FCC TEST REPORT

FCC ID : YCJ003-DS2XXXW

Applicant : Globalscale Technologies, Inc.
Address of Applicant : 5F,No.2 building Minxing industrial Park Minkang Road , Minzhi Street,Baoan District,Shenzhen,Guangdong, China

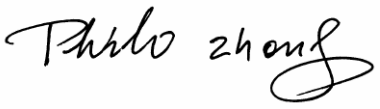
Equipment Under Test (EUT) :

Product description : DreamPlug wifi
Model No. : 003-DS2XXX

Standards : FCC 15 Paragraph 15.247

Date of Test : Mar.12,2011

Test Engineer : **Olic Huang /Engineer** 

Reviewed By : **Philo Zhong /Manager** 

PERPARED BY:
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2 Contents

3 Test Summary

Test Items	Test Requirement	Test Method	Result
Band Edges Measurement	FCC Part 15.247(d):2008	ANSI C63.4: 2003	PASS
6dB Bandwidth Measurement	FCC Part 15.247(a)(2):2008	ANSI C63.4: 2003	PASS
Peak Power Measurement	FCC Part 15(b)(3):2008 FCC Part 15(b)(4):2008	ANSI C63.4: 2003	PASS
Peak Power Spectral Density	FCC Part 15.248(e):2008	ANSI C63.4: 2003	PASS
Mains Terminal Disturbance Voltage, 150kHz to 30MHz	FCC Part 15.207(a):2008	ANSI C63.4: 2003	PASS
Radiation Emission, 30MHz to 25GHz	FCC Part 15.247(d):2008 FCC Part 15.209(a):2008	ANSI C63.4: 2003	PASS

Note : denote that for more details of the EUT , please refer to the relating test items as below .

Remark : the methods of measurement in all the test items were according to the FCC Public Notice DA 00-705 .

4 General Information

4.1 Client Information

Applicant:	Globalscale Technologies, Inc.
Address of Applicant:	5F,No.2 building Minxing industrial Park Minkang Road ,Minzhi Street,Baoan District,Shenzhen,Guangdong, China
Manufacturer:	Globalscale Technologies, Inc.
Address of Manufacturer:	5F,No.2 building Minxing industrial Park Minkang Road ,Minzhi Street,Baoan District,Shenzhen,Guangdong, China

4.2 General Description of E.U.T.

Product description:	DreamPlug wifi
Model No.:	003-DS2XXX

(Remark: XXX is any space, number or English character)

4.3 Details of E.U.T.

Power Supply:	INPUT : AC 100-240V,50-60Hz CURRENT: 0.25A MAX
Frequency Range:	IEEE802.11B mode: 2412~2462MHz IEEE802.11G mode: 2412~2462MHz
Modulation Technique:	802.11B: DSSS; 802.11G: OFDM
Transmit Data Rate:	802.11B: 1Mbps; 802.11G: 54Mbps
Channel Number:	IEEE 802.11B/G :11 Channels.
Antenna Specification:	0 dBi

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Standards Applicable for Testing

The customer requested FCC tests for an DreamPlug wifi. The standards used were FCC 15 Paragraph 15.247,Paragraph 15.205, Paragraph 15.207,Paragraph 15.209, Paragraph 15.31,Paragraph 15.33, Paragraph 15.35.

4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC – Registration No.: 880581**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581,June 24，2008.

- **IC – Registration No.: 7760A**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration 7760A, Aug 03, 2010.

4.7 Test Location

All Emissions testswere performed at:-
1/F, Fukangtai Building,West Baima Rd.,Songgang Street, Baoan District, Shenzhen 518105, Guangdong,China.

Remark : All the test results of the peripherals were conformed to the Fcc Verification requirements.

4.8 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY45114943	W2008001	9k-26.5GHz	Aug-03-10	Aug-02-11	Wws20081596	±1dB
Trilog Broadband Antenne	SCHWARZBECK MESS-ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug-03-10	Aug-02-11		±1dB
Broad-band Horn Antenna	SCHWARZBECK MESS-ELEKTROM / BBHA 9120D(1201)	667	W2008003	1-18GHz	Aug-03-10	Aug-02-11		f＜10 GHz：±1dB 10GHz＜f＜18 GHz：±1.5dB
Broadband Preamplifier	SCHWARZBECK MESS-ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-03-10	Aug-02-11		±1.2dB
10m Coaxial Cable with N-male Connectors	SCHWARZBECK MESS-ELEKTROM / AK 9515 H	-	-	-	Aug-03-10	Aug-02-11		-
10m 50 Ohm Coaxial Cable with N-plug,individual length	SCHWARZBECK MESS-ELEKTROM / AK 9513				Aug-03-10	Aug-02-11		
Positioning Controller	C&C LAB/ CC-C-IF				N/A	N/A		
Color Monitor	SUNSPO/ SP-14C				N/A	N/A		
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-03-10	Aug-02-11	Wws20080942	±1dB
EMI Receiver	Beijingkehuan	KH3931		9k-1GHz	Aug-03-10	Aug-02-11		
Two-Line V-Network	ROHDE&SCHWARZ/ ENV216	100115	W2005002	50Ω/50μH	Aug-03-10	Aug-02-11	Wws20080941	±10%
Absorbing Clamp	ROHDE&SCHWARZ/ MDS-21	100205	W2005003	impandance50Ω loss：17 dB	Aug-03-10	Aug-02-11	Wws20080943	±1dB
10m 50	SCHWARZB				Aug-	Aug-		

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
Ohm Coaxial Cable with N-plug,individual length	ECK MESS-ELEKTROM / AK 9514				03-10	02-11		
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V07451 03095	W2008012	Power：2000VA Vol-range：0-300V Freq_range：10-80Hz	Aug-03-10	Aug-02-11	Wwd200 81185	Voltage distinguish:0.025% Power_freq distinguish:0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V07451 03096	W2008013	Vol-range：0-300V Power_freq：10-80Hz				
Electrostatic Discharge Simulator	Em Test AG/Switzerland/DITO	V07451 03094	W2008005	Contact discharge：500V-10KV Air diacharge：500V-16.5KV	Aug-03-10	Aug-02-11	Wwc200 82400	7.5A current will be changed in V_m=1.5V
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Fraq-range：9K-1GHz RF voltage：-60 dBm-+10dBm	Aug-03-10	Aug-02-11	Wws200 81890	Power_freq distinguish0.1Hz RFeletricity distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-03-10	Aug-02-11	Wwc200 82396	150K-80MHz：±1dB 80-230MHz:-2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range：0.15-1000 MHz	Aug-03-10	Aug-02-11	Wwc200 82397	0.3-400 MHz：±4dB Other freq：±5dB
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365			Aug-03-10	Aug-02-11	Wws200 81597	
All Modules Generator	SCHAFFNER/6150	34579	W2008006	voltage:200V-4.4KV Pulse current：100A-2.2KA	Aug-03-10	Aug-02-11	Wwc200 82401	voltage: ±10% Pulse current：±10%
Capacitive Coupling Clamp	SCHAFFNER/ CDN 8014	25311			Aug-03-10	Aug-02-11	Wwc200 82398	-

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
Signal and Data Line Coupling Network	SCHAFFNER/ CDN 117	25627	W2008011	1.2/50μS	Aug-03-10	Aug-02-11	Wwc20082399	-
AC Power Supply	TONGYUN/ DTDGC-4				Aug-03-10	Aug-02-11	Wws20080944	-
Exposure Level Tester ELT-400	Narda Safety TEST Solutions/2304/03	M-0155	w2008022	Test freq range：1—400kHz	Aug-03-10	Aug-02-11	Wwd20081191	Test uncertainly：1—120kHz:±1.83%, 120 kHz-400 kHz: ±4.06%
Magnetic Field Probe 100cm^2	Narda Safety TEST Solutions/2300/90.10	M-1070	w2008021	Test freq range：1—400kHz				Test uncertainly：1Hz-10Hz: ±16.2%, 10Hz - 120kHz:±2.2%, 120 kHz-400 kHz: ±4.7%
Active Loop Antenna 10kHz-30MHz	Beijing Dazhi / ZN30900A	-	-	10kHz-30MHz	Aug-03-10	Aug-02-11		±1dB

5 Conducted Emission Test

Test Requirement:	FCC Part15 Paragraph 15.207
Test Method:	Based on FCC Part15 Paragraph 15.207
Test Date:	Mar.12,2011
Frequency Range:	150kHz to 30MHz
Class:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

5.1 Test Equipment

Please refer to Section 5 this report.

5.2 Test Procedure

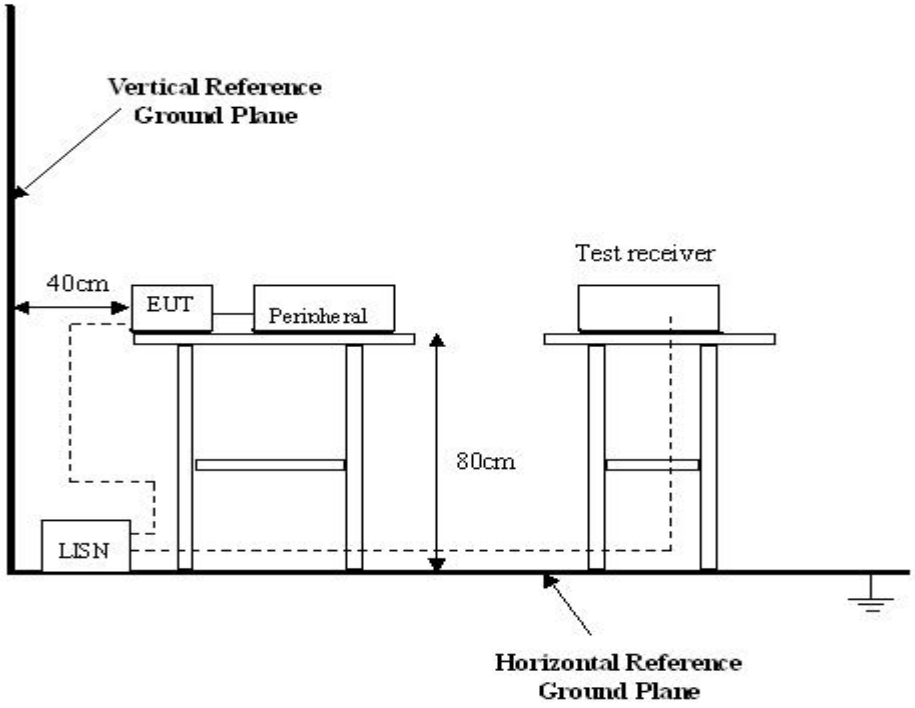
1. The EUT was connected to LISN and placed on a table.
2. The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.
3. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

5.3 Setting of the Receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

5.4 Conducted Test Setup

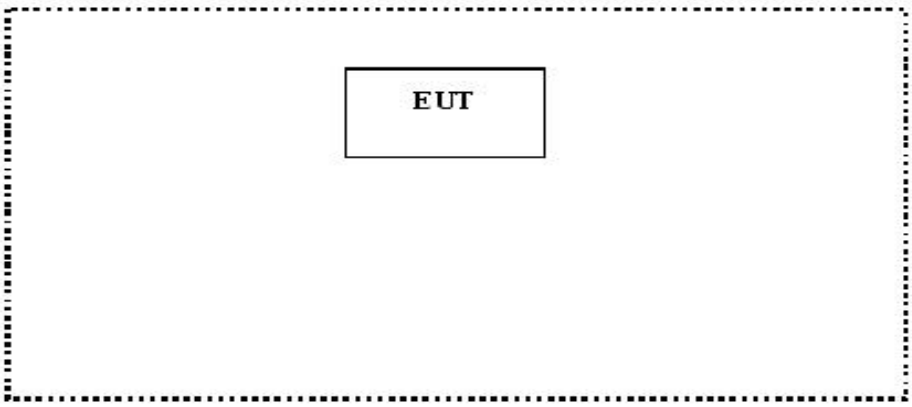
The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.207 limits.



5.5 EUT Operating Condition

Operating condition is according to ANSI C63.4:2003.

A. Setup the EUT and simulators as shown on follow.
B. Enable RF signal and confirm EUT active.
C. Modulate output capacity of EUT up to specification.



5.6 Conducted Emission Limits

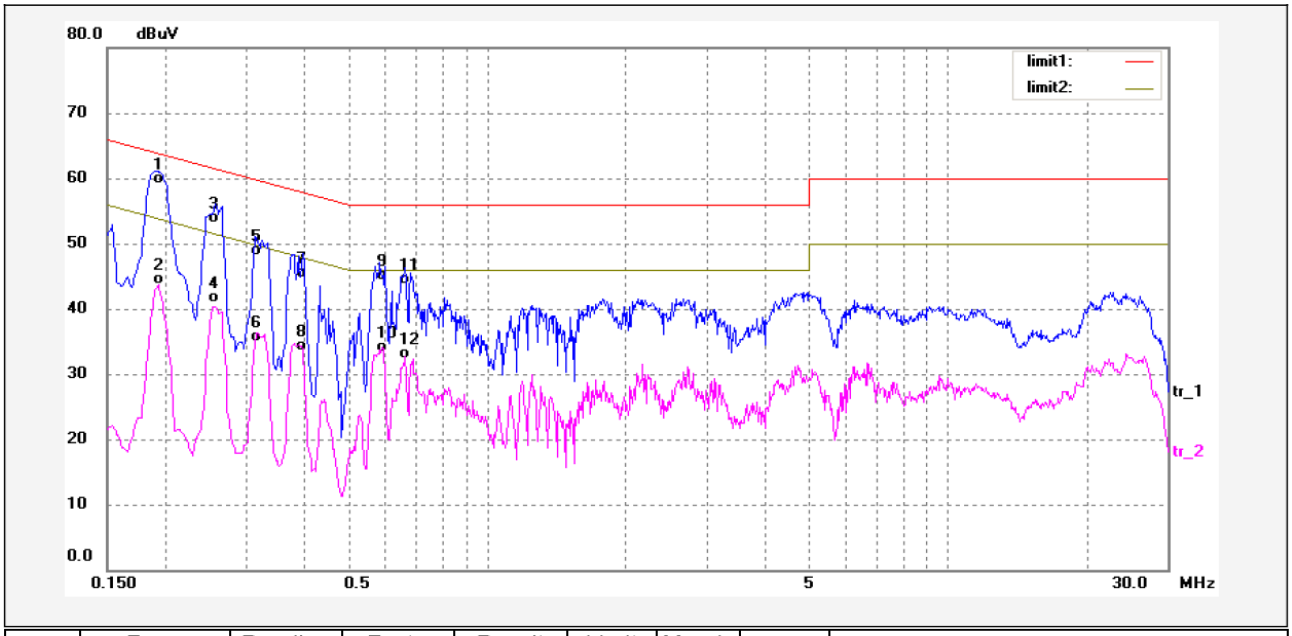
66-56 dBμV between 0.15MHz & 0.5MHz
56 dBμV between 0.5MHz & 5MHz
60 dBμV between 5MHz & 30MHz

Note: In the above limits, the tighter limit applies at the band edges.

5.7 Conducted Emission Test Data

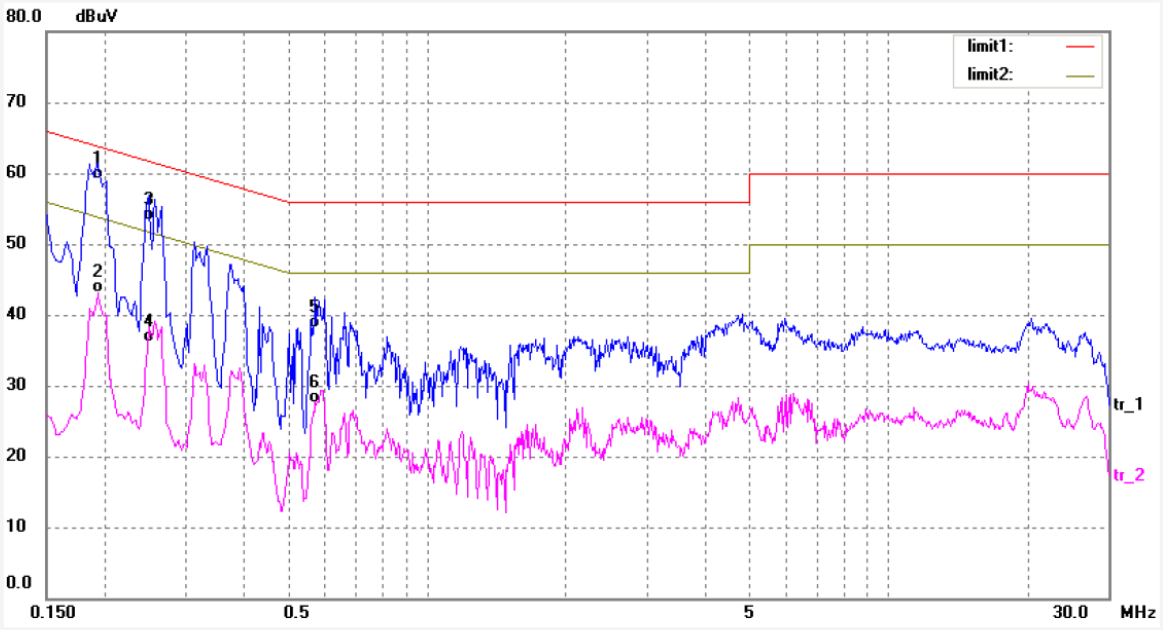
Remark: the EUT was tested in normal link mode.

Live Line



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1940	48.74	10.35	59.09	63.86	-4.77	QP	
2	0.1940	33.27	10.35	43.62	53.86	-10.24	AVG	
3	0.2580	42.82	10.35	53.17	61.49	-8.32	QP	
4	0.2580	30.53	10.35	40.88	51.49	-10.61	AVG	
5	0.3140	37.70	10.35	48.05	59.86	-11.81	QP	
6	0.3140	24.49	10.35	34.84	49.86	-15.02	AVG	
7	0.3980	34.26	10.35	44.61	57.89	-13.28	QP	
8	0.3980	23.09	10.35	33.44	47.89	-14.45	AVG	
9	0.5860	33.88	10.35	44.23	56.00	-11.77	QP	
10	0.5860	22.97	10.35	33.32	46.00	-12.68	AVG	
11	0.6660	33.40	10.36	43.76	56.00	-12.24	QP	
12	0.6660	21.91	10.36	32.27	46.00	-13.73	AVG	

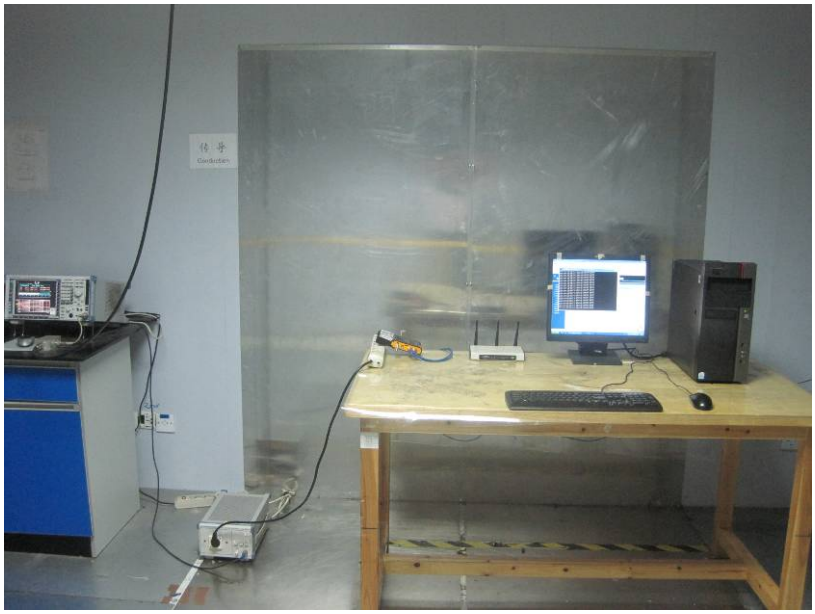
Neutral Line



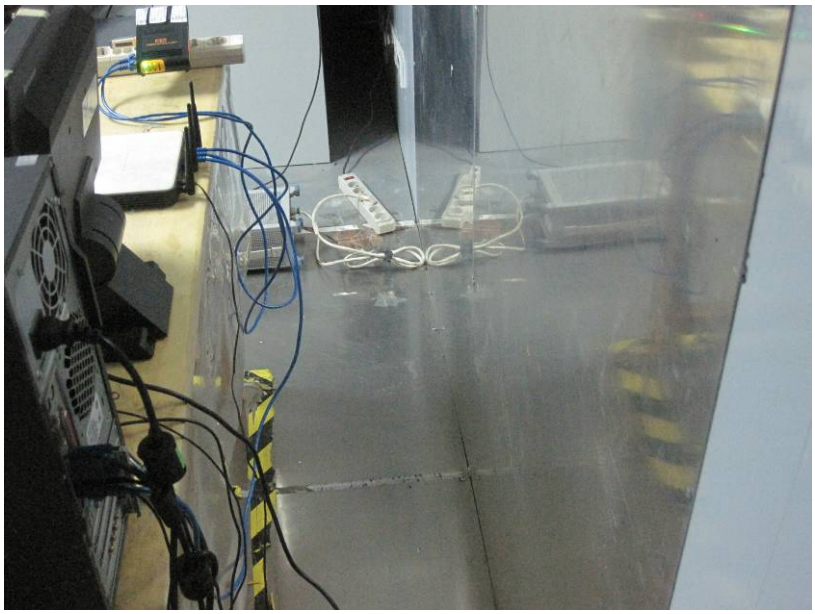
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1940	48.76	10.35	59.11	63.86	-4.75	QP	
2	0.1940	32.84	10.35	43.19	53.86	-10.67	AVG	
3	0.2500	42.90	10.35	53.25	61.75	-8.50	QP	
4	0.2500	25.69	10.35	36.04	51.75	-15.71	AVG	
5	0.5740	27.67	10.35	38.02	56.00	-17.98	QP	
6	0.5740	17.13	10.35	27.48	46.00	-18.52	AVG	

5.8 Conducted Emission Test Setup View

Front View



Back View



6 Radiation Emission Test

Test Requirement:	FCC Part15 Paragraph 15.247
Test Method:	Based on ANSI 63.4:2003
Test Date:	Mar.12,2011
Frequency Range:	30MHz to 25GHz
Measurement Distance:	3m
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

6.1 Test Equipment

Please refer to Section 5 this report.

6.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

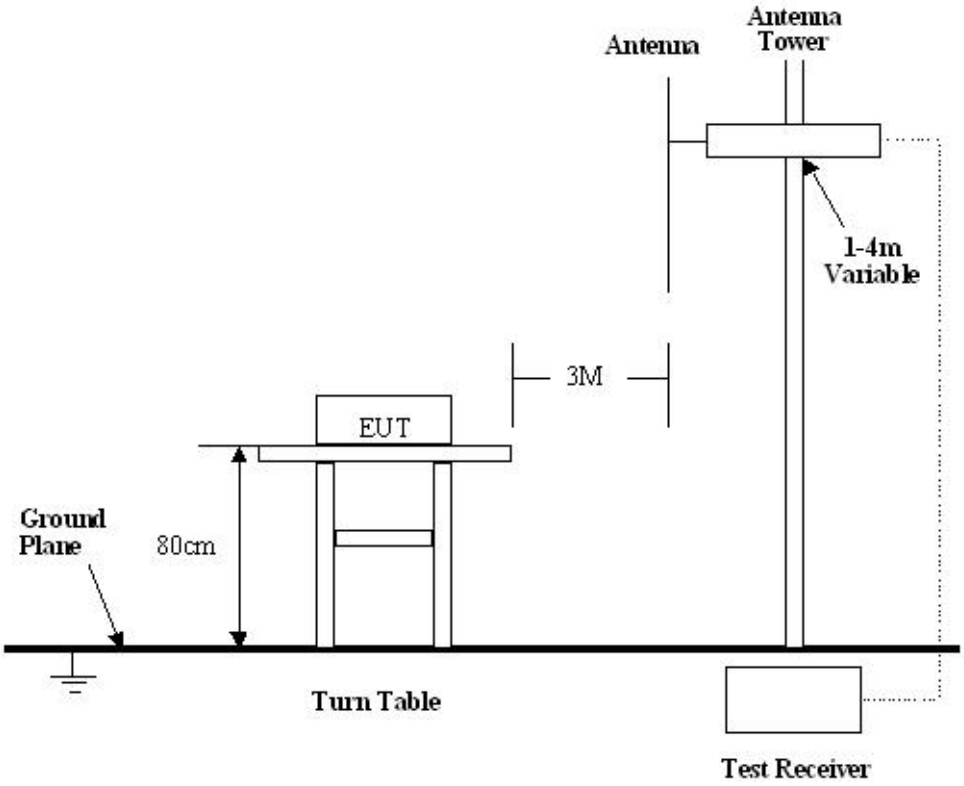
Based on ANSI C63.4:2003, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at WALTEK SERVICES EMC Lab is +/-5.03 dB.

6.3 Test Procedure

1. The EUT was used the ac 120V in the equipment under test for radiated emissions test.
2. The radiation emission should be tested under the X position.So the data shown was the X position only.
3. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.
4. All data was recorded in the peak and average detection mode.
5. The EUT was under working mode during the final qualification test and the configuration was used to represent the worst case results.

6.4 Radiated Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.209 limits and Paragraph 15.247 limits.



6.5 Spectrum Analyzer Setup

According to FCC Part15 Paragraph 15.247 Rules, the system was tested to 25000 MHz.
Below 1GHz

Start Frequency.....30 MHz
Stop Frequency .....1000 MHz
Sweep Speed Auto
IF Bandwidth.....120 kHz
Video Bandwidth 100KHz
Quasi-Peak Adapter Bandwidth .....120 kHz
Quasi-Peak Adapter Mode.....Normal
Resolution Bandwidth 100KHz

Above 1GHz

Start Frequency.....1000 MHz
Stop Frequency 25000MHz
Sweep Speed Auto
IF Bandwidth.....120 kHz
Video Bandwidth 1MHz
Quasi-Peak Adapter Bandwidth .....120 kHz
Quasi-Peak Adapter Mode.....Normal
Resolution Bandwidth 1MHz

6.6 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor – Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Class B Limit

6.7 Summary of Test Results

According to the data in section 7.11, the EUT complied with the FCC Part15 Paragraph 15.247 standards.

6.8 EUT Operating Condition

The same as section 6.4 of this report.

Let the EUT work in test mode and test it.

6.9 Radiated Emissions Limit on Paragraph 15.209

Frequency(MHZ)	Distance(m)	Field strength(dBuV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: (1) RF Voltage(dBuV)=20 log RF Voltage(uV)

(2) In the Above Table,the tighter limit applies at the band edges.

(3) Distance refers to the distance in meters between the measuring instrument antenna.

(4)The emission limit in this paragraph is based on measurement instrumentaion employing an average detector.Measurement using instrumentation with a peak detector function,corresponding to 20dB above the maximum permitted average limit.

(5)Above 1GHz, mark a Peak and average measurements for all emissions,Limit for peak is 74dBuV/m,According to Part15.35(b) and average is 54BuV/m.

6.10 Radiated Emissions Test Result

Formula of conversion factors:the field strength at 3m was egtablished by adding
The meter reading of the spectrum analyzer (which is set to read in units of dBuV/m)
To the antenna correction factor supplied by the antenna manufacturer. The antenna
Correction factors are stared in terms of dB.The gain of the pressletor was accounted
For in the spectrum analyser meter reading.

Example:

Freq(MHz)	Meter Reading +ACF=FS
33	20dBuV+10.36dB=30.36dBuV/m @3m

6.11 Radiated Emission Data

A. Test Item:	Radiated Emission Data
Test Voltage:	AC 120V
Test Mode:	CRX and CTX On
Temperature:	25.5 °C
Humidity:	51%RH
Test Result:	PASS

Remark:

The EUT was pretested in normal link to internet, USB read, eSATA, UART mode, OPTICAL OUT mode, SD card mode, wireless link mode and continuously transmit mode,and the worse case was continuously transmit mod.so the data show was the continuously transmit mod only.And the continuously transmit(CTX) mode and continuously receive(CRX) mode were controlled by the software.

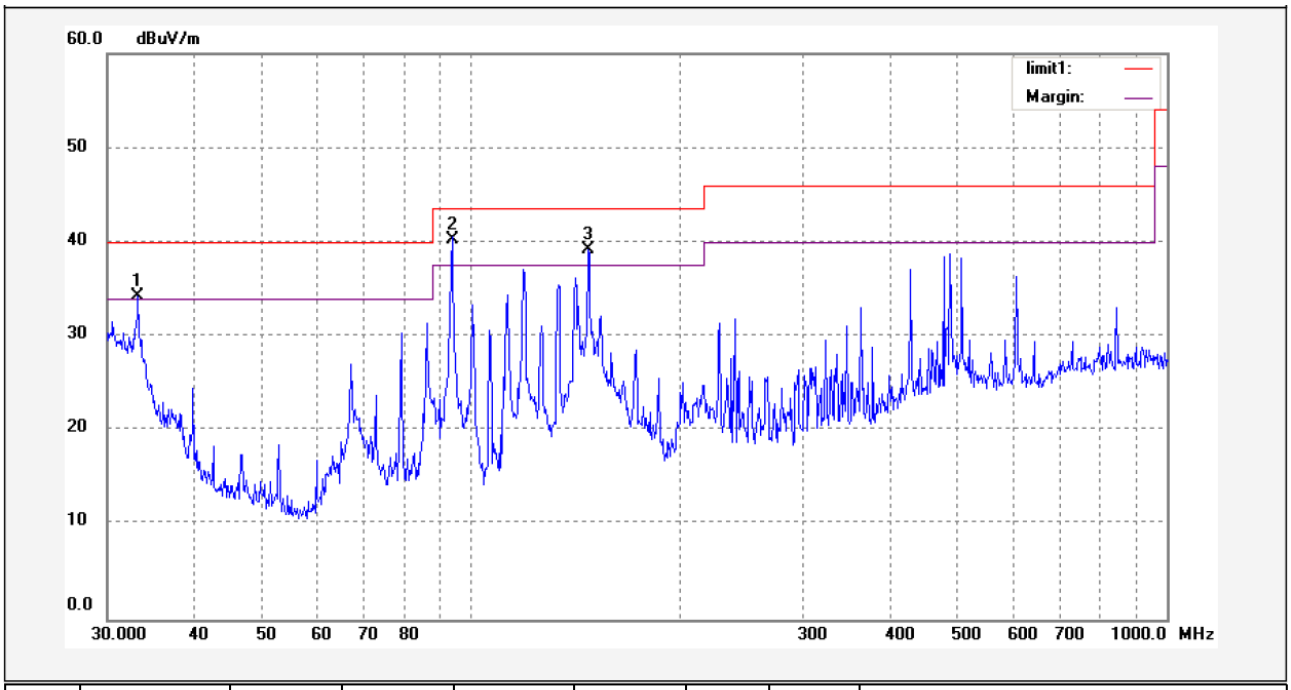
6.12 Modulation Technique :802.11B Mode

6.12.1 Test mode: continuously recevie mode.

Remark: the EUT was pretested at the high,middle and low channel, and the worse case was the low Channel,so the data show was the low channel only.

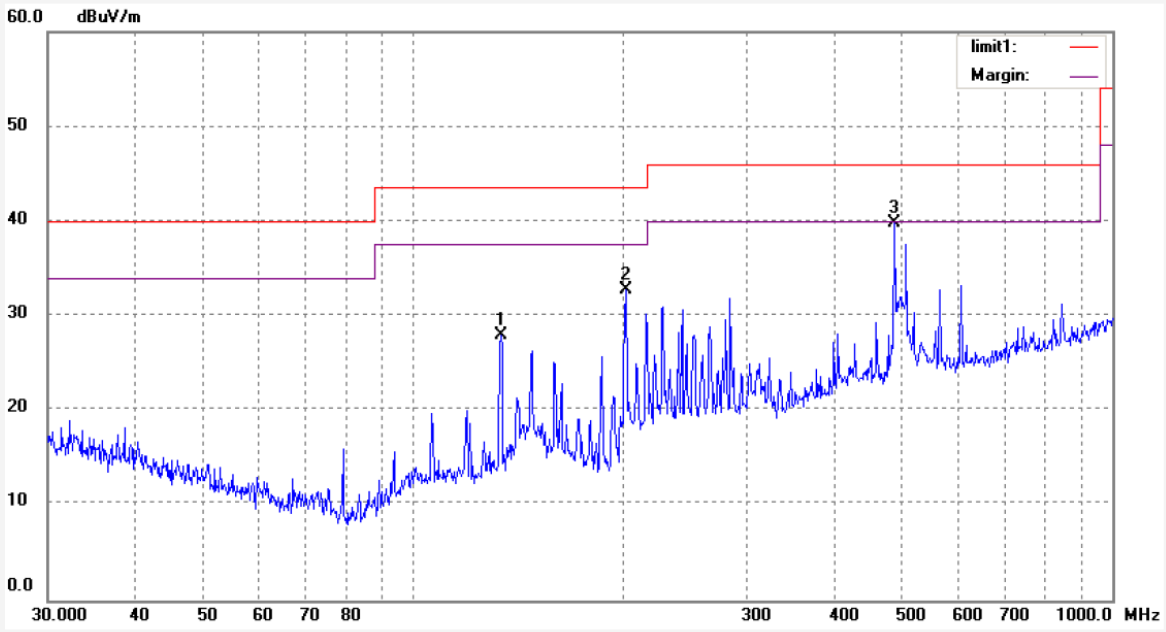
Test frequency : 30-1000MHz radiation test data:

Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	33.2180	17.48	16.82	34.30	40.00	-5.70	peak	
2	93.9829	28.82	11.50	40.32	43.50	-3.18	peak	
3	147.3560	25.44	13.80	39.24	43.50	-4.26	peak	

Horizontal

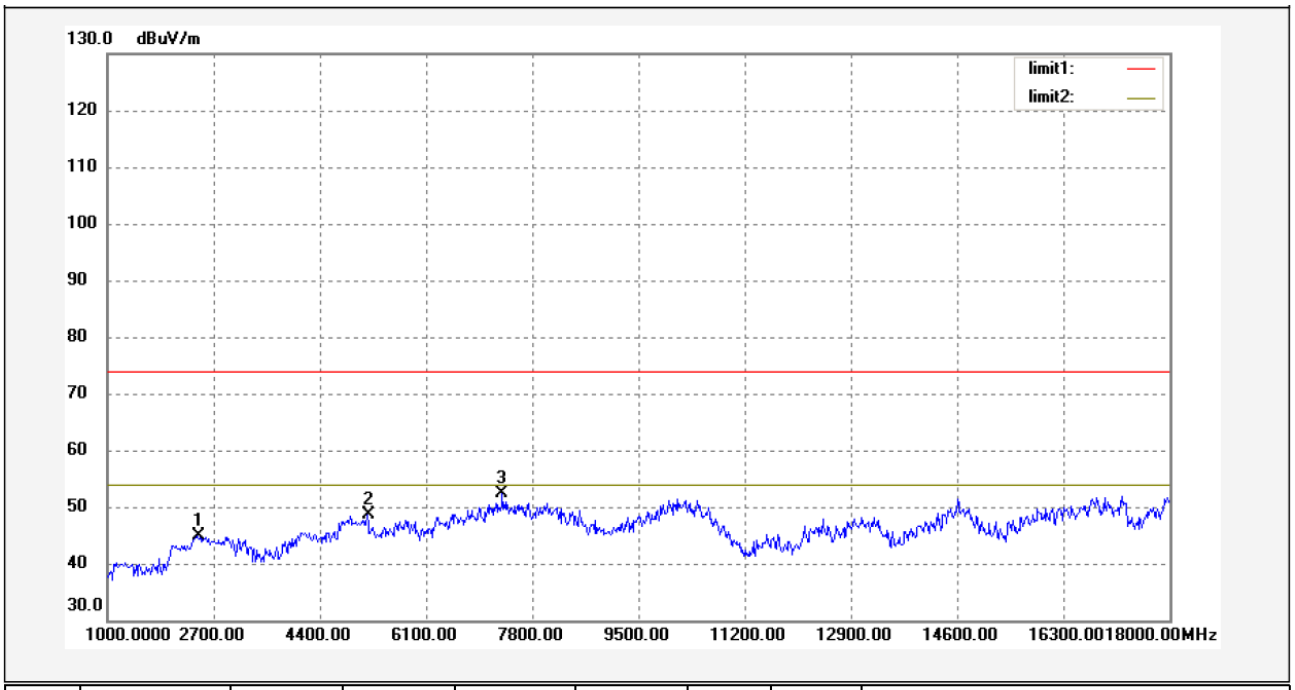


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	133.5491	15.10	12.93	28.03	43.50	-15.47	peak	
2	201.4539	17.57	15.18	32.75	43.50	-10.75	peak	
3	488.3263	17.42	22.43	39.85	46.00	-6.15	peak	

Test frequency: Above 1GHz radiation test data:

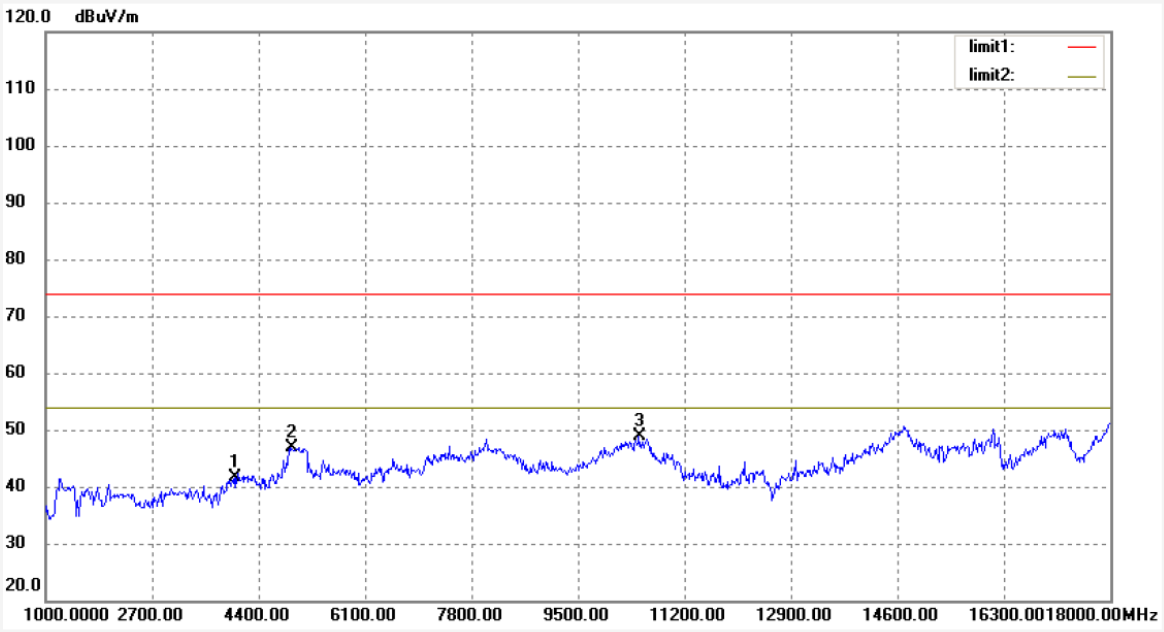
Remark: above 18GHz,the test signal below the noise level,so the data was not perfromed.

Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2447.896	45.08	-0.24	44.84	74.00	-29.16	peak	
2	5156.313	39.48	9.05	48.53	74.00	-25.47	peak	
3	7319.639	36.31	15.98	52.29	74.00	-21.71	peak	

Horizontal

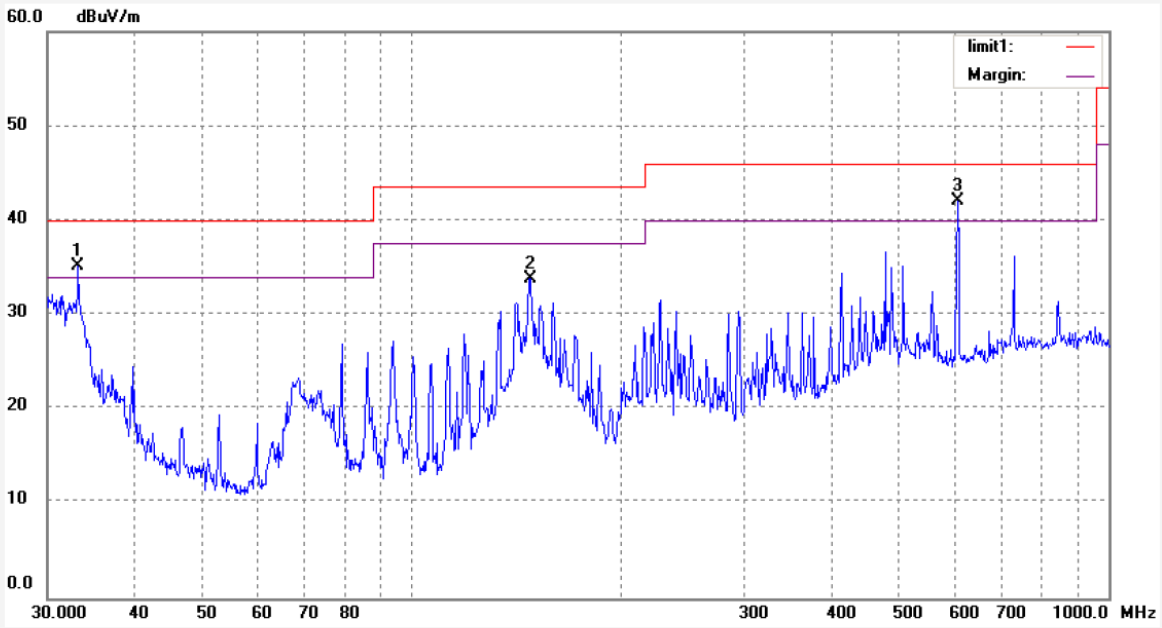


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	4032.064	39.01	2.57	41.58	74.00	-32.42	peak	
2	4917.836	41.99	4.96	46.95	74.00	-27.05	peak	
3	10470.942	30.34	18.42	48.76	74.00	-25.24	peak	

6.12.2 Test mode: continuously transmit mode.

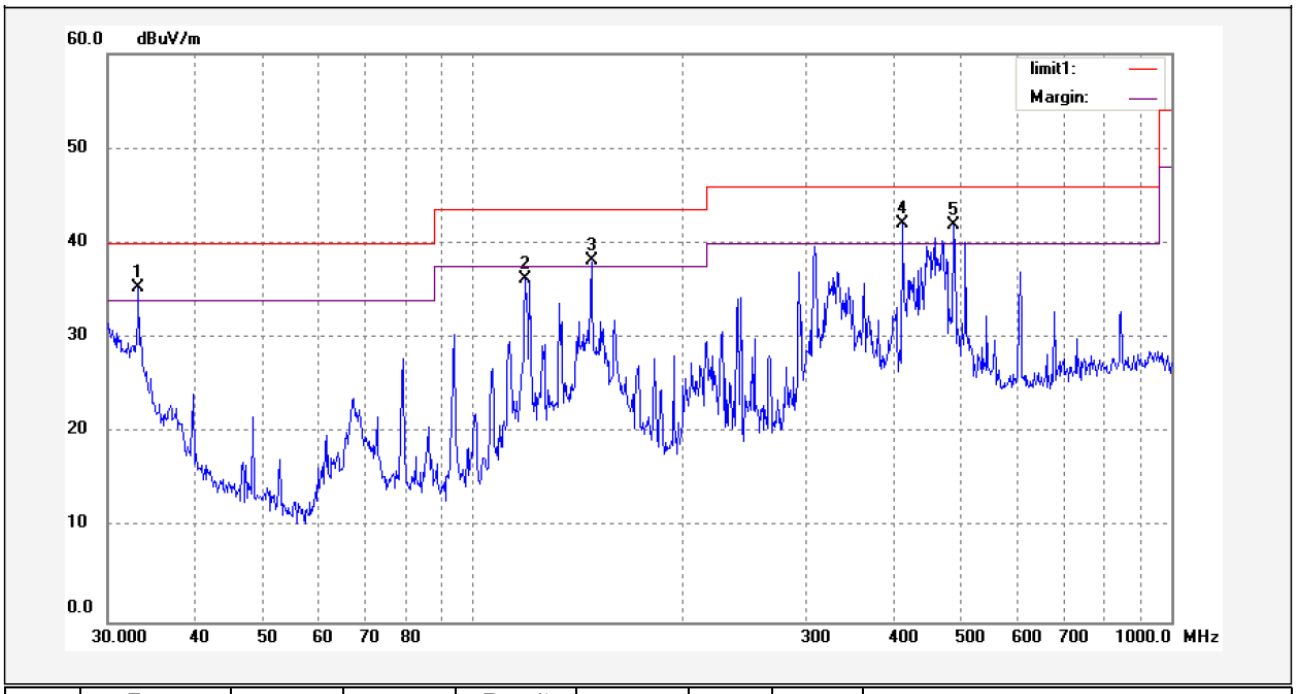
Test frequency : 30-1000MHz radiation test data:

Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	33.2180	18.30	16.82	35.12	40.00	-4.88	peak	
2	148.3951	19.87	13.90	33.77	43.50	-9.73	peak	
3	607.1806	17.74	24.37	42.11	46.00	-3.89	peak	

Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	33.2180	18.49	16.82	35.31	40.00	-4.69	peak	
2	118.9285	23.47	12.77	36.24	43.50	-7.26	peak	
3	147.8747	24.25	13.85	38.10	43.50	-5.40	peak	
4	412.5395	20.57	21.46	42.03	46.00	-3.97	peak	
5	488.3263	19.51	22.43	41.94	46.00	-4.06	peak	

Test frequency : Above 1000MHz radiation test data: Fundamental and Harmonic.

Frequency (MHz)	Detector	Antenna Polarization	Emission Level (dBuV/m)	FCC Part15 Subpart C Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Low frequency							
2412	AV	Vertical	96.43		(Fund.)	1.0	10
4824	AV	Vertical	44.82	54.00	9.18	1.1	50
7236	AV	Vertical	43.66	54.00	10.34	1.0	60
9648	AV	Vertical	42.65	54.00	11.35	1.1	60
12060	AV	Vertical	40.95	54.00	13.05	1.1	90
14472	AV	Vertical	40.69	54.00	13.31	1.0	120
16884	AV	Vertical	40.74	54.00	13.26	1.0	20
19296	AV	Vertical	39.44	54.00	14.56	1.1	10
21708	AV	Vertical	39.23	54.00	14.77	1.0	120
24120	AV	Vertical	38.89	54.00	15.11	1.0	15
2412	AV	Horizontal	93.66		(Fund.)	1.1	50
4824	AV	Horizontal	47.44	54.00	6.56	1.0	40
7236	AV	Horizontal	41.22	54.00	12.78	1.0	20
9648	AV	Horizontal	39.88	54.00	14.12	1.1	110
12060	AV	Horizontal	39.65	54.00	14.35	1.1	40
14472	AV	Horizonta	38.47	54.00	15.53	1.0	20
16884	AV	Horizontal	36.71	54.00	17.29	1.2	210
19296	AV	Horizontal	34.75	54.00	19.25	1.1	15
21708	AV	Horizontal	34.58	54.00	19.42	1.1	10
24120	AV	Horizontal	33.63	54.00	20.37	1.0	10
2412	PK	Vertical	99.75		(Fund.)	1.0	10
4824	PK	Vertical	54.43	74.00	19.57	1.0	230
7236	PK	Vertical	52.12	74.00	21.88	1.0	110
9648	PK	Vertical	49.25	74.00	24.75	1.1	100
12060	PK	Vertical	48.23	74.00	25.77	1.1	80
14472	PK	Vertical	47.78	74.00	26.22	1.1	60
16884	PK	Vertical	46.33	74.00	27.67	1.1	80
19296	PK	Vertical	46.30	74.00	27.70	1.1	70
21708	PK	Vertical	45.63	74.00	28.37	1.0	90

24120	PK	Vertical	42.12	74.00	31.88	1.1	135
2412	PK	Horizontal	112.36		(Fund.)	1.1	10
4824	PK	Horizontal	62.96	74.00	11.04	1.1	60
7236	PK	Horizontal	53.63	74.00	20.37	1.1	10
9648	PK	Horizontal	45.64	74.00	28.36	1.0	10
12060	PK	Horizontal	44.84	74.00	29.16	1.2	10
14472	PK	Horizontal	44.76	74.00	29.24	1.1	90
16884	PK	Horizontal	44.69	74.00	29.31	1.1	120
19296	PK	Horizontal	44.26	74.00	29.74	1.1	110
21708	PK	Horizontal	42.37	74.00	31.63	1.2	150
24120	PK	Horizontal	40.15	74.00	33.85	1.1	120
Middle frequency							
2442	AV	Vertical	96.85		(Fund.)	1.1	25
4884	AV	Vertical	46.99	54.00	7.01	1.1	10
7326	AV	Vertical	42.33	54.00	11.67	1.0	60
9768	AV	Vertical	39.66	54.00	14.34	1.1	10
12210	AV	Vertical	37.85	54.00	16.15	1.2	20
14652	AV	Vertical	36.66	54.00	17.34	1.1	100
17094	AV	Vertical	35.98	54.00	18.02	1.1	80
19536	AV	Vertical	35.32	54.00	18.68	1.1	10
21978	AV	Vertical	33.43	54.00	20.57	1.1	10
24420	AV	Vertical	31.66	54.00	22.34	1.2	90
2442	AV	Horizontal	93.26		(Fund.)	1.1	20
4884	AV	Horizontal	47.21	54.00	6.79	1.0	90
7326	AV	Horizontal	41.21	54.00	12.79	1.1	120
9768	AV	Horizontal	38.99	54.00	15.01	1.1	110
12210	AV	Horizontal	35.36	54.00	18.64	1.1	50
14652	AV	Horizontal	30.25	54.00	23.75	1.1	10
17094	AV	Horizontal	29.25	54.00	24.75	1.1	120
19536	AV	Horizontal	29.23	54.00	24.77	1.1	90
21978	AV	Horizontal	29.21	54.00	24.79	1.2	10
24420	AV	Horizontal	28.95	54.00	25.05	1.1	120
2442	PK	Vertical	101.12		(Fund.)	1.1	110
4884	PK	Vertical	55.36	74.00	18.64	1.1	80
7326	PK	Vertical	43.69	74.00	30.31	1.0	100

9768	PK	Vertical	40.35	74.00	33.65	1.1	120
12210	PK	Vertical	37.87	74.00	36.13	1.1	180
14652	PK	Vertical	36.10	74.00	38.90	1.0	110
17094	PK	Vertical	32.03	74.00	41.97	1.1	100
19536	PK	Vertical	30.21	74.00	43.79	1.0	120
21978	PK	Vertical	29.65	74.00	44.35	1.1	100
24420	PK	Vertical	28.25	74.00	45.75	1.1	120
2442	PK	Horizontal	99.36		(Fund.)	1.0	110
4884	PK	Horizontal	52.36	74.00	21.64	1.0	135
7326	PK	Horizontal	45.63	74.00	28.37	1.1	90
9768	PK	Horizontal	40.14	74.00	33.86	1.1	60
12210	PK	Horizontal	39.36	74.00	34.64	1.0	10
14652	PK	Horizontal	37.44	74.00	36.56	1.2	150
17094	PK	Horizontal	34.21	74.00	39.79	1.1	10
19536	PK	Horizontal	38.86	74.00	35.14	1.0	50
21978	PK	Horizontal	35.96	74.00	38.04	1.1	60
24420	PK	Horizontal	34.16	74.00	49.84	1.0	60
High frequency							
2462	AV	Vertical	99.09		(Fund.)	1.1	90
4924	AV	Vertical	43.34	54.00	10.66	1.1	40
7386	AV	Vertical	43.02	54.00	10.98	1.1	50
9848	AV	Vertical	38.69	54.00	15.31	1.0	40
12310	AV	Vertical	33.65	54.00	20.35	1.1	50
14772	AV	Vertical	32.26	54.00	21.74	1.0	60
17234	AV	Vertical	30.62	54.00	23.38	1.1	70
19696	AV	Vertical	30.13	54.00	23.87	1.1	80
22158	AV	Vertical	30.02	54.00	23.98	1.0	50
24620	AV	Vertical	29.25	54.00	24.75	1.1	120
2462	AV	Horizontal	92.86		(Fund.)	1.0	10
4924	AV	Horizontal	43.69	54.00	10.31	1.1	20
7386	AV	Horizontal	41.58	54.00	12.42	1.0	50
9848	AV	Horizontal	39.65	54.00	14.35	1.1	20
12310	AV	Horizontal	37.85	54.00	16.15	1.1	80
14772	AV	Horizontal	35.69	54.00	18.31	1.2	120
17234	AV	Horizontal	32.87	54.00	21.13	1.1	20

19696	AV	Horizontal	32.55	54.00	21.45	1.2	10
22158	AV	Horizontal	32.25	54.00	21.75	1.1	50
24620	AV	Horizontal	30.25	54.00	23.75	1.0	90
2462	PK	Vertical	102.59		(Fund.)	1.0	60
4924	PK	Vertical	54.79	74.00	19.21	1.1	40
7386	PK	Vertical	45.66	74.00	28.34	1.1	120
9848	PK	Vertical	43.21	74.00	31.79	1.1	60
12310	PK	Vertical	38.65	74.00	35.35	1.1	45
14772	PK	Vertical	36.87	74.00	37.13	1.1	90
17234	PK	Vertical	35.26	74.00	38.74	1.0	50
19696	PK	Vertical	34.98	74.00	39.02	1.1	80
22158	PK	Vertical	34.73	74.00	39.27	1.0	90
24620	PK	Vertical	32.36	74.00	41.64	1.1	90
2462	PK	Horizontal	98.69		(Fund.)	1.0	150
4924	PK	Horizontal	51.36	74.00	22.64	1.0	50
7386	PK	Horizontal	45.36	74.00	28.64	1.0	60
9848	PK	Horizontal	43.52	74.00	30.48	1.1	50
12310	PK	Horizontal	38.69	74.00	35.31	1.1	10
14772	PK	Horizontal	37.26	74.00	36.74	1.0	50
17234	PK	Horizontal	36.41	74.00	37.59	1.1	50
19696	PK	Horizontal	34.65	74.00	39.35	1.0	50
22158	PK	Horizontal	32.58	74.00	41.42	1.1	15
24620	PK	Horizontal	31.65	74.00	42.35	1.0	50

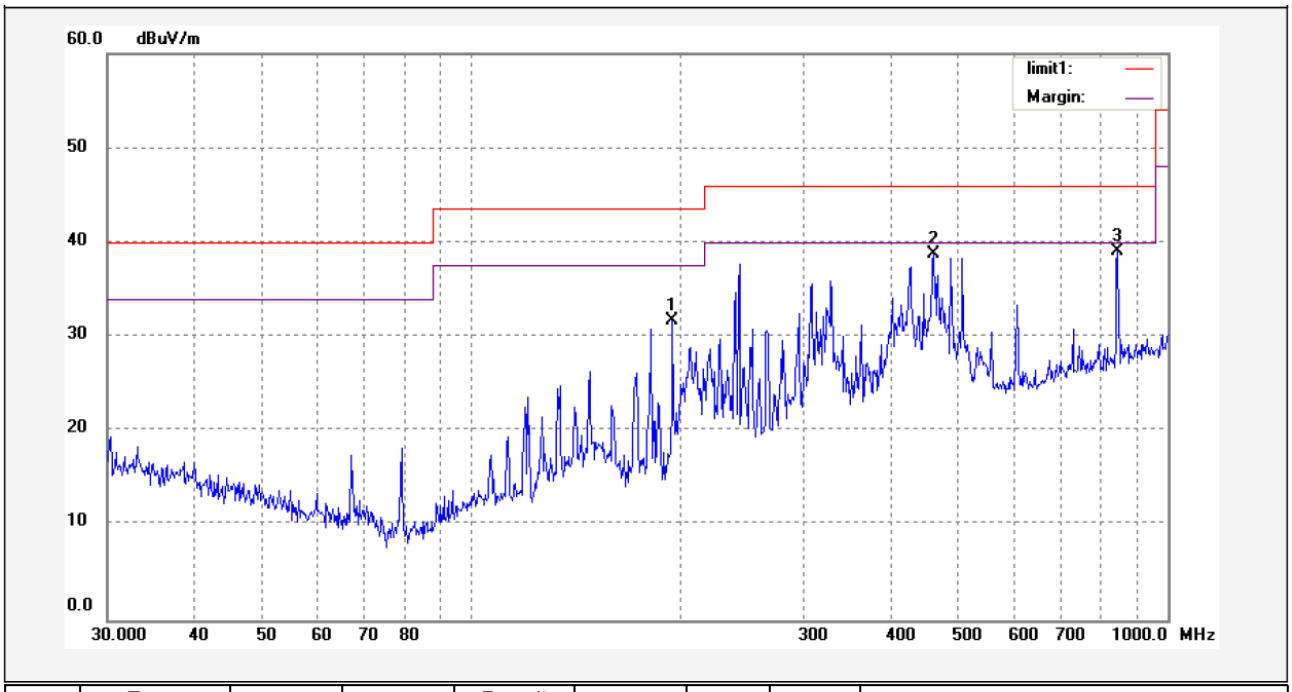
6.13 Modulation Technique :802.11G Mode

6.13.1 Test mode: continuously recevie mode.

Remark: the EUT was pretested at the high,middle and low channel, and the worse case was the low Channel,so the data show was the low channel only.

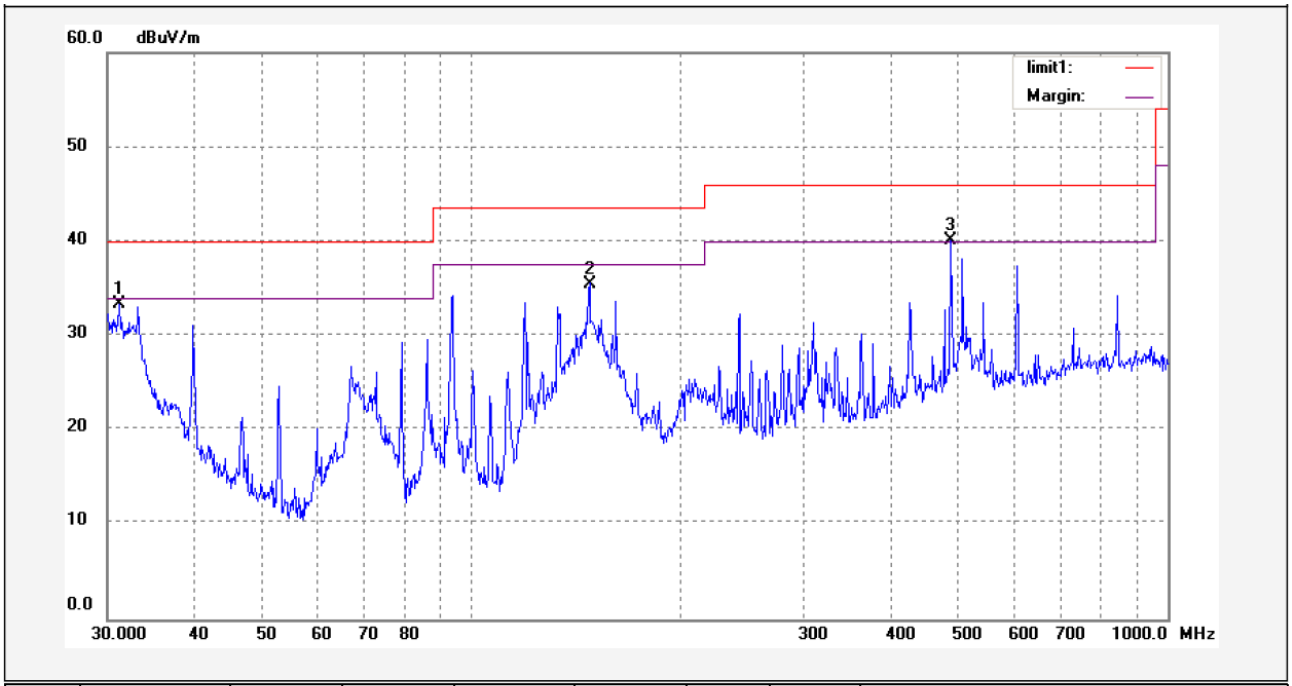
Test frequency : 30-1000MHz radiation test data:

Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	194.4985	18.39	13.35	31.74	43.50	-11.76	peak	
2	461.6313	16.90	21.83	38.73	46.00	-7.27	peak	
3	847.7763	12.84	26.21	39.05	46.00	-6.95	peak	

Horizontal

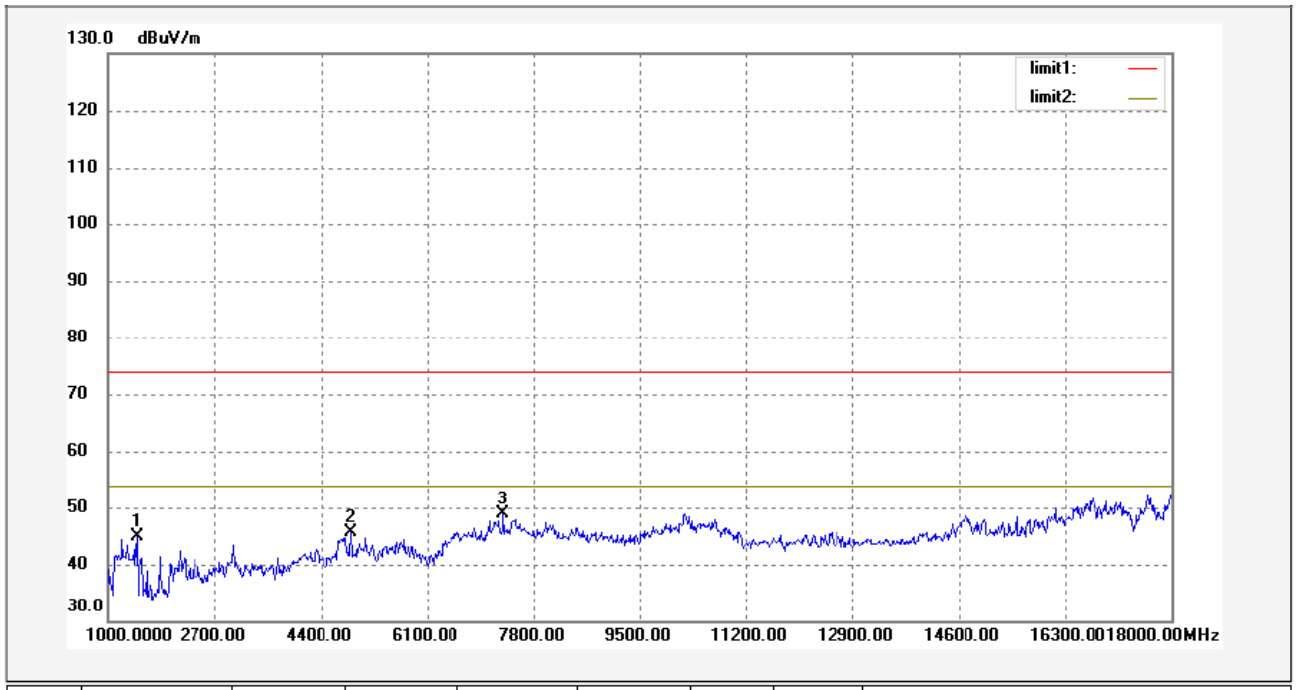


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	31.1822	16.14	17.19	33.33	40.00	-6.67	peak	
2	147.8747	21.70	13.85	35.55	43.50	-7.95	peak	
3	488.3263	17.66	22.43	40.09	46.00	-5.91	peak	

Test frequency: Above 1GHz radiation test data:

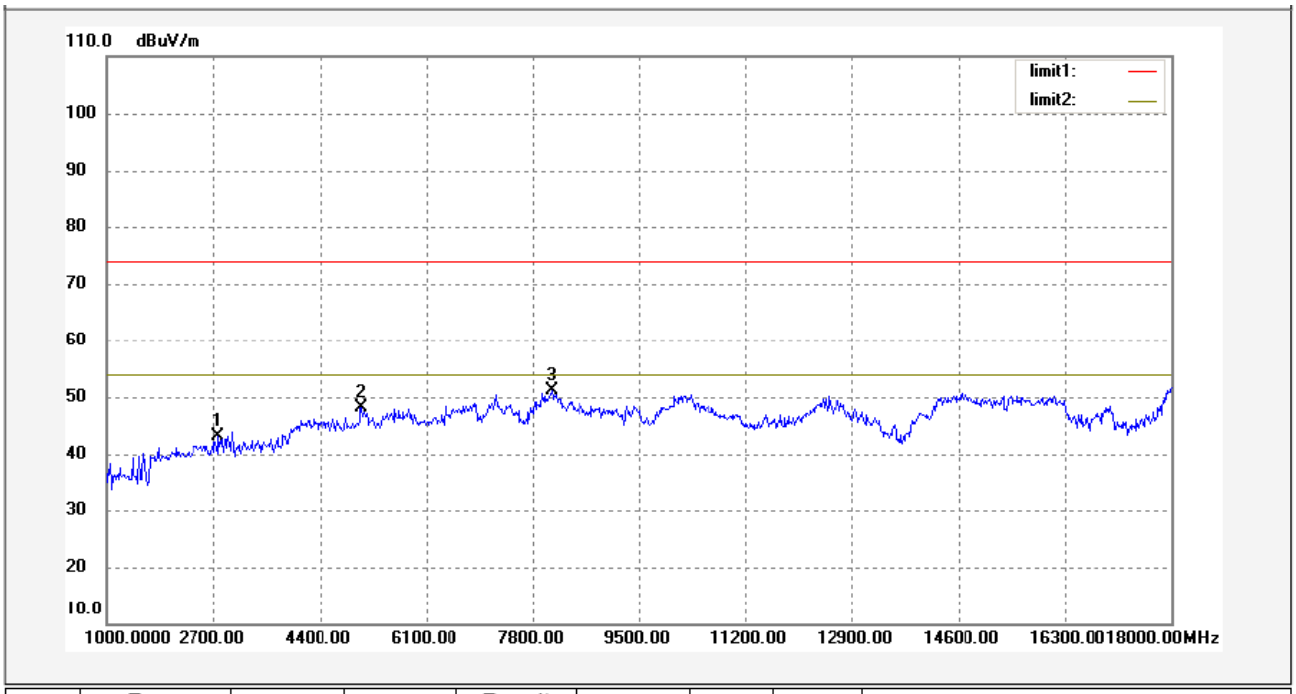
Remark: above 18GHz,the test signal below the noise level,so the data was not perfromed.

Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1459.919	49.86	-5.05	44.81	74.00	-29.19	peak	
2	4883.767	40.67	4.86	45.53	74.00	-28.47	peak	
3	7319.639	36.30	12.56	48.86	74.00	-25.14	peak	

Horizontal

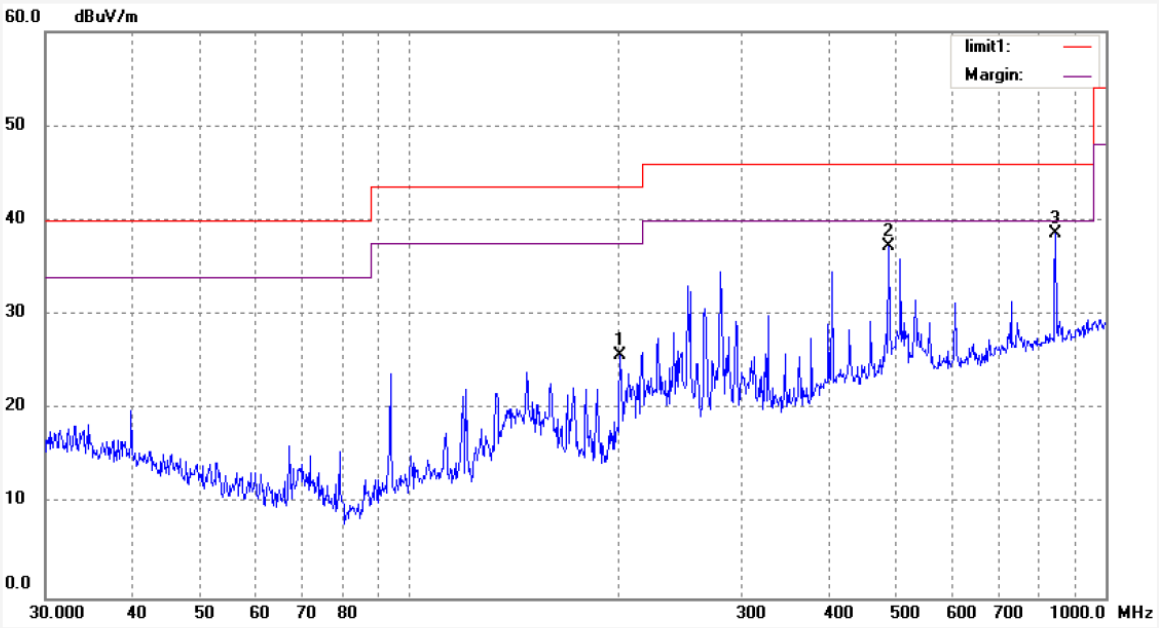


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2788.577	41.66	1.36	43.02	74.00	-30.98	peak	
2	5071.142	39.08	9.02	48.10	74.00	-25.90	peak	
3	8103.206	32.98	18.14	51.12	74.00	-22.88	peak	

6.13.2 Test mode: continuously transmit mode.

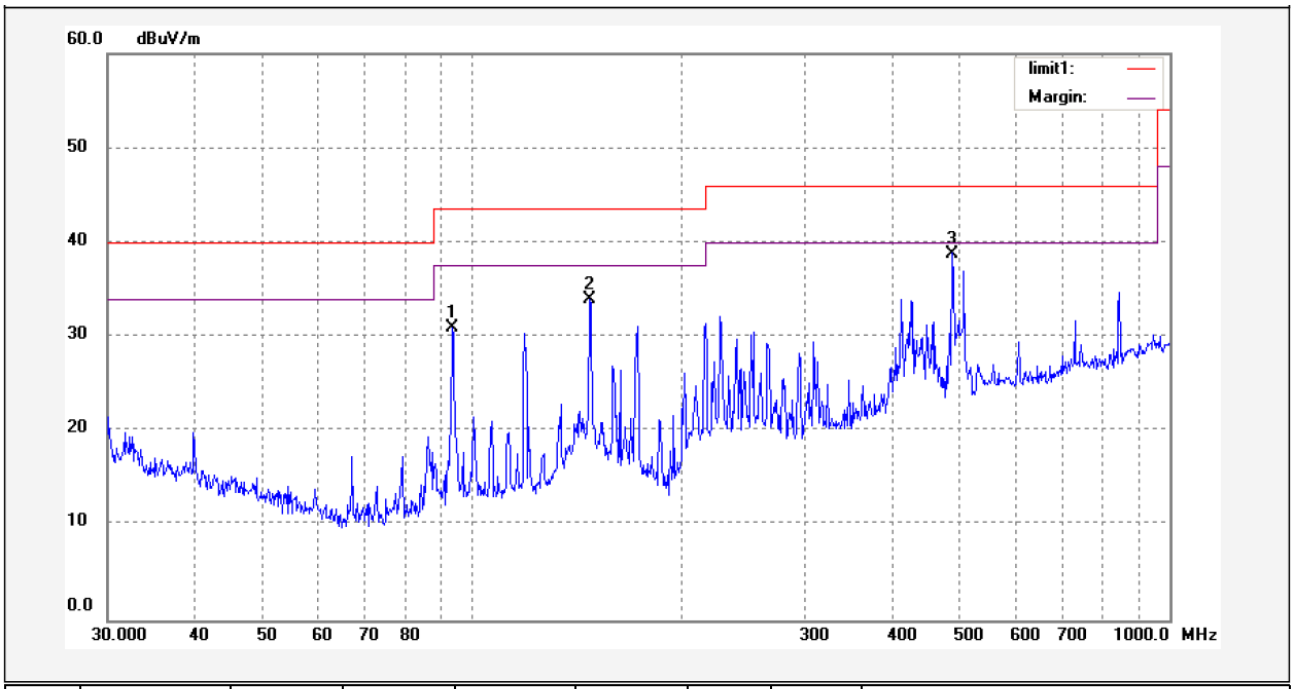
Test frequency : 30-1000MHz radiation test data:

Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	200.7473	10.79	14.89	25.68	43.50	-17.82	peak	
2	488.3263	14.91	22.43	37.34	46.00	-8.66	peak	
3	847.7763	12.36	26.21	38.57	46.00	-7.43	peak	

Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	93.6532	19.51	11.45	30.96	43.50	-12.54	peak	
2	147.3560	20.20	13.80	34.00	43.50	-9.50	peak	
3	488.3263	16.42	22.43	38.85	46.00	-7.15	peak	

Test frequency : Above 1000MHz radiation test data: Fundamental and Harmonic.

Frequency (MHz)	Detector	Antenna Polarization	Emission Level (dBuV/m)	FCC Part15 Subpart C Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Low frequency							
2412	AV	Vertical	87.40		(Fund.)	1.0	120
4824	AV	Vertical	42.55	54.00	11.45	1.2	10
7236	AV	Vertical	41.48	54.00	12.52	1.2	135
9648	AV	Vertical	40.04	54.00	13.96	1.0	120
12060	AV	Vertical	39.75	54.00	14.25	1.1	110
14472	AV	Vertical	38.74	54.00	15.26	1.0	100
16884	AV	Vertical	38.68	54.00	15.32	1.0	110
19296	AV	Vertical	38.42	54.00	15.58	1.2	30
21708	AV	Vertical	37.44	54.00	16.55	1.2	110
24120	AV	Vertical	37.37	54.00	16.63	1.0	100
2412	AV	Horizontal	86.66		(Fund.)	1.0	90
4824	AV	Horizontal	41.02	54.00	12.98	1.0	60
7236	AV	Horizontal	40.36	54.00	13.64	1.1	100
9648	AV	Horizontal	38.58	54.00	15.42	1.2	110
12060	AV	Horizontal	33.42	54.00	20.58	1.0	135
14472	AV	Horizonta	32.42	54.00	21.58	1.1	120
16884	AV	Horizontal	31.99	54.00	22.01	1.0	110
19296	AV	Horizontal	32.09	54.00	21.91	1.1	60
21708	AV	Horizontal	31.27	54.00	22.73	1.0	100
24120	AV	Horizontal	32.47	54.00	21.53	1.0	100
2412	PK	Vertical	101.78		(Fund.)	1.0	110
4824	PK	Vertical	55.13	74.00	18.87	1.0	30
7236	PK	Vertical	52.63	74.00	21.37	1.1	110
9648	PK	Vertical	50.32	74.00	23.68	1.0	100
12060	PK	Vertical	49.32	74.00	24.68	1.1	90
14472	PK	Vertical	47.87	74.00	26.13	1.0	60
16884	PK	Vertical	48.63	74.00	25.37	1.1	100
19296	PK	Vertical	45.36	74.00	28.64	1.0	110
21708	PK	Vertical	46.34	74.00	27.66	1.2	30

24120	PK	Vertical	42.87	74.00	31.13	1.0	110
2412	PK	Horizontal	98.63		(Fund.)	1.0	100
4824	PK	Horizontal	52.69	74.00	21.31	1.0	90
7236	PK	Horizontal	52.52	74.00	21.48	1.0	110
9648	PK	Horizontal	46.89	74.00	27.11	1.0	110
12060	PK	Horizontal	42.78	74.00	31.22	1.2	10
14472	PK	Horizontal	41.36	74.00	32.64	1.0	90
16884	PK	Horizontal	41.32	74.00	32.68	1.0	120
19296	PK	Horizontal	41.03	74.00	32.97	1.0	110
21708	PK	Horizontal	41.00	74.00	34.00	1.2	250
24120	PK	Horizontal	36.95	74.00	37.05	1.0	20
Middle frequency							
2442	AV	Vertical	88.69		(Fund.)	1.1	100
4884	AV	Vertical	43.86	54.00	10.14	1.2	110
7326	AV	Vertical	43.58	54.00	10.42	1.0	30
9768	AV	Vertical	42.36	54.00	11.64	1.0	110
12210	AV	Vertical	39.42	54.00	14.58	1.2	100
14652	AV	Vertical	40.00	54.00	14.00	1.2	90
17094	AV	Vertical	39.40	54.00	14.60	1.0	60
19536	AV	Vertical	37.44	54.00	16.56	1.0	100
21978	AV	Vertical	36.04	54.00	17.96	1.0	110
24420	AV	Vertical	35.66	54.00	18.34	1.2	30
2442	AV	Horizontal	86.96		(Fund.)	1.0	110
4884	AV	Horizontal	42.54	54.00	11.36	1.0	10
7326	AV	Horizontal	42.38	54.00	11.62	1.0	45
9768	AV	Horizontal	38.69	54.00	15.31	1.2	90
12210	AV	Horizontal	36.58	54.00	17.42	1.1	60
14652	AV	Horizontal	34.75	54.00	19.25	1.1	100
17094	AV	Horizontal	35.75	54.00	18.25	1.1	110
19536	AV	Horizontal	35.32	54.00	18.68	1.2	30
21978	AV	Horizontal	33.43	54.00	20.57	1.2	110
24420	AV	Horizontal	33.36	54.00	20.64	1.1	10
2442	PK	Vertical	101.26		(Fund.)	1.0	50
4884	PK	Vertical	53.69	74.00	20.31	1.1	90
7326	PK	Vertical	51.00	74.00	23.00	1.0	60

9768	PK	Vertical	49.12	74.00	24.88	1.1	100
12210	PK	Vertical	48.36	74.00	25.64	1.0	110
14652	PK	Vertical	47.69	74.00	26.31	1.2	30
17094	PK	Vertical	48.34	74.00	25.66	1.1	110
19536	PK	Vertical	46.38	74.00	27.62	1.1	10
21978	PK	Vertical	46.98	74.00	27.02	1.1	90
24420	PK	Vertical	45.23	74.00	28.74	1.2	60
2442	PK	Horizontal	98.96		(Fund.)	1.0	100
4884	PK	Horizontal	51.23	74.00	22.77	1.1	45
7326	PK	Horizontal	48.87	74.00	25.13	1.1	90
9768	PK	Horizontal	45.64	74.00	28.36	1.1	10
12210	PK	Horizontal	44.84	74.00	29.16	1.1	145
14652	PK	Horizontal	44.89	74.00	29.11	1.2	190
17094	PK	Horizontal	44.69	74.00	29.31	1.1	160
19536	PK	Horizontal	44.26	74.00	29.74	1.0	100
21978	PK	Horizontal	42.37	74.00	31.63	1.1	100
24420	PK	Horizontal	39.87	74.00	34.13	1.1	50
High frequency							
2462	AV	Vertical	88.72		(Fund.)	1.1	100
4924	AV	Vertical	42.30	54.00	11.70	1.0	60
7386	AV	Vertical	42.22	54.00	11.78	1.2	120
9848	AV	Vertical	42.00	54.00	12.00	1.0	120
12310	AV	Vertical	40.95	54.00	13.05	1.1	10
14772	AV	Vertical	40.69	54.00	13.31	1.1	45
17234	AV	Vertical	40.74	54.00	13.26	1.1	90
19696	AV	Vertical	39.04	54.00	14.96	1.1	10
22158	AV	Vertical	39.65	54.00	14.35	1.1	45
24620	AV	Vertical	35.89	54.00	18.11	1.1	90
2462	AV	Horizontal	86.96		(Fund.)	1.0	60
4924	AV	Horizontal	42.66	54.00	11.34	1.2	10
7386	AV	Horizontal	42.36	54.00	11.64	1.2	10
9848	AV	Horizontal	40.33	54.00	13.67	1.0	100
12310	AV	Horizontal	40.85	54.00	13.15	1.1	160
14772	AV	Horizontal	38.91	54.00	15.09	1.2	10
17234	AV	Horizontal	36.71	54.00	17.29	1.0	45

19696	AV	Horizontal	34.75	54.00	19.25	1.0	90
22158	AV	Horizontal	34.32	54.00	19.68	1.1	160
24620	AV	Horizontal	33.33	54.00	20.67	1.0	10
2462	PK	Vertical	105.36		(Fund.)	1.0	10
4924	PK	Vertical	54.27	74.00	19.73	1.1	45
7386	PK	Vertical	50.14	74.00	23.86	1.0	90
9848	PK	Vertical	50.34	74.00	23.66	1.0	60
12310	PK	Vertical	49.89	74.00	24.11	1.1	10
14772	PK	Vertical	49.63	74.00	24.37	1.2	110
17234	PK	Vertical	49.68	74.00	24.32	1.2	45
19696	PK	Vertical	47.98	74.00	26.02	1.2	120
22158	PK	Vertical	47.68	74.00	26.32	1.1	10
24620	PK	Vertical	47.36	74.00	26.64	1.4	45
2462	PK	Horizontal	101.25		(Fund.)	1.1	90
4924	PK	Horizontal	52.36	74.00	21.64	1.0	60
7386	PK	Horizontal	47.56	74.00	26.44	1.0	10
9848	PK	Horizontal	46.36	74.00	27.64	1.2	120
12310	PK	Horizontal	46.85	74.00	27.15	1.1	10
14772	PK	Horizontal	45.85	74.00	28.15	1.1	45
17234	PK	Horizontal	45.65	74.00	28.35	1.1	10
19696	PK	Horizontal	43.69	74.00	30.31	1.0	45
22158	PK	Horizontal	43.45	74.00	30.55	1.1	90
24620	PK	Horizontal	40.63	74.00	33.37	1.0	160

7 Antenna Requirement

According to the FCC Part 15 Paragraph 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. The use of a permanently attached antenna to the intentional radiator shall be considered sufficient to comply with the provisions of this section. This product has a permanent antenna, fulfill the requirement of this section.

8 Maximum Peak Output Power

Test Requirement:	FCC Part15 Paragraph 15.247
Test Method:	Based on ANSI 63.4:2003
Test Date:	Mar.12,2011
Test mode:	Compliance test in the worse case: Tx Lower/Tx Middle/Tx Upper
Requirements:	Regulation 15.247(b) The limit of Maximum Peak Output Power Measurement is 1.0W

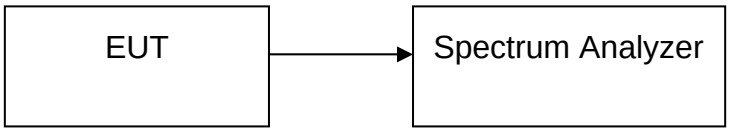
8.1 Test procedure:

The following test procedure as below:

The transmitter output (antenna port) was connected to the spectrum analyzer.EUT and its simulators are placed on a table, let EUT working in test mode,then test it.

The bandwidth of the fundamental frequency was measured with the spectrum analyser using 1MHz RBW and 3MHz VBW.

8.2 Test Setup View



Test Result: The unit does meet the FCC requirements.

Test mode: IEEE 802.11B

Test Channel	Fundamental Frequency(MHz)	Output Power (dBm)	Output Power (mW)	Limit (W)	Power output level
Lower	2412	15.23	33.34	1.0	conducted
Middle	2442	17.25	53.09	1.0	conducted
Upper	2462	13.65	23.17	1.0	conducted

Test mode: IEEE 802.11G

Test Channel	Fundamental Frequency(MHz)	Output Power (dBm)	Output Power (mW)	Limit (W)	Power output level
Lower	2412	12.36	17.22	1.0	conducted
Middle	2442	13.61	22.96	1.0	conducted
Upper	2462	10.25	10.59	1.0	conducted

Note: According to 47 CFR Part 15 Subpart C Section 15.247 (b),the the maximum allowable power for this device is 1.0W.

9 Band Edges Measurement:

Test Requirement: FCC Part15 C

Test Method: Based on FCC Part15 Paragraph 15.247

Test Date: Mar.12,2011

Test mode: The EUT work in test mode(Tx) and test it

Requirements: According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Procedures: The unit does meet the FCC requirements.
Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

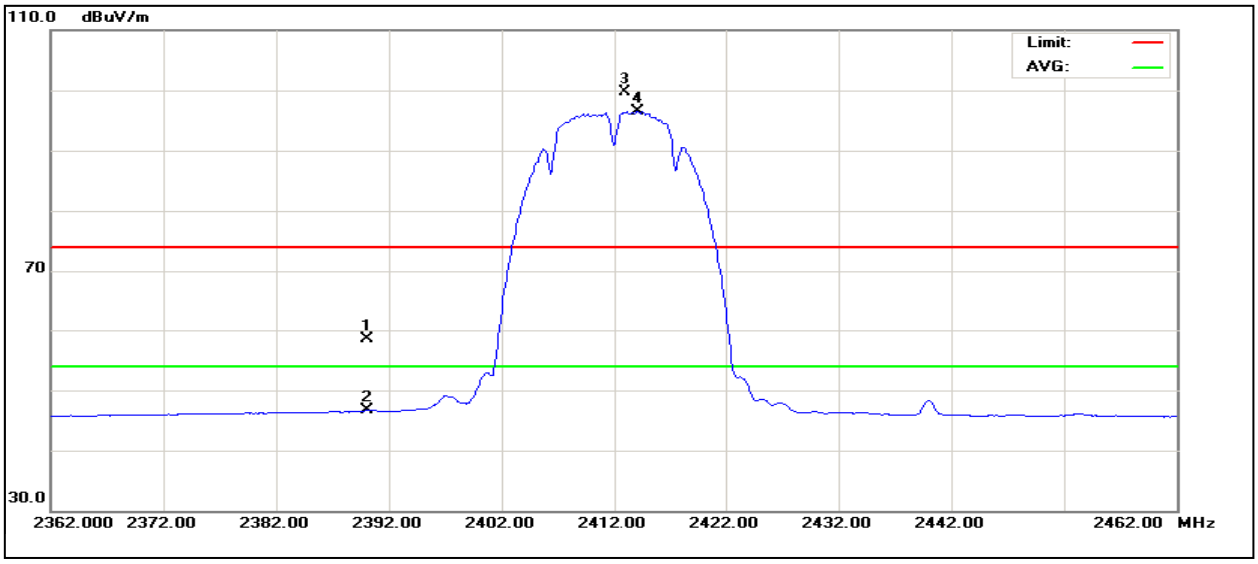
Please refer the graph as below:

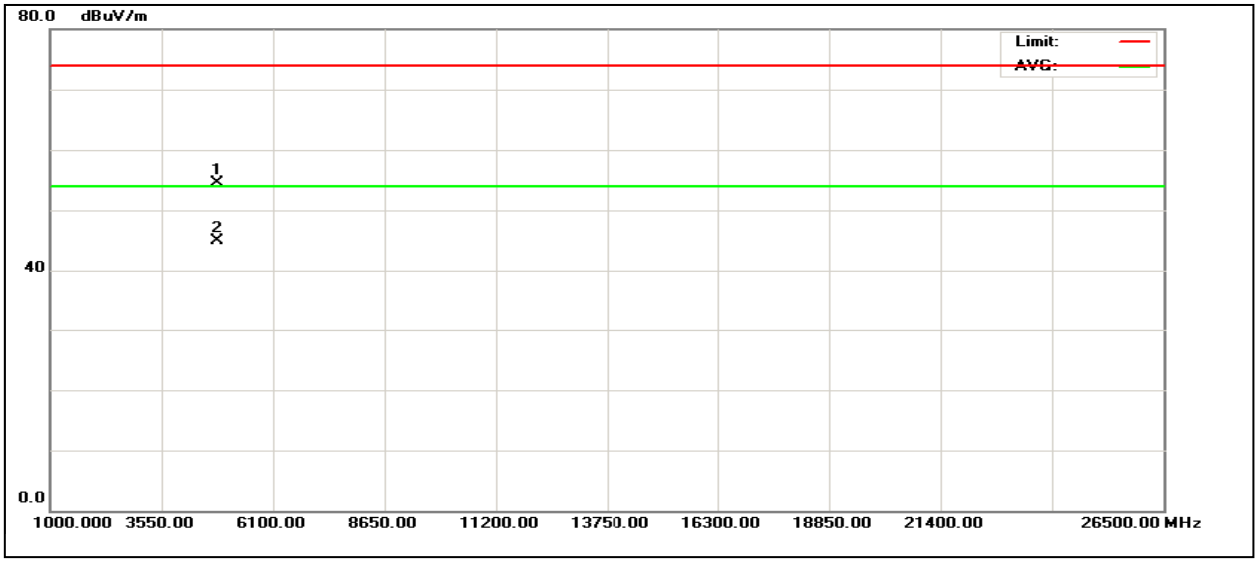
Remark:the EUT was prestested in horizontal and vertical, and the worse case was the vertical polarition,so the data show was the vertical only.

Test mode:IEEE 802.11B

Low channel:

Detector mode:Peak/Average



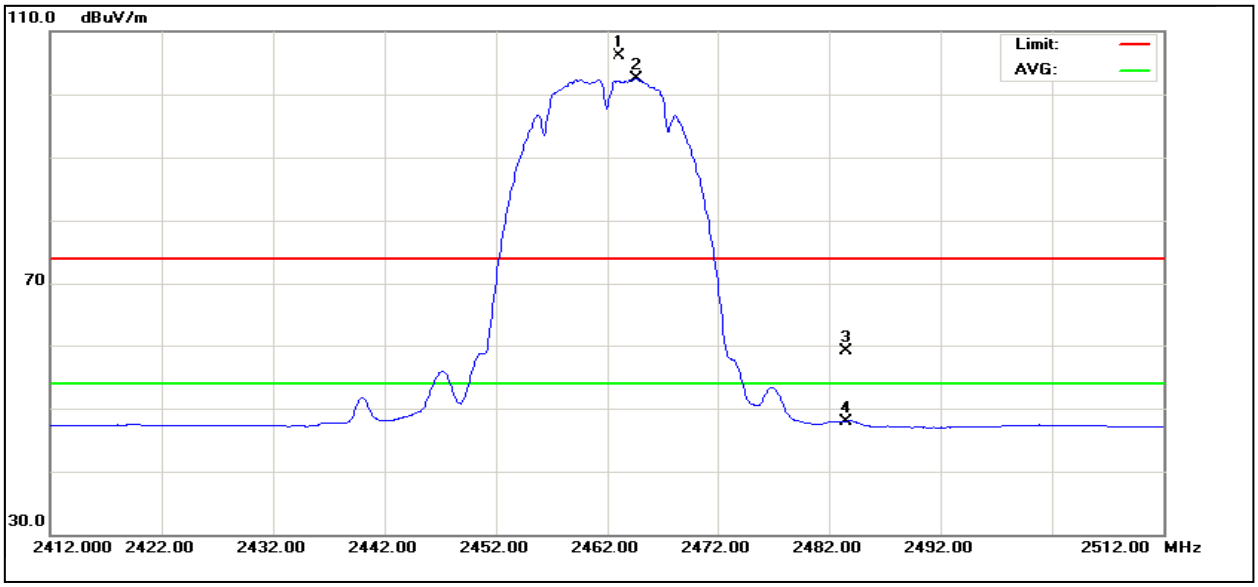


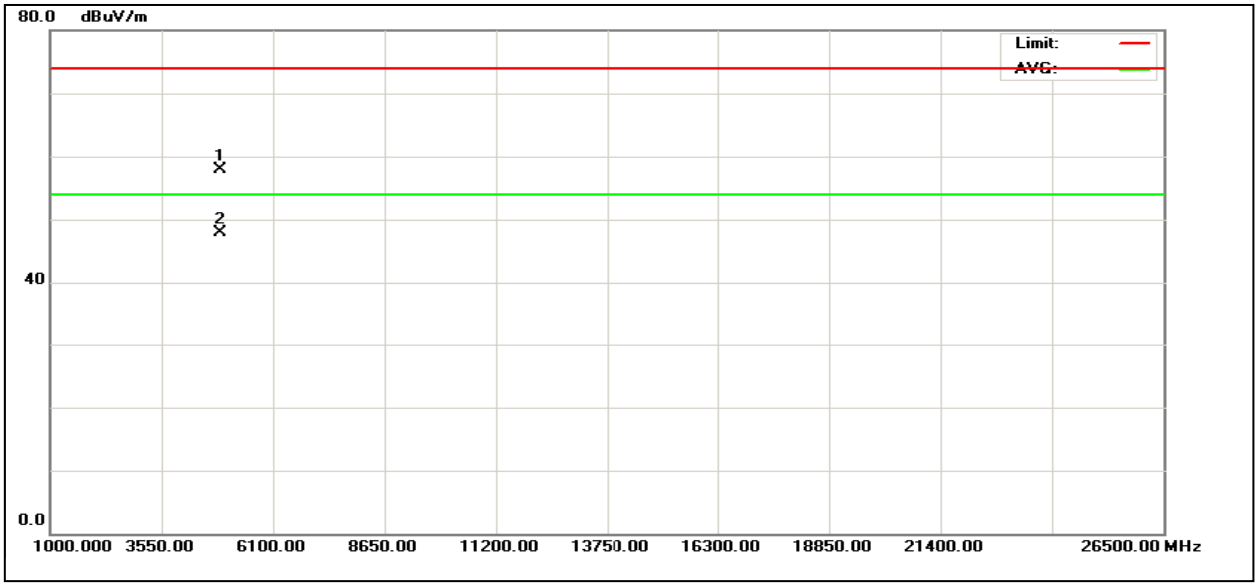
Test results

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
(MHz)	H/V	Peak (dBuV)	AV (dBuV)	CF(dB)	Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	24.70	12.87	33.76	58.46	46.63	74.00	54.00	X/E
2412.95	**V**	**65.97**	**62.64**	**33.78**	**99.75**	**96.43**			**X/F**
4824.55	V	48.66	39.05	5.77	54.43	44.82	74.00	54.00	X/H

High channel:

Detector mode:Peak/Average





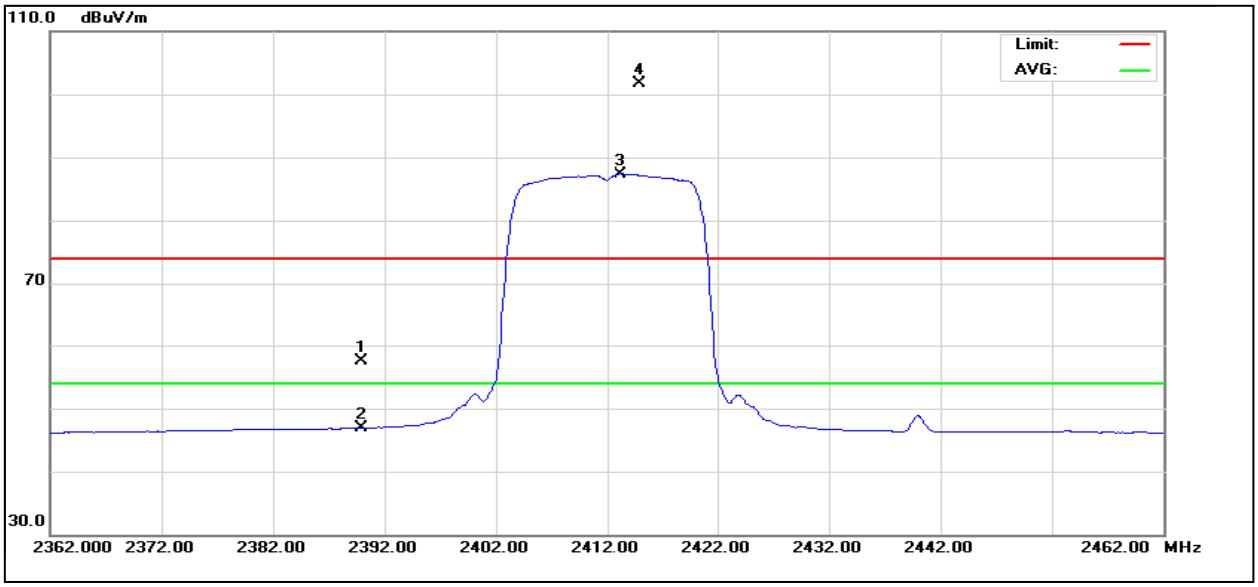
Test results

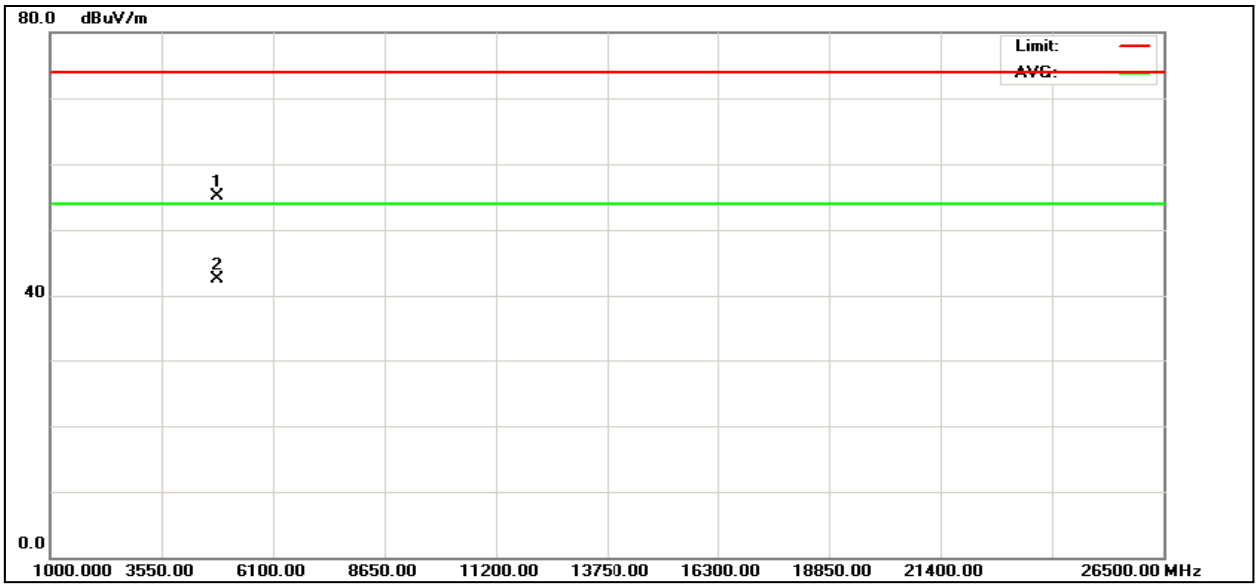
Freq. (MHz)	Ant.Pol. H/V	Reading Peak (dBuV)	Reading AV (dBuV)	Ant./CF CF(dB)	Act. Peak (dBuV/m)	Act. AV (dBuV/m)	Limit Peak (dBuV/m)	Limit AV (dBuV/m)	Note
2459.25	V	68.74	65.24	33.85	102.59	99.09			
2483.50	V	23.67	13.13	33.89	57.56	47.02	74.00	54.00	
4925.26	V	48.66	37.21	6.13	54.79	43.34	74.00	54.00	

Test mode:IEEE 802.11G

Low channel:

Detector mode:Peak / Average



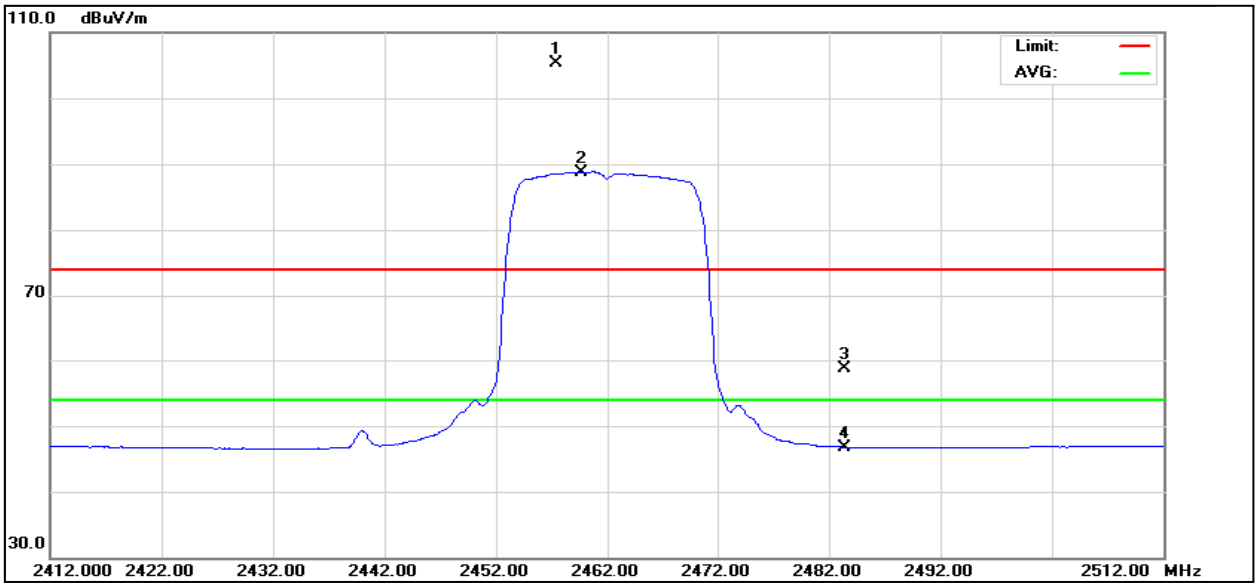


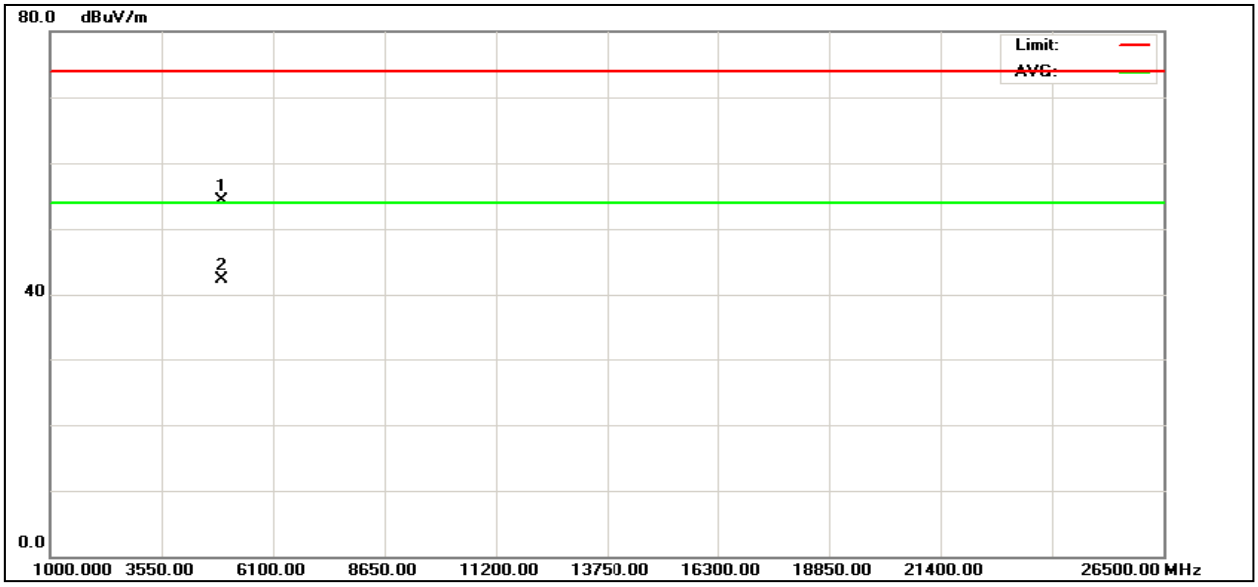
Test results

Freq. (MHz)	Ant.Pol. H/V	Reading Peak (dBuV)	Reading AV (dBuV)	Ant./CF CF(dB)	Act. Peak (dBuV/m)	Act. AV (dBuV/m)	Limit Peak (dBuV/m)	Limit AV (dBuV/m)	Note
2390.00	V	23.81	13.16	33.76	57.57	46.92	74.00	74.00	
2413.20	V	53.61	67.99	33.79	101.78	87.40			
4824.23	V	48.88	36.30	6.25	55.13	42.55	74.00	54.00	

High channel:

Detector mode:Peak / Average





Test results

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2457.35	**V**	**71.51**	**54.87**	**33.85**	**105.36**	**88.72**			**X/F**
2483.50	V	24.72	12.89	33.89	58.61	46.78	74.00	54.00	X/E
4923.54	V	47.66	35.69	6.61	54.27	42.3	74.00	54.00	X/H

10 6dB Bandwidth Measurement

10.1 Limit:

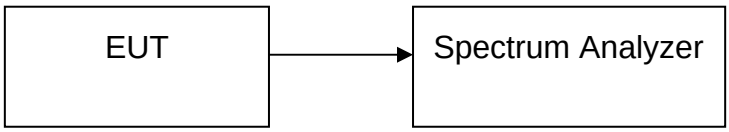
According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

The requirements in this clause are only applicable to equipment using frequency hopping spread spectrum (FHSS) modulation.

10.2 Test Procedure:

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = 300kHz,Sweep = auto.
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

10.3 Test Setup:



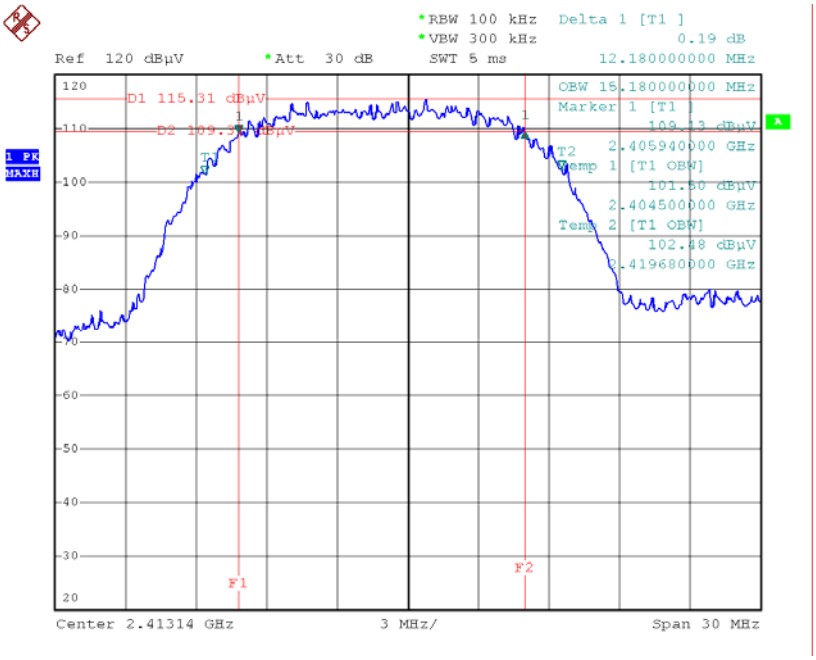
10.4 Operating Environment:

Temperature:	25.50 °C
Humidity:	51 % RH
Barometric Pressure:	1012 mbar

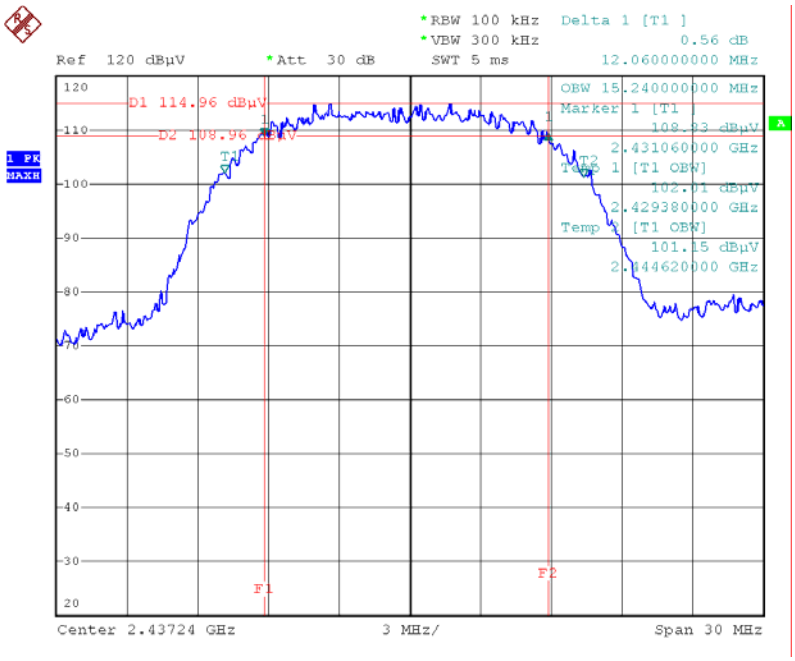
10.5 Test Result

Test mode:IEEE802.11B

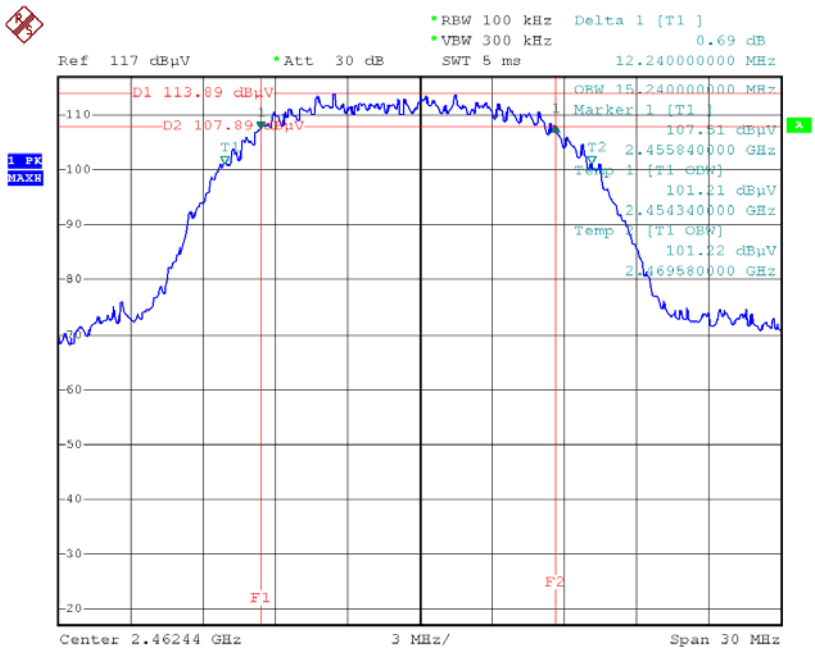
Low channel



Middle channel

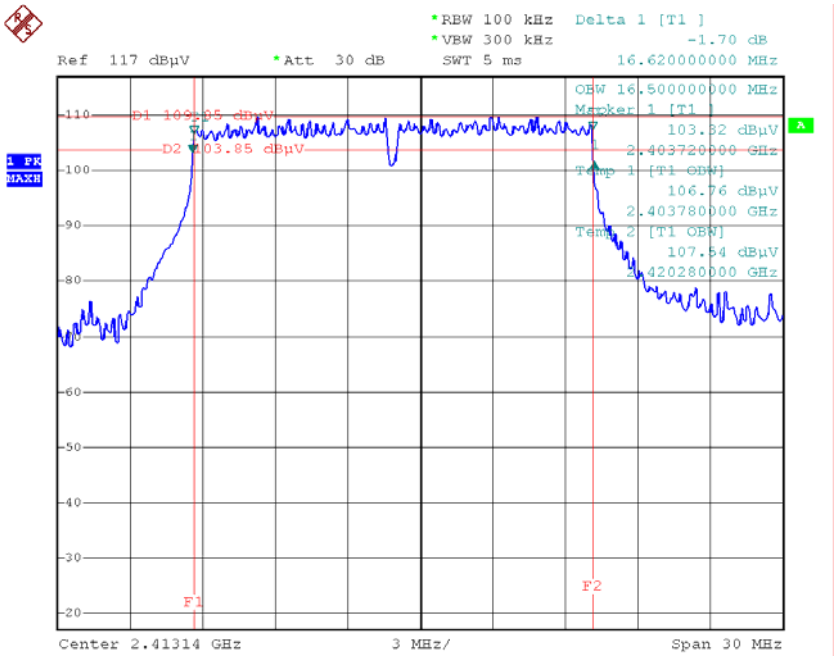


High channel

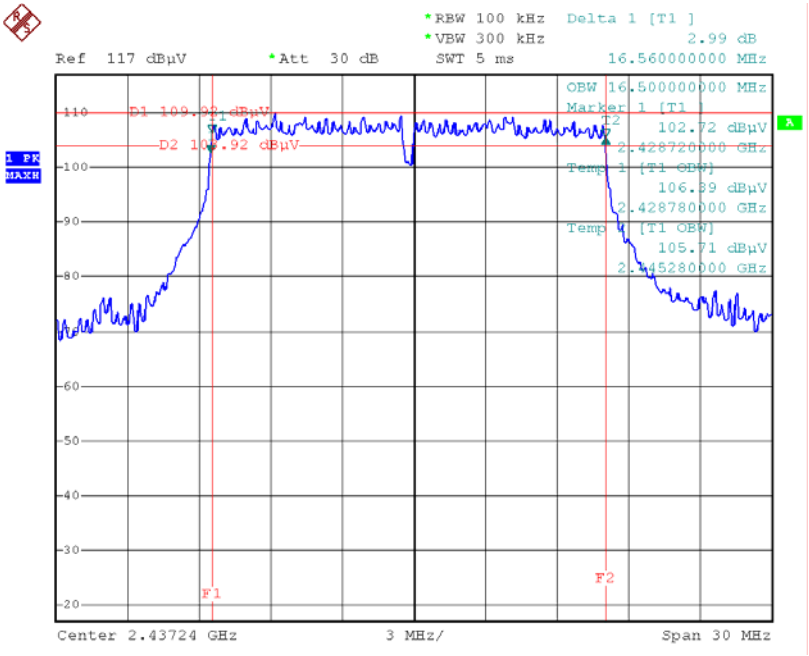


Test mode: IEEE802.11G

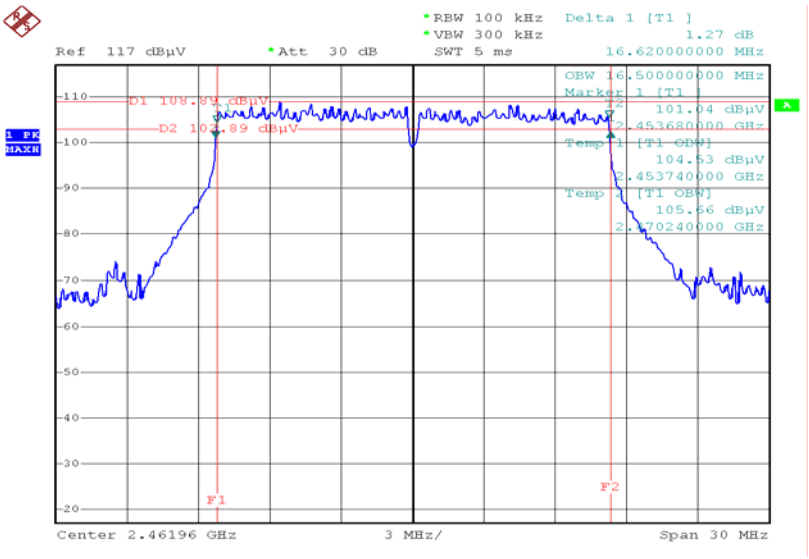
Low channel



Middle channel



High channel



11 Peak Power Spectral Density Measurement

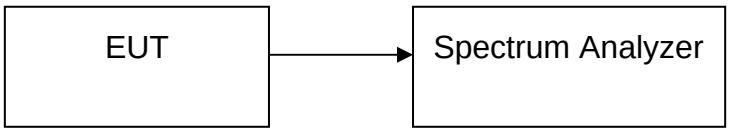
11.1 Limit:

According to §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.
According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

11.2 Test Procedure:

1. Place the EUT on the table and set it in transmitting mode.
   Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 500kHz, Sweep=100s
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

11.3 Test Setup:



11.4 Operating Environment:

Temperature: 25.5 °C
Humidity: 51 % RH
Barometric Pressure: 1012 mbar

EUT Operation Condition:
The EUT was programmed to be in continuously transmitting mode.

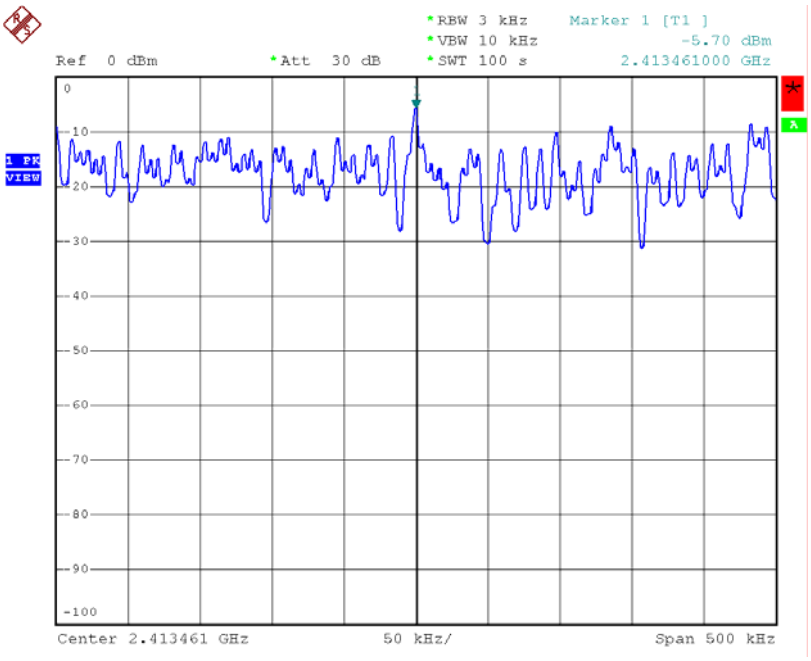
11.5 Test Result:

Test Result: PASS

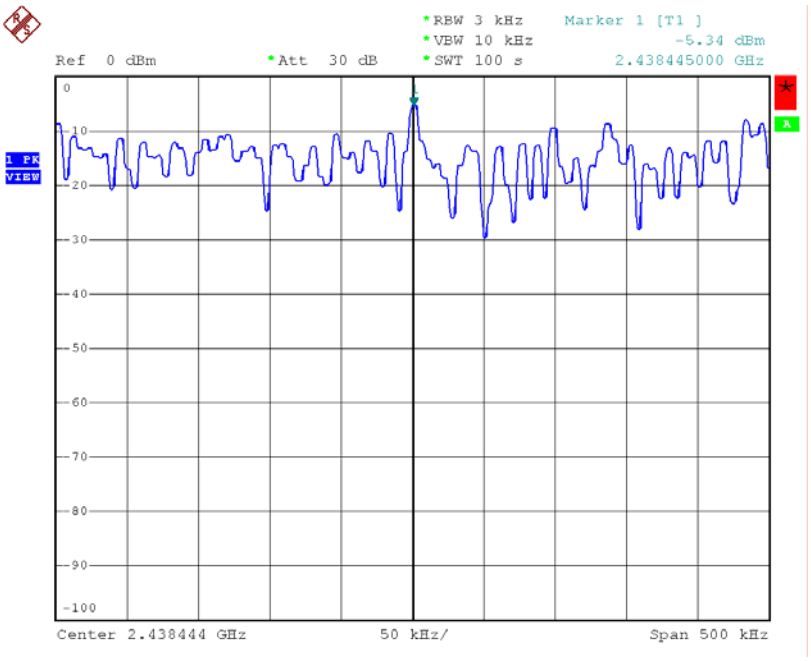
Please refer to the below photos for more details.

Test mode:IEEE802.11B

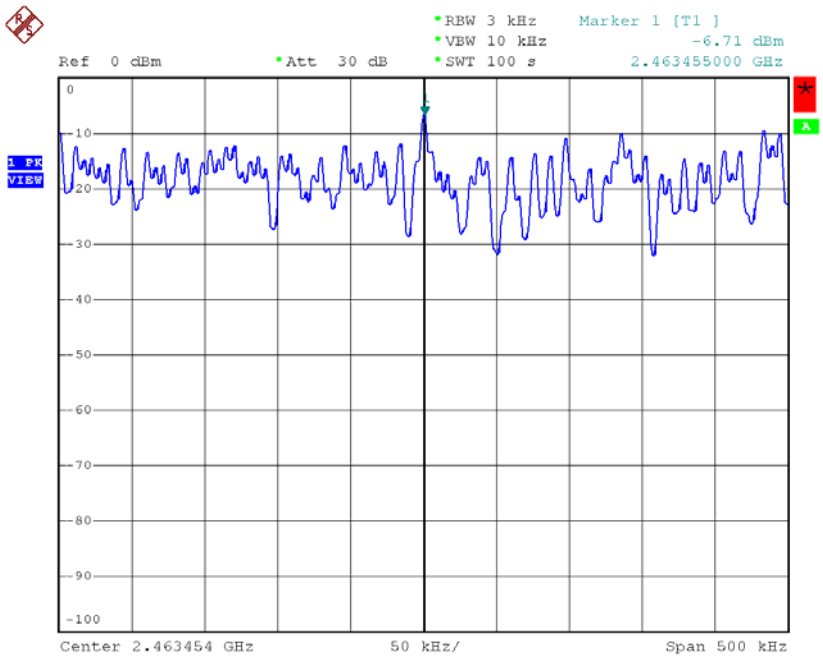
Low Channel



Middle Channel

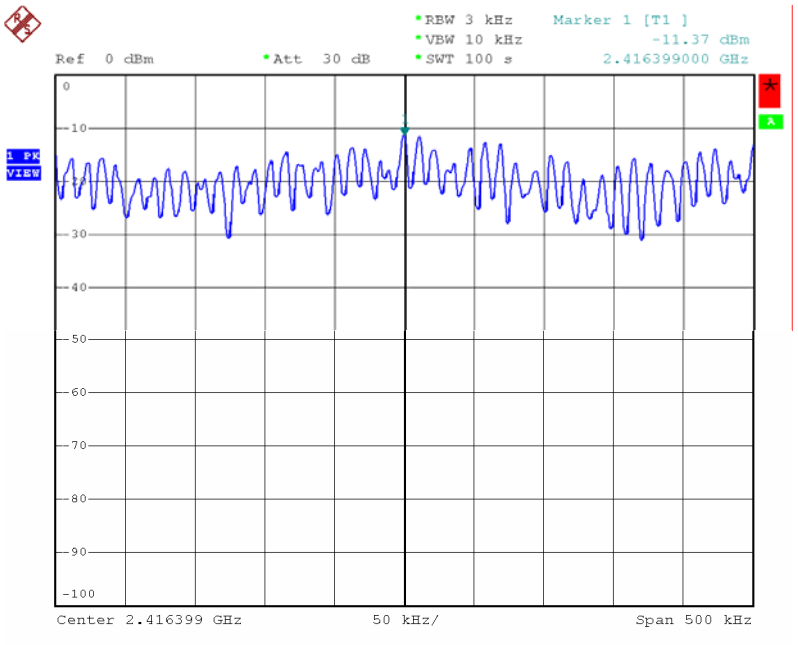


High Channel

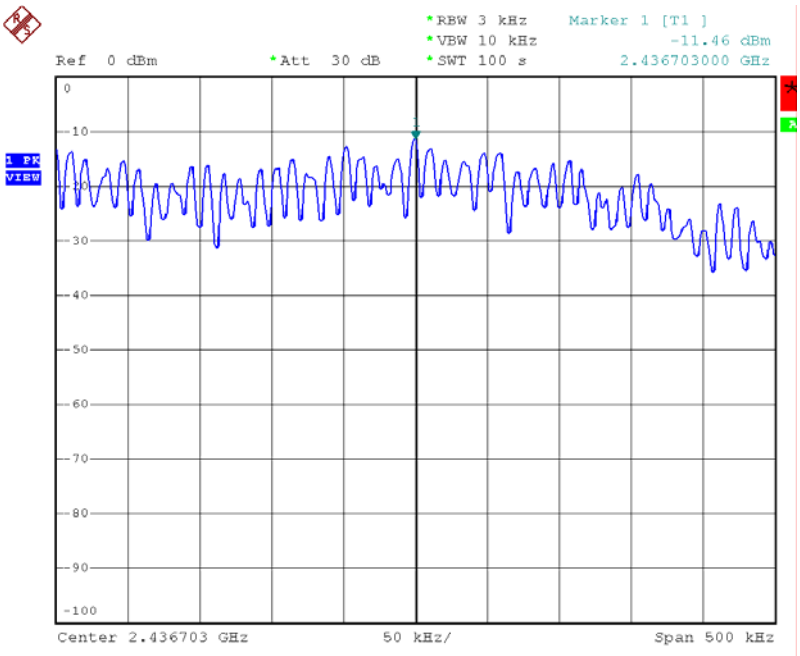


Test mode: IEEE802.11G

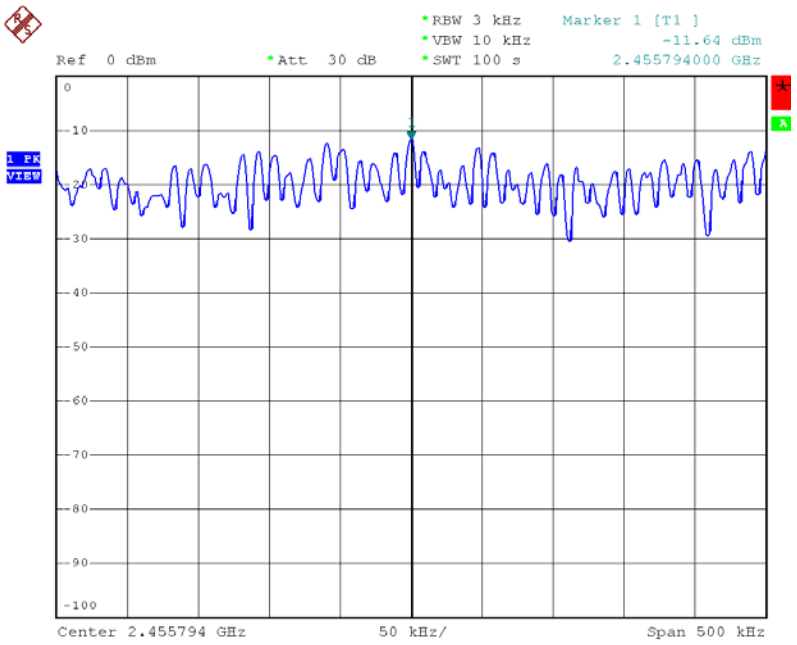
Low Channel



Middle Channel



High Channel



12 RF Exposure Test

Test Requirement:	FCC Part 2 Subpart J
Test Method:	Based on FCC Part 15 Paragraph 15.247
Test Date:	Mar.12,2011
Requirements:	The EUT work in test mode(Tx) and test it

Requiments:

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

The procedures / limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

MPE Calculation Method

$$E\ (V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd\ (W/m^2) = \frac{E^2}{377}$$

E = Electric field (V/m)
P = Peak RF output power (W)
G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)
The formula can be changed to

$$\boldsymbol{Pd} = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

Test mode: IEEE 802.11B

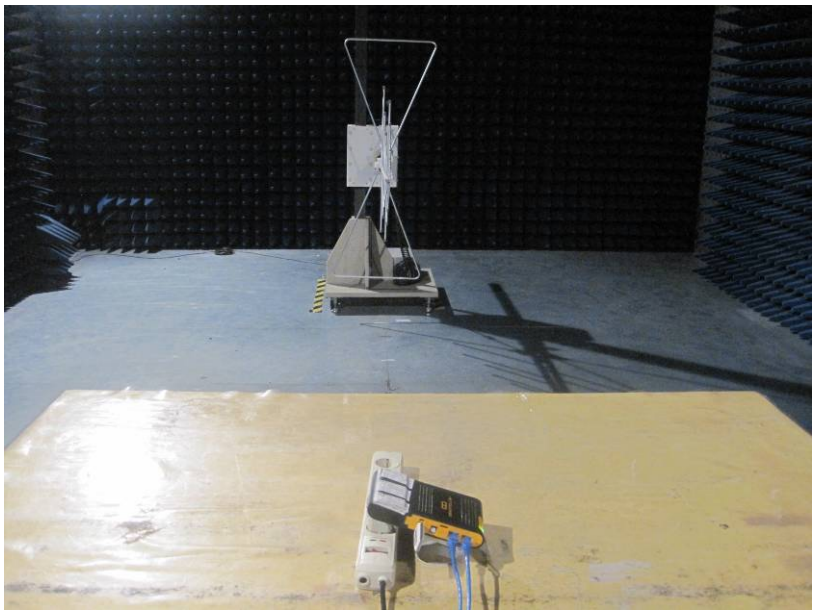
Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
2.0	1.585	15.23	33.34	0.0105	1	Complies
2.0	1.585	17.25	53.09	0.0167	1	Complies
2.0	1.585	13.65	23.17	0.009996	1	Complies

Test mode: IEEE 802.11G

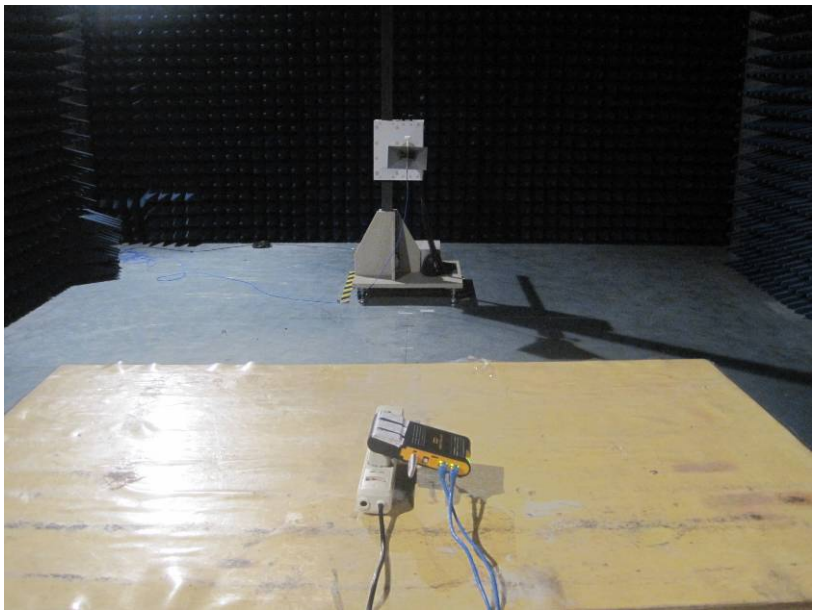
Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
2.0	1.585	12.36	17.22	0.00543	1	Complies
2.0	1.585	13.61	22.96	0.00724	1	Complies
2.0	1.585	10.25	10.59	0.00334	1	Complies

13 Photographs of Test Setup for CRX and CTX

Radiation Emission Test View For 30MHz-1000MHz



Radiation Emission Test View For 1GHz-25GHz

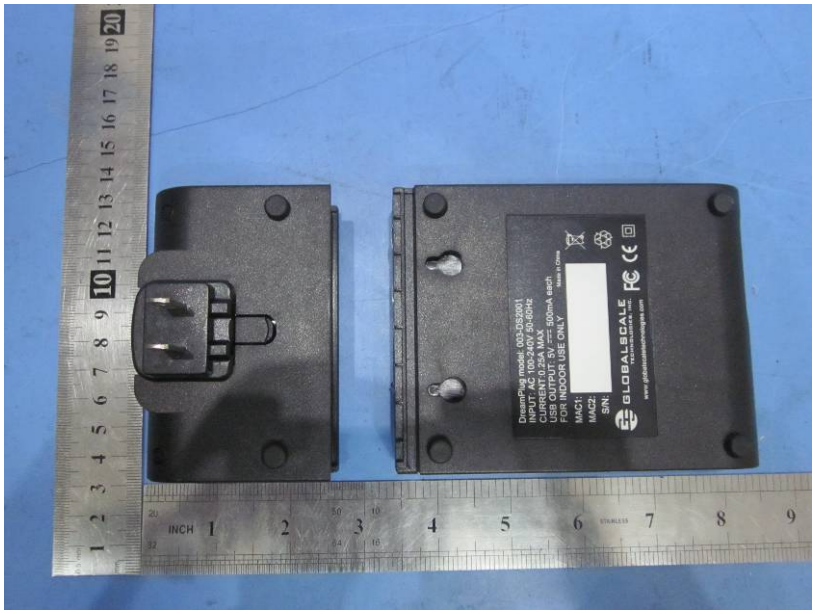


14 Photographs - Constructional Details

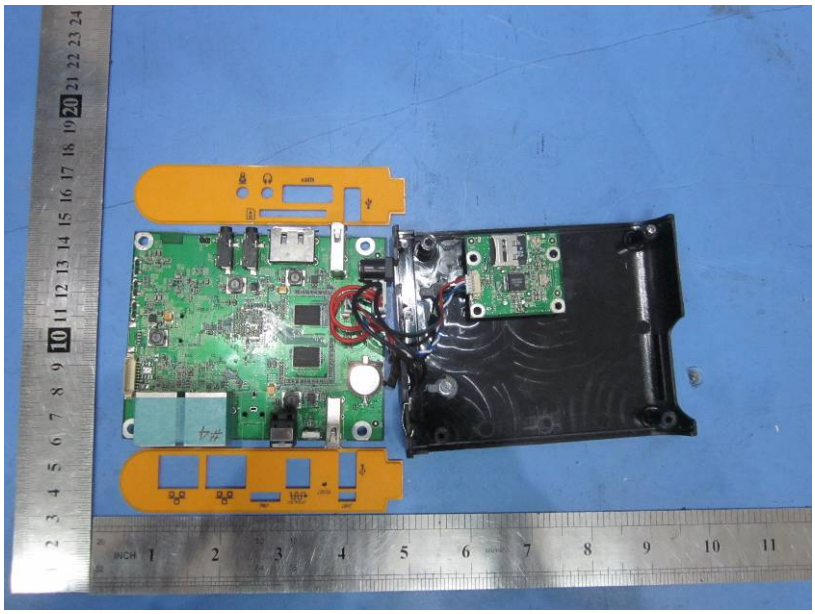
14.1 EUT - Front View

14.2 EUT - Back View

14.3 EUT - Constitution View

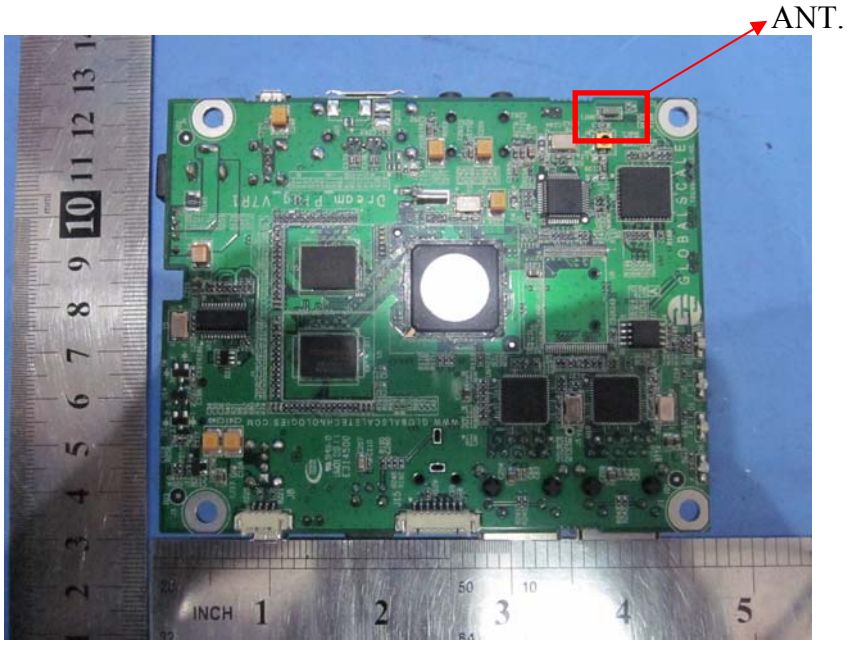


14.4 EUT - Open View

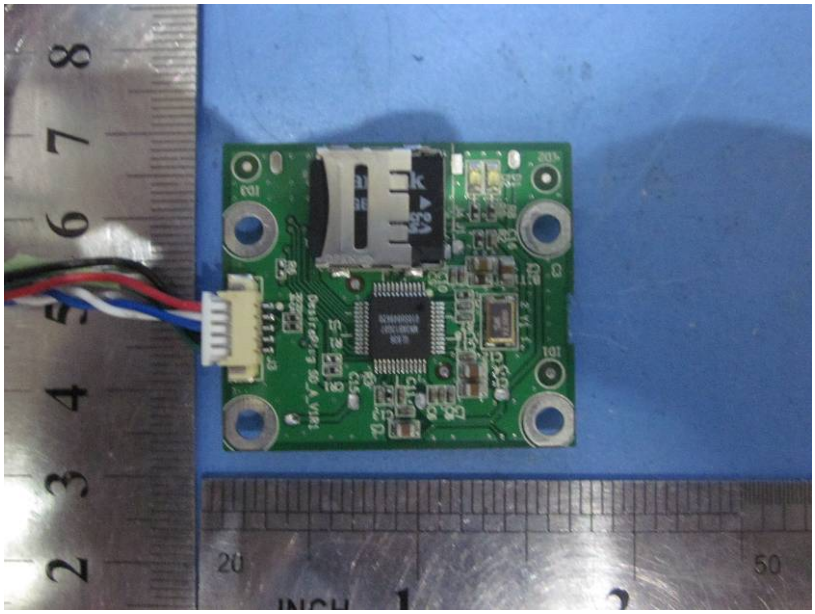


14.5 PCB1 - Front View

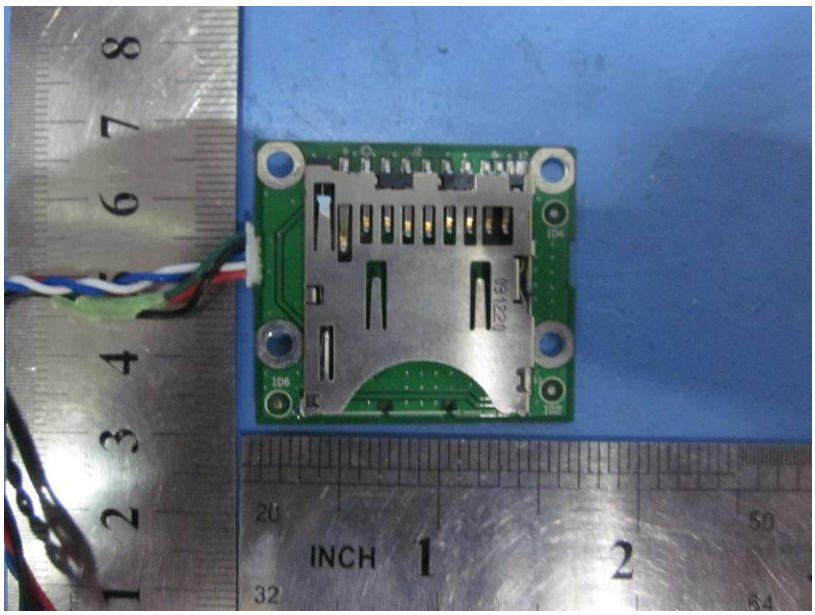
14.6 PCB1 - Back View



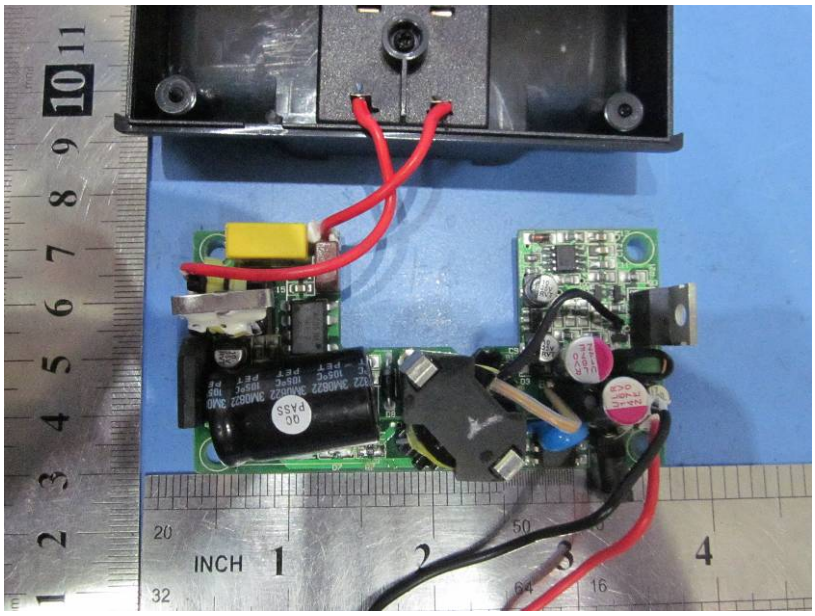
14.7 PCB2 - Front View



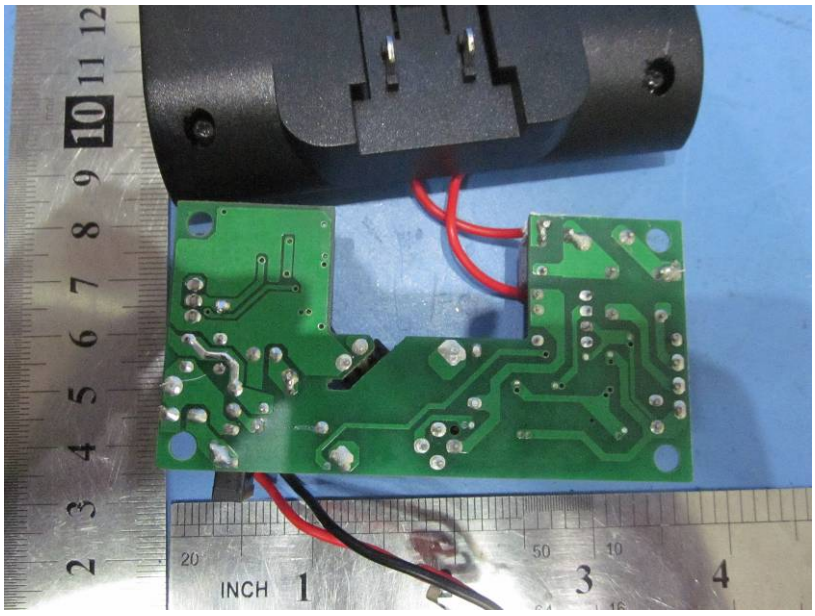
14.8 PCB2 - Back View



14.9 PCB3 - Front View



14.10 PCB3 - Back View



15 FCC ID Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference,and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT

EUT Bottom View/proposed FCC Mark Location