FCC TEST REPORT

Test report On Behalf of
CREATIVISION LIMITED
For
HIVE EVOLUTION BLUETOOTH SPEAKER
Model No.: HIVE EVOLUTION, BL-291, KSHIVEEVOBK, KSHIVEEVOGM, KSHIVEEVOXX(XX = refer to color code)
FCC ID: 2ADRB-HIVE

Prepared for :	**CREATIVISION LIMITED** **Rm 2003, 20/F, 303 Hennessy Road, Wanchai, Hong Kong**
Prepared By :	**Shenzhen WST Testing Technology Co., Ltd.** **1F, No.9 Building,TGK Science & Technology Park, Yangtian Rd., NO.72 Bao'an Dist., Shenzhen, Guangdong, China. 518101**
Date of Test:	**Oct. 29, 2015 ~ Nov. 05, 2015**
Date of Report:	**Nov. 05, 2015**
Report Number:	**WST151109103-E**

TEST RESULT CERTIFICATION

Applicant's name	:	CREATIVISION LIMITED
Address	:	Rm 2003, 20/F, 303 Hennessy Road, Wanchai, Hong Kong
Manufacture's Name	:	DONGGUAN CITY YUANYU ELECTRONIC TECHNOLOGY CO., LIMITED
Address	:	JINDUOGANG DEVELOPMENT ZONE, DATANG VILLAGE, DALINGSHAN TOWN, DONGGUAN CITY, GUANGDONG, CHINA
Product description		
Trade Mark:		Kitsound / Uchoice
Product name	:	HIVE EVOLUTION BLUETOOTH SPEAKER
Model and/or type reference	:	HIVE EVOLUTION, BL-291, KSHIVEEVOBK, KSHIVEEVOGM, KSHIVEEVOXX(XX = refer to color code)
Standards	:	FCC Rules and Regulations Part 15 Subpart C Section 15.247 ANSI C63.4: 2014

Date of Test	:	
Date (s) of performance of tests	:	**Oct. 29, 2015 ~ Nov. 05, 2015**
Date of Issue	:	**Nov. 05, 2015**
Test Result	:	**Pass**

Testing Engineer : Eric Xie

(Eric Xie)

Technical Manager : Dora Qin

(Dora Qin)

Authorized Signatory :

(Kait Chen)

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Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Tes	Compliant
Section 15.247(d) Section 15.209)	Radiated Spurious Emission Test	Compliant
Section 15.247(d)	Conducted Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

1.1. Test Facility

Test Firm	:	Shenzhen WST Testing Technology Co., Ltd. Certificated by FCC, Registration No.: 939433
Address	:	1F, No.9 Building,TGK Science & Technology Park, Yangtian Rd., NO.72 Bao'an Dist., Shenzhen, Guangdong, China. 518101
Tel	:	(86)755-33916437
Fax	:	(86)755-27822175

1.2. Measurement Uncertainty

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.. General Information

2.1. General Description of EUT

Equipment	HIVE EVOLUTION BLUETOOTH SPEAKER
Model Name	HIVE EVOLUTION, BL-291, KSHIVEEVOBK, KSHIVEEVOGM, KSHIVEEVOXX(XX = refer to color code)
Serial No	/
FCC ID	2ADRB-HIVE EVOLUTION
Model Difference	All the model are the same circuit and RF module,except the appearance colour, this report only test mode name: HIVE EVOLUTION
Modulation Type	GFSK
Antenna Type	Internal monopole Antenna
Antenna Gain	0 dBi
Operation frequency	2402-2480MHz
Number of Channels	40
Power Source	DC Voltage
Power Rating	DC 7.4V
Adapter Model	/

2.2. Carrier Frequency of Channels

Channel	Frequency (MHz)
00	2402
01	2404
.....	.....
.....	.....
...	...
.....	.....
38	2478
39	2480

Operation of EUT during testing

Operating Mode
The mode is used: **Transmitting mode**
Low Channel: 2402MHz
Middle Channel: 2442MHz
High Channel: 2480MHz

2.3. Description of Test Setup

Operation of EUT during testing

Model 1

Model 2

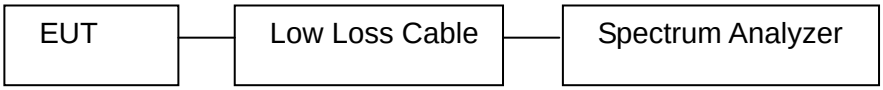
2.4. Measurement Instruments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Receiver	Rohde & Schwarz	ESCI	100627	May 19, 2015	1 Year
2.	LISN	SchwarzBeck	NSLK 8126	8126377	May 19, 2015	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	May 19, 2015	1 Year
4.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
5.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	May 19, 2015	1 Year
6.	Trilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 17, 2015	1 Year
7.	Pre-amplifier	Compliance Direction	PAP-0203	22008	May 19, 2015	1 Year
8.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
9.	EMI Receiver	Rohde & Schwarz	ESCI	100627	May 19, 2015	1 Year
10.	LISN	SchwarzBeck	NSLK 8126	8126377	May 19, 2015	1 Year
11.	RF Switching Unit	Compliance Direction	RSU-M2	38303	May 19, 2015	1 Year
12.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
13.	EMI Receiver	Rohde & Schwarz	ESCI	100627	May 19, 2015	1 Year
14.	EMI Receiver	Rohde & Schwarz	ESCI	100627	May 19, 2015	1 Year
15.	LISN	SchwarzBeck	NSLK 8126	8126377	May 19, 2015	1 Year
16.	RF Switching Unit	Compliance Direction	RSU-M2	38303	May 19, 2015	1 Year
17.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
18.	Programmable AC Power source	SOPH POWER	PAG-1050	630250	May 26, 2015	1 Year
19.	Harmonic and Flicker Analyzer	LAPLACE	AC2000A	272629	May 26, 2015	1 Year
20.	Harmonic and Flicker Test Software AC 2000A	LAPLACE	N/A	N/A	N/A	N/A
21.	ESD Simulators	KIKUSUI	KES4021	LJ003477	May 25, 2015	1 Year
22.	EFT Generator	EMPEK	EFT-4040B	0430928N	May 19, 2015	1 Year
23.	Shielding Room	ChangZhou ZhongYu	JB88	SEL0166	May 19, 2015	1 Year
24.	Signal Generator 9KHz~2.2GHz	R&S	SML02	SEL0143	May 19, 2015	1 Year
25.	Signal Generator 9KHz~1.1GHz	R&S	SML01	SEL0135	May 19, 2015	1 Year
26.	Power Meter	R&S	NRVS	SEL0144	May 19, 2015	1 Year
27.	RF Level Meter		URV35	SEL0137	May 19, 2015	1 Year
28.	Audio Analyzer	R&S	UPL	SEL0136	May 19, 2015	1 Year

29.	RF-Amplifier 150KHz~150MHz	BONN Elektronik	BSA1515-25	SEL0157	May 19, 2015	1 Year
30.	Stripline Test Cell	Erika Fiedler	VDE0872	SEL0167	N/A	N/A
31.	TV Test Transmitter	R&S	SFM	SEL0159	May 17, 2015	1 Year
32.	TV Generator PAL	R&S	SGPF	SEL0138	May 19, 2015	1 Year
33.	TV Generator Ntsc	R&S	SGMF	SEL0140	May 19, 2015	1 Year
34.	TV Generator Secam	R&S	SGSF	SEL0139	May 19, 2015	1 Year
35.	TV Test Transmitter 0.3MHz~3300MHz	R&S	SFQ	SEL0142	May 19, 2015	1 Year
36.	MPEG2 Measurement Generator	R&S	DVG	SEL0141	May 19, 2015	1 Year
37.	Spectrum Analyzer	R&S	FSP	SEL0177	May 19, 2015	1 Year
38.	Matching	R&S	RAM	SEL0146	N/A	N/A
39.	Matching	R&S	RAM	SEL0148	N/A	N/A
40.	Absorbing Clamp	R&S	MDS21	SEL0158	May 17, 2015	1 Year
41.	Coupling Set	Erika Fiedler	Rco, Rci, MC, AC, LC	SEL0149	N/A	N/A
42.	Filters	Erika Fiedler	Sr, LBS	SEL0150	N/A	N/A
43.	Matching Network	Erika Fiedler	MN, T1	SEL0151	N/A	N/A
44.	Fully Anechoic Room	ChangZhou ZhongYu	854	SEL0169	Jun. 10, 2015	1 Year
45.	Signal Generator	R&S	SML03	SEL0068	May 17, 2015	1 Year
46.	RF-Amplifier 30M~1GHz	Amplifier Reasearch	250W1000A	SEL0066	Oct. 24, 2015	1 Year
47.	RF-Amplifier 0.8~3.0GHz	Amplifier Reasearch	60S1G3	SEL0065	Oct. 24, 2015	1 Year
48.	Power Meter	R&S	NRVD	SEL0069	May 17, 2015	1 Year
49.	Power Sensor	R&S	URV5-Z2	SEL0071	May 17, 2015	1 Year
50.	Power Sensor	R&S	URV5-Z2	SEL0072	May 17, 2015	1 Year
51.	Software EMC32	R&S	EMC32-S	SEL0082	N/A	N/A
52.	Log-periodic Antenna	Amplifier Reasearch	AT1080	SEL0073	N/A	N/A
53.	Antenna Tripod	Amplifier Reasearch	TP1000A	SEL0074	N/A	N/A
54.	High Gain Horn Antenna(0.8-5GHz)	Amplifier Reasearch	AT4002A	SEL0075	N/A	N/A

3.. 6DB Bandwidth Measurement

3.1. Block Diagram of Test Setup



3.2. Limits

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

3.3. Test Procedure

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

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

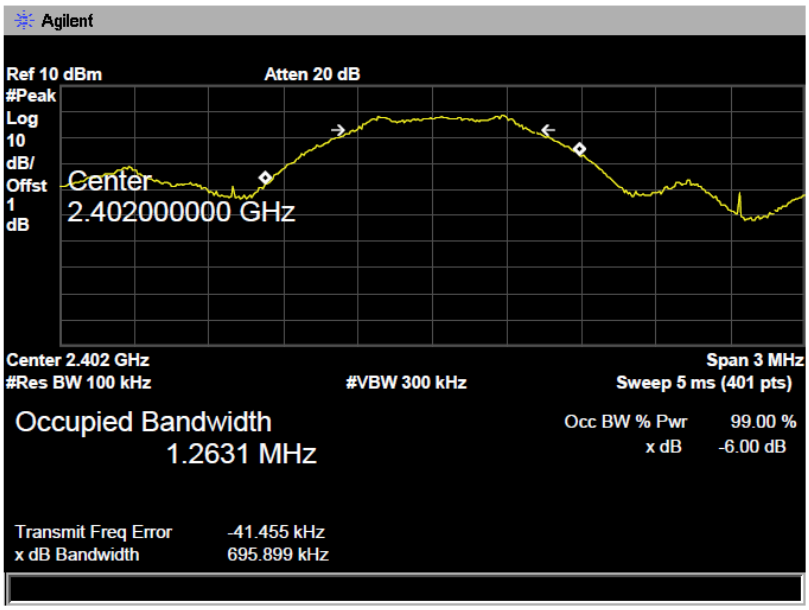
3.3.3. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

3.4. Test Result

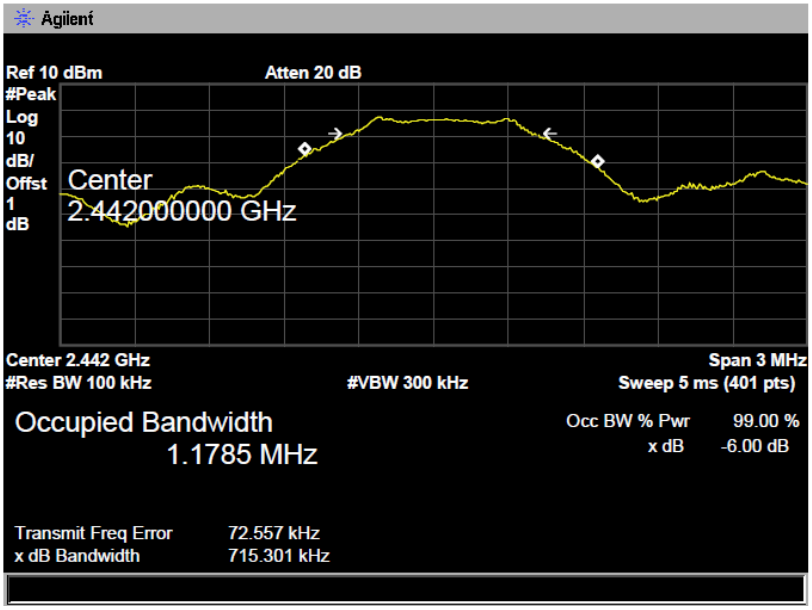
Channel	Frequency (MHz)	6DB Bandwidth(MHz)	Limit(MHz)
Low	2402	0.695	>0.5MHz
Middle	2442	0.715	>0.5MHz
High	2480	0.713	>0.5MHz

The spectrum analyzer plots are attached as below.

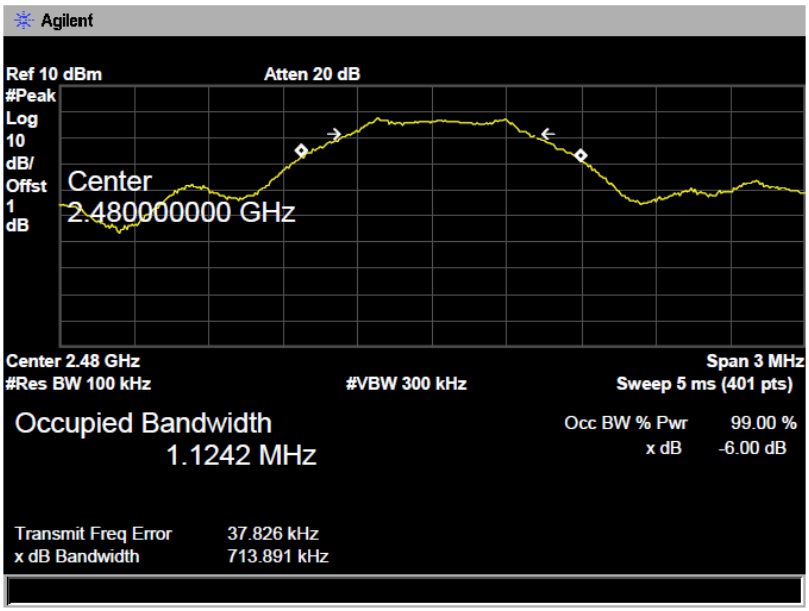
Channel Low 2402MHz



Channel Middle 2442MHz

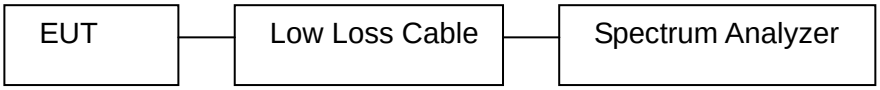


Channel High 2480MHz



4 Maximum Peak Output Power

4.1 Block Diagram of Test Setup



4.2 Limits

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

4.3 Test Procedure

a. The transmitter output was connected to the spectrum analyzer through a low
b. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz
c. Measurement the maximum peak output power.

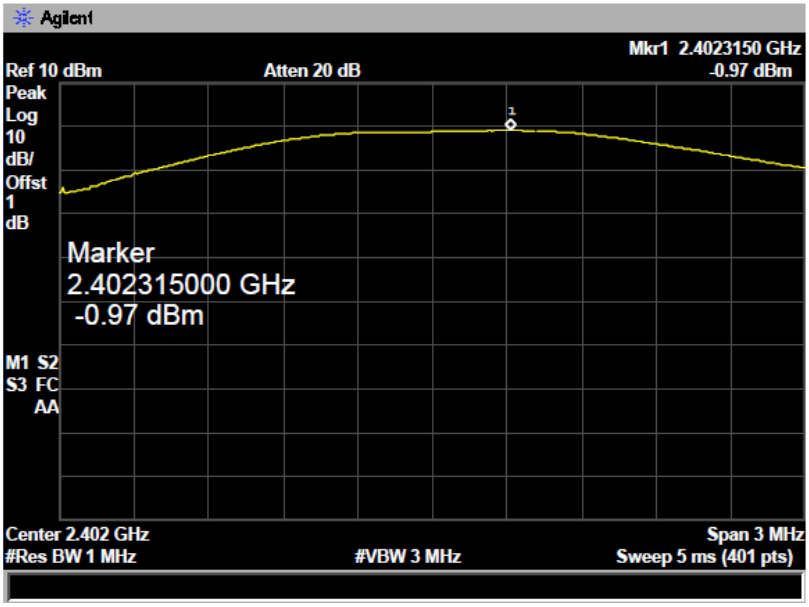
4.4 Test Result

PASS

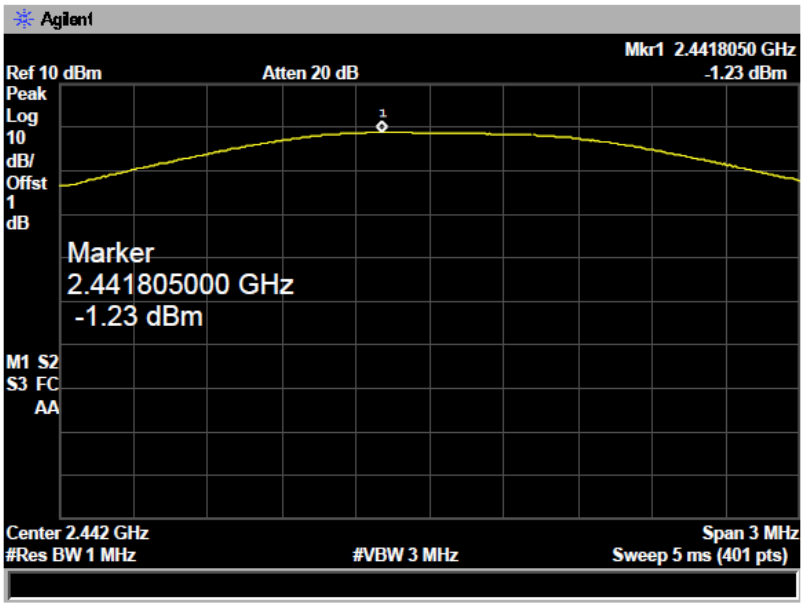
Channel	**Frequency (MHz)**	**Peak output power (dBm)**	**Limit (dBm)**
Low	2402	-0.970	30
Middle	2442	-1.230	30
High	2480	-2.206	30

Pls. refer to the following test plots:

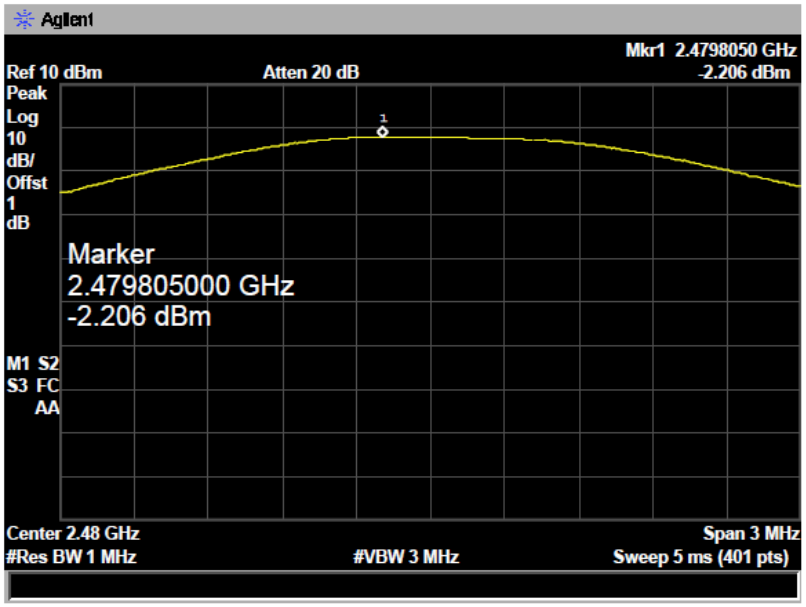
Low CH



Middle CH

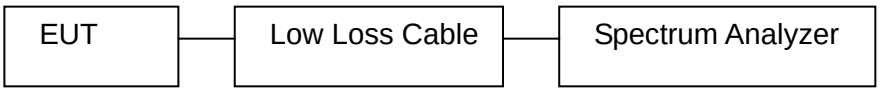


High CH



5 Power Spectral Density Measurement

5.1 Block Diagram of Test Setup



5.2 Limits

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.

5.3 Test Procedure

a. The transmitter output was connected to the spectrum analyzer through a low loss cable.
b. Set RBW of spectrum analyzer to 3kHz and VBW to 10kHz, sweep time =Span/30kHz
c. Measurement the maximum power spectral density.

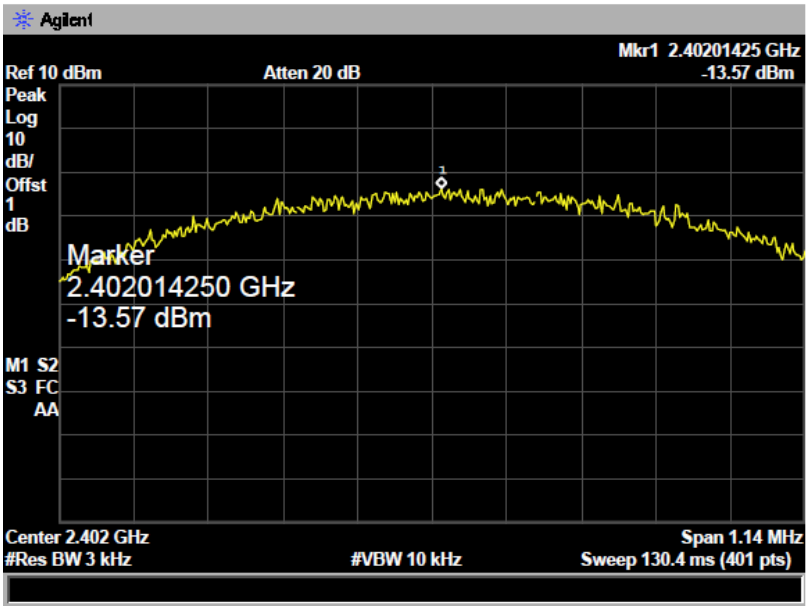
5.4 Test Result

PASS

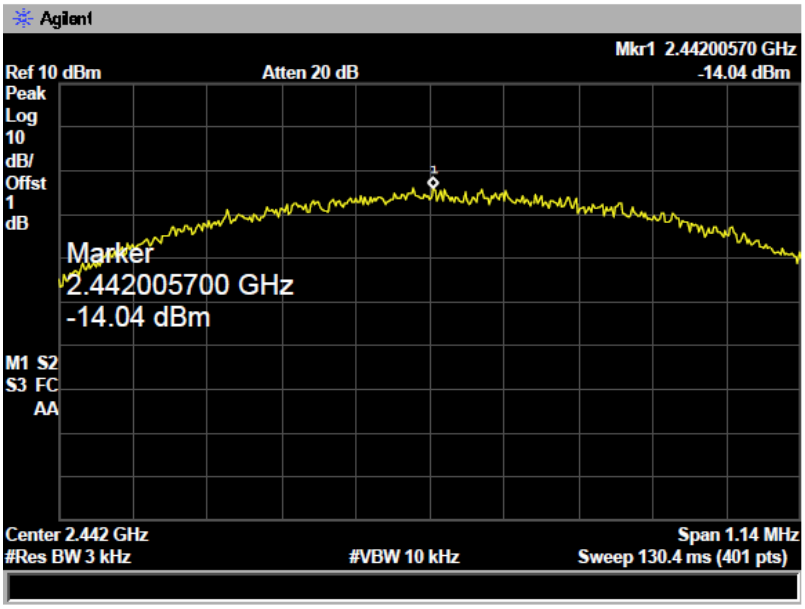
Channel	Frequency (MHz)	Power Spectral Density (3KHz/dBm)	Limit (dBm)
Low	2402	-13.57	8
Middle	2442	-14.04	8
High	2480	-13.38	8

The spectrum analyzer plots are attached as below.

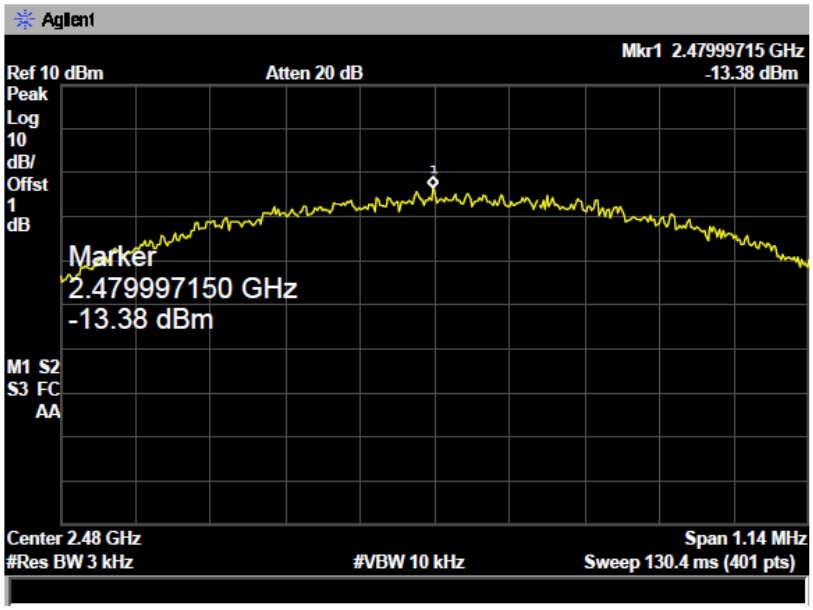
Channel Low 2402MHz



Channel Middle 2442MHz

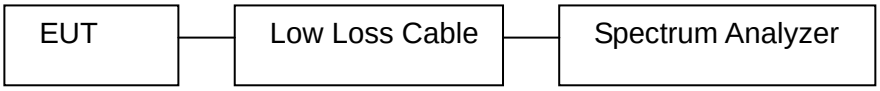


Channel High 2480MHz



6 Band Edge Compliance Test

6.1 Block Diagram of Test Setup



6.2 Limits

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).

6.3 Test Procedure

Conducted Band Edge:

a. The transmitter output was connected to the spectrum analyzer via a low loss cable.
b. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz.

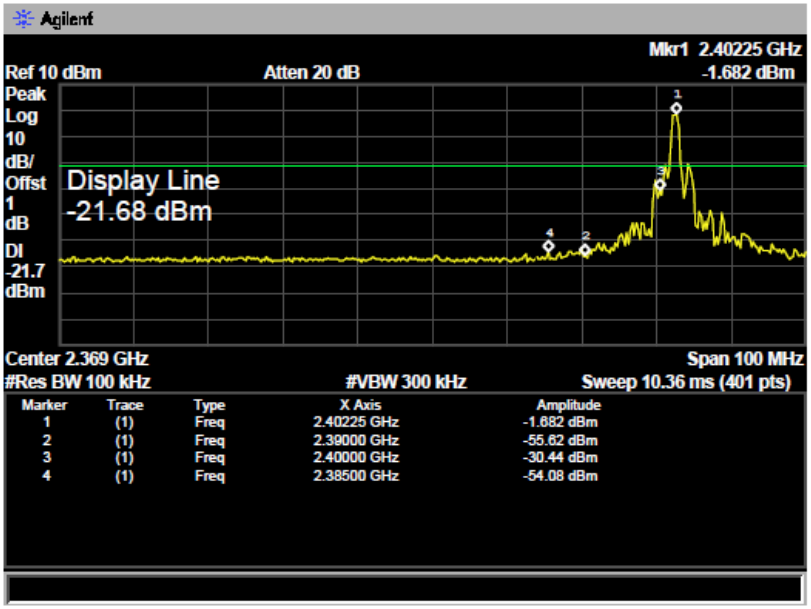
Radiate Band Edge:

a. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
b. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
c. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
d. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission: RBW=1MHz, VBW=1MHz
e. The band edges was measured and recorded.

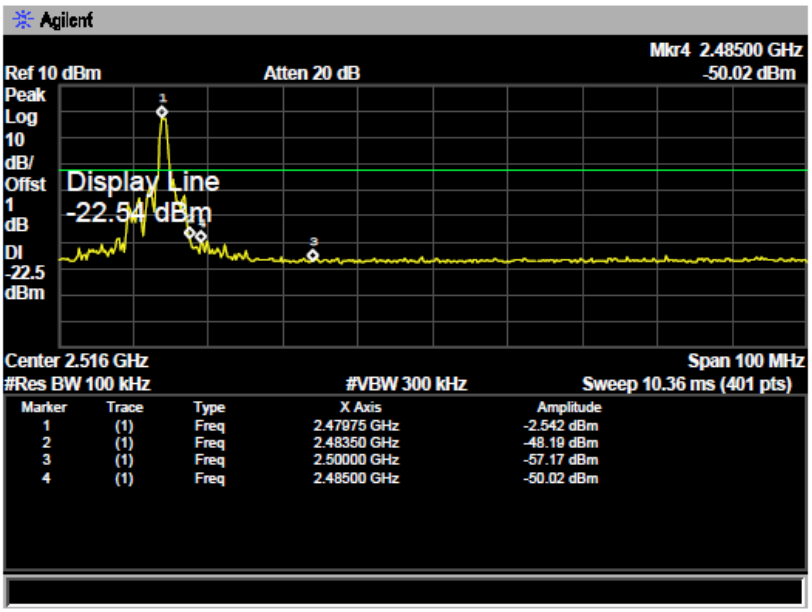
6.4 Test Result

PASS

Channel Low 2402MHz

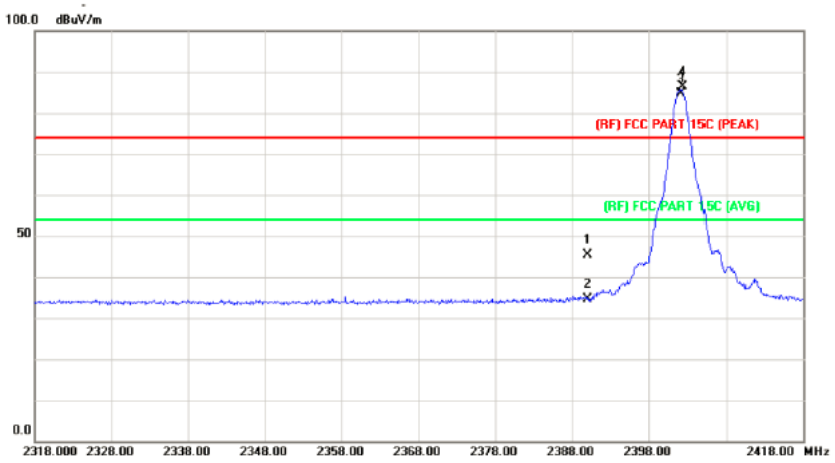


Channel High 2480MHz



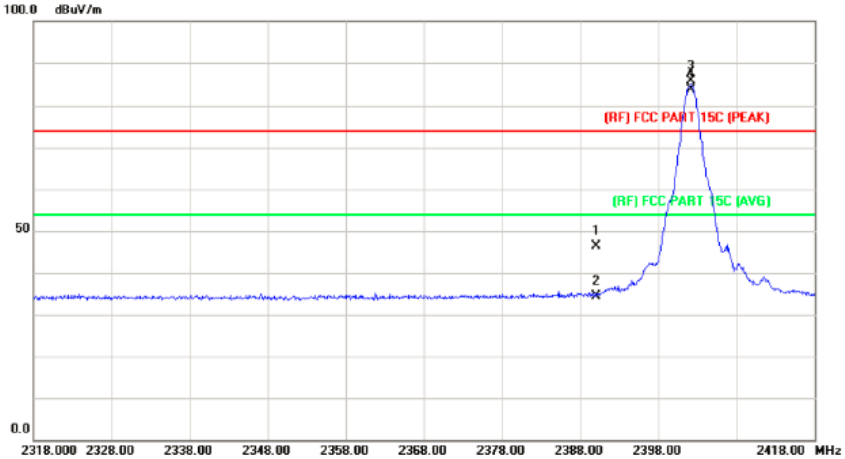
Radiated Band Edge Result

Channel Low 2402MHz
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	44.68	0.77	45.45	74.00	-28.55	peak
2		2390.000	33.78	0.77	34.55	54.00	-19.45	AVG
3	*	2402.200	83.89	0.82	84.71	Fundamental Frequency		AVG
4	X	2402.400	85.49	0.82	86.31	Fundamental Frequency		peak

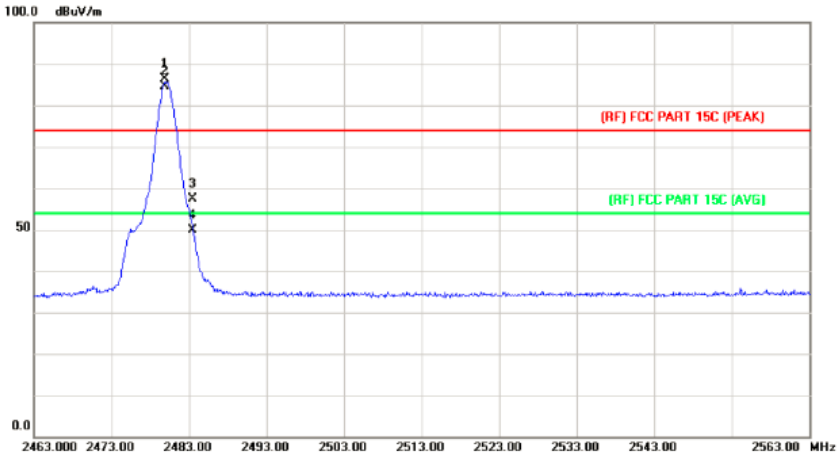
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	45.62	0.77	46.39	74.00	-27.61	peak
2		2390.000	33.61	0.77	34.38	54.00	-19.62	AVG
3	X	2402.200	84.69	0.82	85.51	Fundamental Frequency		peak
4	*	2402.200	83.18	0.82	84.00	Fundamental Frequency		AVG

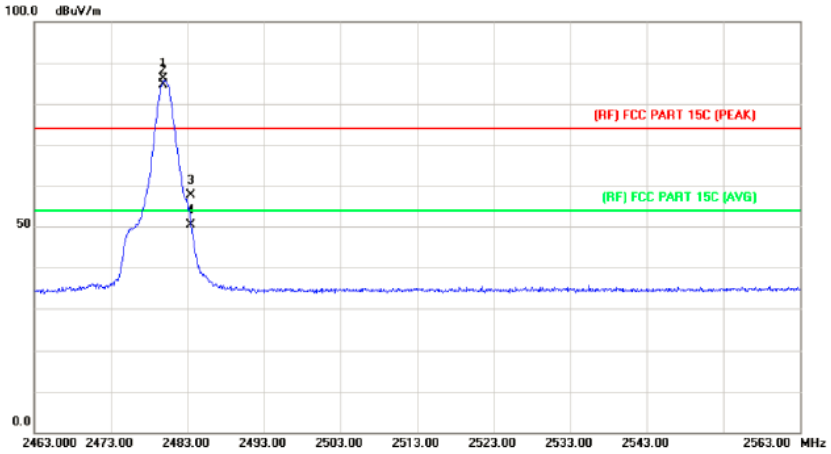
Note:
1. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and
subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:
Result = Reading + Corrected Factor
2. Display the measurement of peak values.

Channel High 2480MHz
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2479.800	85.13	1.15	86.28	Fundamental Frequency		peak
2	*	2479.900	83.46	1.15	84.61	Fundamental Frequency		AVG
3		2483.500	56.27	1.17	57.44	74.00	-16.56	peak
4		2483.500	48.81	1.17	49.98	54.00	-4.02	AVG

Vertical



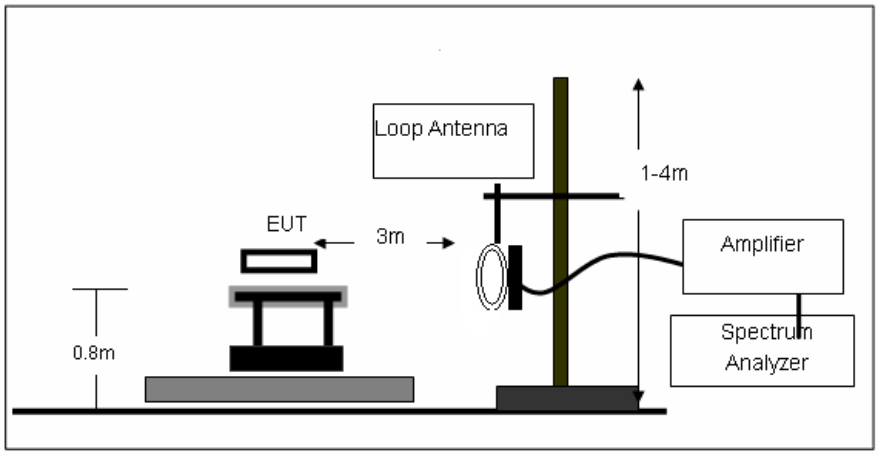
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2479.800	85.07	1.15	86.22	Fundamental Frequency		peak
2	*	2479.900	83.44	1.15	84.59	Fundamental Frequency		AVG
3		2483.500	56.46	1.17	57.63	74.00	-16.37	peak
4		2483.500	49.17	1.17	50.34	54.00	-3.66	AVG

Note:
1. 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:
Result = Reading + Corrected Factor
2. Display the measurement of peak values.

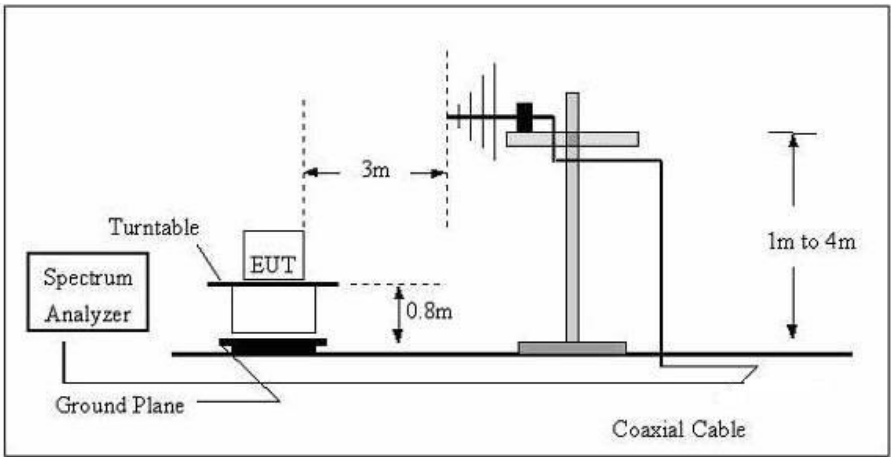
7 Radiated Spurious Emission Test

7.1 Block Diagram of Test Setup

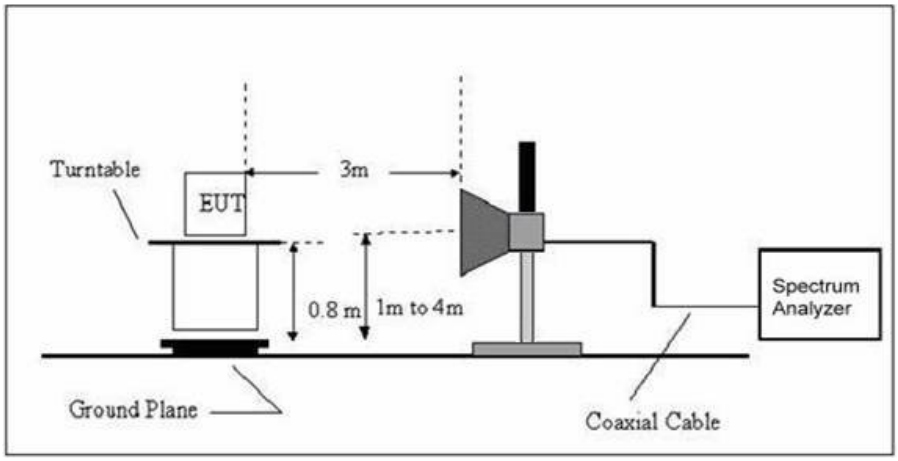
（1）Radiated Emission Test-Up Frequency Below 30MHz



（2）Radiated Emission Test-Up Frequency 30MHz~1GHz



（3）Radiated Emission Test-Up Frequency Above 1GHz



7.2 Limits

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).

7.3 Restricted bands of operation

9.3.1.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			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 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 Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

7.4 Test Procedure

a. The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. 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 bilog 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 interface cables must be manipulated according to ANSI C63.4: 2003 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 300Mbps for 802.11n mode, based on previous with 802.11 WLAN product design architectures.

The bandwidth of test receiver is set at 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9kHz to 25GHz is checked.

The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

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

7.5 Test Result

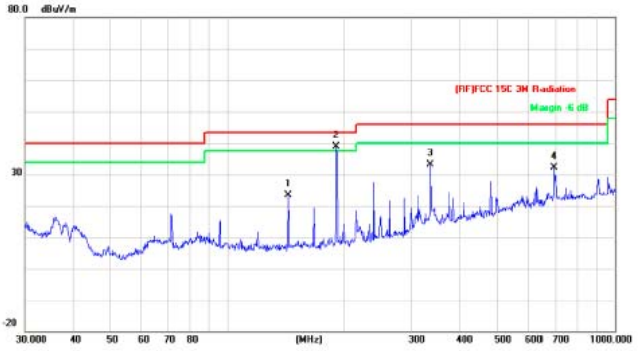
PASS

Channel Low 2402MHz
For Below 30MHz

Freq.(MHz)	Reading (dBuV/m) (QP)	Factor(dB) Corr.	Result (dBuV/m)	Limit (dBuV/m)	Margin(dB)
/	/	/	/	/	/

For 30MHz-1000MHz

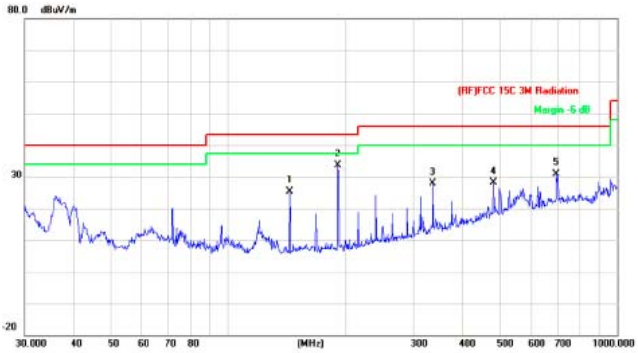
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		143.8295	44.93	-21.67	23.26	43.50	-20.24	peak
2	*	191.7450	59.67	-20.81	38.86	43.50	-4.64	peak
3		336.0352	48.55	-15.46	33.09	46.00	-12.91	peak
4		696.8567	39.09	-6.95	32.14	46.00	-13.86	peak

*:Maximum data x:Over limit !:over margin

Polarization: Horizontal

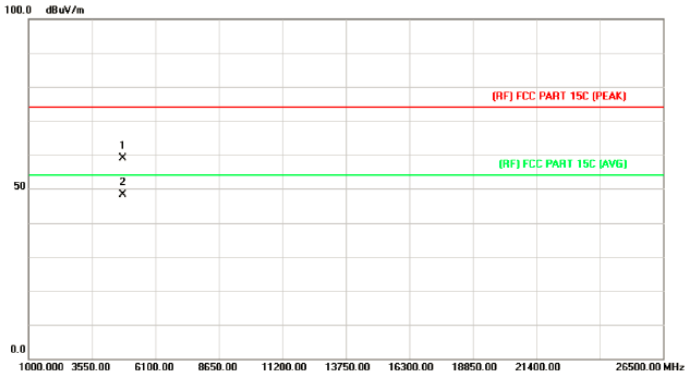


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		143.8295	47.06	-21.67	25.39	43.50	-18.11	peak
2	*	191.7450	54.53	-20.81	33.72	43.50	-9.78	peak
3		336.0352	43.26	-15.46	27.80	46.00	-18.20	peak
4		480.5276	39.68	-11.62	28.06	46.00	-17.94	peak
5		696.8567	37.92	-6.95	30.97	46.00	-15.03	peak

*:Maximum data x:Over limit !:over margin

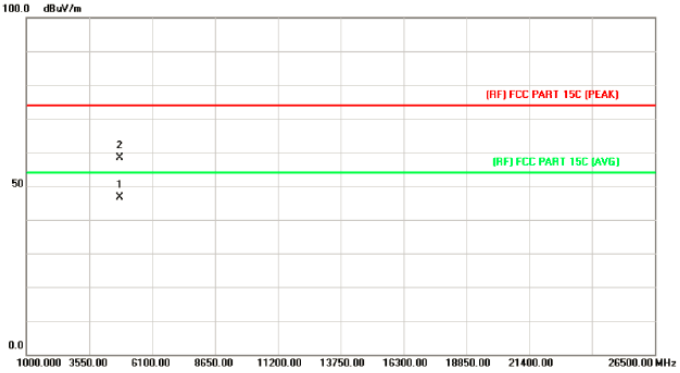
For 1GHz-25GHz

Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4803.838	45.56	13.44	59.00	74.00	-15.00	peak
2	*	4804.087	34.67	13.44	48.11	54.00	-5.89	AVG

Polarization: Horizontal

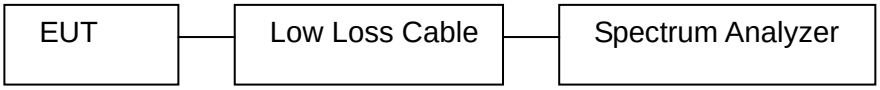


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4804.069	33.13	13.44	46.57	54.00	-7.43	AVG
2		4804.366	44.83	13.44	58.27	74.00	-15.73	peak

Note: “Channel Low 2402MHz” mode is worst mode

8 Conducted Spurious Emission Compliance Test

8.1 Block Diagram of Test Setup



8.2 Limits

Se 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).

8.3 Test Procedure

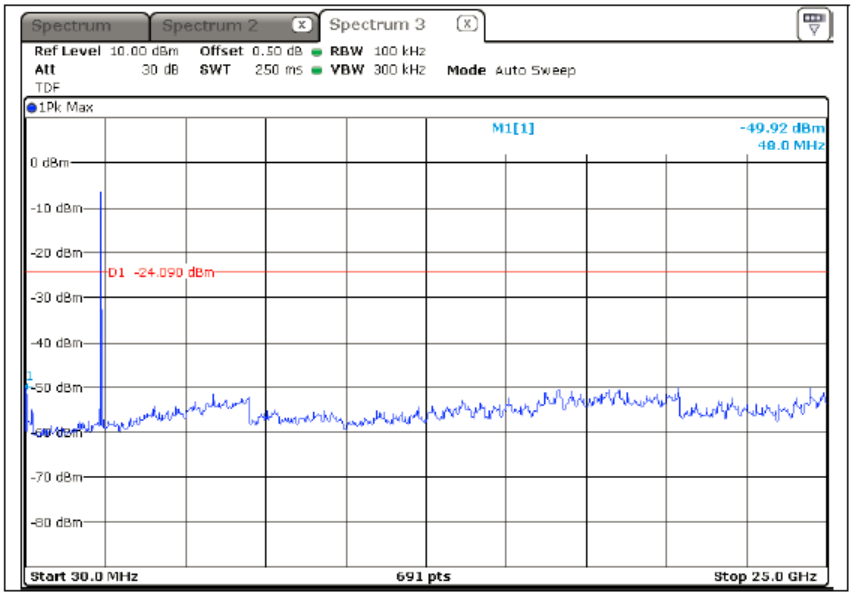
a. The transmitter output was connected to the spectrum analyzer via a low loss cable.
b. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz.
c. The Conducted Spurious Emission was measured and recorded.

8.4 Test Result

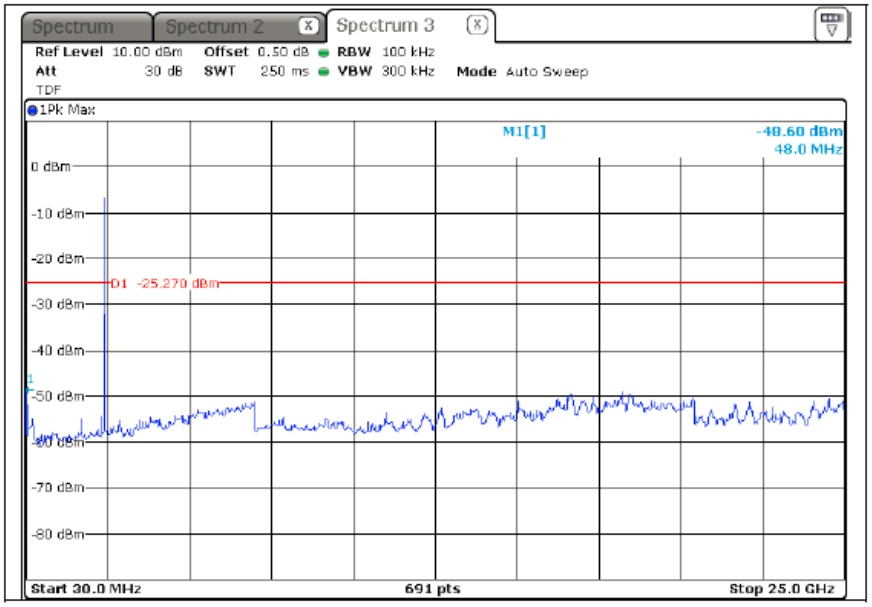
PASS

The spectrum analyzer plots are attached as below.

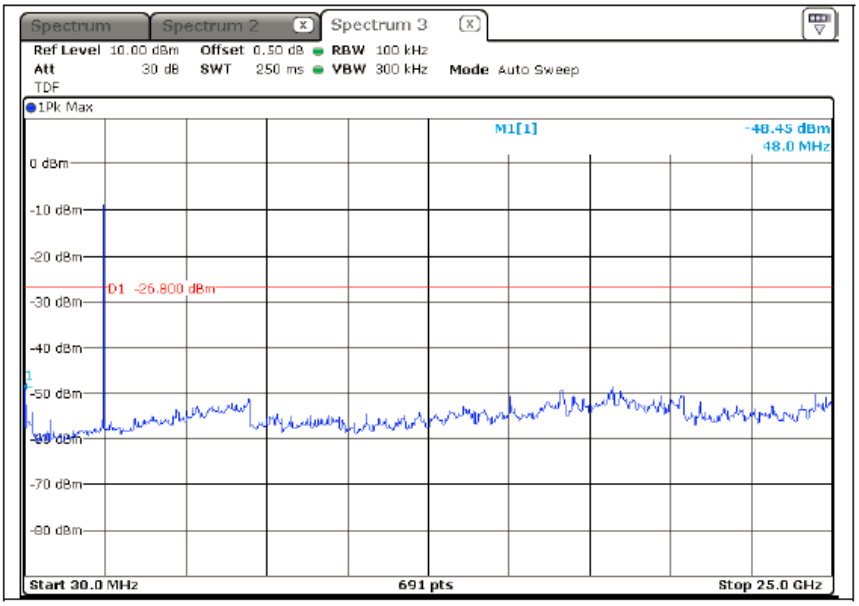
Channel Low 2402MHz



Channel Middle 2442MHz

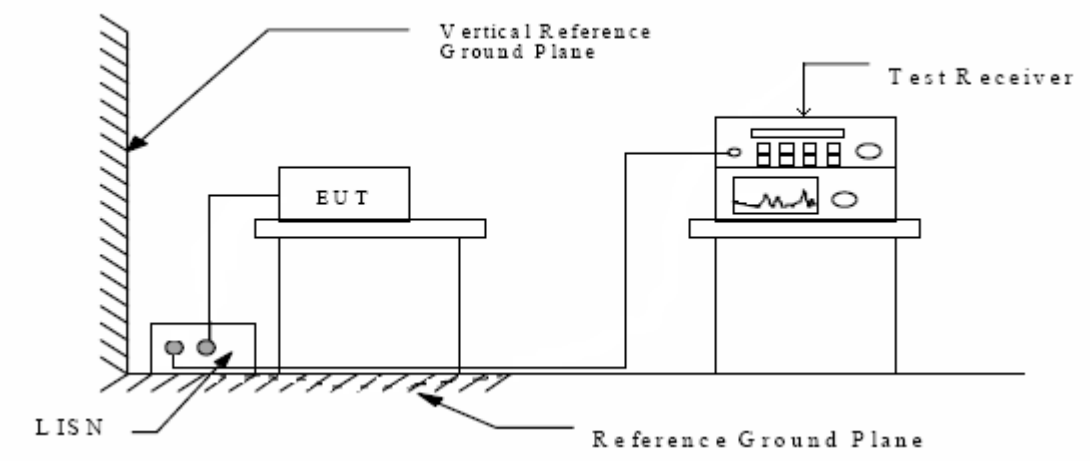


Channel High 2480MHz



9 AC Power Line Conducted Emission For Part 15 Section 15.207(A)

9.1 Block Diagram of Test Setup



9.2 Limits

Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency MHz	Limits (dBμV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

* Decreases with the logarithm of the frequency.

9.3 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: 2003 on Conducted Emission Measurement.

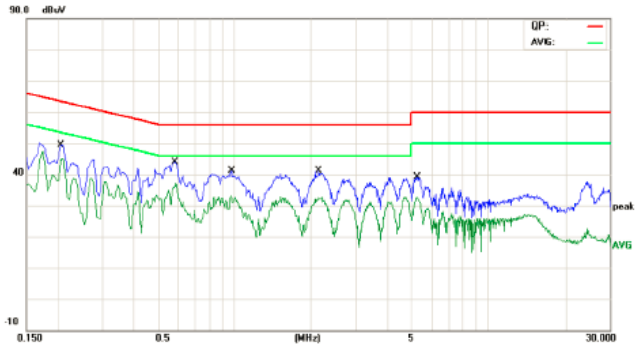
The bandwidth of test receiver (R & S ESPI) is set at 9kHz.

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

9.4 Test Result

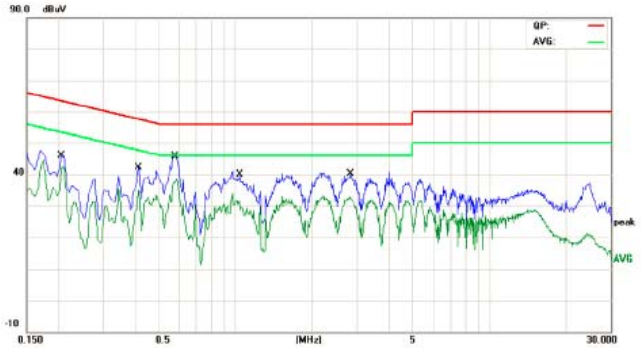
PASS

N



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2060	38.08	10.02	48.10	63.36	-15.26	QP
2	*	0.2060	35.00	10.02	45.02	53.36	-8.34	AVG
3		0.5820	32.84	10.06	42.90	56.00	-13.10	QP
4		0.5820	26.46	10.06	36.52	46.00	-9.48	AVG
5		0.9700	28.56	10.07	38.63	56.00	-17.37	QP
6		0.9700	22.23	10.07	32.30	46.00	-13.70	AVG
7		2.1460	27.26	10.06	37.32	56.00	-18.68	QP
8		2.1460	22.18	10.06	32.24	46.00	-13.76	AVG
9		5.2700	25.21	9.97	35.18	60.00	-24.82	QP
10		5.2700	22.09	9.97	32.06	50.00	-17.94	AVG

L

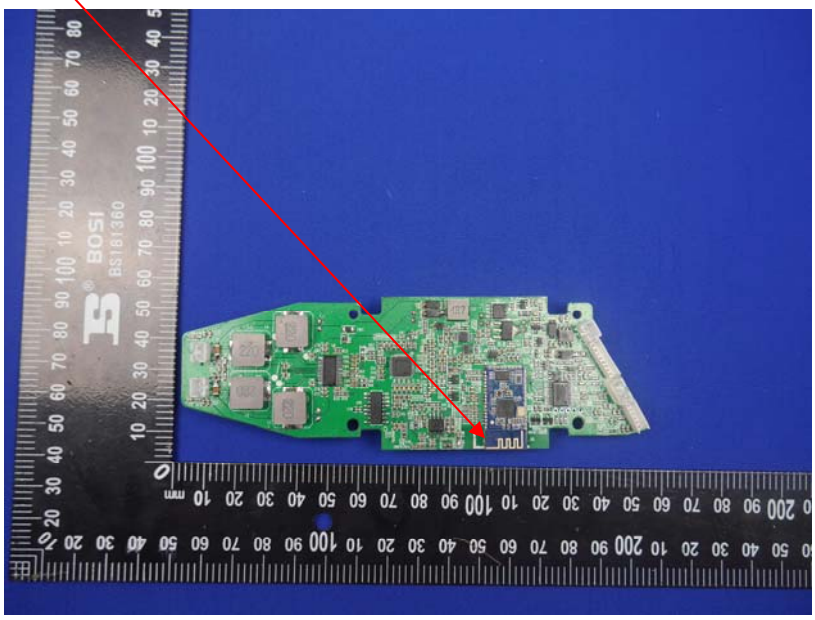


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2060	34.61	10.02	44.63	63.36	-18.73	QP
2		0.2060	32.52	10.02	42.54	53.36	-10.82	AVG
3		0.4140	30.34	10.02	40.36	57.57	-17.21	QP
4		0.4140	25.24	10.02	35.26	47.57	-12.31	AVG
5		0.5780	34.80	10.06	44.86	56.00	-11.14	QP
6	*	0.5780	27.39	10.06	37.45	46.00	-8.55	AVG
7		1.0380	27.34	10.06	37.40	56.00	-18.60	QP
8		1.0380	21.19	10.06	31.25	46.00	-14.75	AVG
9		2.8340	26.47	10.03	36.50	56.00	-19.50	QP
10		2.8340	22.90	10.03	32.93	46.00	-13.07	AVG

10 Antenna Requirement

According to 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. Antenna is fixed by enclosure, can not be changed except take apart the product.

Antenna



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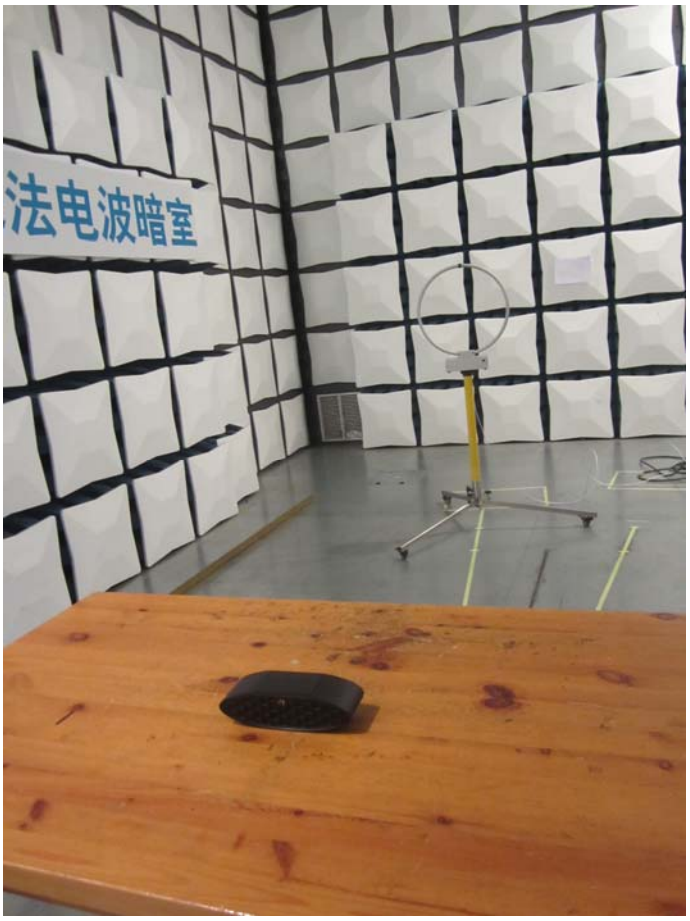
11 Photograph of Test

11.1 Radiated Emission



11.2 AC Power Line Conducted Emission