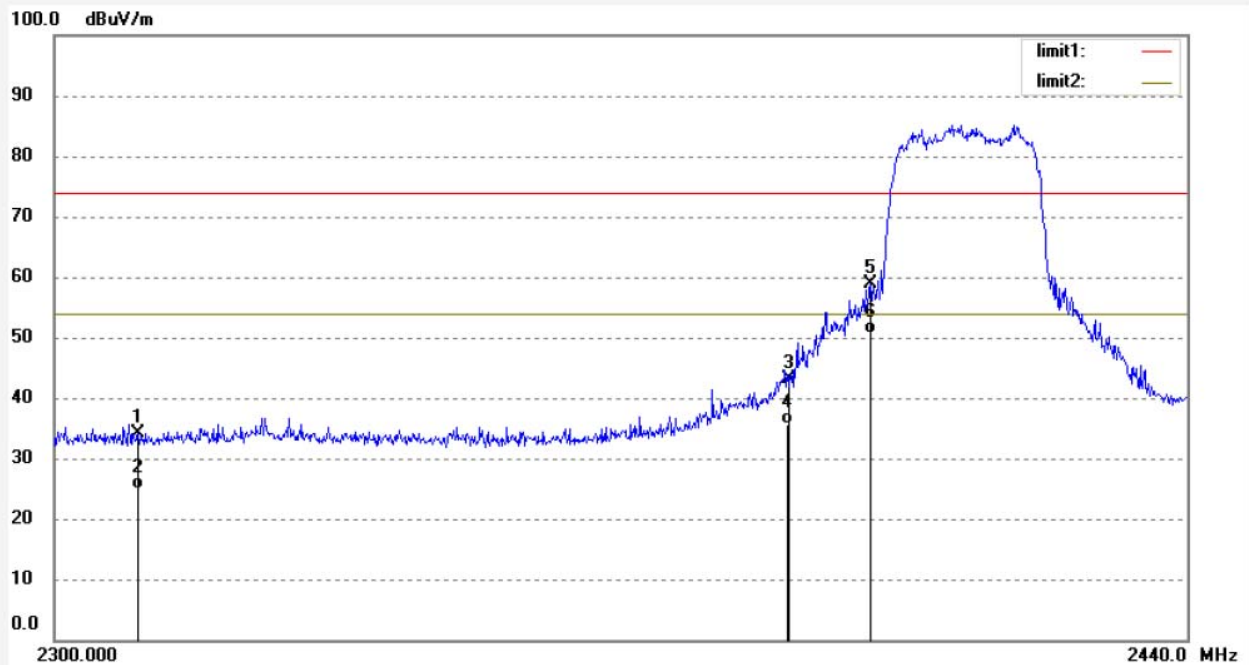
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	49.73	-7.37	42.36	74.00	-31.64	peak			
2	2483.500	42.67	-7.37	35.30	54.00	-18.70	peak			
3	2500.000	42.80	-7.32	35.48	74.00	-38.52	peak			
4	2500.000	34.80	-7.32	27.48	54.00	-26.52	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2016 #750
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 1(802.11n20)
Model: X1
Manufacturer: Xeeek

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 16/26/16
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678

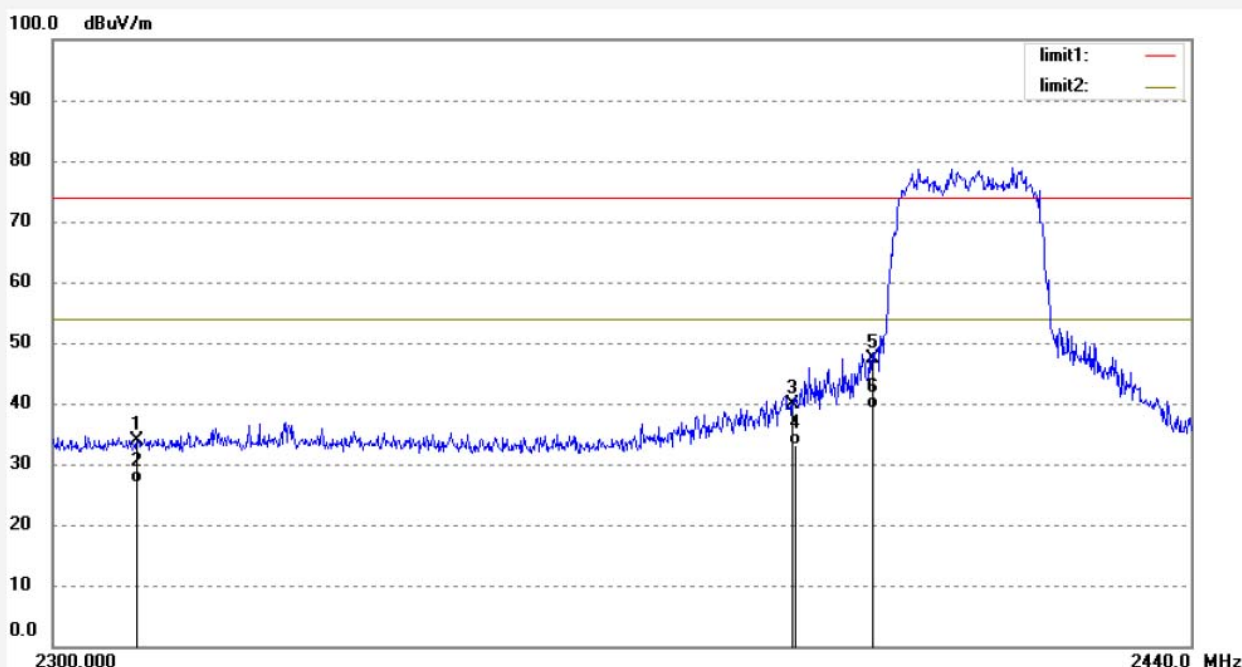


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	41.93	-7.87	34.06	74.00	-39.94	peak			
2	2310.000	32.67	-7.87	24.80	54.00	-29.20	peak			
3	2390.000	50.73	-7.64	43.09	74.00	-30.91	peak			
4	2390.000	43.20	-7.64	35.56	54.00	-18.44	peak			
5	2400.000	66.45	-7.61	58.84	74.00	-15.16	peak			
6	2400.000	58.17	-7.61	50.56	54.00	-3.44	peak			

Note: Average measurement with peak detection at No.2&4&6

Job No.: STAR2016 #749	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 16/05/07/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 16/21/05
EUT: Deep breathing training device	Engineer Signature: star
Mode: TX Channel 1(802.11n20)	Distance: 3m
Model: X1	
Manufacturer: Xeeek	

Note: Report No.:ATE20160678



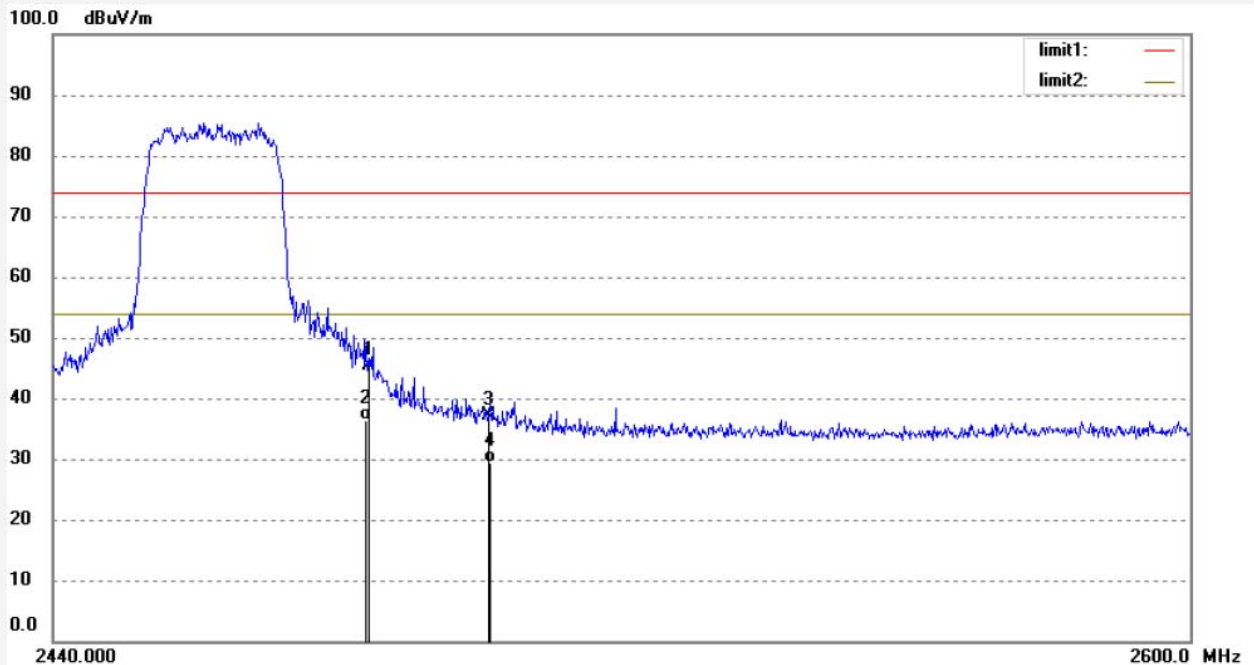
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	41.69	-7.87	33.82	74.00	-40.18	peak			
2	2310.000	34.67	-7.87	26.80	54.00	-27.20	peak			
3	2390.000	47.42	-7.64	39.78	74.00	-34.22	peak			
4	2390.000	40.71	-7.64	33.07	54.00	-20.93	peak			
5	2400.000	54.98	-7.61	47.37	74.00	-26.63	peak			
6	2400.000	46.78	-7.61	39.17	54.00	-14.83	peak			

Note: Average measurement with peak detection at No.2&4&6

Job No.: STAR2016 #751
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 11(802.11n20)
Model: X1
Manufacturer: Xeeek

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 16/31/09
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	52.86	-7.37	45.49	74.00	-28.51	peak			
2	2483.500	43.70	-7.37	36.33	54.00	-17.67	peak			
3	2500.000	44.54	-7.32	37.22	74.00	-36.78	peak			
4	2500.000	36.69	-7.32	29.37	54.00	-24.63	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2016 #752

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Deep breathing training device

Mode: TX Channel 11(802.11n20)

Model: X1

Manufacturer: Xeeek

Polarization: Vertical

Power Source: AC 120V/60Hz

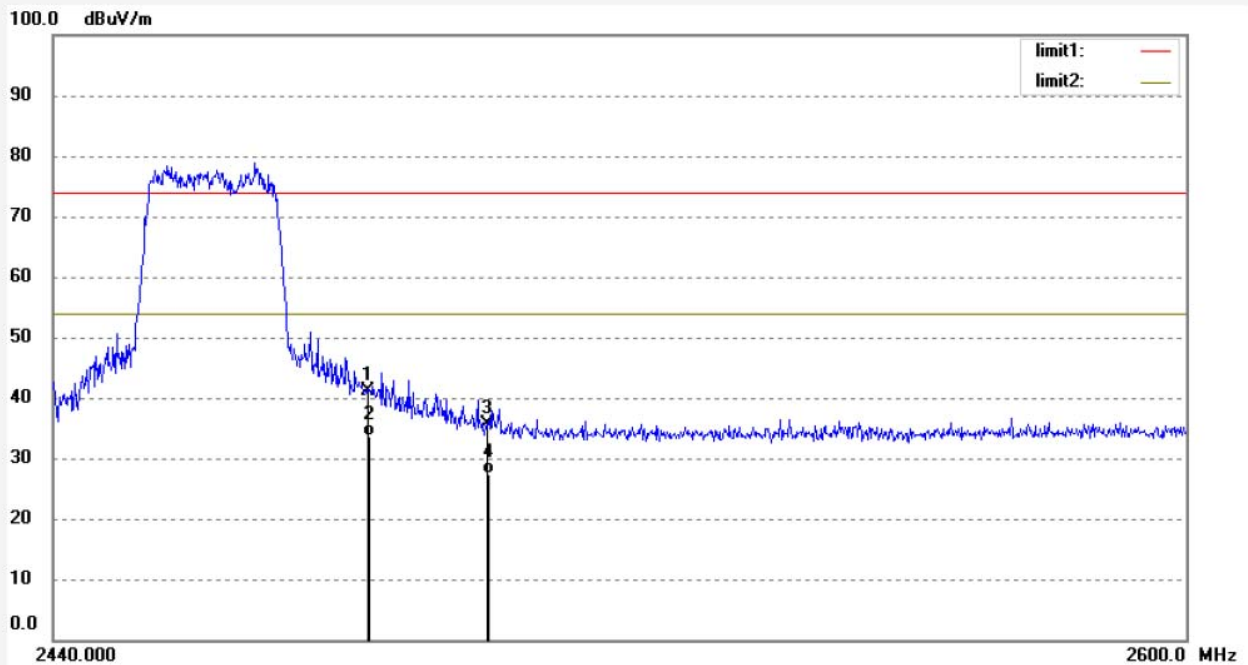
Date: 16/05/07/

Time: 16/36/14

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20160678



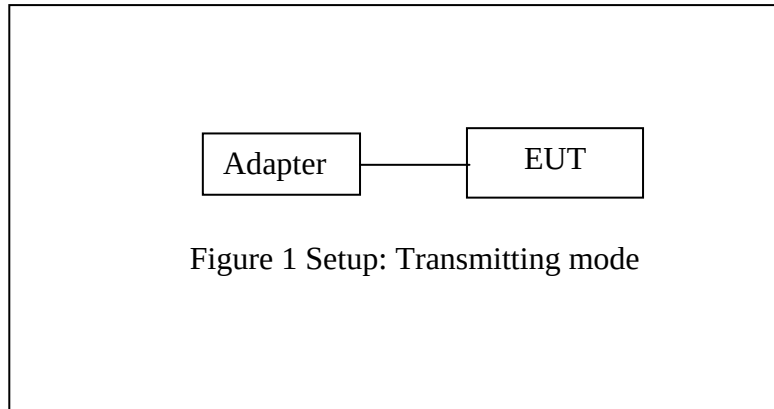
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.40	-7.37	41.03	74.00	-32.97	peak			
2	2483.500	41.08	-7.37	33.71	54.00	-20.29	peak			
3	2500.000	42.87	-7.32	35.55	74.00	-38.45	peak			
4	2500.000	34.60	-7.32	27.28	54.00	-26.72	peak			

Note: Average measurement with peak detection at No.2&4

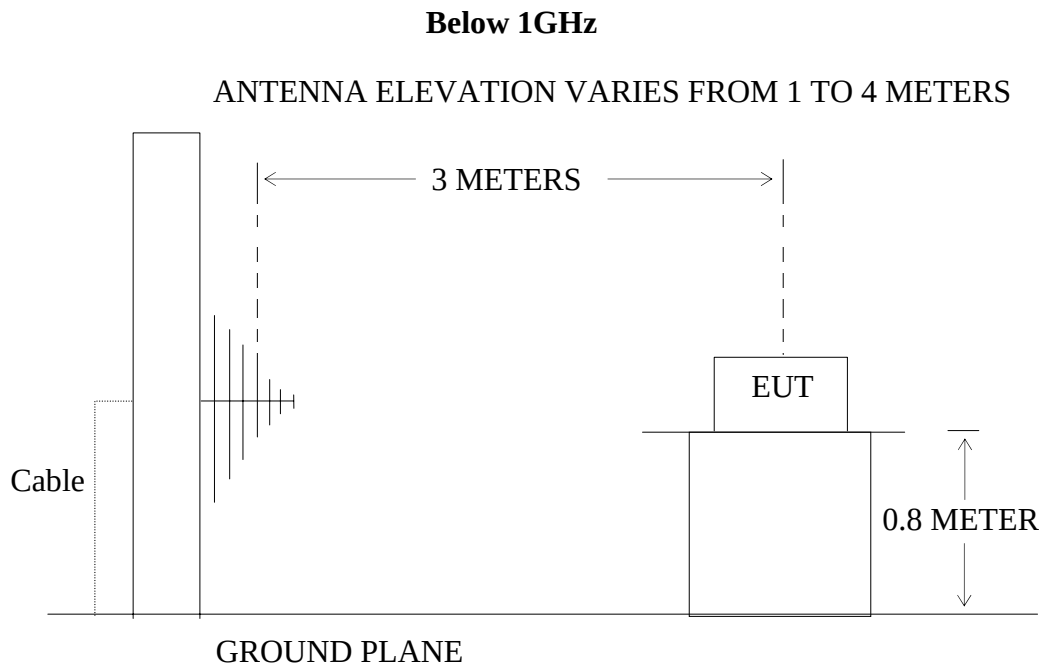
10.RADIATED SPURIOUS EMISSION TEST

10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

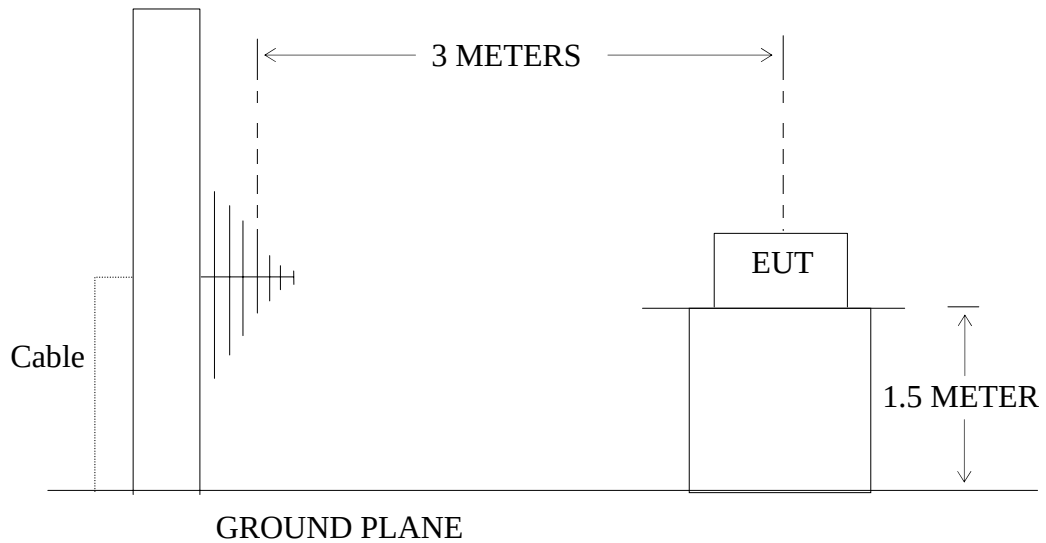


10.1.2.Semi-Anechoic Chamber Test Setup Diagram



Above 1GHz

ANTENNA ELEVATION VARIES FROM 1 TO 4 METERS



10.2.The Limit For Section 15.247(d)

Section 15.247(d): 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. 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 15.209(a).

10.3.Restricted bands of operation

10.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

10.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

10.5. Operating Condition of EUT

10.5.1. Setup the EUT and simulator as shown as Section 10.1.

10.5.2. Turn on the power of all equipment.

10.5.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

10.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground (Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground (Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The worst-case data rate for this channel to be 1Mbps for 802.11b mode and 6Mbps for 802.11g mode and 6.5Mbps for 802.11n mode, based on previous with 802.11 WLAN product design architectures.

The frequency range from 30MHz to 25000MHz is checked.

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

10.7.The Field Strength of Radiation Emission Measurement Results

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. *: Denotes restricted band of operation.

3. The fundamental radiated emissions were reduced by Band Reject Filter in the attached plots.

4. The EUT is tested radiation emission at each test mode (802.11b/g/n) in three axes. The worst emissions are reported in all test mode and channels.

5. The radiation emissions from 18-25GHz are not reported, because the test values lower than the limits of 20dB.

Below 1G



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

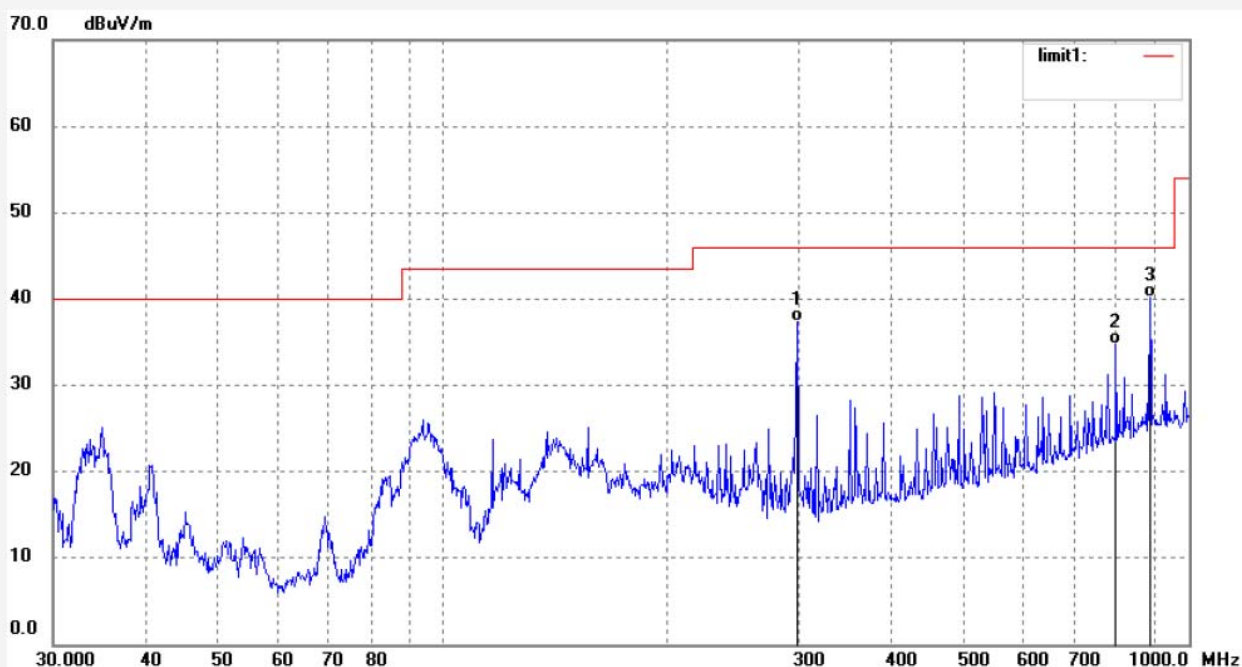
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2016 #706
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 1(802.11b)
Model: X1
Manufacturer: XeeK

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 11/17/12
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678

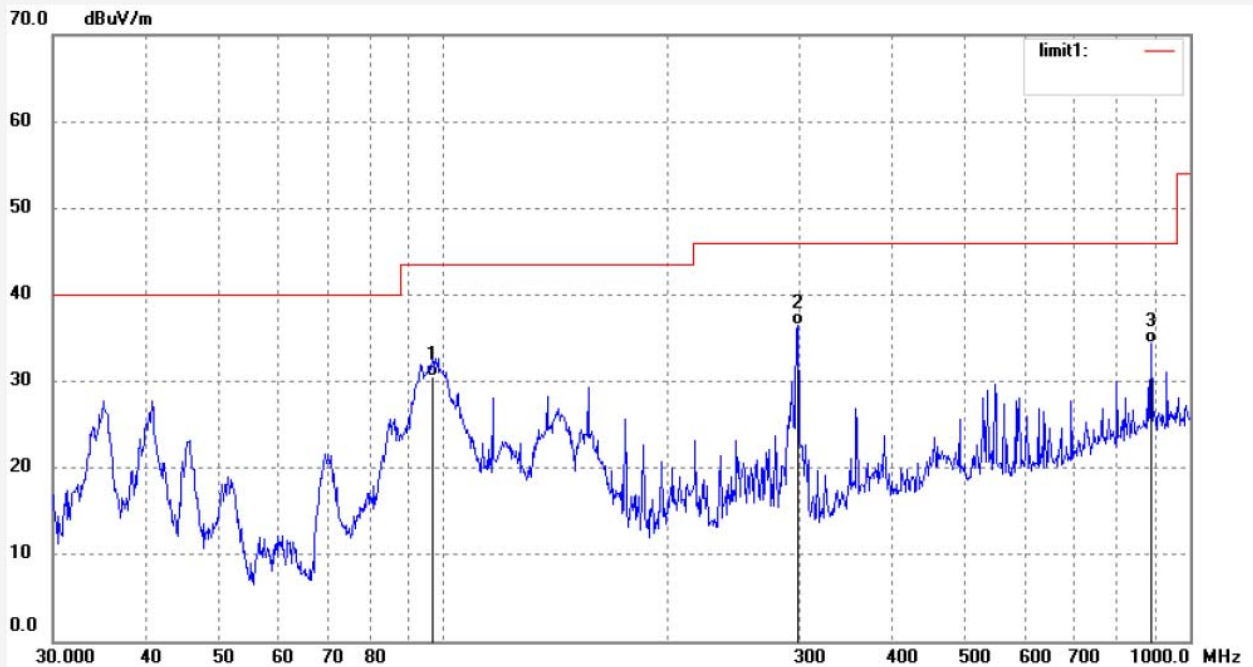


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	298.5932	53.64	-16.30	37.34	46.00	-8.66	QP			
2	798.6205	40.67	-5.92	34.75	46.00	-11.25	QP			
3	887.3978	44.55	-4.39	40.16	46.00	-5.84	QP			

Job No.: STAR2016 #705
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 1(802.11b)
Model: X1
Manufacturer: Xeeek

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 11/14/51
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678

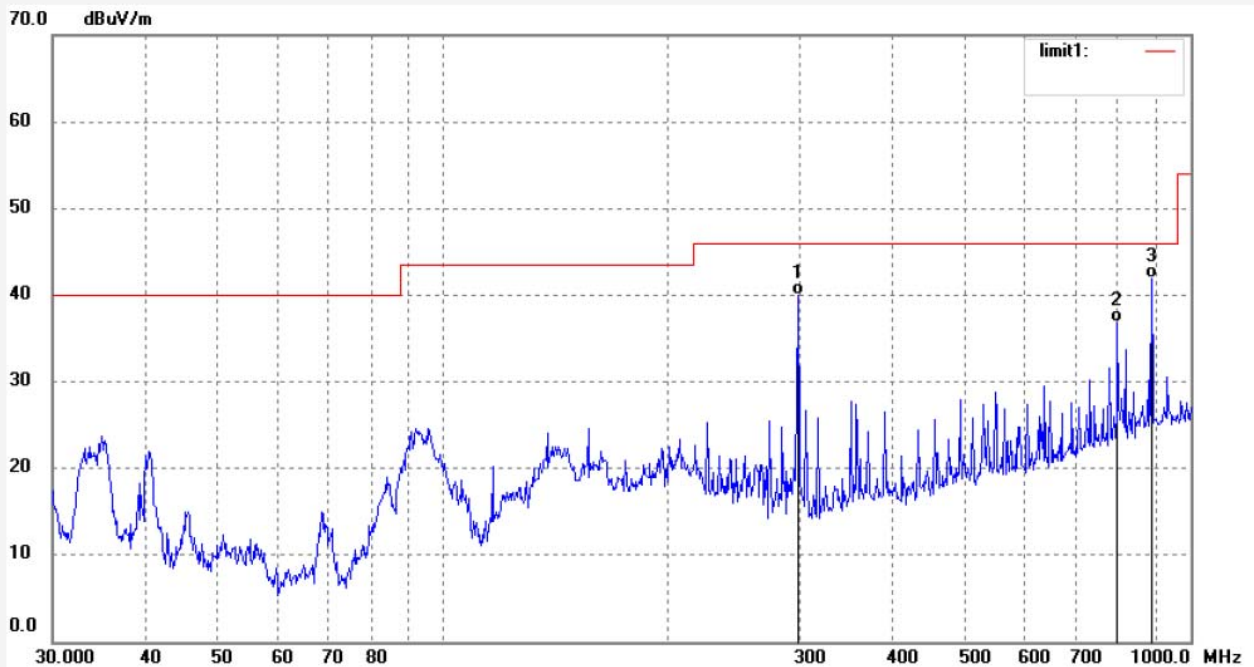


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	96.6620	52.10	-21.55	30.55	43.50	-12.95	QP			
2	298.5932	52.77	-16.30	36.47	46.00	-9.53	QP			
3	887.3977	38.72	-4.39	34.33	46.00	-11.67	QP			

Job No.: STAR2016 #707
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Deep breathing training device
Mode: TX Channel 6(802.11b)
Model: X1
Manufacturer: XeeK

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/05/07/
Time: 11/21/04
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20160678



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	298.5932	56.22	-16.30	39.92	46.00	-6.08	QP			
2	798.6204	42.70	-5.92	36.78	46.00	-9.22	QP			
3	887.3977	46.29	-4.39	41.90	46.00	-4.10	QP			