SGS-CSTC Standards Technical Services Ltd.

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FCC TEST REPORT

Application No. : SZEMO071002972RF

FCC ID : VSAMX200IB0001

Fundamental Frequency : 2.412GHz to 2.472GHz

Equipment under Test (EUT):

Name : Internet Radio
Model : mx-200i

Standards : FCC PART 15, SUBPART C and SUBPART B: 2007

Date of Receipt : 26 October 2007

Date of Test : 01 to 22 November 2007

Date of Issue : 24 November 2007

Test Result :	**PASS ***

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

2 Test Summary

Test	Test Requirement	Stanadard Paragraph	Result
Occupied Bandwidth	FCC PART 15 :2007	Section 15.247 (a2)	PASS
Edges Measurement	FCC PART 15 2007	Section 15.247	PASS
Maximum Peak Output Power	FCC PART 15 :2007	Section 15.247 (b)	PASS
Power Spectral Density Measurement	FCC PART 15 :2007	Section 15.247 (d)	PASS
Spurious Radiated Emission (30MHz to 25GHz)	FCC PART 15 :2007	Section 15.109 / 15.209 /15.205/ 15.247 (C)	PASS
Conducted Emissions	FCC PART 15:2007	Section 15.107 / 15.207	PASS
Antenna requirement.	FCC PART 15:2007	Section 15.247 (b)	PASS

3 Contents

4 General Information

4.1 Client Information

Applicant:	King Champion(Hong Kong) Ltd.
Address of Applicant:	Unit 1520, 15F, Phase 1, metro Center, 32 Lam Hing Street. Kowloon Bay. Hong Kong

Details of E.U.T.

Name:	Internet Radio
Model:	mx-200i
Power Supply:	120V DC
Operating Frequency	ISM Band for 2412MHz to 2462MHz
Number of Channels	11 Channels
Type of Modulation	802.11b and 802.11g.
Antenna Type	Integral

Verify the Frequency and Channel

Channel	Frequency (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

Note:

1. Section 15.31(m): Measurements on intentional radiators or receivers shall be performed at three frequencies for operating frequency range over 10 MHz.The locations of these frequencies one near the top, one near the middle and one near the bottom.

2. So all the items as followed in testing report are need to test these three frequencies with 802.11b and 802.11g modulation type respectively:

Top: Channel 1: 2412 MHz.

Middle: Channel 6: 2437MHz.

Bottom: Channel 11: 2462 MHz.

4.2 Test Location

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Telephone: +86 (0) 20 8215 5555 Fax: +86 (0) 20 8207 5059

4.3 Other Information Requested by the Customer

None.

5 Test Results

5.1 Test Instruments

R&TTE RE in Chamber						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2007	15-06-2008
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2007	11-12-2008
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	01-06-2007	31-05-2008
5	Coaxial cable	SGS	N/A	SEL0027	20-10-2007	19-10-2008
6	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	03-03-2007	02-03-2008
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	27-06-2007	26-06-2008
8	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	15-06-2007	14-06-2008

5.2 E.U.T. Operation

Input voltage: 120V DC

Operating Environment:
Temperature: 24.0 °C
Humidity: 52 % RH
Atmospheric Pressure: 10015 mbar

Operation:
Test the EUT as a product which Direct Sequence Spread Spectrum. The total channels are 11 channels (1 to 11 channels), the fundamental frequencies are from 2.412GHz to 2.462GHz.The test procedure provided by applicant enabled the EUT to transmit and receive data at lowest (Channel 1: 2.412GHz), middle (Channel 6: 2.437GHz), and highest channel(Channel 11: 2.462GHz), frequencies individually.Pre-test all the frequencies mode and their power status, compliance test in the worse case: Channel 1, Channel 6, Channel 11
Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below. 802.11b 6/8/11Mbps and 802.11g 6/12/24/32/54Mbps

5.3 Test Procedure & Measurement Data

5.3.1 Conducted Emissions

Test Requirement:	FCC Part15 B
Test Method:	ANSI C63.4
Test Date:	20 November 2007
Frequency Range:	150KHz to 30MHz
Class / Severity:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
Operating Environment:	
Temperature:	24.0 °C Humidity: 52 % RH Atmospheric Pressure: 1015 Mbar
EUT Operation:	Test in normal mode.For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

5.3.1.1 Measurement Data

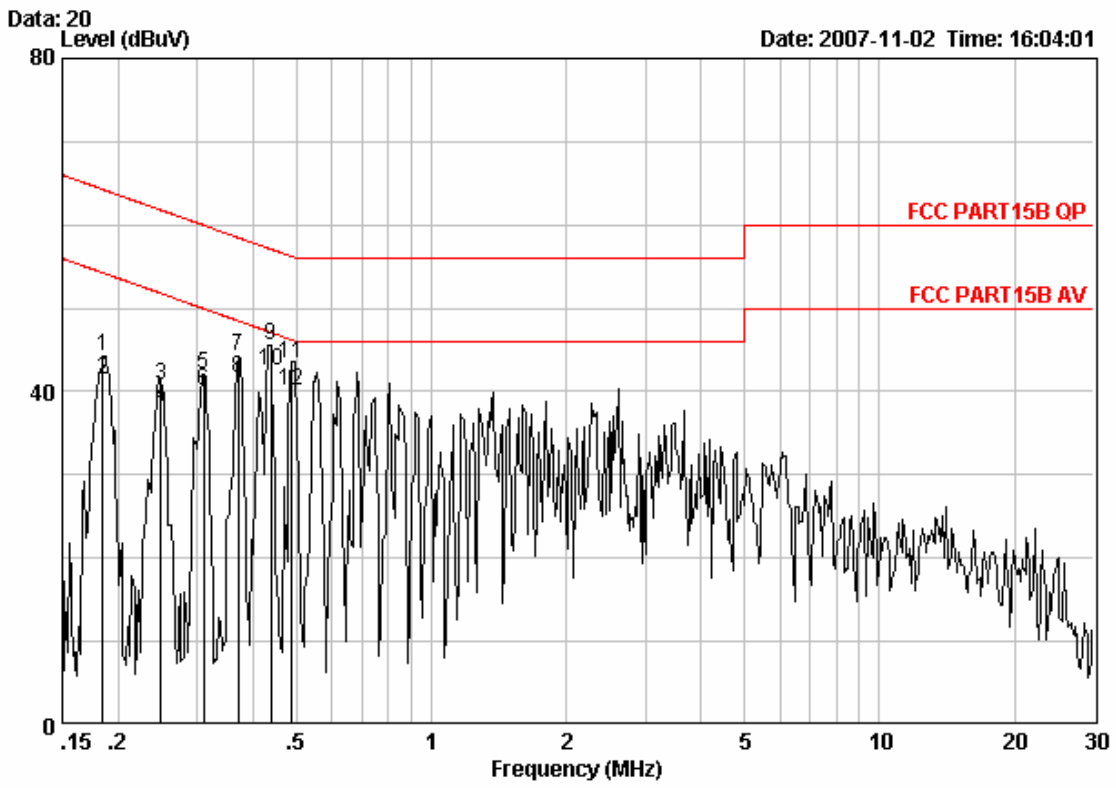
An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

The following Quasi-Peak and Average measurements were performed on the EUT.:

1. For EUT communicating with worst case mode.

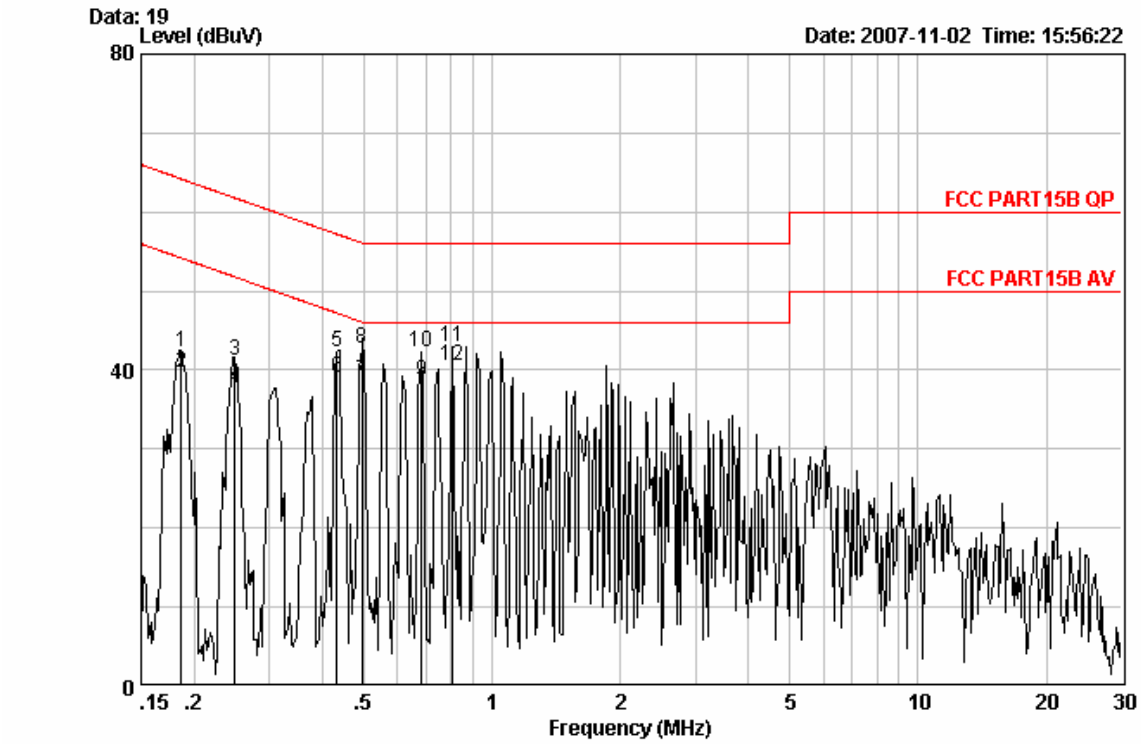
Livel Line



Site : Shielding Room
Condition : FCC PART15B QP CE LINE
EUT : Enternet Radio
Job : 2972RF
Test MODE : ON

		Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1		0.18443	-0.07	-0.05	44.38	44.26	64.28	-20.03	QP
2		0.18443	-0.07	-0.05	41.46	41.34	54.28	-12.94	Average
3		0.24945	-0.05	-0.04	40.86	40.77	61.78	-21.00	QP
4		0.24945	-0.05	-0.04	38.13	38.04	51.78	-13.74	Average
5		0.30998	0.00	-0.04	42.20	42.16	59.97	-17.82	QP
6		0.30998	0.00	-0.04	40.16	40.12	49.97	-9.85	Average
7		0.37117	0.00	-0.04	44.38	44.34	58.47	-14.14	QP
8		0.37117	0.00	-0.04	41.64	41.60	48.47	-6.88	Average
9		0.43742	0.00	-0.04	45.70	45.66	57.11	-11.45	QP
10	@	0.43742	0.00	-0.04	42.60	42.56	47.11	-4.55	Average
11		0.48890	0.00	-0.04	43.52	43.47	56.19	-12.71	QP
12		0.48890	0.00	-0.04	40.19	40.15	46.19	-6.04	Average

Neutral Line



Site : Shielding Room
Condition : FCC PART15B QP CE NEUTRAL
EUT : Enternet Radio
Job : 2972RF
Test MODE : ON

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.18639	-0.08	-0.04	42.49	42.38	64.20	-21.82	QP
2	0.18639	-0.08	-0.04	39.79	39.67	54.20	-14.52	Average
3	0.24945	-0.05	-0.04	41.21	41.13	61.78	-20.65	QP
4	0.24945	-0.05	-0.04	37.86	37.77	51.78	-14.00	Average
5	0.43281	0.00	-0.04	42.43	42.39	57.20	-14.81	QP
6	0.43281	0.00	-0.04	38.99	38.95	47.20	-8.25	Average
7	0.49411	0.00	-0.04	38.73	38.69	46.10	-7.41	Average
8	0.49411	0.00	-0.04	42.86	42.82	56.10	-13.28	QP
9	0.68263	0.00	-0.04	38.71	38.67	46.00	-7.33	Average
10	0.68263	0.00	-0.04	42.43	42.39	56.00	-13.61	QP
11	0.80876	0.04	-0.04	43.04	43.04	56.00	-12.96	QP
12 @	0.80876	0.04	-0.04	40.59	40.59	46.00	-5.41	Average

TEST RESULTS: The unit does meet the FCC requirements.

5.3.2 Spurious Radiated Emissions

Test Requirement: FCC Part15 C Section 15.247, 15.209 and 15.205
Test Date: 02 November 2007
Select test mode: 802.11 b 6Mbps & 802.11g 6Mbps
Measurement Distance: 3m (Semi-Anechoic Chamber)
Requirement:

Frequency range 30 MHz – 25GHz for transmitting mode.
The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Spectrum: 30 MHz - 1000 MHz: RBW=120KHz, VBW=300KHz
above 1GHz Peak RBW=1 MHz, VBW=1 MHz
Average: RBW=1MHz, VBW=100KHz

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below. 802.11b 6Mbps and 802.11g 6Mbps

Limit: 40.0 dBμV/m between 30MHz & 88MHz
43.5 dBμV/m between 88MHz & 216MHz
46.0 dBμV/m between 216MHz & 960MHz
54.0 dBμV/m above 960MHz

Test Procedure: The procedure uesd was ANSI Standard C63.4-2000. The receive was scanned from 30MHz to 25GHz.When an emission was found,the table was roated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier . The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Peramlifer Factor

The following test results were performed on the EUT on 20 November 2007:

1. For EUT communicating with 802.11b Mode. Channel – 1

Frequency (MHz)	Antenna Polarization	Emission Level Qusia-Peak (dBuV/m)	Limit (dBuV/m)	Margin (dB)
244.37	Vertical	28.3	46	17.7
325.85	Vertical	29.2	46	16.8
526.64	Horizontal	31.8	46	14.2
586.78	Horizontal	32.3	46	13.7

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2310	55.0	74	19.0	PK
2310	36.2	54	17.8	AV
2390	57.6	74	16.4	PK
2390	38.9	54	15.1	AV
2412	103.8			PK
2412	97.9			AV
4824	58.5	74.0	15.5	PK
4824	51.3	54.0	2.7	AV
7236	47.9	74.0	26.1	PK
7236	44.5	54.0	9.5	AV

Remark:
According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.

2. For EUT communicating with 802.11b Mode. Channel – 6
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Emission Level Qusia-Peak (dBuV/m)	Limit (dBuV/m)	Margin (dB)
244.37	Vertical	33.6	46	12.4
325.85	Vertical	32.9	46	13.1
526.64	Horizontal	35.4	46	10.6
586.78	Horizontal	36.1	46	9.9

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2437	106.0			PK
2437	99.3			AV
4884	57.9	74.0	16.1	PK
4884	51.1	54.0	2.9	AV
7326	49.2	74.0	24.8	PK
7326	45.3	54.0	8.7	AV

Remark:
According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.

3. For EUT communicating with 802.11b Mode. Channel – 11
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Emission Level Qusia-Peak (dBuV/m)	Limit (dBuV/m)	Margin (dB))
244.37	Vertical	33.7	46	12.3
325.85	Vertical	34.8	46	11.2
526.64	Horizontal	38.2	46	7.8
586.78	Horizontal	37.3	46	8.7

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2462	109.6			PK
2462	102.4			AV
2483.5	53.1	74.0	20.9	PK
2483.5	41.8	54.0	12.2	AV
2500	49.9	74.0	24.1	PK
2500	39.2	54.0	14.8	AV
4924	57.8	74.0	16.2	PK
4924	51.0	54.0	3.0	AV
7386	54.6	74.0	19.4	PK
7386	48.7	54.0	5.3	AV

Remark:
According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.

4. For EUT communicating with 802.11g Mode. Channel – 1
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)
98.71	Vertical	35.8	43.5	7.7
615.40	Vertical	38.5	46.0	7.5
389.37	Horizontal	39.4	46.0	6.6
651.84	Horizontal	38.1	46.0	7.9

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2310	66.1	74.0	7.9	PK
2310	39.2	54.0	14.8	AV
2390	70.6	74.0	3.4	PK
2390	40.8	54.0	13.2	AV
2412	104.9			PK
2412	99.4			AV
4824	58.9	74.0	15.1	PK
4824	38.7	54.0	15.3	AV
7236	54.9	74.0	19.1	PK
7236	34.7	54.0	19.3	AV

Remark:
According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.

5. For EUT communicating with 802.11g. Channel – 6
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)
98.71	Vertical	38.6	43.5	4.9
615.40	Vertical	40.3	46.0	5.7
389.37	Horizontal	35.2	46.0	10.8
651.84	Horizontal	36.8	46.0	9.2

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2437	106.7			PK
2437	103.0			AV
4874	59.8	74.0	14.2	PK
4874	50.2	54.0	3.8	AV
7311	55.7	74.0	18.3	PK
7311	45.1	54.0	8.9	AV

Remark:
According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.

6. For EUT communicating with 802.11g. Channel – 11
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)
98.71	Vertical	39.6	43.5	3.9
615.4	Vertical	38.9	46	7.1
389.37	Horizontal	36.0	46.0	10.0
651.84	Horizontal	39.3	46.0	5.7

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2462	110.6			PK
2462	104.2			AV
2483.5	65.7	74.0	8.3	PK
2483.5	44.9	54.0	9.1	AV
2500	63.1	74.0	10.9	PK
2500	39.7	54.0	14.3	AV
4924	61.9	74.0	12.1	PK
4924	50.8	54.0	3.2	AV
7386	56.5	74.0	17.5	PK
7386	47.8	54.0	6.2	AV

Remark:
According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.

5.3.3 Occupied Bandwidth

Test Requirement:	FCC Part15 C
Test Method:	Based on FCC Part15 C Section 15.247:
Select test mode:	802.11 b 6Mbps & 802.11g 6Mbps
Test Date:	20 November 2007
Requirements:	15.247 (a2) For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
802.11b 6Mbps and 802.11g 6Mbps

Method of measurement: The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB. Analyzer and the attached plot was taken. Frequency range 30 MHz – 25GHz for transmitting mode.
The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Test results:

1. The EUT communicating with 802.11b Mode

Channel	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2.412	12.5	0.5	Pass
6	2.437	12.1	0.5	Pass
11	2.462	12.9	0.5	Pass

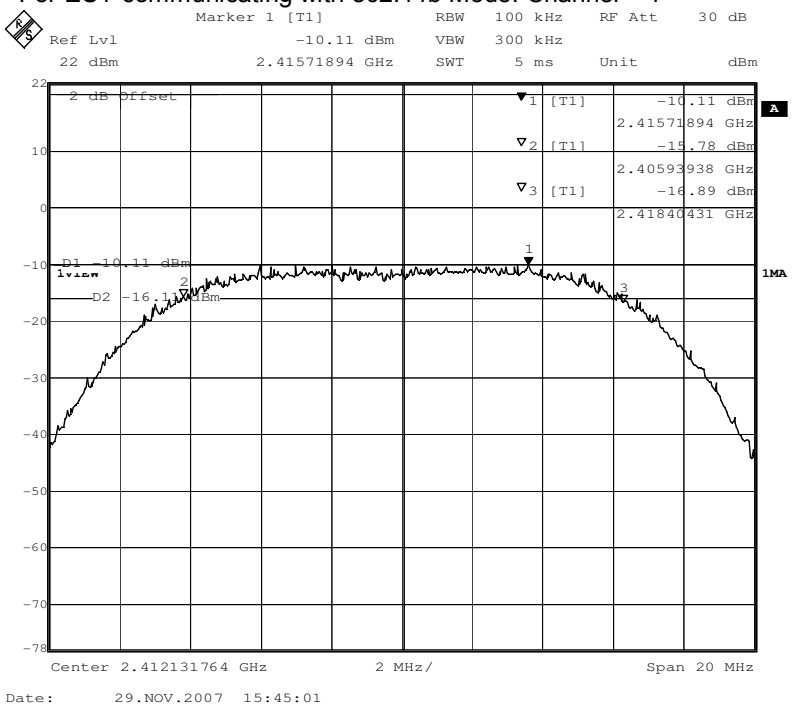
2. The EUT communicating with 802.11g Mode

Channel	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2.412	16.5	0.5	Pass
6	2.437	16.5	0.5	Pass
11	2.462	16.6	0.5	Pass

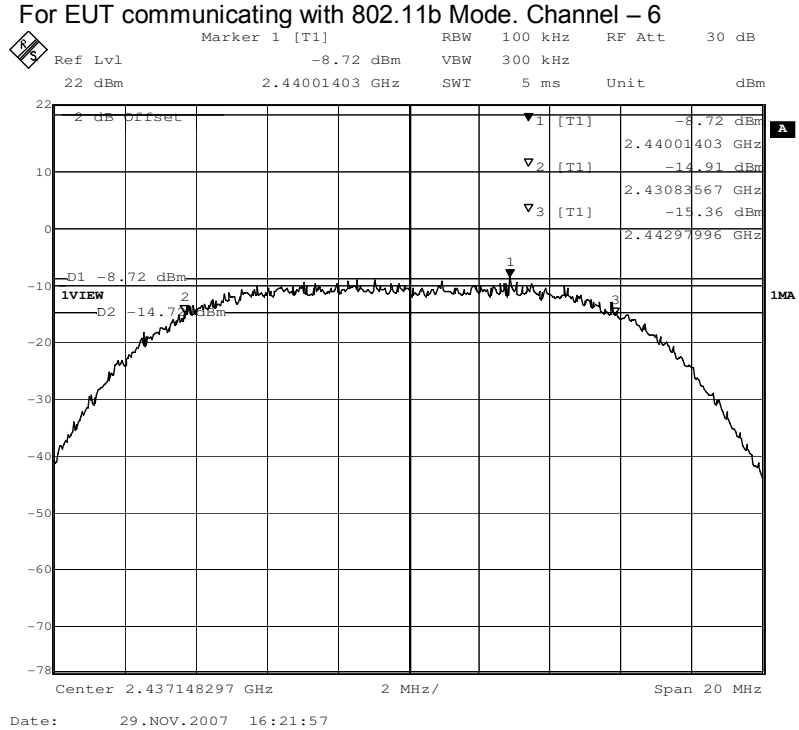
Conclusion:: The unit does meet the FCC requirements.

Please refer to the graph as below:

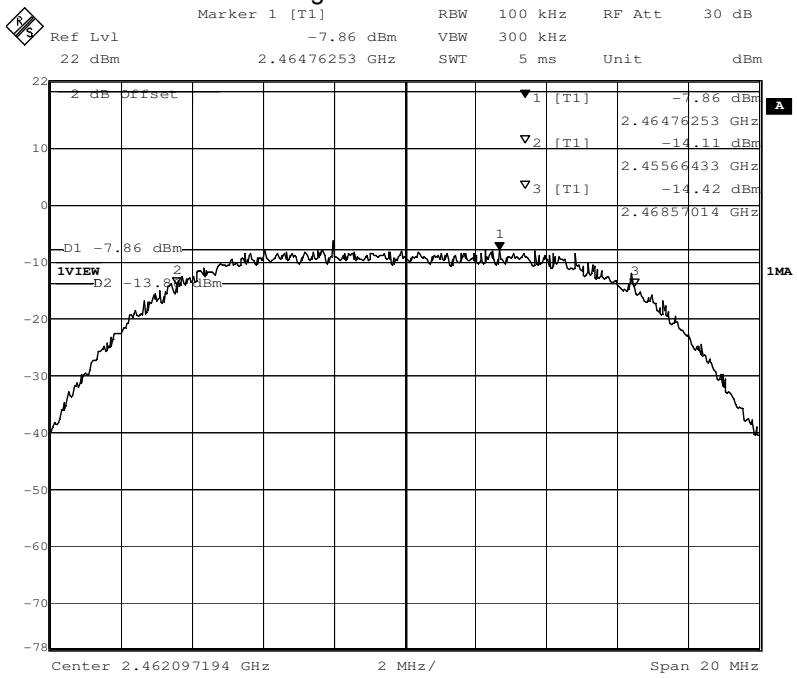
1. For EUT communicating with 802.11b Mode. Channel – 1



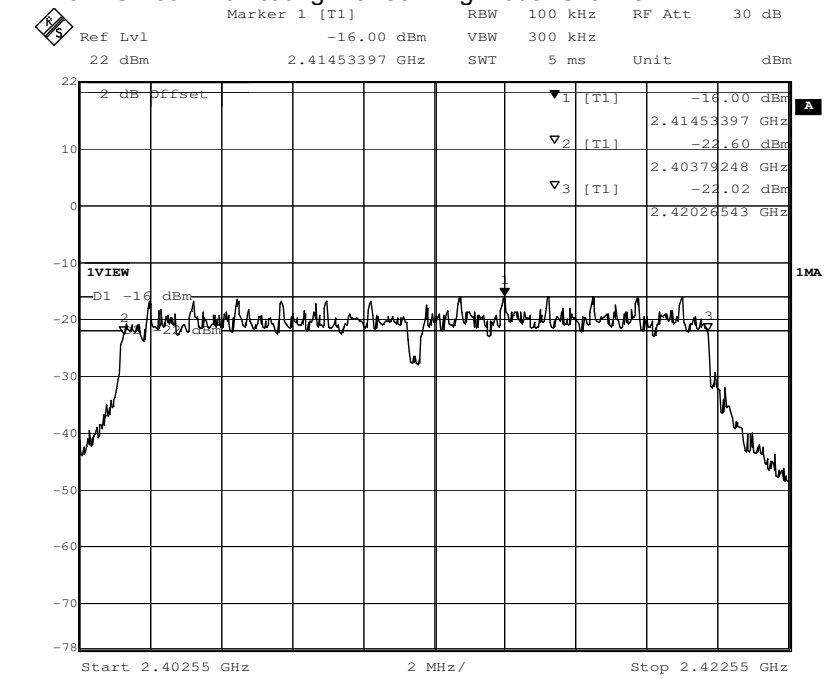
2. For EUT communicating with 802.11b Mode. Channel – 6



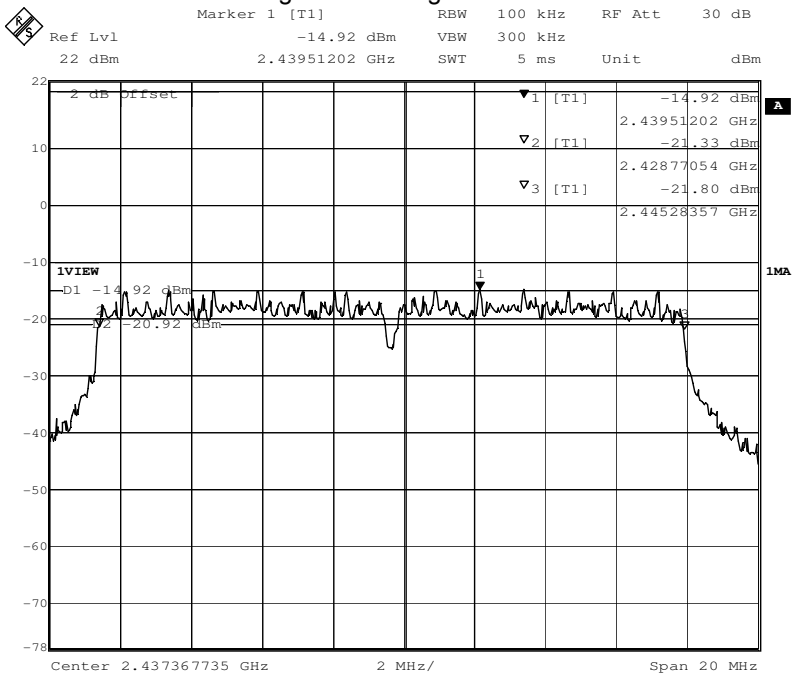
3. For EUT communicating with 802.11b Mode. Channel – 11



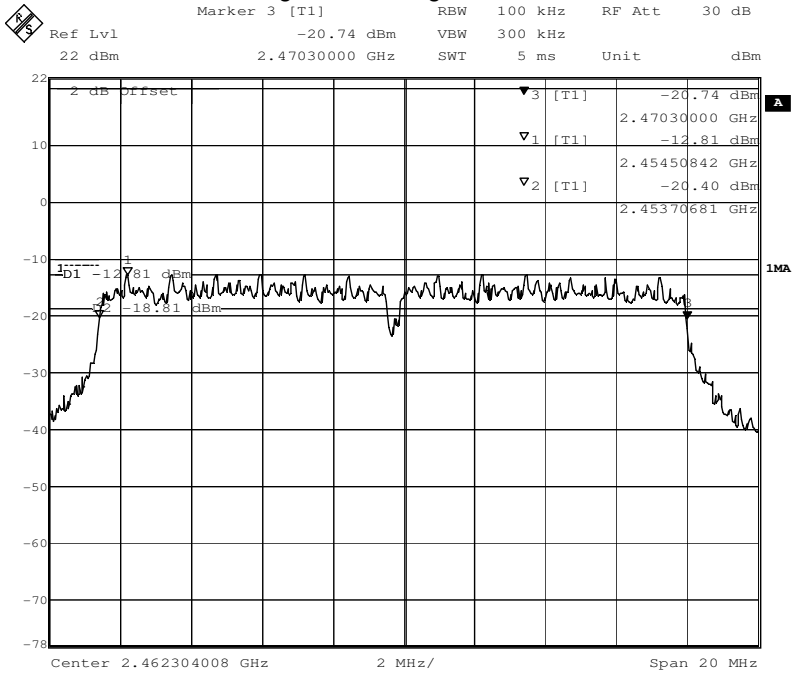
4. For EUT communicating with 802.11g Mode. Channel – 1



5. For EUT communicating with 802.11g Mode. Channel –7



6. For EUT communicating with 802.11g Mode. Channel – 11



5.3.4 Maximum Peak Output Power:

Test Requirement: FCC Part15 C

Test Method: Based on FCC Part15 C Section 15.247.

Select test mode: 802.11 b 6/11Mbps & 802.11g 6/54Mbps

Test Date: 20 November 2007

Method of measurement:

The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Spectrum: RBW=3MHz, VBW=3MHz

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with
antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Requirements:

Regulation 15.247 (b) The Limit of Maximum Peak Output Power Measurement is 30dBm.

Test results

1. For EUT communicating with 802.11b RATE 11M Mode

Channel	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER Limit (dBm)	PASS/FAIL
1	2.412	0.5	30.0	Pass
6	2.437	1.3	30.0	Pass
11	2.462	3.3	30.0	Pass

2. For EUT communicating 802.11g RATE 54M Mode

Channel	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER Limit (dBm)	PASS/FAIL
1	2.412	0.1	30.0	Pass
6	2.437	1.2	30.0	Pass
11	2.462	3.4	30.0	Pass

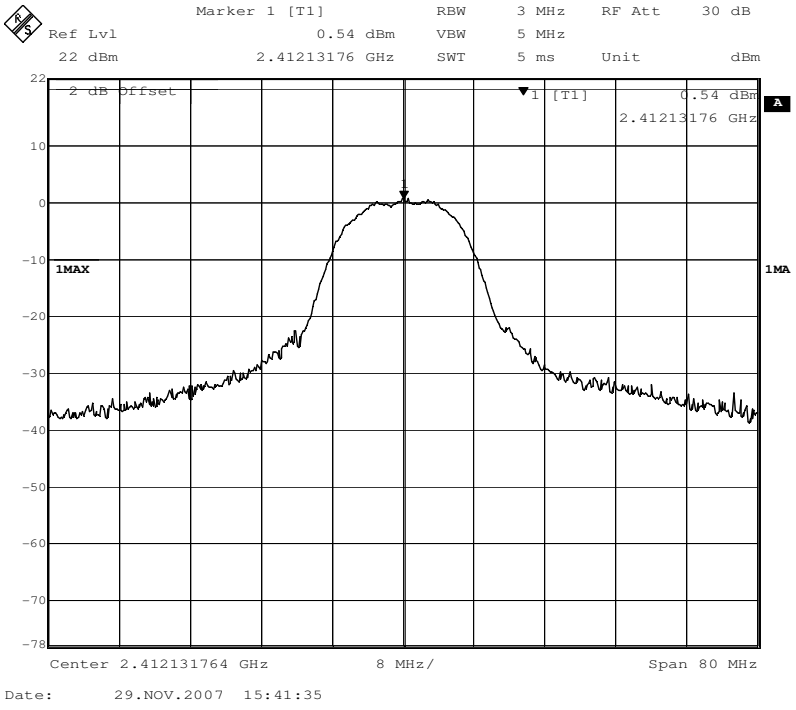
3. For EUT communicating with 802.11b RATE 6M Mode

Channel	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER Limit (dBm)	PASS/FAIL
1	2.412	1.1	30.0	Pass
6	2.437	2.2	30.0	Pass
11	2.462	3.9	30.0	Pass

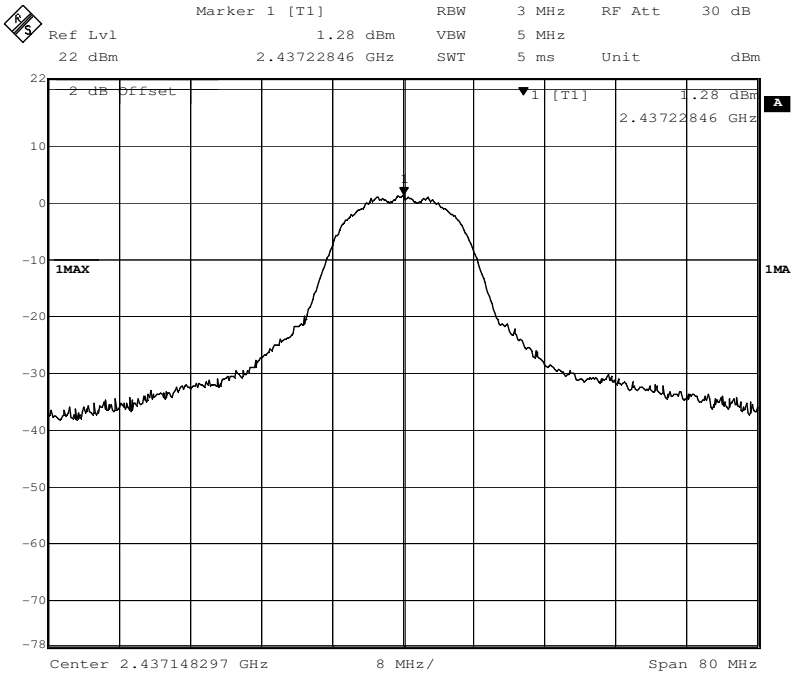
4. For EUT communicating with 802.11g RATE 6M Mode

Channel	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER Limit (dBm)	PASS/FAIL
1	2.412	1.4	30.0	Pass
6	2.437	1.6	30.0	Pass
11	2.462	3.8	30.0	Pass

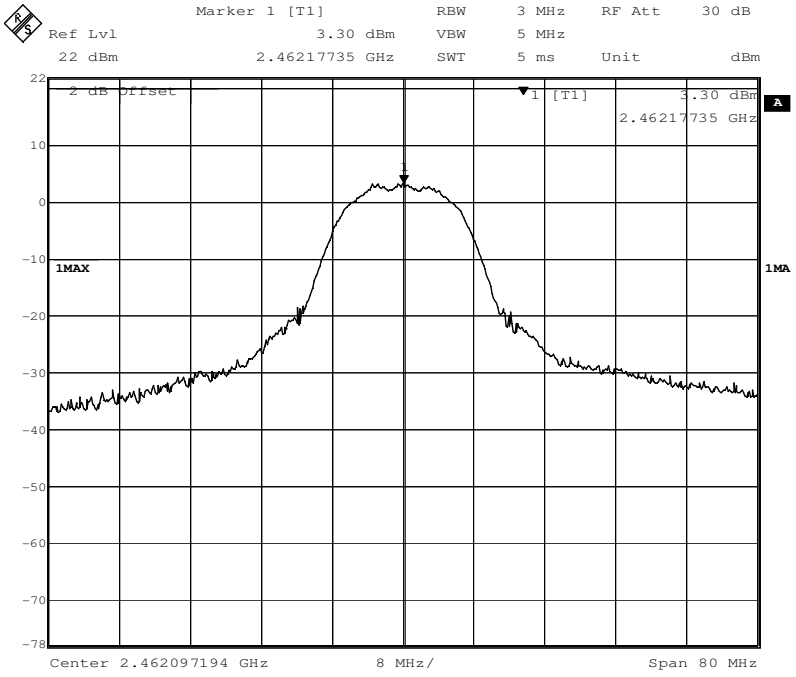
Test Result:
Please refer to the measurement graph and data.
802.11b 11M
CHANNEL 1



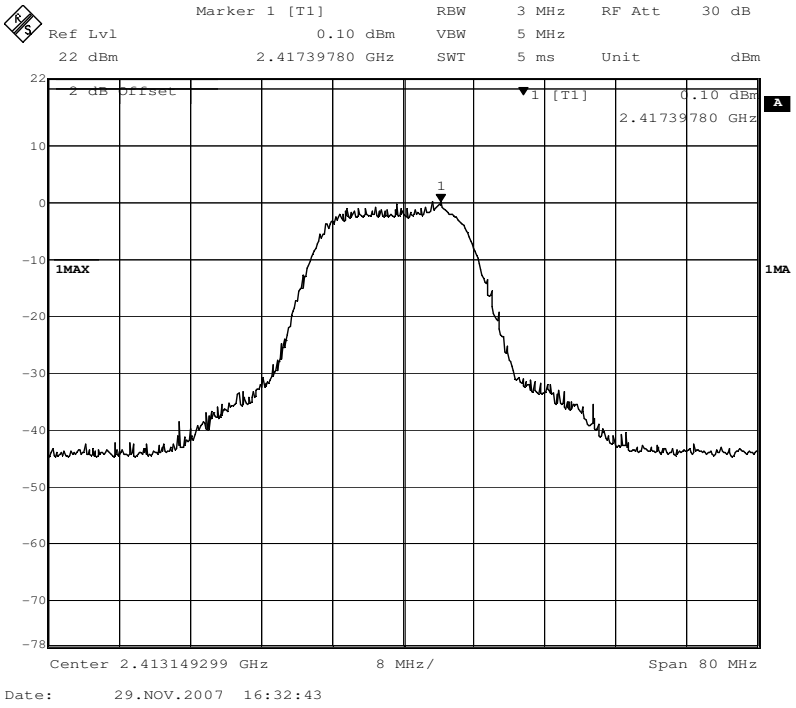
CHANNEL 6



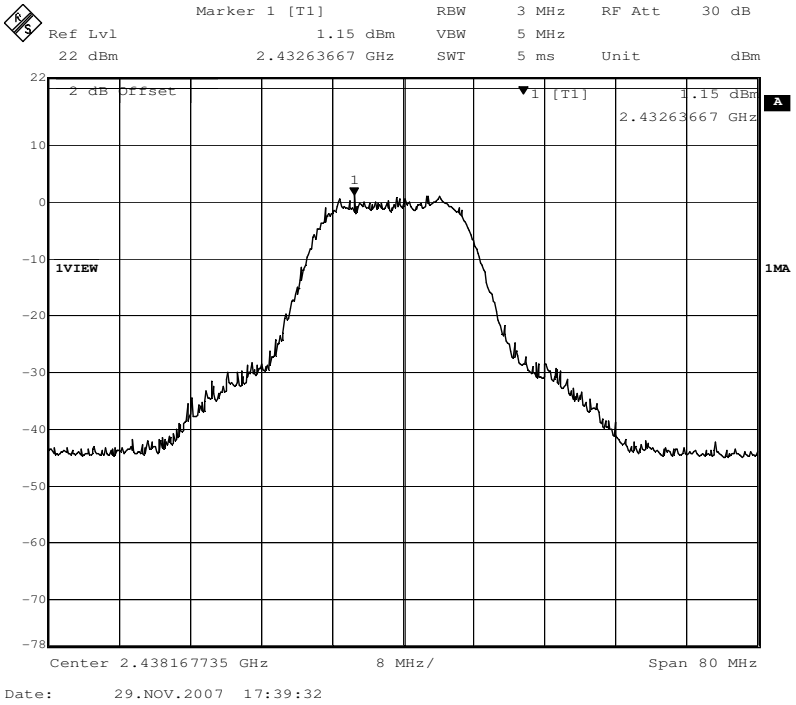
CHANNEL 11



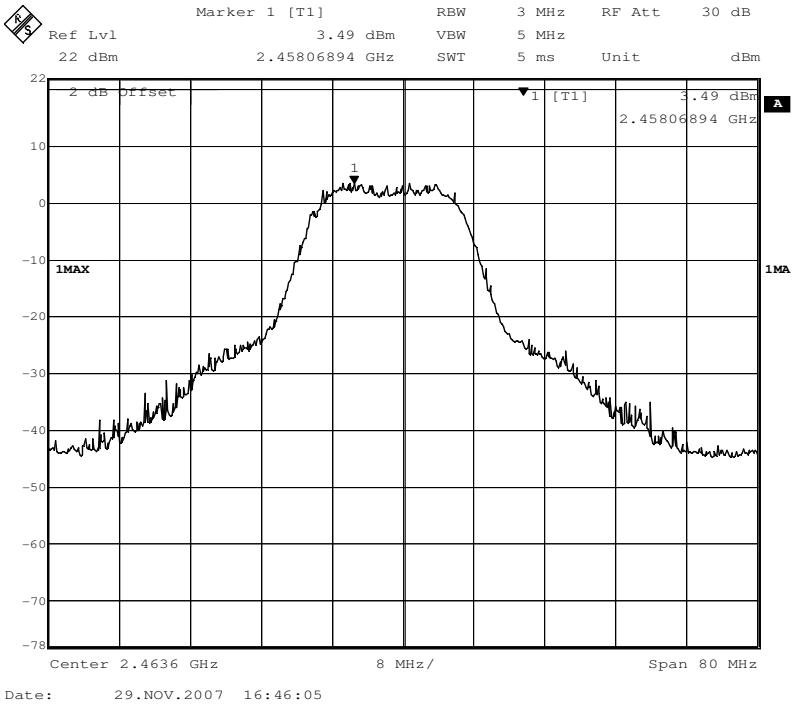
802.11g 54M
CHANNEL 1



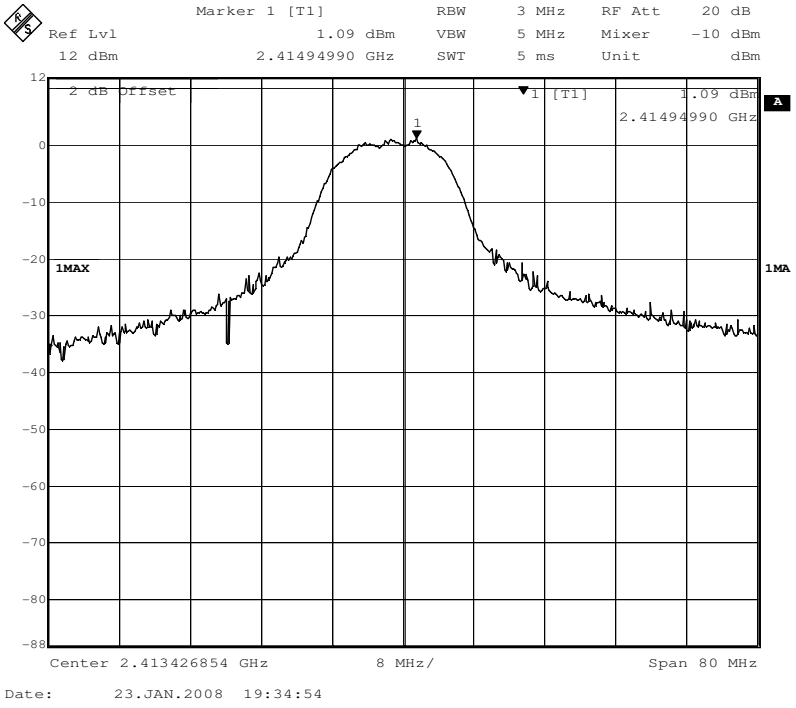
CHANNEL 6


Marker 1 [T1]
RBW 3 MHz
RF Att 30 dB
Ref Lvl 1.15 dBm
VBW 5 MHz
22 dBm 2.43263667 GHz
SWT 5 ms
Unit dBm
2 dB Offset
1 [T1] 1.15 dBm
2.43263667 GHz
1VIEW
1MA
Center 2.438167735 GHz
8 MHz/
Span 80 MHz
Date: 29.NOV.2007 17:39:32

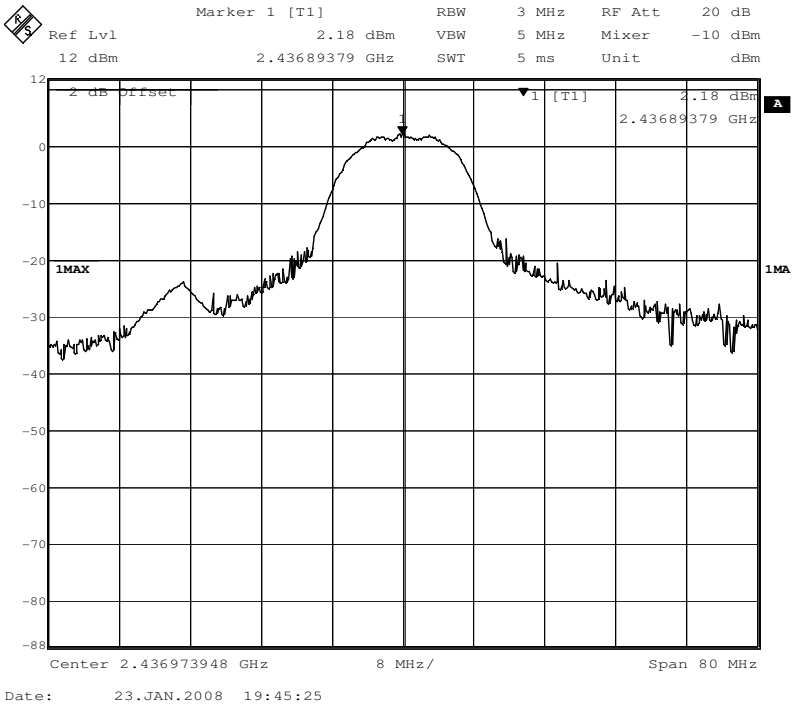
CHANNEL 11


Marker 1 [T1]
RBW 3 MHz
RF Att 30 dB
Ref Lvl 3.49 dBm
VBW 5 MHz
22 dBm 2.45806894 GHz
SWT 5 ms
Unit dBm
2 dB Offset
1 [T1] 3.49 dBm
2.45806894 GHz
1MAX
1MA
Center 2.4636 GHz
8 MHz/
Span 80 MHz
Date: 29.NOV.2007 16:46:05

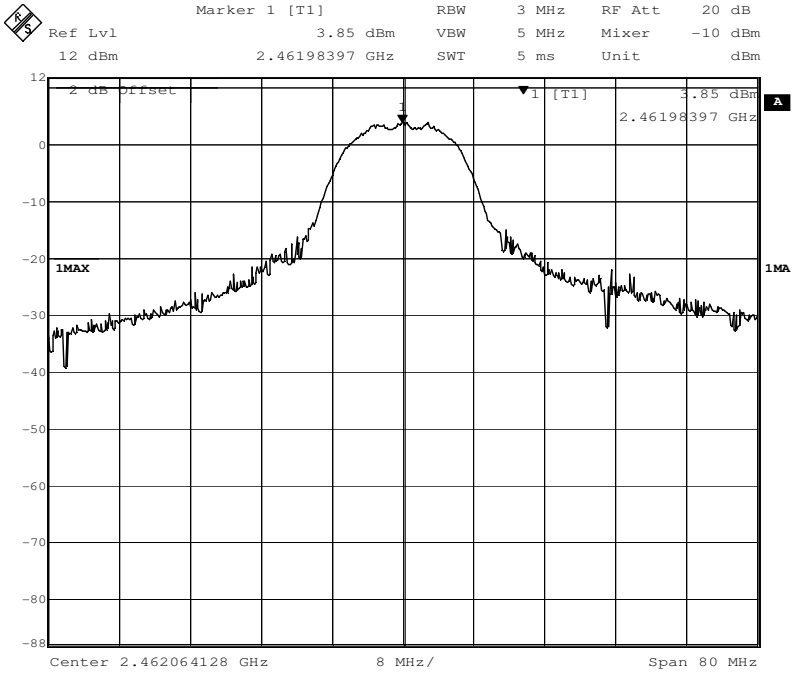
802.11 b 6M
CHANNEL 1


Marker 1 [T1]
RBW 3 MHz
RF Att 20 dB
Ref Lvl 1.09 dBm
VBW 5 MHz
Mixer -10 dBm
12 dBm 2.41494990 GHz
SWT 5 ms
Unit dBm
2 dB Offset
1 [T1] 1.09 dBm
2.41494990 GHz
1MAX
1MA
Center 2.413426854 GHz
8 MHz/
Span 80 MHz
Date: 23.JAN.2008 19:34:54

CHANNEL 6

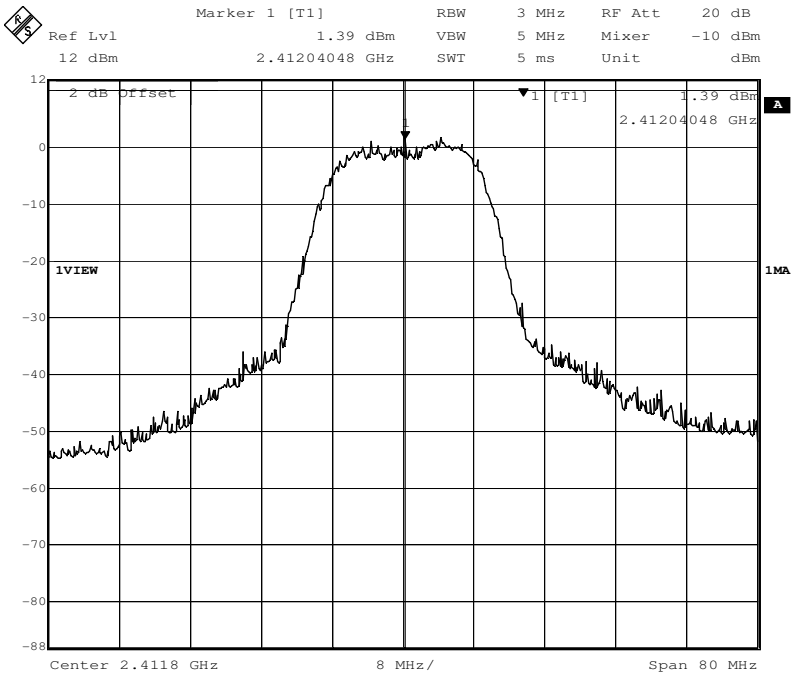

Marker 1 [T1]
RBW 3 MHz
RF Att 20 dB
Ref Lvl 2.18 dBm
VBW 5 MHz
Mixer -10 dBm
12 dBm 2.43689379 GHz
SWT 5 ms
Unit dBm
2 dB Offset
1 [T1] 2.18 dBm
2.43689379 GHz
1MAX
1MA
Center 2.436973948 GHz
8 MHz/
Span 80 MHz
Date: 23.JAN.2008 19:45:25

CHANNEL 11



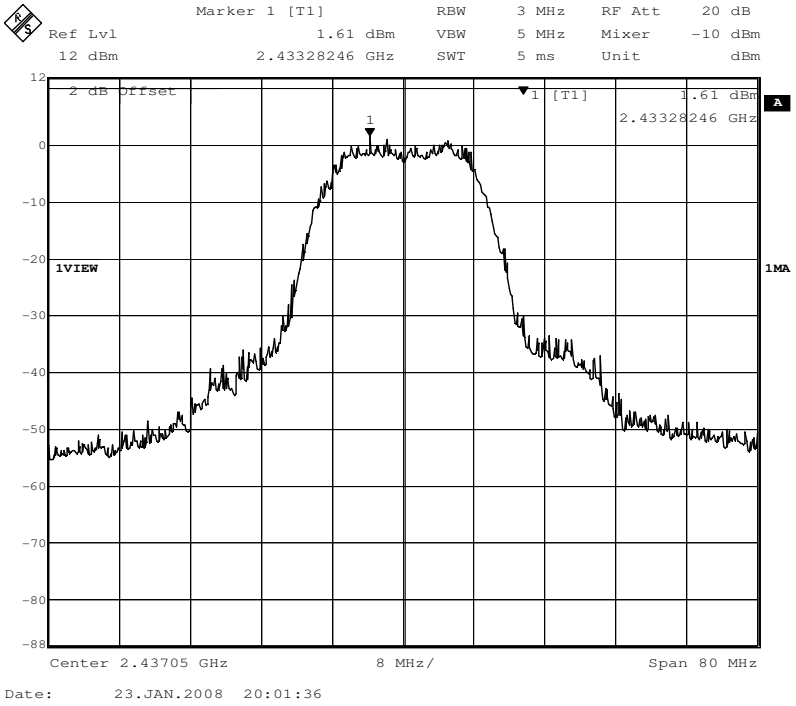
Date: 23.JAN.2008 19:47:31

802.11g 6M
CHANNEL 1



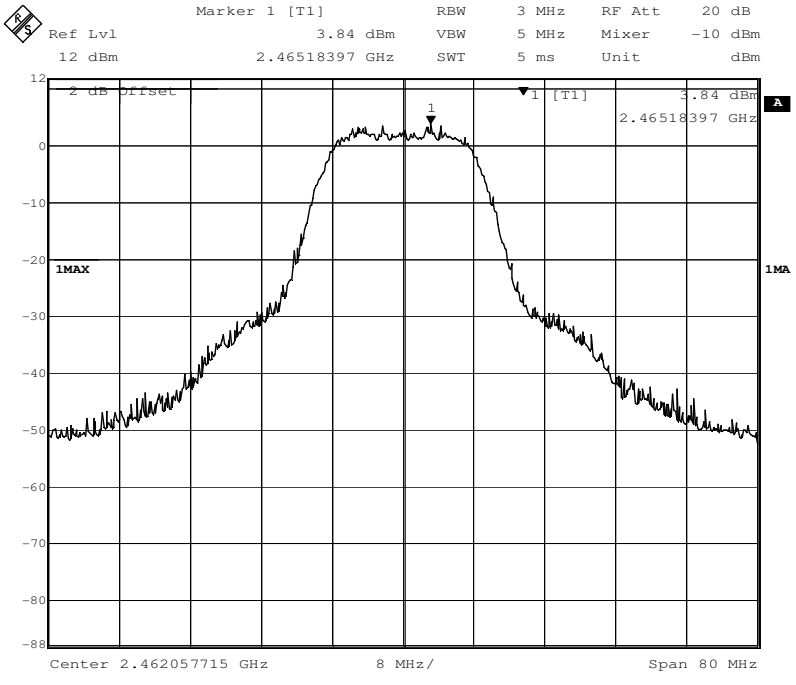
Date: 23.JAN.2008 20:17:57

CHANNEL 6



Date: 23.JAN.2008 20:01:36

CHANNEL 11



Date: 23.JAN.2008 20:03:08

Conclusion:

The EUT meets the requirements of this section.

5.3.5 Band Edges Measurement

Test Requirement:	FCC Part15 C Section 15.247(d)
Test Method:	Based on FCC Part15 C Section 15.247: KDB Publication No. 558074 Public Notice DA 00-705 for DSS.
Select test mode:	802.11 b 6Mbps & 802.11g 6Mbps
Test Date:	20 November 2007

Requirements:

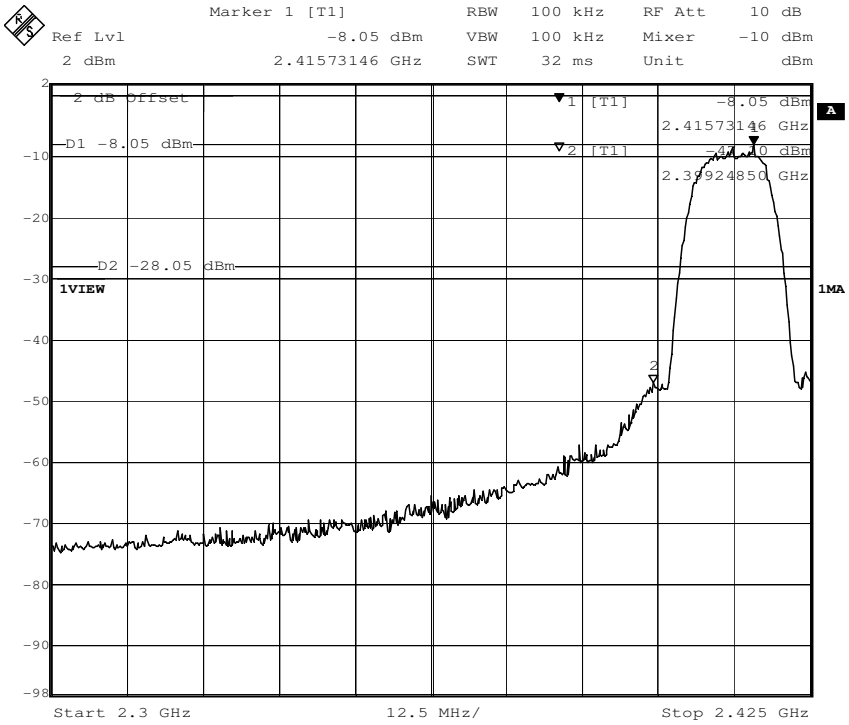
Regulation 15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. 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) (see Section 15.205(c)).

Test Procedures:
Procedure: The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Spectrum: Peak RBW=100KHz, VBW=100KHz

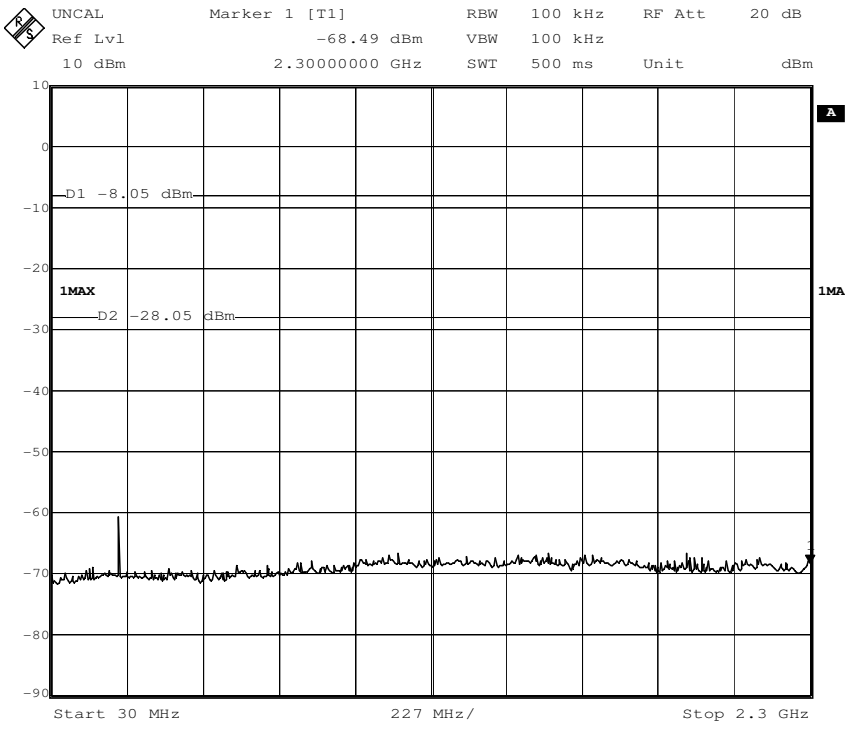
Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
802.11b 6Mbps and 802.11g 6Mbps

Test Result:
Please refer to the measurement graph and data.

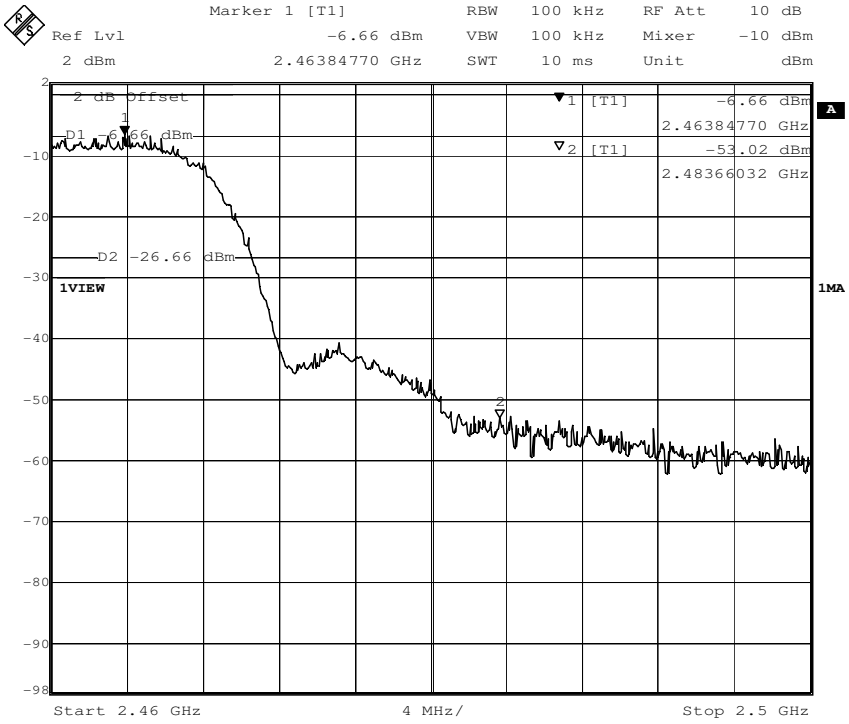
802.11b

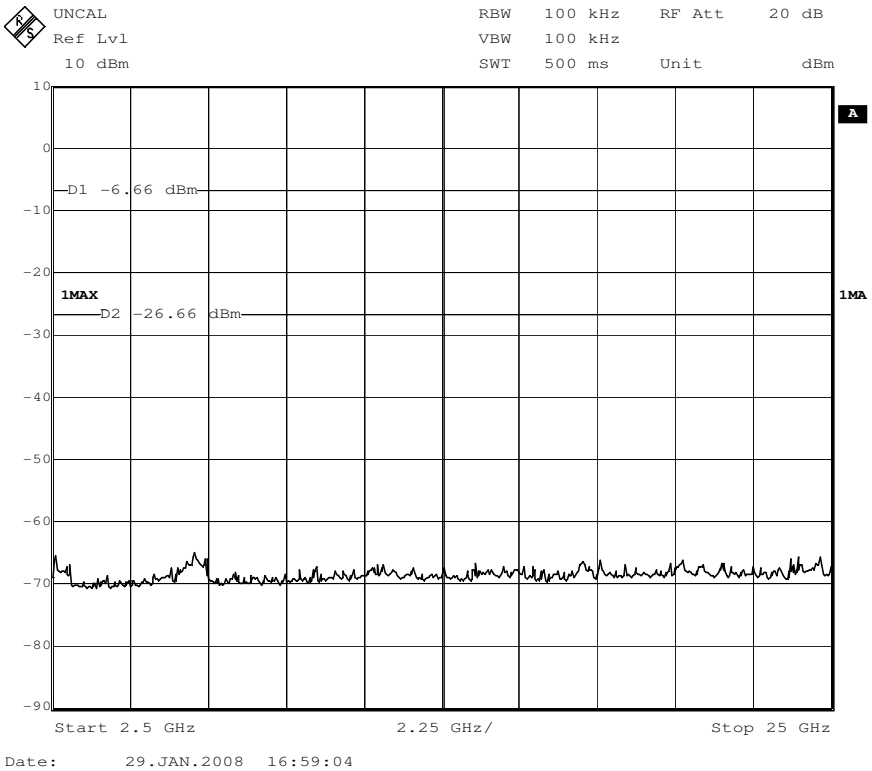


Date: 23.JAN.2008 20:23:36

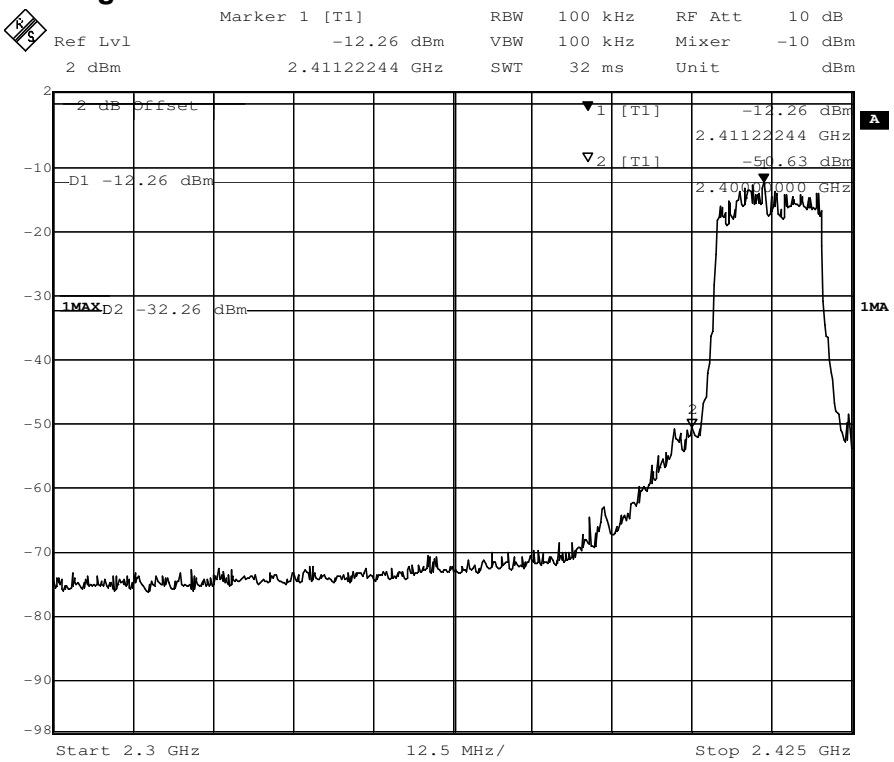


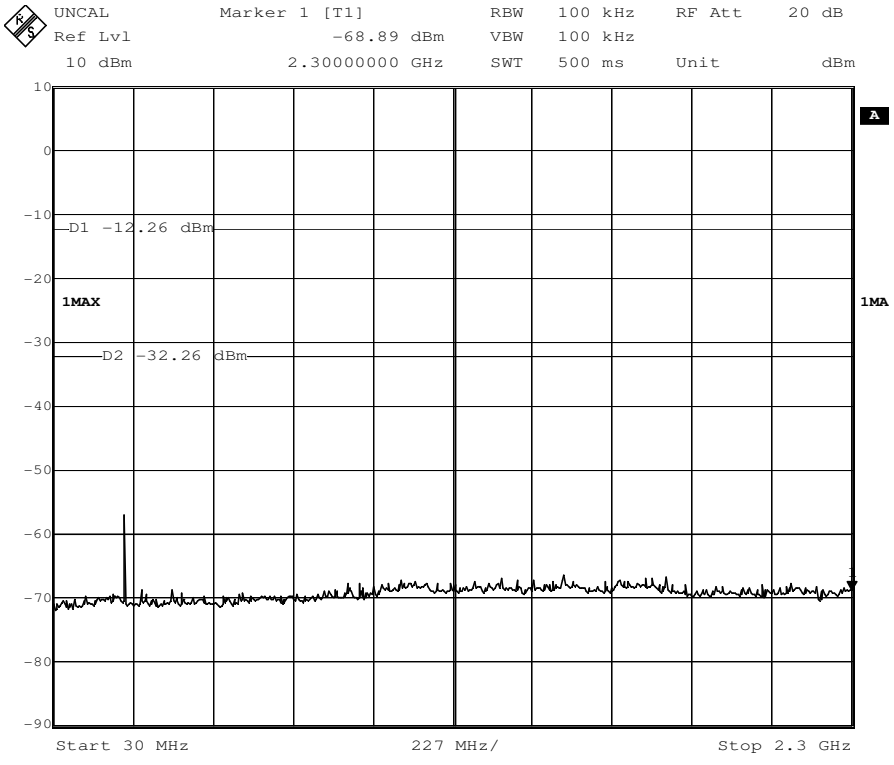
Date: 29.JAN.2008 16:54:16


Marker 1 [T1]
RBW 100 kHz
RF Att 10 dB
Ref Lvl
-6.66 dBm
VBW 100 kHz
Mixer -10 dBm
2 dBm
2.46384770 GHz
SWT 10 ms
Unit dBm
2 dB Offset
1 [T1] -6.66 dBm
2.46384770 GHz
D1 -6.66 dBm
2 [T1] -53.02 dBm
2.48366032 GHz
D2 -26.66 dBm
1VIEW
1MA
A
Start 2.46 GHz
4 MHz/
Stop 2.5 GHz
Date: 23.JAN.2008 20:25:48

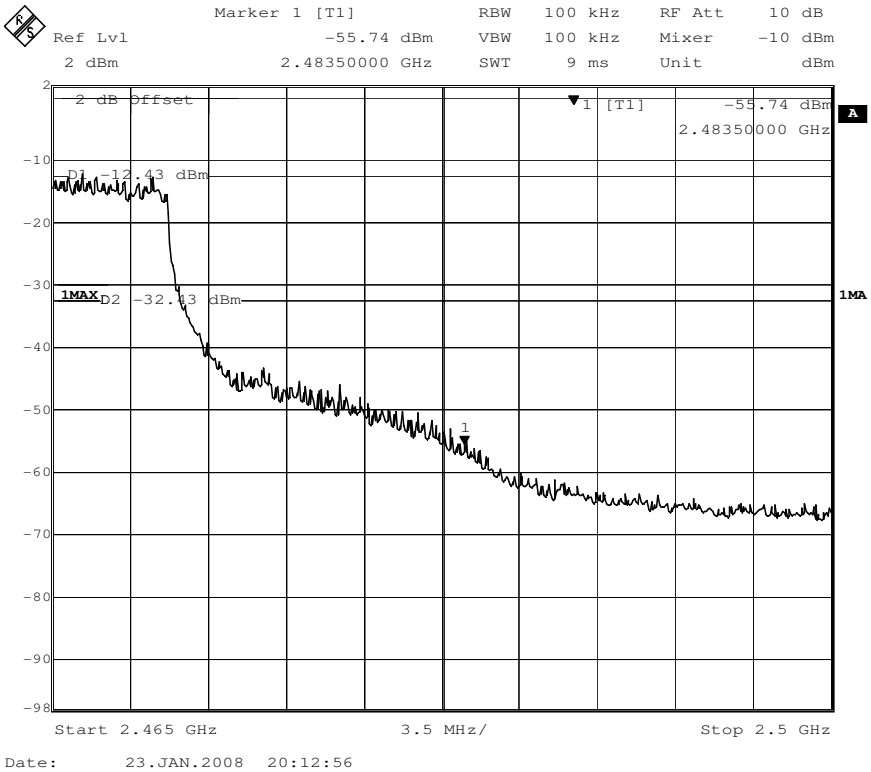

UNCAL
RBW 100 kHz
RF Att 20 dB
Ref Lvl
VBW 100 kHz
10 dBm
SWT 500 ms
Unit dBm
D1 -6.66 dBm
1MAX
D2 -26.66 dBm
1MA
A
Start 2.5 GHz
2.25 GHz/
Stop 25 GHz
Date: 29.JAN.2008 16:59:04

802.11g

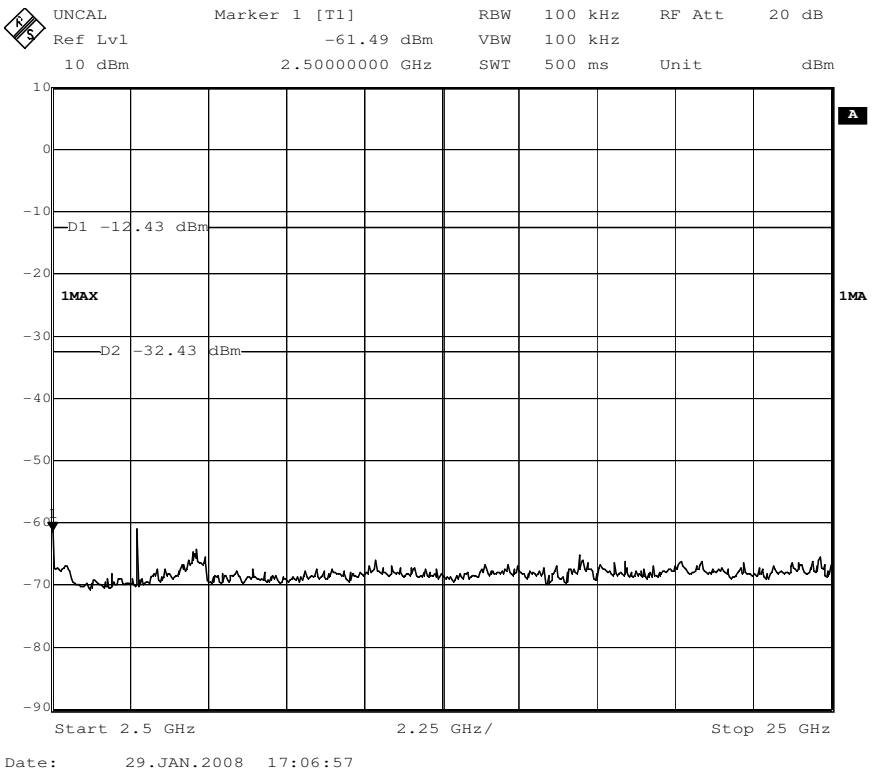

Marker 1 [T1]
RBW 100 kHz
RF Att 10 dB
Ref Lvl -12.26 dBm
VBW 100 kHz
Mixer -10 dBm
2 dBm 2.41122244 GHz
SWT 32 ms
Unit dBm
2 dB Offset
1 [T1] -12.26 dBm
2.41122244 GHz
2 [T1] -50.63 dBm
2.40000000 GHz
D1 -12.26 dBm
1MAX D2 -32.26 dBm
1MA
A
2
-10
-20
-30
-40
-50
-60
-70
-80
-90
-98
Start 2.3 GHz
12.5 MHz/
Stop 2.425 GHz
Date: 23.JAN.2008 20:20:39



Date: 29.JAN.2008 17:14:11



Date: 23.JAN.2008 20:12:56



5.3.6 Power Spectral Density Measurement

Test Requirement:	FCC Part15 C
Test Method:	Based on FCC Part15 C Section 15.247.
Test Date:	02 November 2007

Requirements:

Regulation 15.247 (d) For direct sequence systems, the peak 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

Test Procedures:
Set spectrum analyzer RBW = 3 KHz, VBW > RBW (e.g. VBW = 10 KHz), Span = 1.5 MHz. Turn around the table to find maximum emission. Then set the Span = 300 KHz and sweep time = 500 sec. Peak the maximum emission again. The peak level measured must be no greater than + 8dBm.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
802.11b 6Mbps and 802.11g 6Mbps

The EUT was set transmitting continuously and force selection of output power level and channel number. We'd observed that the peak levels aren't greater than +8dBm limit.

The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Test Result:

1. For EUT communicating with 802.11b Mode

Channel	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM Limit (dBm)	PASS/FAIL
1	2.412	-25.4	8.0	Pass
6	2.437	-24.3	8.0	Pass
11	2.462	-21.8	8.0	Pass

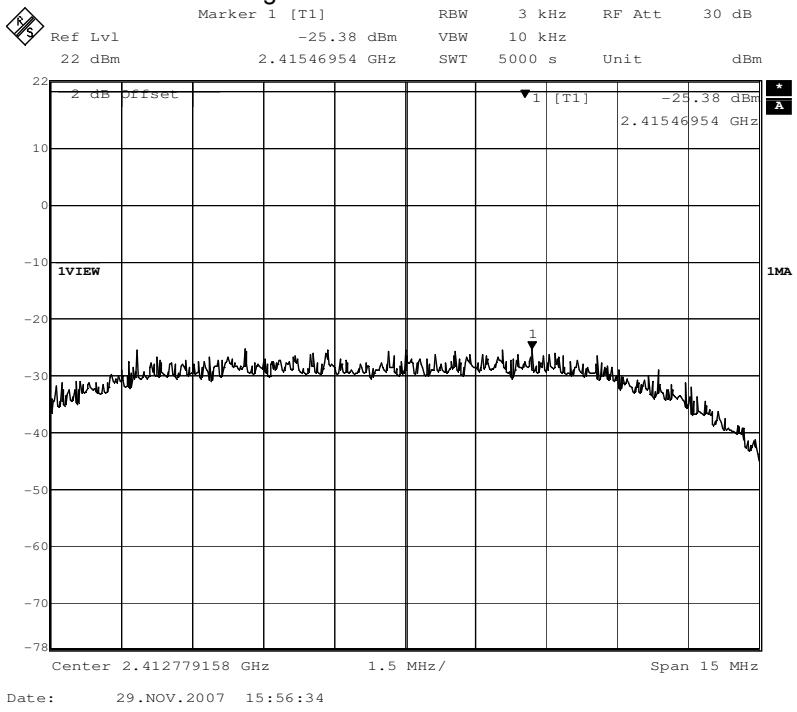
2. For EUT communicating with 802.11g Mode

Channel	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM Limit (dBm)	PASS/FAIL
1	2.412	-31.6	8.0	Pass
6	2.442	-31.5	8.0	Pass
11	2.462	-30.7	8.0	Pass

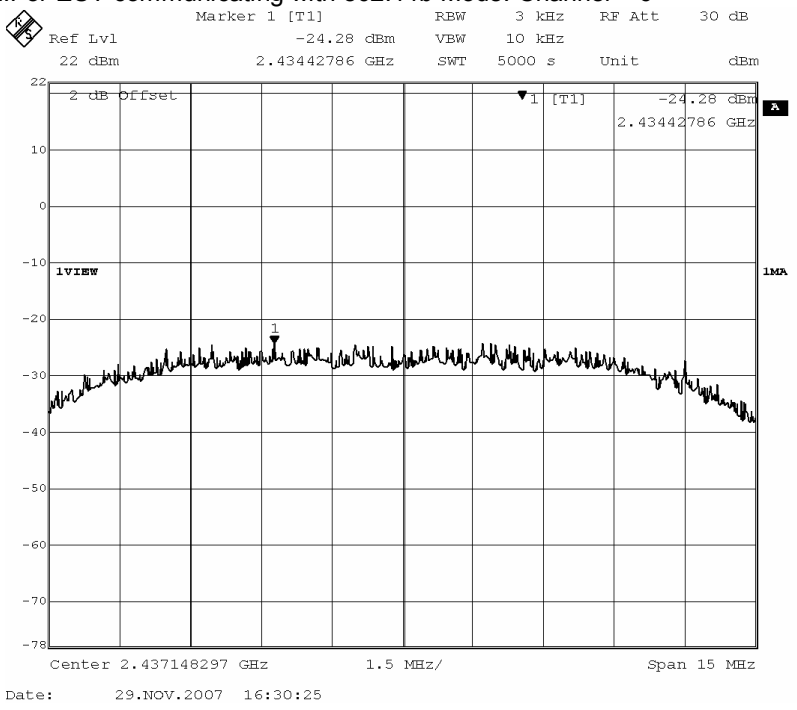
Conclusion:
The EUT meets the requirements of this section.

Please refer to the graph as below:

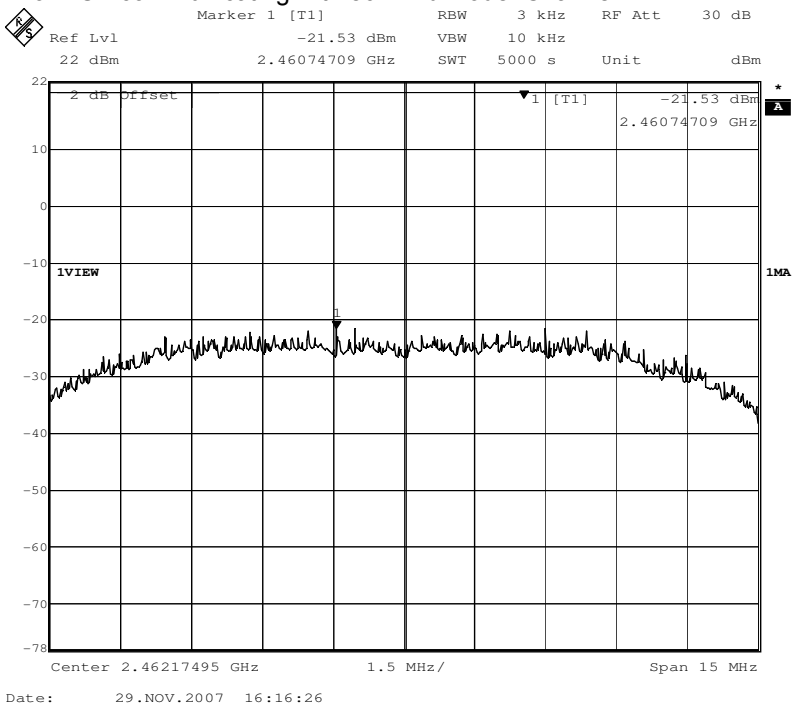
1. For EUT communicating with 802.11b Mode. Channel – 1



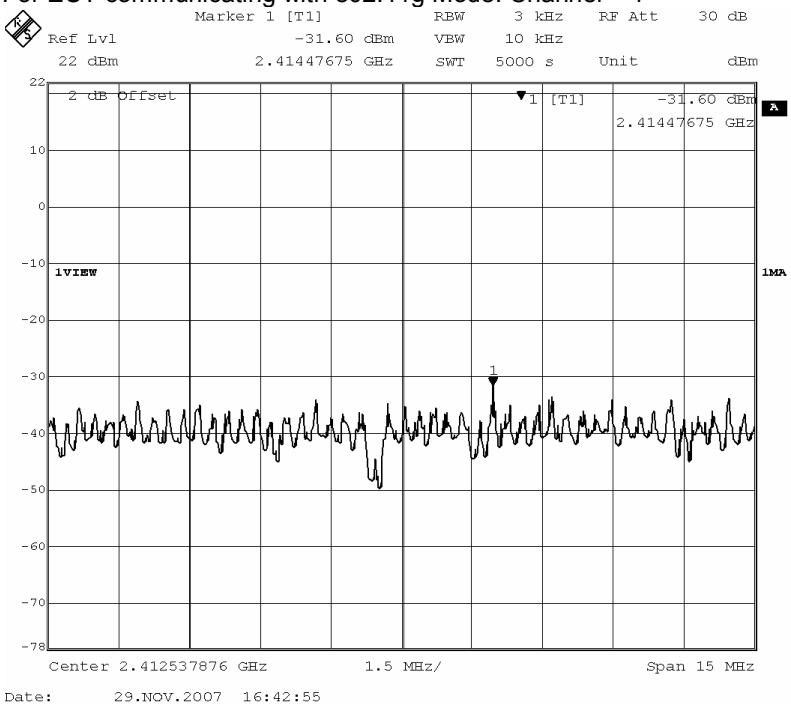
2.For EUT communicating with 802.11b Mode. Channel – 6



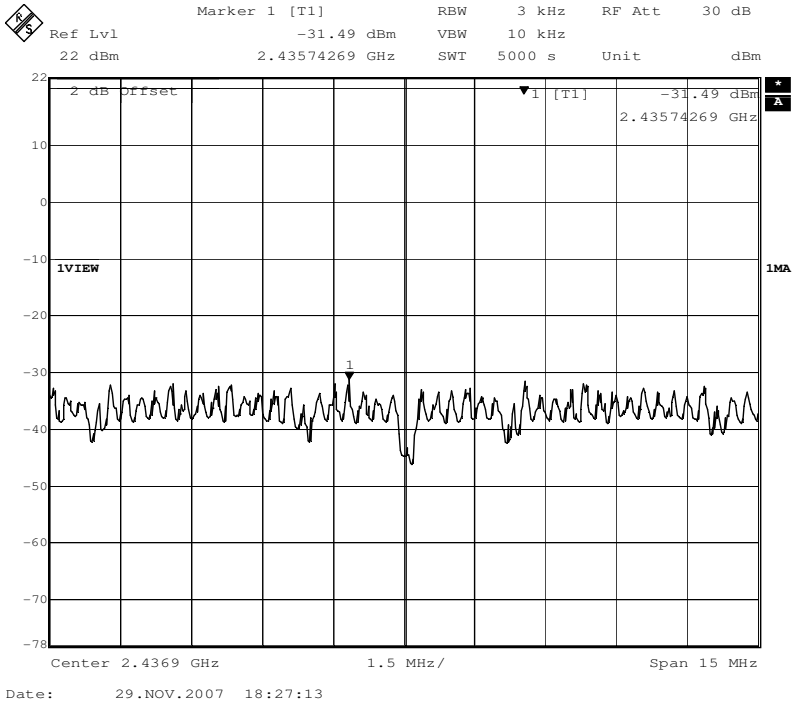
3. For EUT communicating with 802.11b Mode. Channel – 11



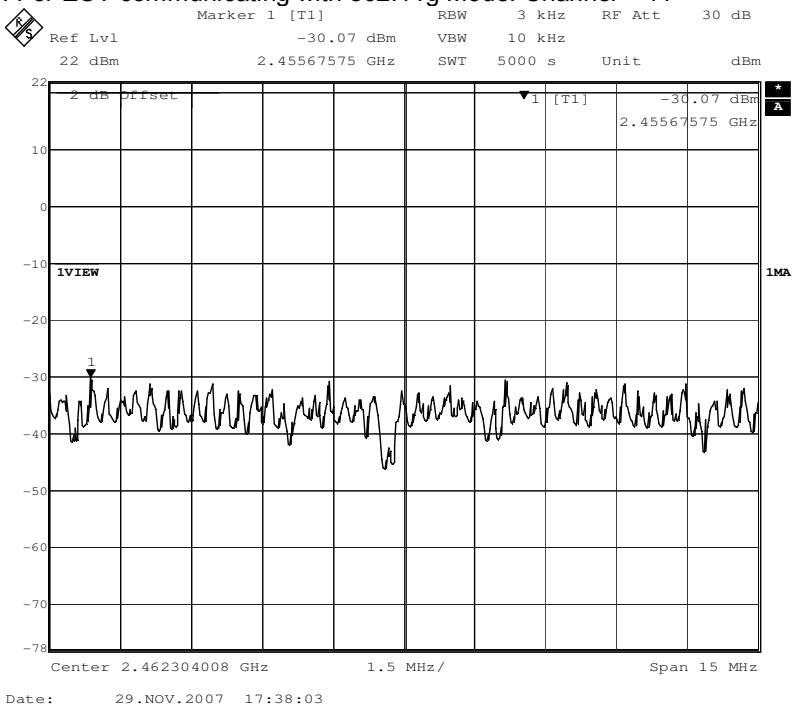
1. For EUT communicating with 802.11g Mode. Channel – 1



2.For EUT communicating with 802.11g Mode. Channel – 6



3. For EUT communicating with 802.11g Mode. Channel – 11



5.3.7 Antenna Requipment

STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247(b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.