

FCC TEST REPORT

FCC ID : YCJ003-XXXXXXXX
Applicant : GLOBALSCALE TECHNOLOGIES, INC.
Address : 5F,No.2 building Minxing industrial Park Minkang Road, Minzhi
Street,Baoan District,Shenzhen,Guangdong, China

Equipment Under Test (EUT) :

Product Name : Display Plug
Model No. : 003-XXXXXXXX
Remark : XXXXXXXX is any number or English character

Standards : FCC Part 15 Subpart B:2009
FCC Part 15 Subpart C:2009

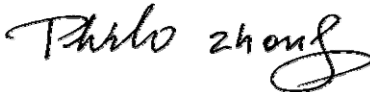
Date of Test : July 1, 2011 ~ July 4, 2011

Date of Issue : July 14, 2011

Test Engineer : Hunk yan



Reviewed By : Philo zhong



Test Result:	PASS
---------------------	-------------

Prepared By:

Waltek Services (Shenzhen) Co., Ltd.

1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District,
Shenzhen 518105, China

Tel :+86-755-27553488

Fax:+86-755-27553868

☆ The sample detailed above has been tested to the requirements of Council Directives ANSI C63.4:2003. The test results have been reviewed against the Directives above and found to meet their essential requirements.

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

2 Test Summary

FCC Part 15 Subpart B Requirements			
Test Items	Test Requirement	Test Method	Result
Radiated Emission (30MHz to 2GHz)	FCC Part 15 Subpart B:2009	ANSI C63.4: 2003	PASS
Conducted Emission (150KHz to 30MHz)	FCC Part 15 Subpart B:2009	ANSI C63.4: 2003	PASS

FCC Part 15C Requirements for WIFI			
Band Edges Measurement	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
6dB Bandwidth Measurement	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Peak Power Measurement	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Peak Power Spectral Density	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Conducted Emission (150KHz to 30MHz)	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Radiation Emission, 30MHz to 25GHz	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS

FCC Part 15C Requirements for Bluetooth			
Maximum peak output power	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Restricted Band	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Dwell time	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Channel separation	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Hopping channel No.	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
20-dB Bandwidth	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
RF Exposure Test	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Conducted Emission (150KHz to 30MHz)	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS
Radiation Emission, 30MHz to 25GHz	FCC Part 15 Subpart C:2009	ANSI C63.4: 2003	PASS

3 Contents

1	COVER PAGE.....	1
2	TEST SUMMARY	2
3	CONTENTS.....	3
4	GENERAL INFORMATION	6
4.1	CLIENT INFORMATION.....	6
4.2	GENERAL DESCRIPTION OF E.U.T.....	6
4.3	DETAILS OF E.U.T.....	6
4.4	DESCRIPTION OF SUPPORT UNITS.....	6
4.5	STANDARDS APPLICABLE FOR TESTING	6
4.6	TEST FACILITY	7
4.7	TEST LOCATION	7
5	EQUIPMENT USED DURING TEST	8
6	FCC PART 15 SUBPART B REQUIREMENTS	11
6.1	CONDUCTED EMISSION DATA	11
6.1.1	<i>E.U.T. Operation</i>	<i>11</i>
6.1.2	<i>EUT Setup.....</i>	<i>12</i>
6.1.3	<i>Conducted Emission Test Result.....</i>	<i>12</i>
6.1.4	<i>Photograph – Conducted Emission Test Setup.....</i>	<i>15</i>
6.2	RADIATION EMISSION DATA	16
6.2.1	<i>Measurement Uncertainty.....</i>	<i>16</i>
6.2.2	<i>EUT Setup.....</i>	<i>17</i>
6.2.3	<i>Spectrum Analyzer Setup</i>	<i>18</i>
6.2.4	<i>Test Procedure.....</i>	<i>19</i>
6.2.5	<i>Corrected Amplitude & Margin Calculation.....</i>	<i>19</i>
6.2.6	<i>Summary of Test Results</i>	<i>19</i>
6.2.7	<i>Photograph – Radiation Emission Test Setup</i>	<i>24</i>
7	FCC PART 15C REQUIREMENTS FOR WIFI.....	26
7.1	RADIATION EMISSION TEST.....	26
7.1.1	<i>Test Equipment</i>	<i>26</i>
7.1.2	<i>Measurement Uncertainty.....</i>	<i>26</i>
7.1.3	<i>Test Procedure.....</i>	<i>27</i>
7.1.4	<i>Radiated Test Setup</i>	<i>27</i>
7.1.5	<i>Spectrum Analyzer Setup</i>	<i>28</i>
7.1.6	<i>Corrected Amplitude & Margin Calculation.....</i>	<i>29</i>
7.1.7	<i>Summary of Test Results</i>	<i>29</i>
7.1.8	<i>EUT Operating Condition</i>	<i>29</i>
7.1.9	<i>Radiated Emissions Limit on Paragraph 15.209.....</i>	<i>29</i>
7.1.10	<i>Radiated Emissions Test Result</i>	<i>30</i>
7.1.11	<i>Radiated Emission Data</i>	<i>30</i>
7.2	ANTENNA REQUIREMENT	51
7.3	MAXIMUM PEAK OUTPUT POWER.....	51
7.3.1	<i>Test procedure:.....</i>	<i>51</i>
7.3.2	<i>Test Setup View.....</i>	<i>51</i>
7.4	BAND EDGES MEASUREMENT:	53

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

7.5	6dB BANDWIDTH MEASUREMENT	58
7.5.1	Limit:	58
7.5.2	Test Procedure:	58
7.5.3	Test Setup:	58
7.5.4	Operating Environment:	58
7.5.5	Test Result.....	59
7.6	PEAK POWER SPECTRAL DENSITY MEASUREMENT	63
7.6.1	Limit:	63
7.6.2	Test Procedure:	63
7.6.3	Test Setup:	63
7.6.4	Operating Environment:	63
7.6.5	Test Result:	63
7.7	RF EXPOSURE TEST	68
7.8	PHOTOGRAPHS OF TEST SETUP FOR CRX AND CTX	70
8	FCC PART 15C REQUIREMENTS FOR BLUETOOTH.....	71
8.1	RADIATION EMISSION TEST.....	71
8.1.1	Test Equipment	71
8.1.2	Measurement Uncertainty.....	71
8.1.3	Test Procedure.....	71
8.1.4	Radiated Test Setup	72
8.1.5	Spectrum Analyzer Setup	73
8.1.6	Corrected Amplitude & Margin Calculation.....	73
8.1.7	Summary of Test Results	74
8.1.8	EUT Operating Condition	74
8.1.9	Radiated Emissions Limit on Paragraph 15.209.....	74
8.1.10	Radiated Emissions Test Result	75
8.1.11	Radiated Emission Data	75
8.2	MAXIMUM PEAK OUTPUT POWER.....	85
8.3	HOPPING CHANNEL NUMBER	86
8.4	FREQUENCY SEPARATED.....	87
8.5	DWELL TIME.....	90
8.5.1	Definition:.....	90
8.5.2	Test Procedure.....	90
8.5.3	Test Result: PASS	91
8.6	20dB BANDWIDTH	97
8.7	RADIATED SPURIOUS EMISSIONS INTO ADJACENT RESTRICTED BAND	99
8.8	RF EXPOSURE TEST	101
9	PHOTOGRAPHS OF TESTING	103
10	PHOTOGRAPHS - CONSTRUCTIONAL DETAILS.....	104
10.1	EUT – FRONT VIEW	104
10.2	EUT – BACK VIEW.....	104
10.3	EUT – OPEN VIEW1	105
10.4	EUT – OPEN VIEW2	105
10.5	EUT – OPEN VIEW3	106
10.6	PCB1 – FRONT VIEW	106
10.7	PCB1 – BACK VIEW	107
10.8	PCB2 – FRONT VIEW	107
10.9	PCB2 – BACK VIEW	108
10.10	PCB3 – FRONT VIEW	108
10.11	PCB3 – BACK VIEW	109

11 FCC LABEL..... 110

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 Name : Display Plug
Model No. : 003-XXXXXXX
Remark : XXXXXXXX is any number or English character
Frequency Range:
Bluetooth :2402MHz ~ 2480MHz
WIFI : IEEE802.11B mode: 2412~2462MHz
IEEE802.11G mode: 2412~2462MHz
Antenna Gain : 0 dBi

4.3 Details of E.U.T.

Technical Data: : 100-240VAC 50/60Hz, 0.3A Max

4.4 Description of Support Units

The EUT has been tested as an independent unit. All the test was performed in the condition of AC 120V/60Hz input.

4.5 Standards Applicable for Testing

The customer requested FCC tests for a Display Plug. The standards used were FCC Part 15 Subpart B:2009, and FCC Part 15 Subpart C:2009.

4.6 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A**

Waltek Services(Shenzhen) Co., Ltd. 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.

- **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, May 26, 2011.

4.7 Test Location

All the tests were performed at:

Waltek Services(Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd.,Songgang Street, Baoan District, Shenzhen, China

5 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY451149 43	W2008001	9k-26.5GHz	Aug-2010	Aug-2011	Wws200 81596	±1dB
Trilog Broadband Antenne	SCHWARZECK MESS-ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug-2010	Aug-2011	-	±1dB
Broadband Horn Antenna	SCHWARZECK MESS-ELEKTROM / BBHA 9120D(1201)	667	W2008003	1-18GHz	Aug-2010	Aug-2011	-	f<10 GHz: ±1dB 10GHz<f<18 GHz: ±1.5dB
Broadband Preamplifier	SCHWARZECK MESS-ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-2010	Aug-2011	-	±1.2dB
10m Coaxial Cable with N-male Connectors	SCHWARZECK MESS-ELEKTROM / AK 9515 H	-	-	-	Aug-2010	Aug-2011	-	-
10m 50 Ohm Coaxial Cable with N-plug, individual length	SCHWARZECK MESS-ELEKTROM / AK 9513	-	-	-	Aug-2010	Aug-2011	-	-
Positioning Controller	C&C LAB/ CC-C-IF	-	-	-	-	-	-	-
Color Monitor	SUNSPON/ SP-14C	-	-	-	-	-	-	-
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-2010	Aug-2011	Wws200 80942	±1dB
EMI Receiver	Beijingkehua n	KH3931	-	9k-1GHz	Aug-2010	Aug-2011	-	-
Two-Line V-Network	ROHDE&SCHWARZ/ ENV216	100115	W2005002	50Ω/50μH	Aug-2010	Aug-2011	Wws200 80941	±10%
Absorbing Clamp	ROHDE&SCHWARZ/ MDS-21	100205	W2005003	impedance50 Ω loss : 17 dB	Aug-2010	Aug-2011	Wws200 80943	±1dB

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
10m 50 Ohm Coaxial Cable with N-plug, individual length	SCHWARZBECK MESS-ELEKTROM / AK 9514	-	-	-	Aug-2010	Aug-2011	-	-
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V0745103095	W2008012	Power: 2000VA Vol-range: 0-300V Freq_range: 10-80Hz	Aug-2010	Aug-2011	Wwd20081185	Voltage distinguish:0.025% Power_freq distinguish:0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V0745103096	W2008013	Vol-range: 0-300V Power_freq: 10-80Hz				
Electrostatic Discharge Simulator	Em Test AG/Switzerland/DITO	V0745103094	W2008005	Contact discharge: 500V-10KV Air discharge: 500V-16.5KV	Aug-2010	Aug-2011	Wwc20082400	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-2010	Aug-2011	Wws20081890	Power_freq distinguish:0.1Hz RFelectricity distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-2010	Aug-2011	Wwc20082396	150K-80MHz: $\pm 1dB$ 80-230MHz:-2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range: 0.15-1000 MHz	Aug-2010	Aug-2011	Wwc20082397	0.3-400 MHz: $\pm 4dB$ Other freq: $\pm 5dB$
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365	-	-	Aug-2010	Aug-2011	Wws20081597	-
All Modules Generator	SCHAFFNER/6150	34579	W2008006	voltage:200V-4.4KV Pulse current: 100A-2.2KA	Aug-2010	Aug-2011	Wwc20082401	voltage: $\pm 10\%$ Pulse current: $\pm 10\%$
Capacitive Coupling Clamp	SCHAFFNER/ CDN 8014	25311	-	-	Aug-2010	Aug-2011	Wwc20082398	-

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

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	1.2/50 μ S	Aug-2010	Aug-2011	Wwc20082399	-
AC Power Supply	TONGYUN/ DTDGC-4	-	-	-	Aug-2010	Aug-2011	Wws20080944	-
Exposure Level Tester ELT-400	Narda Safety TEST Solutions/2304/03	M-0155	w2008022	Test freq range: 1—400kHz	Aug-2010	Aug-2011	Wwd20081191	Test uncertainty : 1—120kHz: \pm 1.83%, 120 kHz-400 kHz: \pm 4.06%
Magnetic Field Probe 100cm ²	Narda Safety TEST Solutions/2300/90.10	M-1070	w2008021	Test freq range: 1—400kHz				Test uncertainty : 1Hz-10Hz: \pm 16.2%, 10Hz - 120kHz: \pm 2.2%, 120 kHz-400 kHz: \pm 4.7%
Active Loop Antenna 10kHz-30MHz	Beijing Dazhi / ZN30900A	-	-	10kHz-30MHz	Aug-2010	Aug-2011	-	\pm 1dB
PC	Lenovo	T2900D	-	-	Aug-2010	Aug-2011	-	\pm 1dB
Display	ViewSonic	S27996-1W	-	-	Aug-2010	Aug-2011	-	\pm 0.5dB
K/B	Dell	L100	-	-	Aug-2010	Aug-2011	-	\pm 0.5dB
Mouse	Acer	M-UVACR1	-	-	Aug-2010	Aug-2011	-	\pm 0.5dB

6 FCC Part 15 Subpart B Requirements

6.1 Conducted Emission Data

Test Requirement:	FCC Part 15.107
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dB μ V between 0.15MHz & 0.5MHz 56 dB μ V between 0.5MHz & 5MHz 60 dB μ V between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

6.1.1 E.U.T. Operation

Operating Environment:

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

EUT Operation:

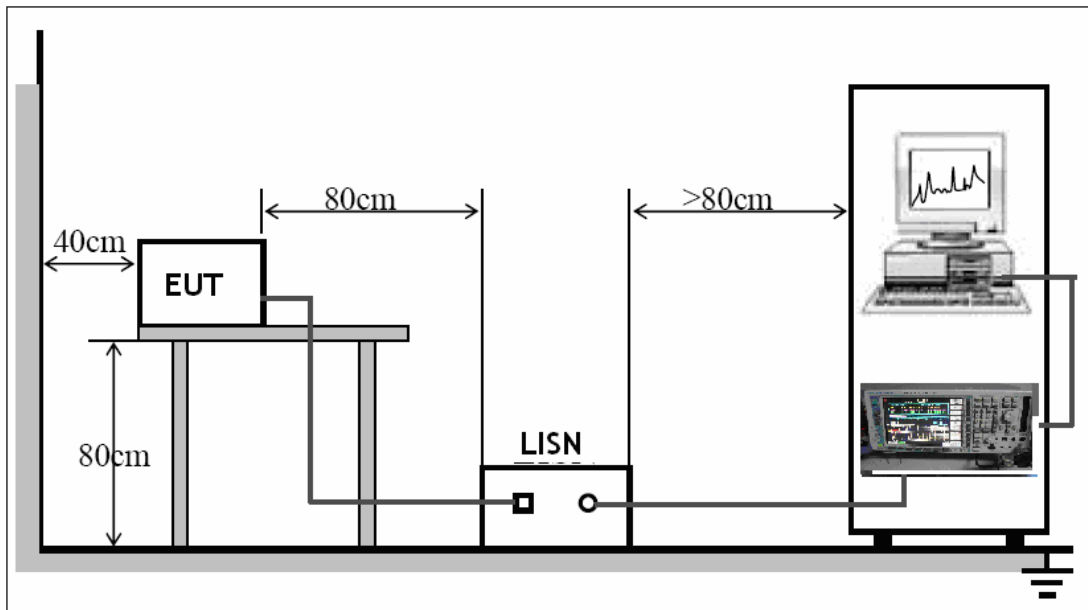
The EUT was pretested in 1080P video play and output to display via VGA port, 1080P video play and output to display via HDMI port, 1080P video play and output to display via optical out port, SD Card read and write, +eSATA port read and write, normal link to internet, and the worst case was 1080P video play and output to display via VGA port, so the data show was that mode only.

The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.

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.

6.1.2 EUT 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 B 15.107 limits.

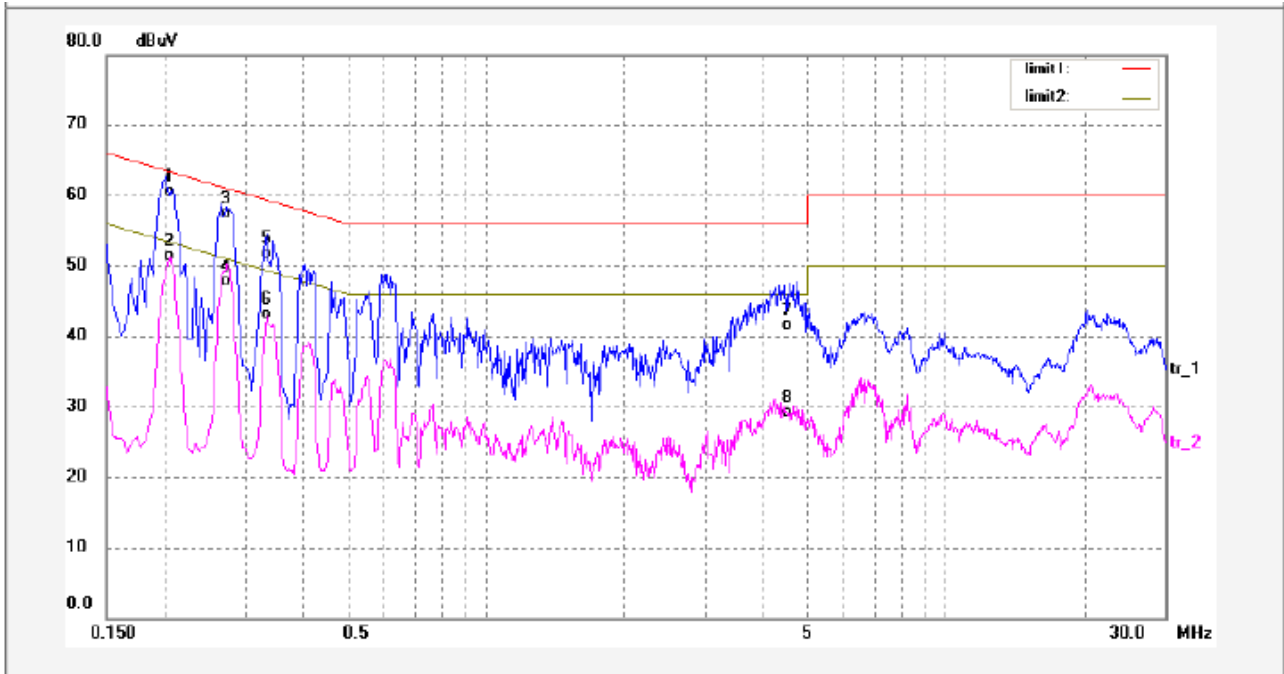


The EUT was placed on the test table in shielding room

6.1.3 Conducted Emission Test Result

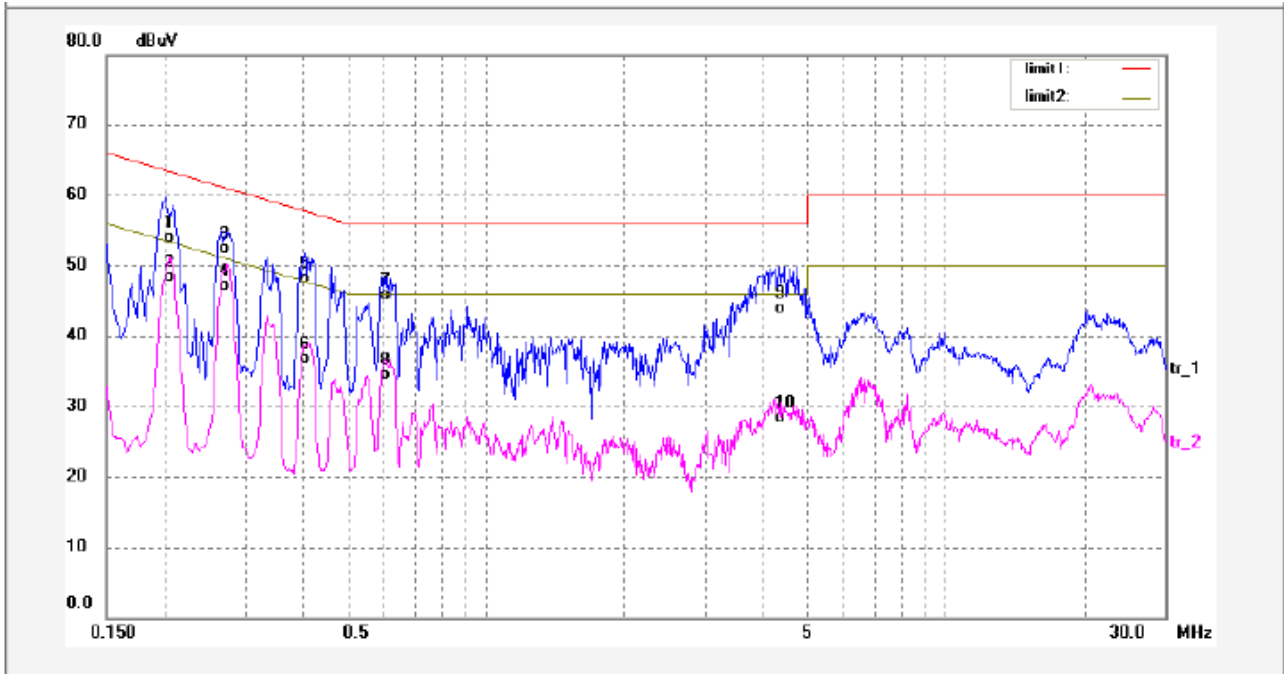
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2020	49.13	10.67	59.80	63.52	-3.72	QP	
2	0.2020	39.84	10.67	50.51	53.52	-3.01	AVG	
3	0.2744	45.86	10.62	56.48	60.98	-4.50	QP	
4	0.2744	36.37	10.62	46.99	50.98	-3.99	AVG	
5	0.3339	40.20	10.70	50.90	59.35	-8.45	QP	
6	0.3339	31.61	10.70	42.31	49.35	-7.04	AVG	
7	4.5700	28.35	12.43	40.78	56.00	-15.22	QP	
8	4.5700	15.90	12.43	28.33	46.00	-17.67	AVG	

Neutral line:



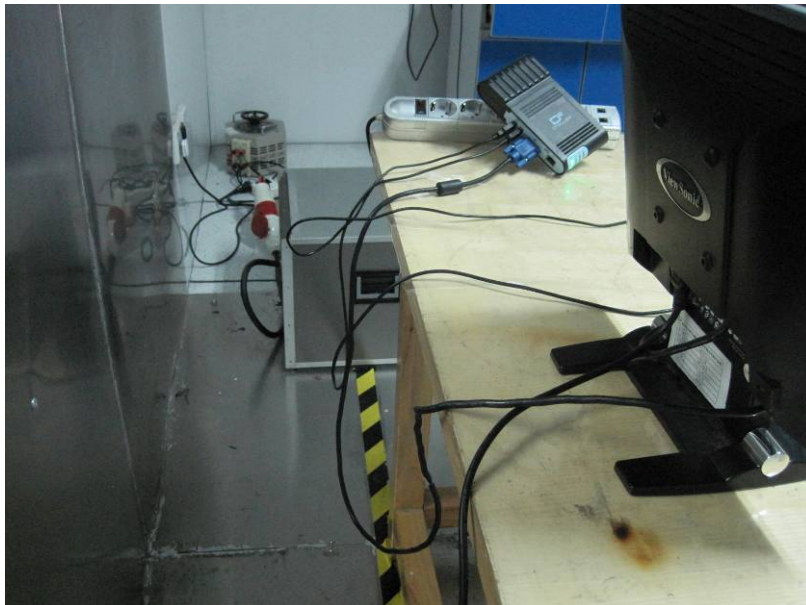
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2020	42.50	10.67	53.17	63.52	-10.35	QP	
2	0.2020	36.80	10.67	47.47	53.52	-6.05	AVG	
3	0.2660	40.86	10.63	51.49	61.24	-9.75	QP	
4	0.2660	35.74	10.63	46.37	51.24	-4.87	AVG	
5	0.4060	36.58	10.69	47.27	57.73	-10.46	QP	
6	0.4060	25.22	10.69	35.91	47.73	-11.82	AVG	
7	0.6100	33.69	11.28	44.97	56.00	-11.03	QP	
8	0.6100	22.36	11.28	33.64	46.00	-12.36	AVG	
9	4.3539	30.58	12.55	43.13	56.00	-12.87	QP	
10	4.3539	14.86	12.55	27.41	46.00	-18.59	AVG	

6.1.4 Photograph – Conducted Emission Test Setup

Front View



Back View



6.2 Radiation Emission Data

Test Requirement:	FCC Part15.109
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	30MHz to 2GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dB μ V/m between 30MHz & 88MHz 43.5 dB μ V/m between 88MHz & 216MHz 46.0 dB μ V/m between 216MHz & 960MHz 54.0 dB μ V/m above 960MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximised peak within 6dB of limit

EUT Operation :

The EUT was pretested in 1080P video play and output to display via VGA port, 1080P video play and output to display via HDMI port, 1080P video play and output to display via optical out port, SD Card read and write, +eSATA port read and write, normal link to internet, and the worst case was 1080P video play and output to display via VGA port, so the data show was that mode only.

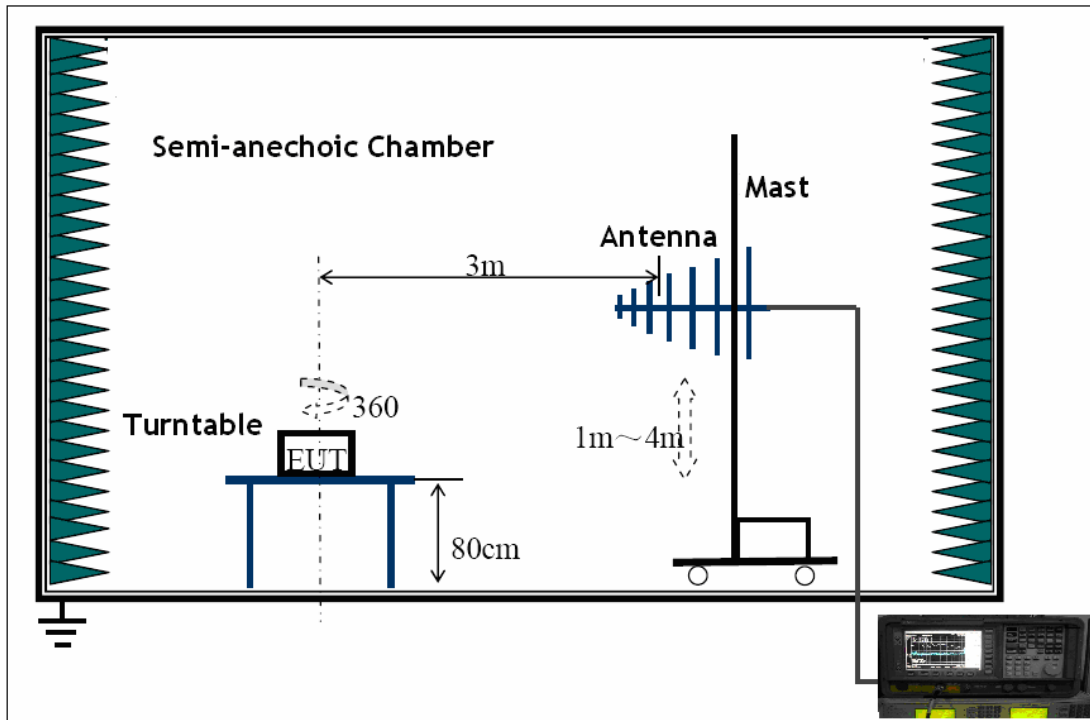
6.2.1 Measurement Uncertainty

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 NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek EMC Lab is ± 5.03 dB.

6.2.2 EUT 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 B limits.



The EUT was placed on the test table in shielding room.

6.2.3 Spectrum Analyzer Setup

According to FCC Part15 B Rules, the system was tested 30 to 2000MHz.

Below 1GHz

Start Frequency	30 MHz
Stop Frequency	1000MHz
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	2000MHz
Sweep Speed	Auto
IF Bandwidth.....	120 KHz
Video Bandwidth.....	1MHz
Quasi-Peak Adapter Bandwidth	120 KHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	1MHz

6.2.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

6.2.5 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

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

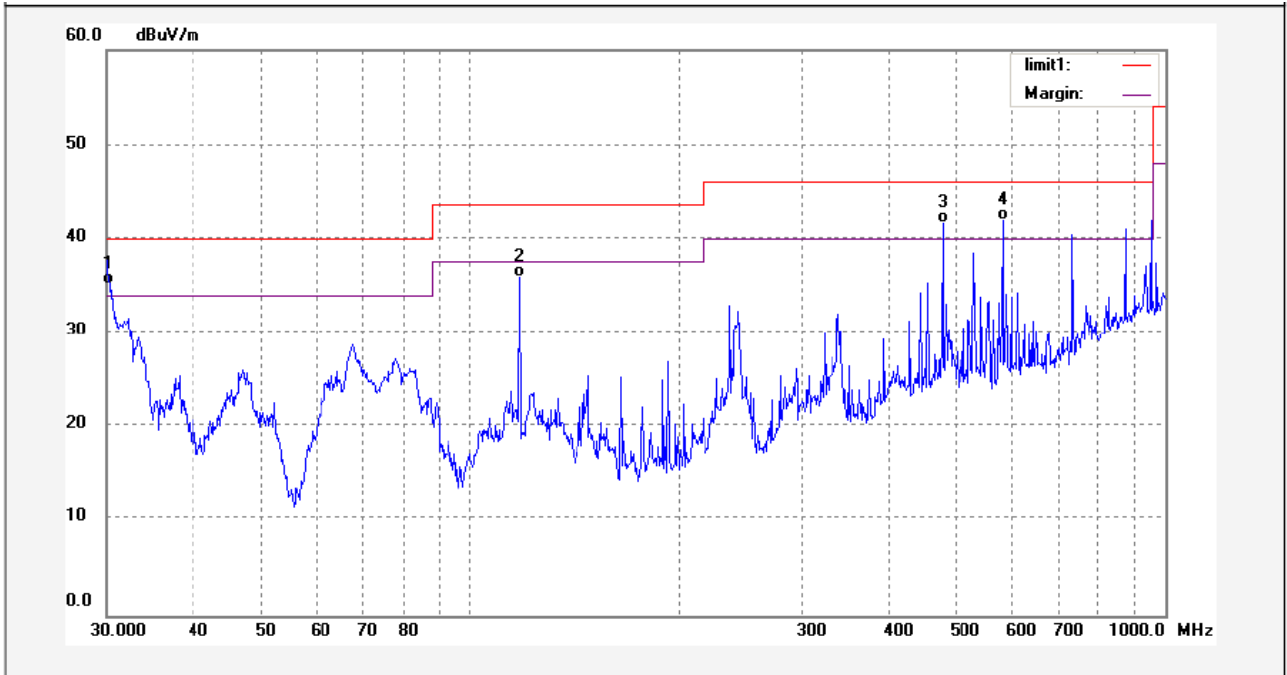
$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

6.2.6 Summary of Test Results

According to the data in this section, the EUT complied with the FCC Part15 B standards.

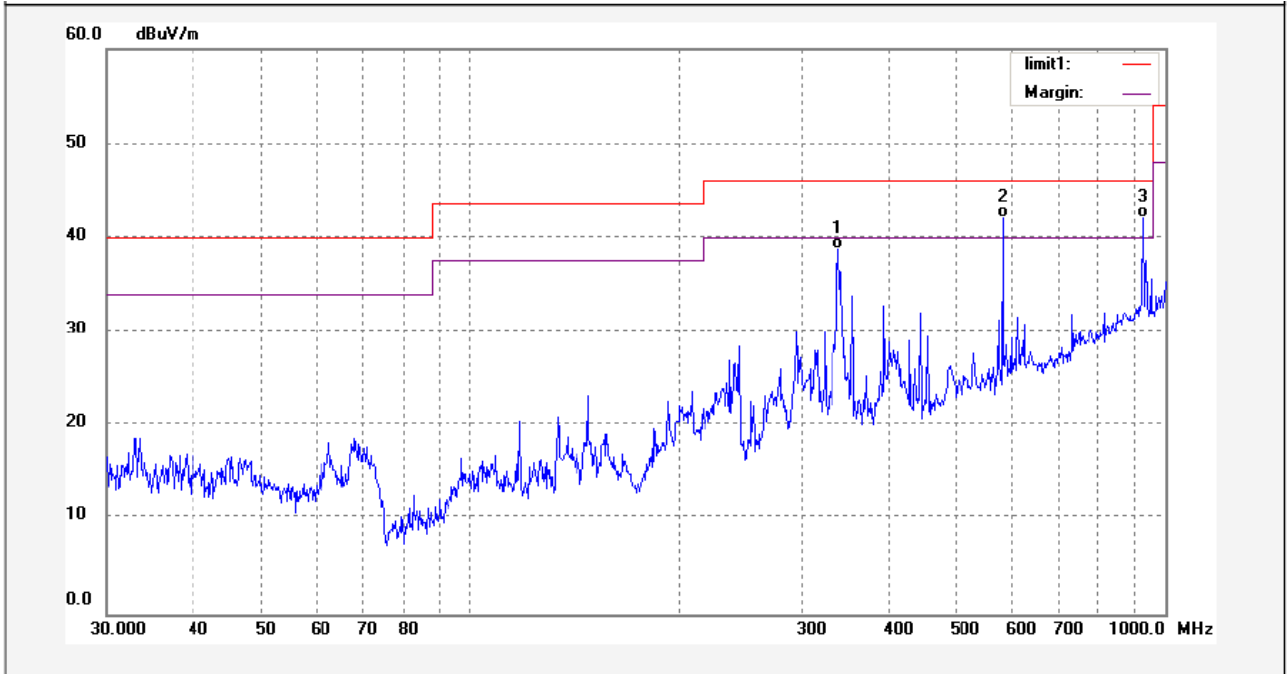
Frequency Range: 30MHz ~ 1000MHz

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	30.0000	18.95	16.15	35.10	40.00	-4.90	QP	
2	117.6815	23.73	12.24	35.97	43.50	-7.53	QP	
3	478.1394	19.08	22.52	41.60	46.00	-4.40	QP	
4	584.1611	17.37	24.61	41.98	46.00	-4.02	QP	

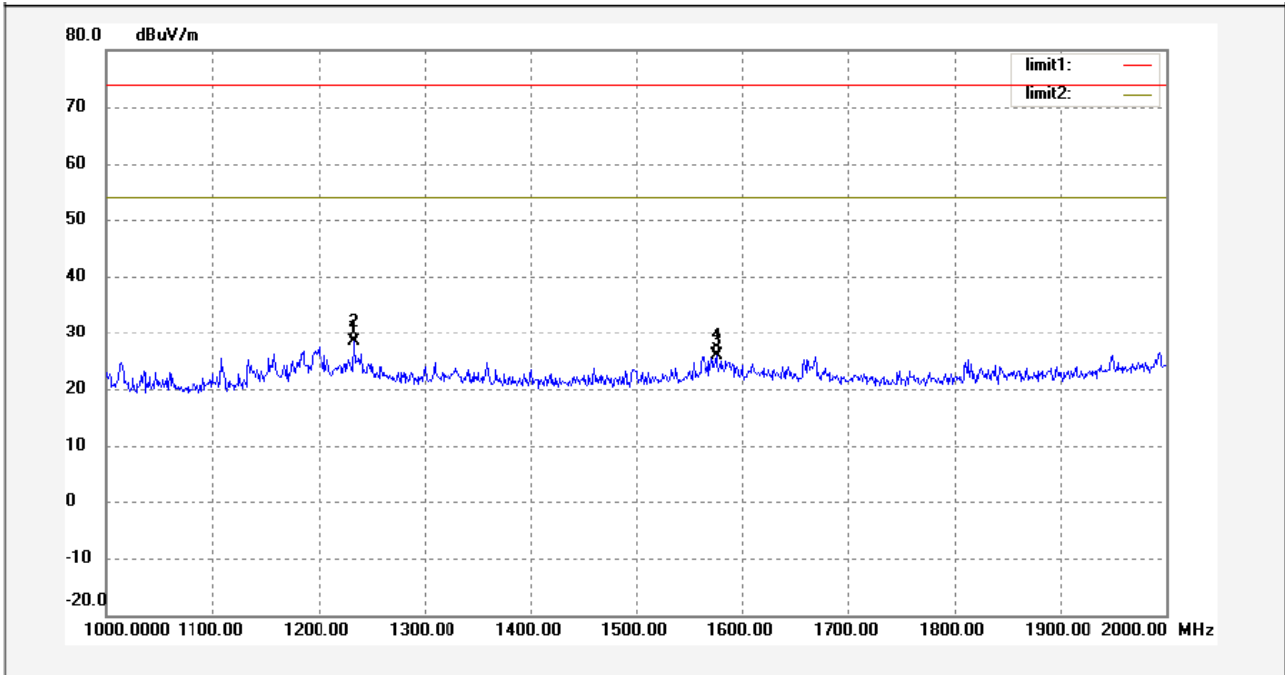
Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	338.8546	18.66	20.11	38.77	46.00	-7.23	QP	
2	584.1611	17.44	24.61	42.05	46.00	-3.95	QP	
3	928.8711	10.20	31.85	42.05	46.00	-3.95	QP	

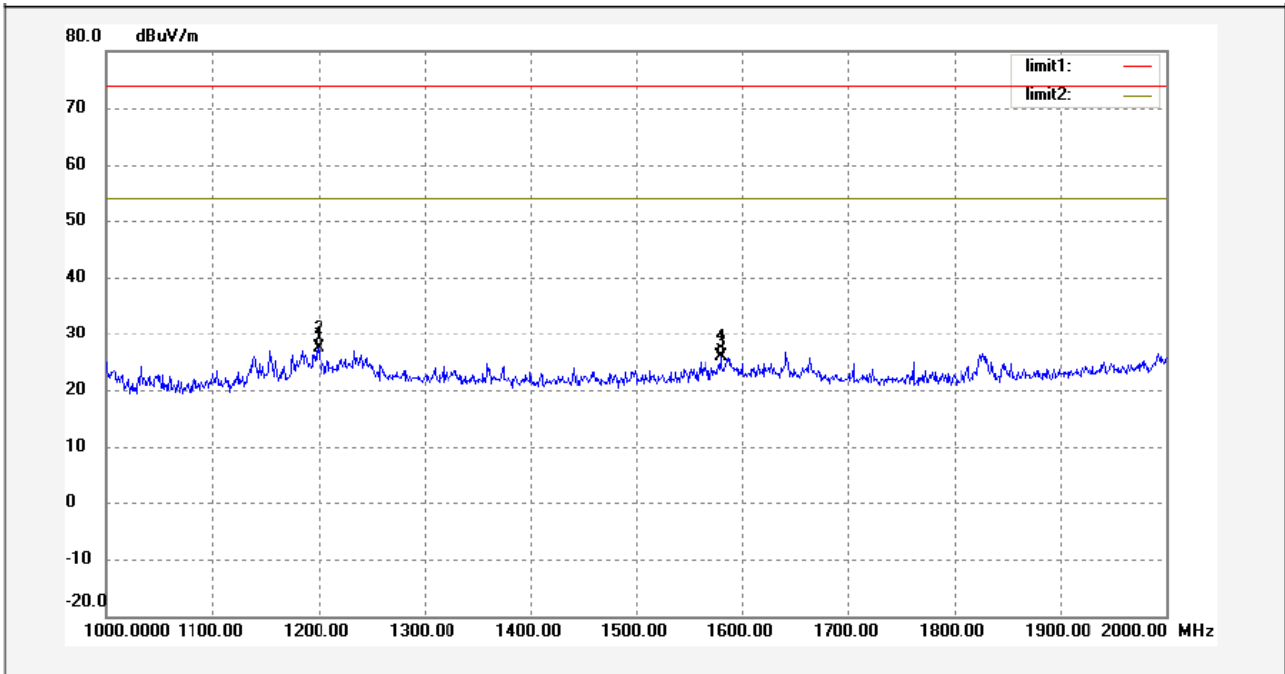
Frequency Range: 1GHz ~ 2GHz

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1233.467	42.39	-13.97	28.42	74.00	-45.58	peak	
2	1233.467	42.39	-13.97	28.42	54.00	-25.58	AVG	
3	1576.152	39.65	-13.77	25.88	74.00	-48.12	peak	
4	1576.152	39.65	-13.77	25.88	54.00	-28.12	AVG	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1199.399	41.57	-14.31	27.26	74.00	-46.74	peak	
2	1199.399	41.57	-14.31	27.26	54.00	-26.74	AVG	
3	1580.160	39.72	-13.78	25.94	74.00	-48.06	peak	
4	1580.160	39.72	-13.78	25.94	54.00	-28.06	AVG	

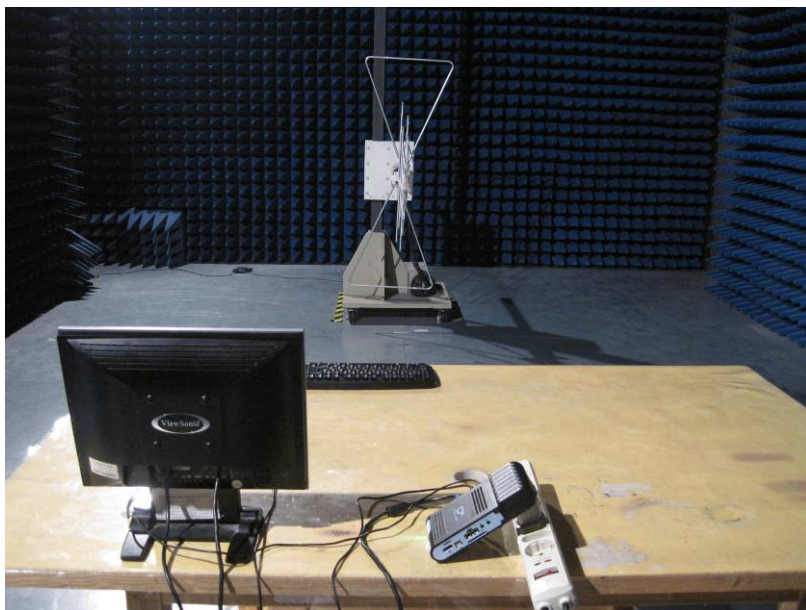
6.2.7 Photograph – Radiation Emission Test Setup

Below 1GHz

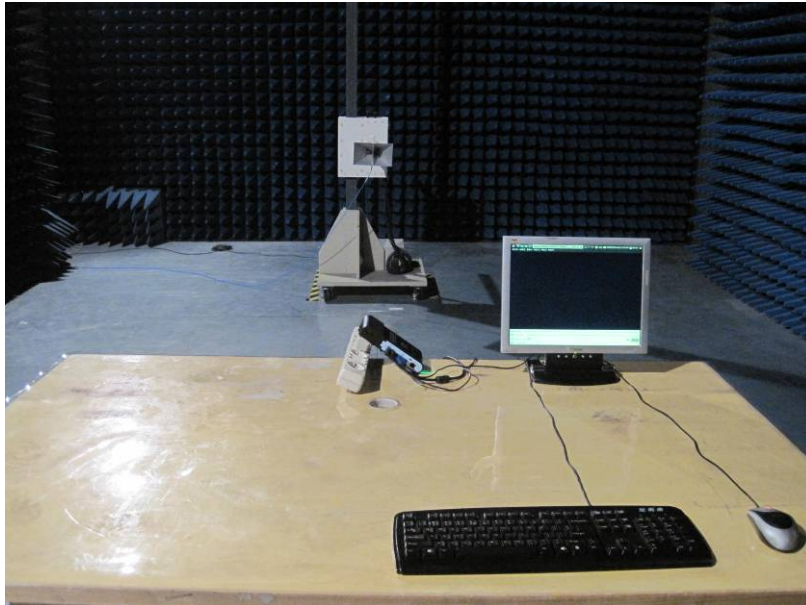
Front View



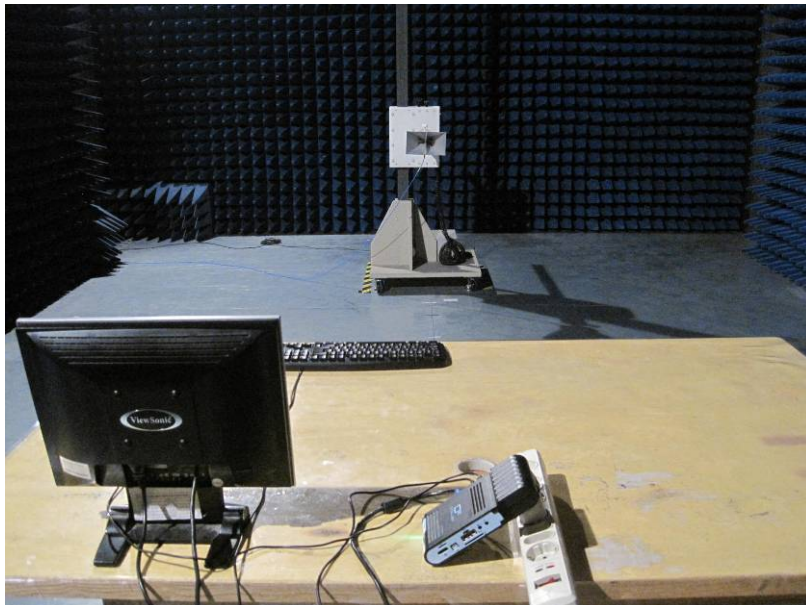
Back View



**Above 1GHz
Front View**



Back View



7 FCC Part 15C Requirements For WIFI

7.1 Radiation Emission Test

Test Requirement:	FCC Part15 Paragraph 15.247
Test Method:	Based on ANSI 63.4:2003
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

7.1.1 Test Equipment

Please refer to Section 5 this report.

7.1.2 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.

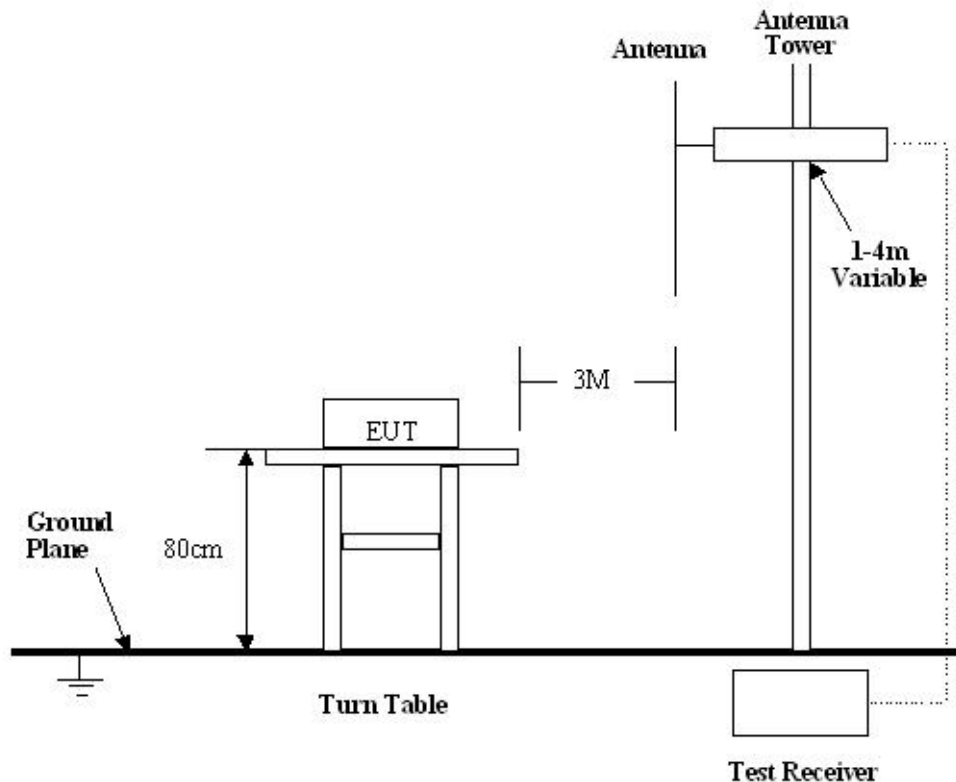
Based on ANSI C63.4:2003, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at WALTEK SERVICES EMC Lab is +/-5.03 dB.

7.1.3 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

7.1.4 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.



7.1.5 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

7.1.6 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

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

$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

7.1.7 Summary of Test Results

According to the data in section 7.1.11, the EUT complied with the FCC Part15 Paragraph 15.247 standards.

7.1.8 EUT Operating Condition

The EUT was tested in Continuously Transmit, and Continuously Receive Mode.

7.1.9 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.

7.1.10 Radiated Emissions Test Result

Formula of conversion factors:the field strength at 3m was established 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 stated in terms of dB.The gain of the presselector was accounted
For in the spectrum analyser meter reading.

Example:

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

7.1.11 Radiated Emission Data

Test Item:	Radiated Emission Data
Test Voltage:	120VAC, 60Hz
Test Mode:	CRX and CTX On
Temperature:	25.5 °C
Humidity:	51%RH
Test Result:	PASS

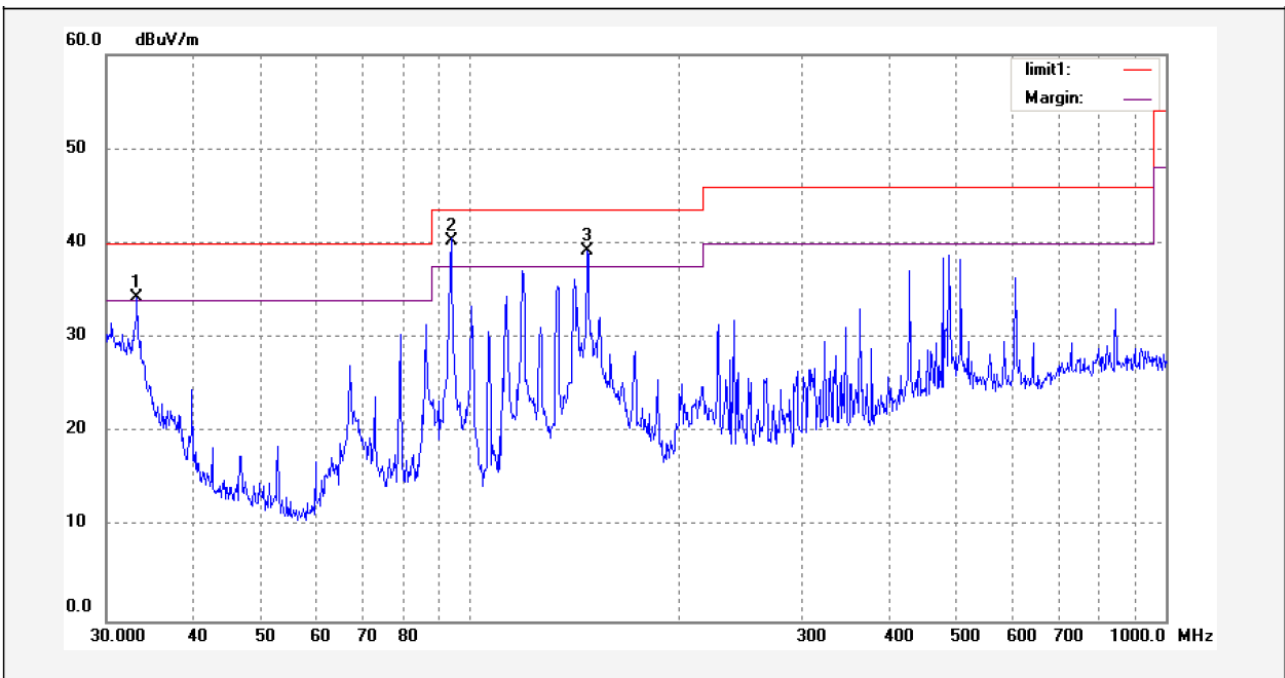
7.1.11.1 Modulation Technique :802.11B Mode

7.1.11.1.1 Test mode: continuously receive 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.

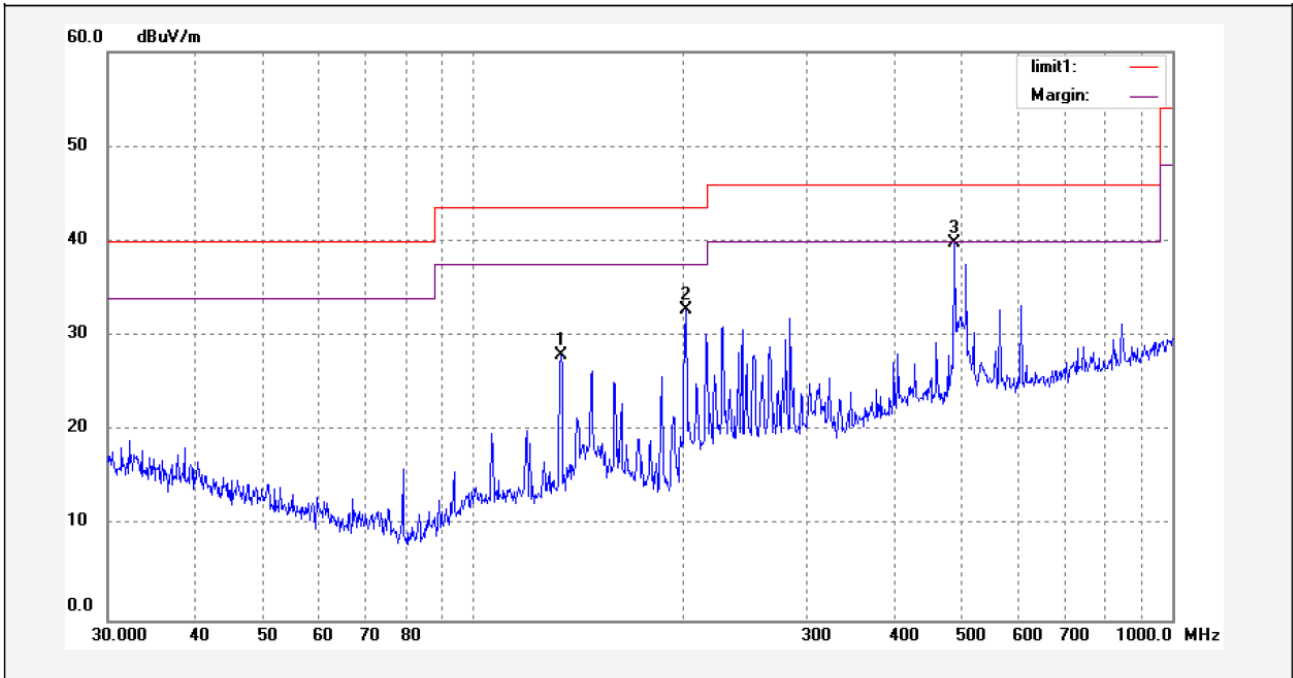
Test frequency : 30-1000MHz radiation test data:

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

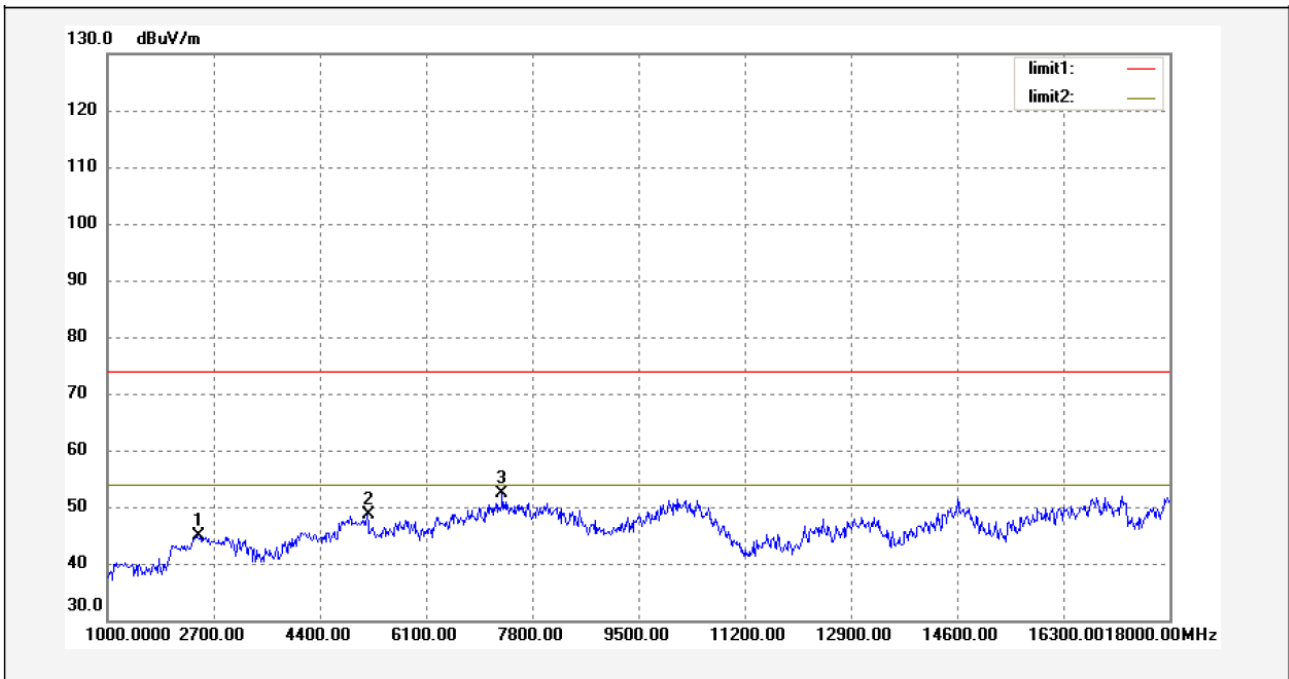


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	133.5491	15.10	12.93	28.03	43.50	-15.47	peak	
2	201.4539	17.57	15.18	32.75	43.50	-10.75	peak	
3	488.3263	17.42	22.43	39.85	46.00	-6.15	peak	

Test frequency: Above 1GHz radiation test data:

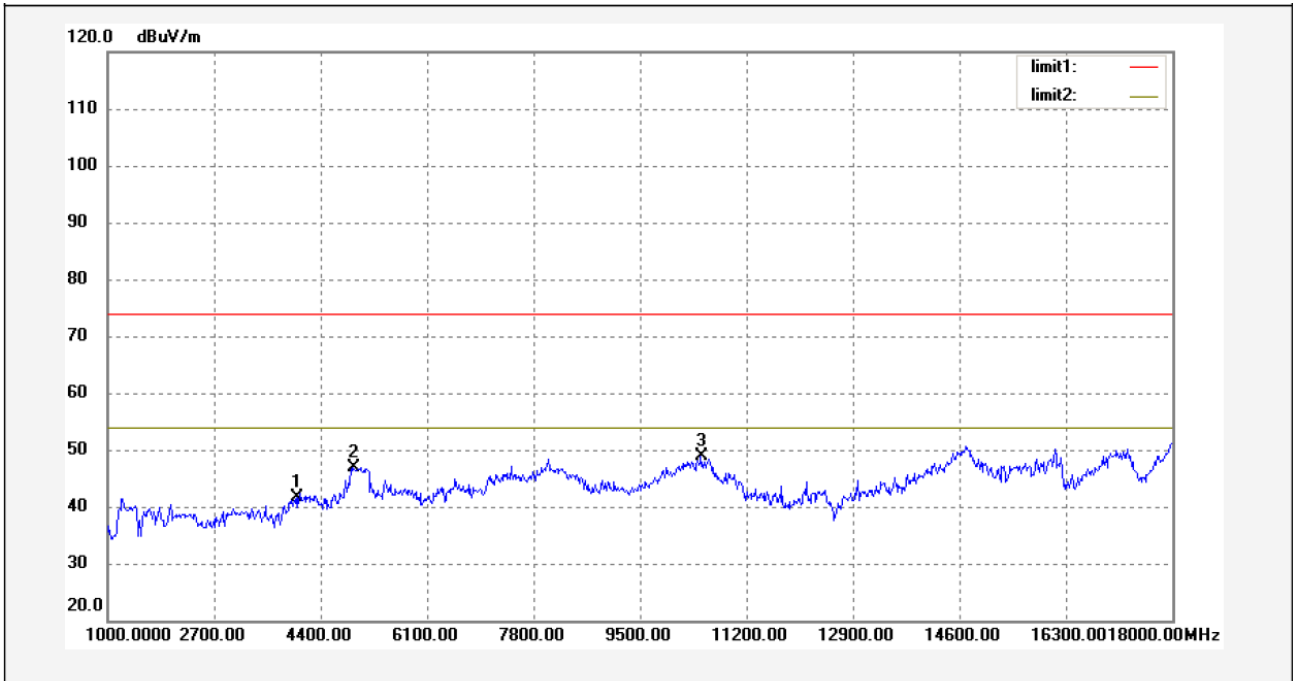
Remark: above 18GHz, the test signal below the noise level, so the data was not performed.

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

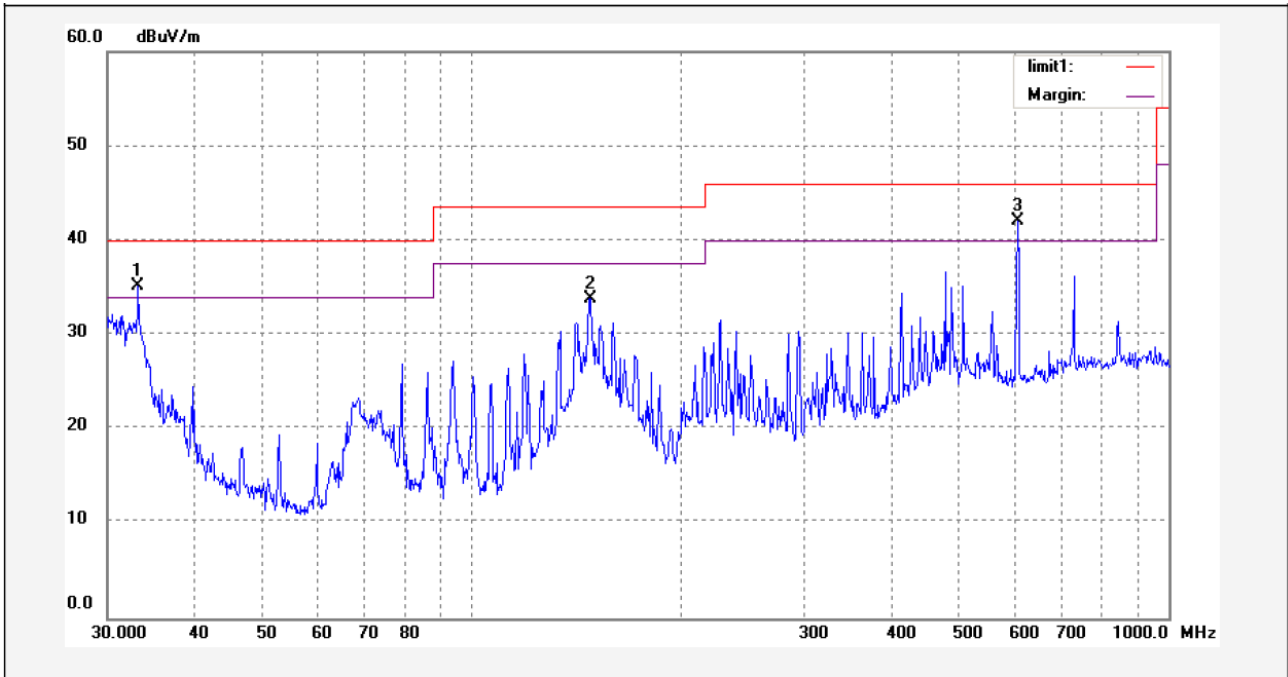


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	4032.064	39.01	2.57	41.58	74.00	-32.42	peak	
2	4917.836	41.99	4.96	46.95	74.00	-27.05	peak	
3	10470.942	30.34	18.42	48.76	74.00	-25.24	peak	

7.1.11.1.2 Test mode: continuously transmit mode.

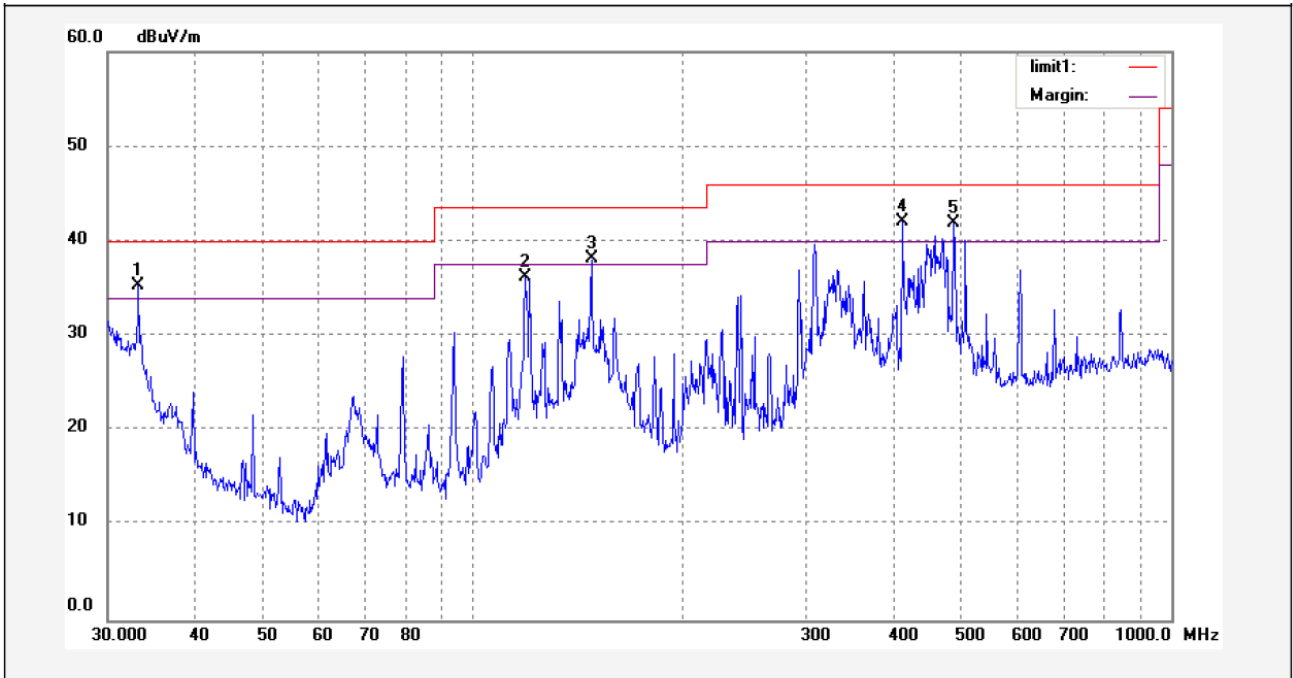
Test frequency : 30-1000MHz radiation test data:

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)	Detect or	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	Horizontal	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

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

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

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

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

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

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

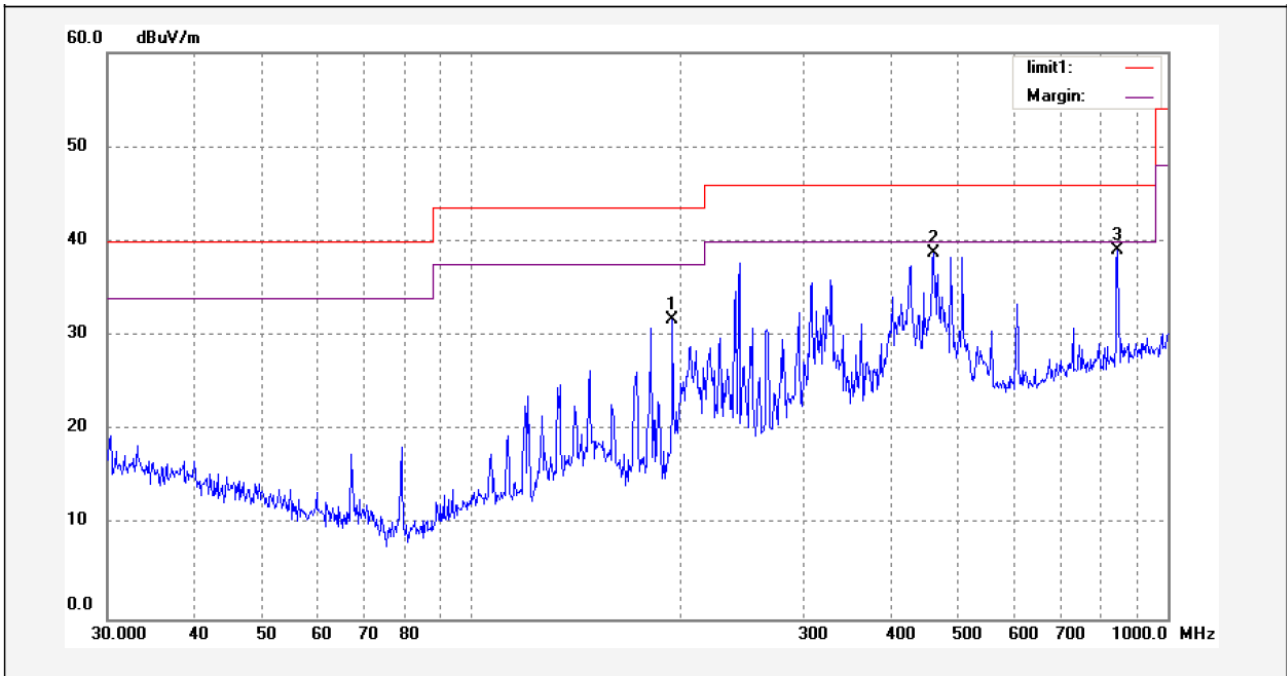
7.1.11.2 Modulation Technique :802.11G Mode

7.1.11.2.1 **Test mode: continuously receive 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.

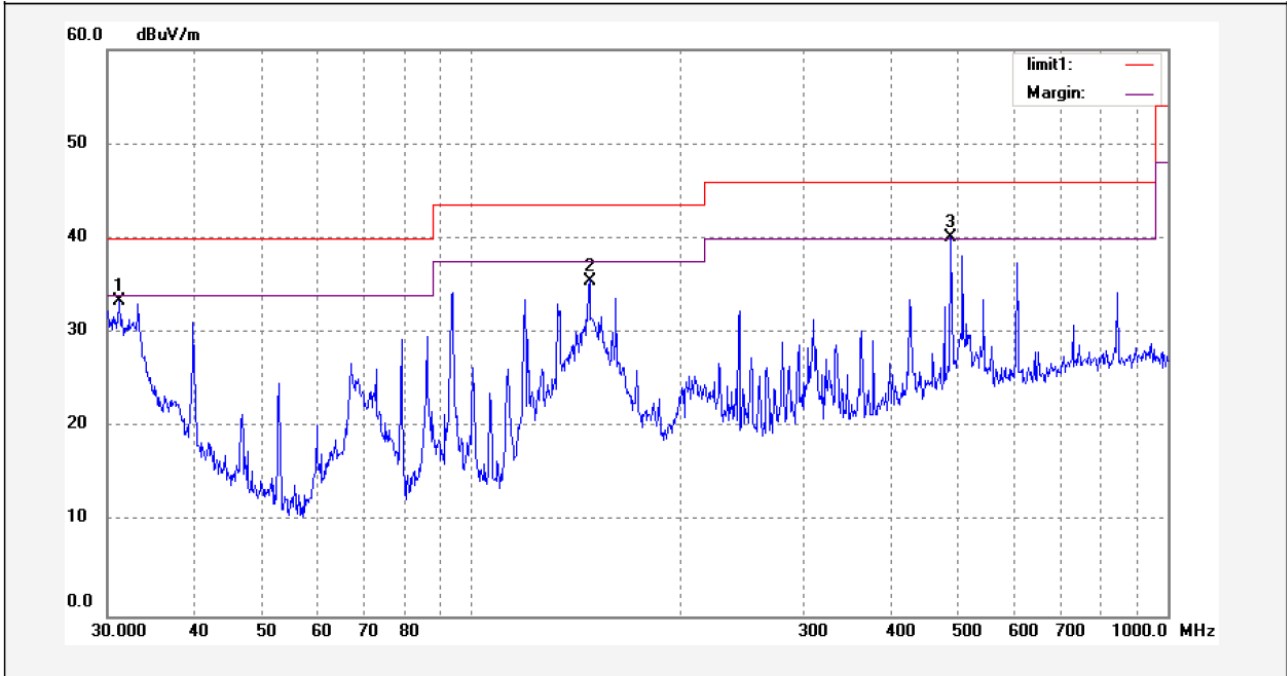
Test frequency : 30-1000MHz radiation test data:

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

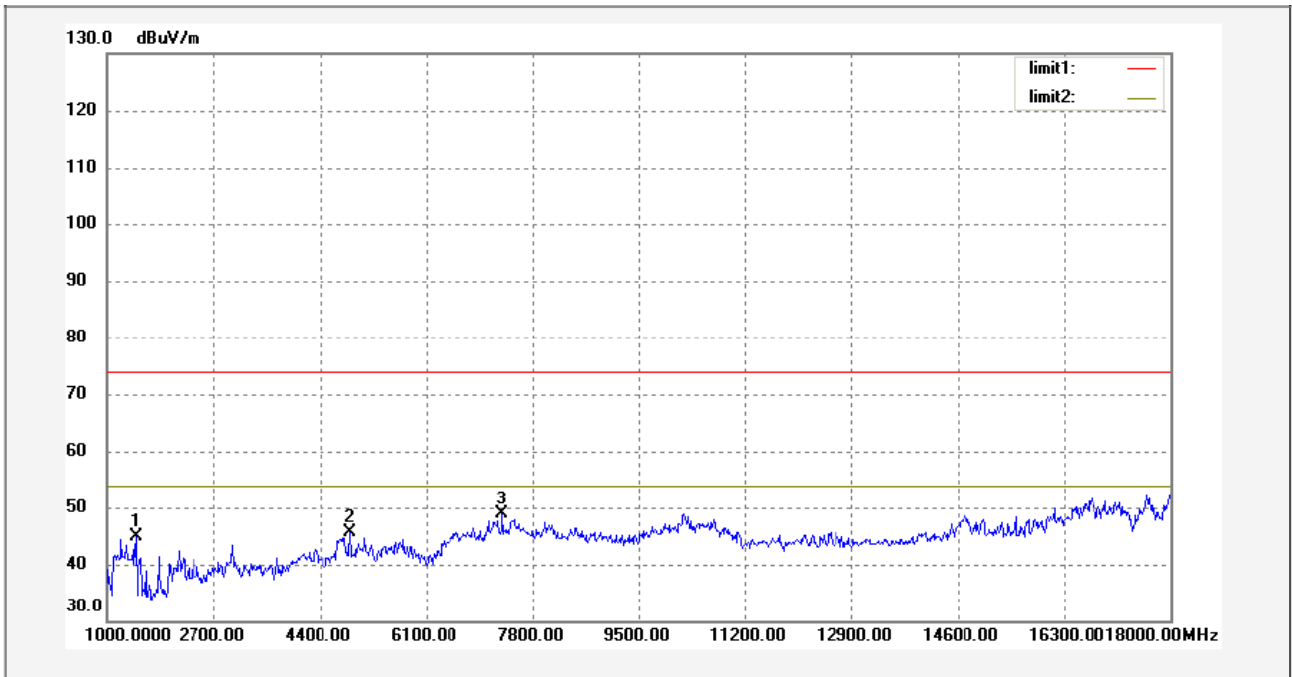


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	31.1822	16.14	17.19	33.33	40.00	-6.67	peak	
2	147.8747	21.70	13.85	35.55	43.50	-7.95	peak	
3	488.3263	17.66	22.43	40.09	46.00	-5.91	peak	

Test frequency: Above 1GHz radiation test data:

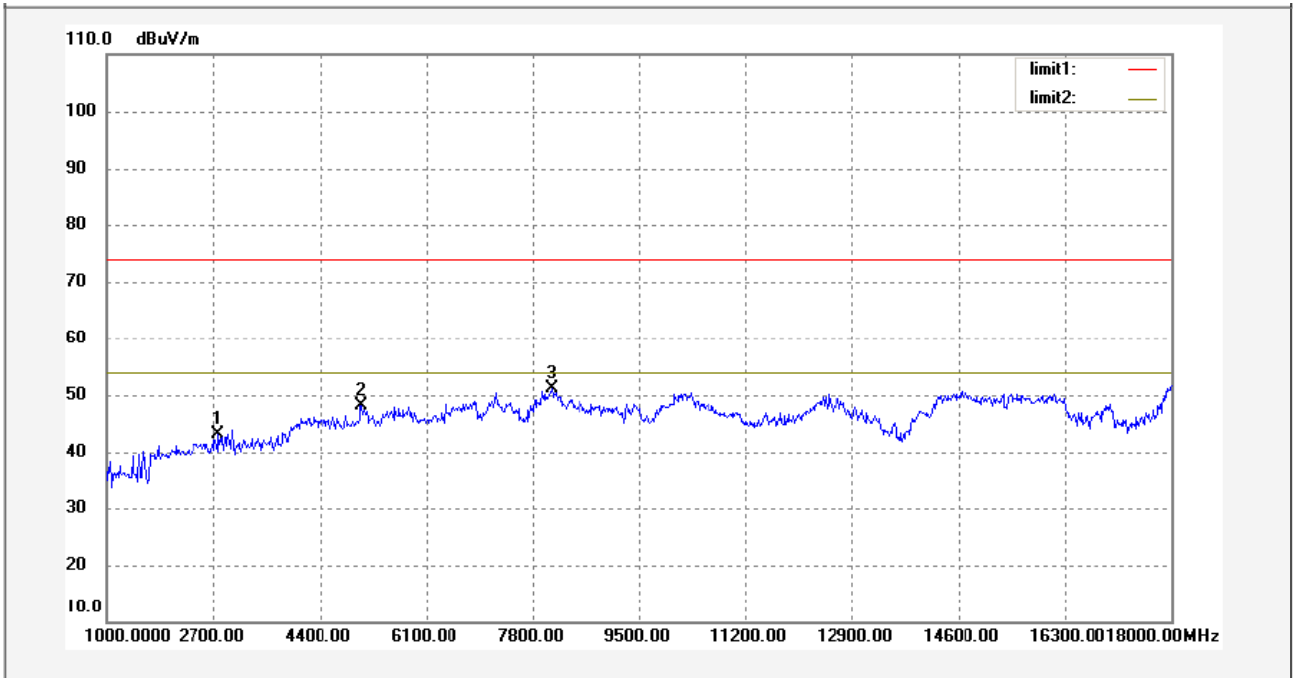
Remark: above 18GHz,the test signal below the noise level,so the data was not performed.

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

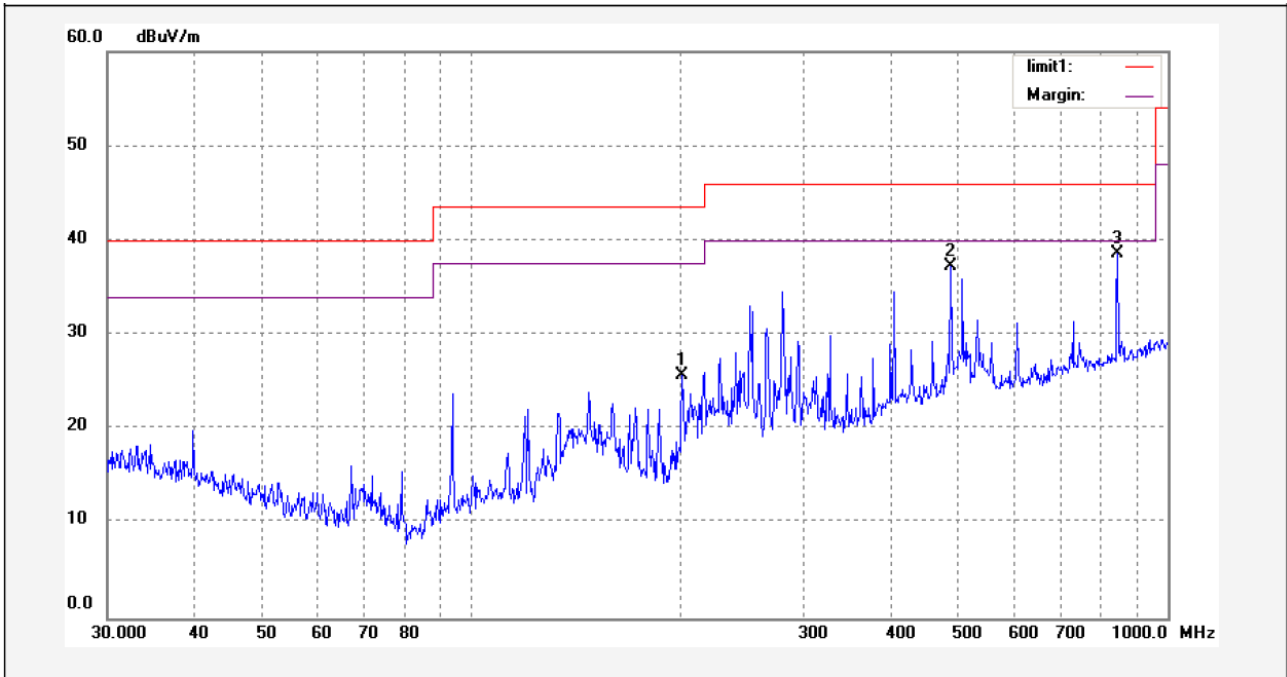


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2788.577	41.66	1.36	43.02	74.00	-30.98	peak	
2	5071.142	39.08	9.02	48.10	74.00	-25.90	peak	
3	8103.206	32.98	18.14	51.12	74.00	-22.88	peak	

7.1.11.2.2 Test mode: continuously transmit mode.

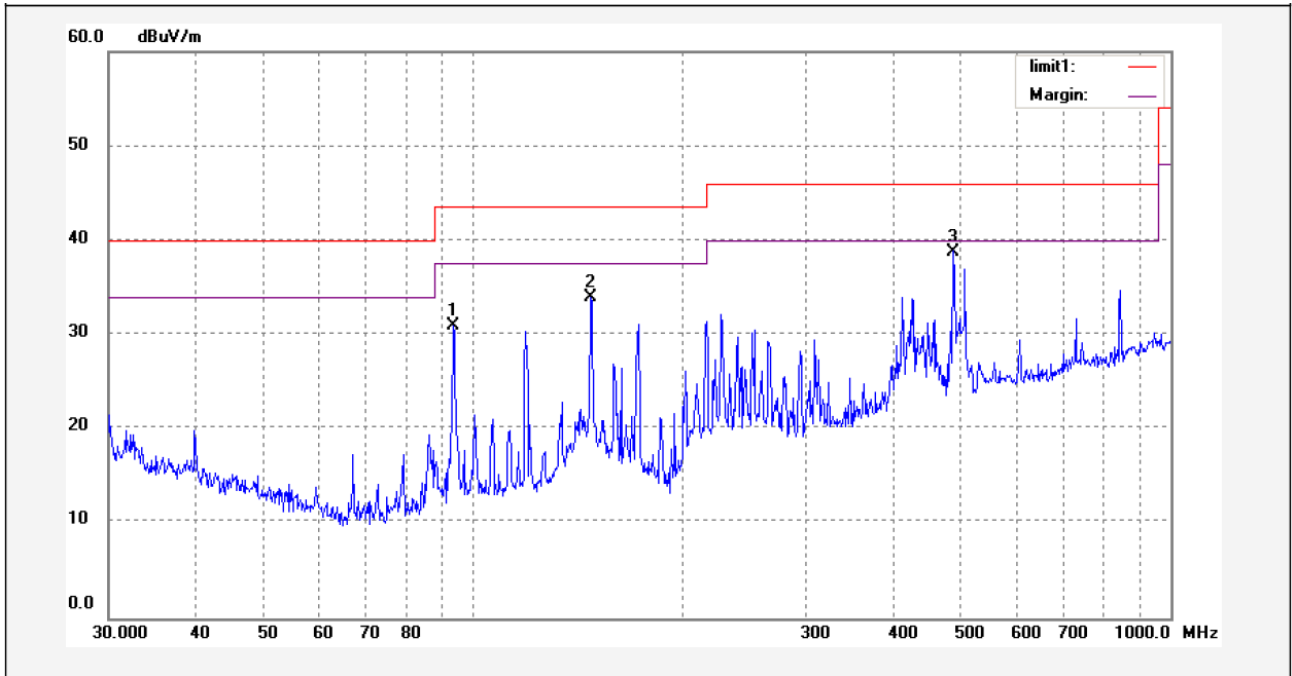
Test frequency : 30-1000MHz radiation test data:

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)	Detect or	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	Horizontal	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

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

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

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

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

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

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

7.2 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.

7.3 Maximum Peak Output Power

Test Requirement:	FCC Part15 Paragraph 15.247
Test Method:	Based on ANSI 63.4:2003
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

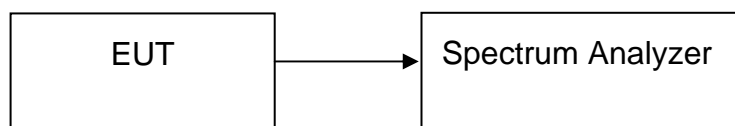
7.3.1 Test procedure:

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.

7.3.2 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.

7.4 Band Edges Measurement:

Test Requirement: FCC Part15 C
 Test Method: Based on FCC Part15 Paragraph 15.247
 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

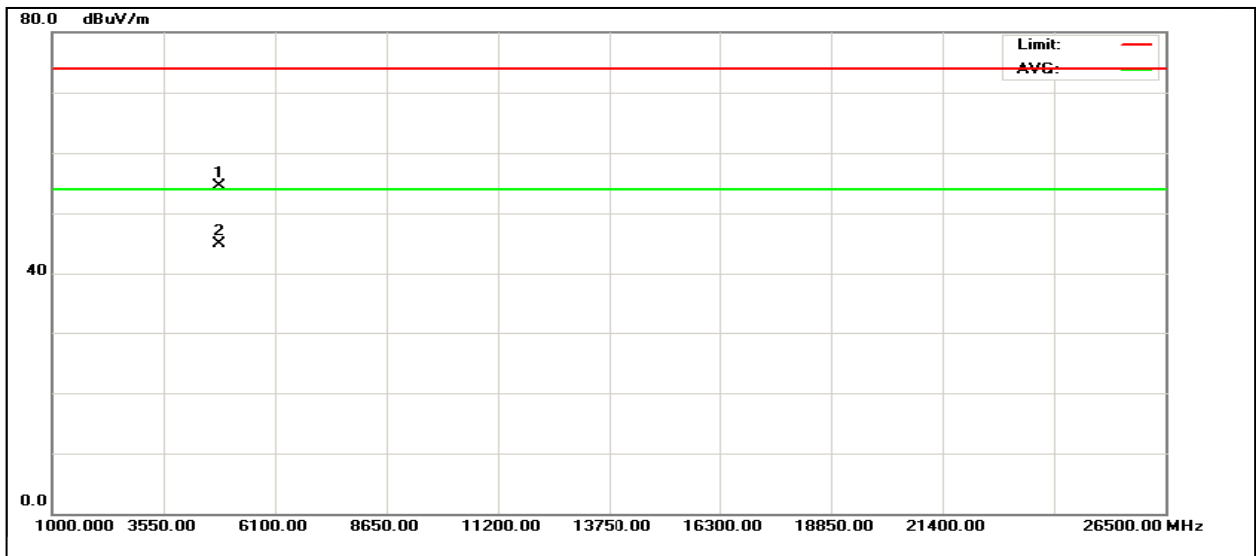
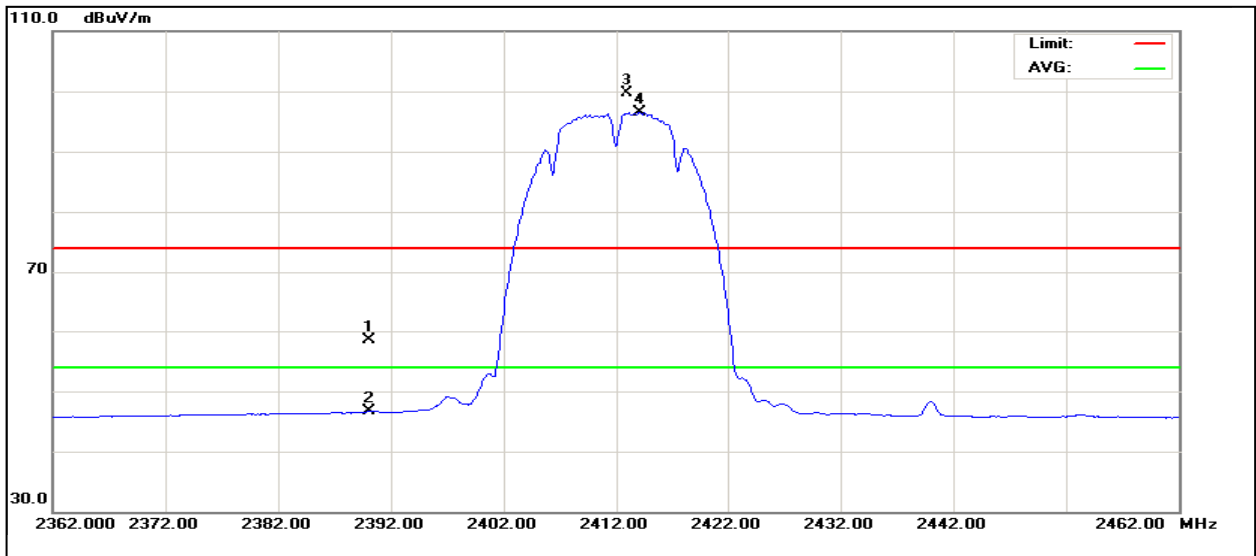
Please refer the graph as below:

Remark:the EUT was pretested 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

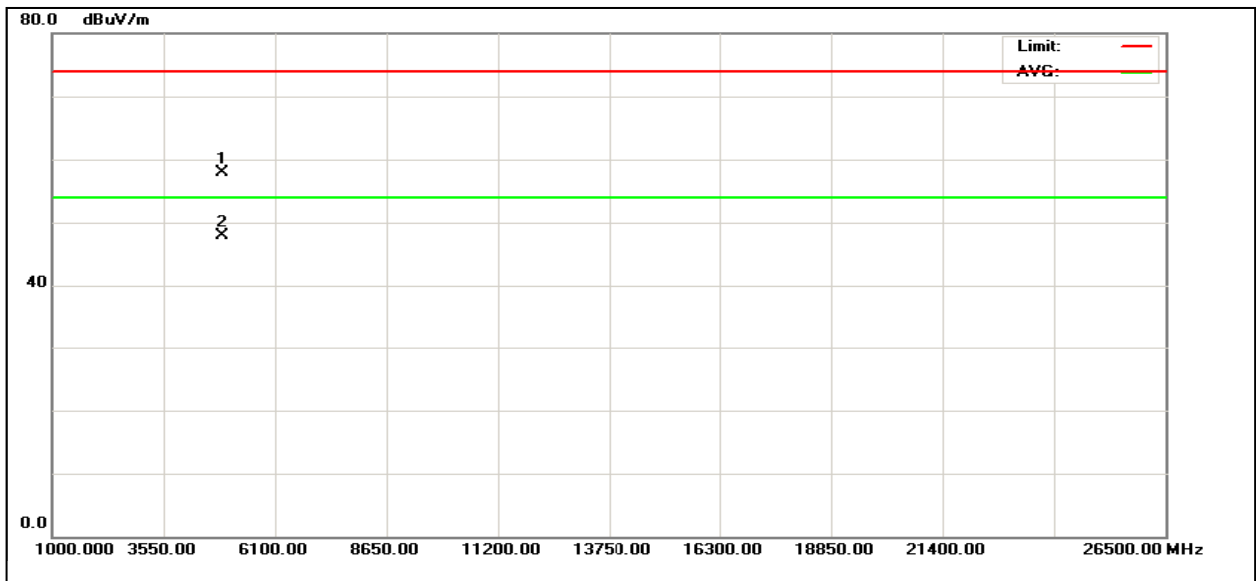
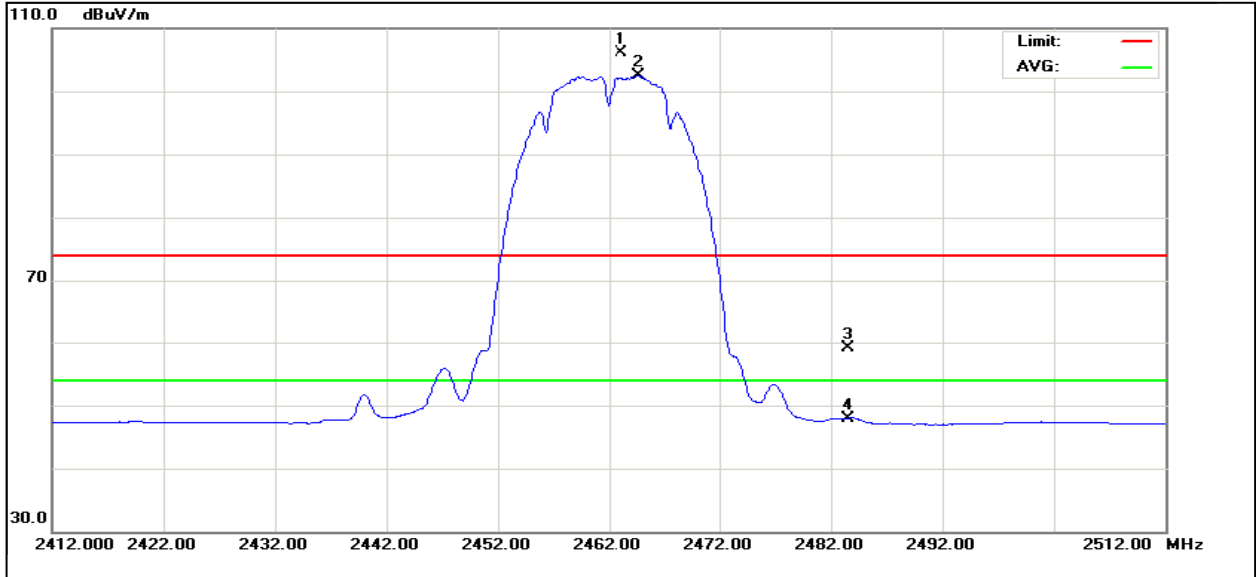
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	24.70	12.87	33.76	58.46	46.63	74.00	54.00	X/E
2412.95	V	65.97	62.64	33.78	99.75	96.43			X/F
4824.55	V	48.66	39.05	5.77	54.43	44.82	74.00	54.00	X/H

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

High channel:

Detector mode:Peak/Average



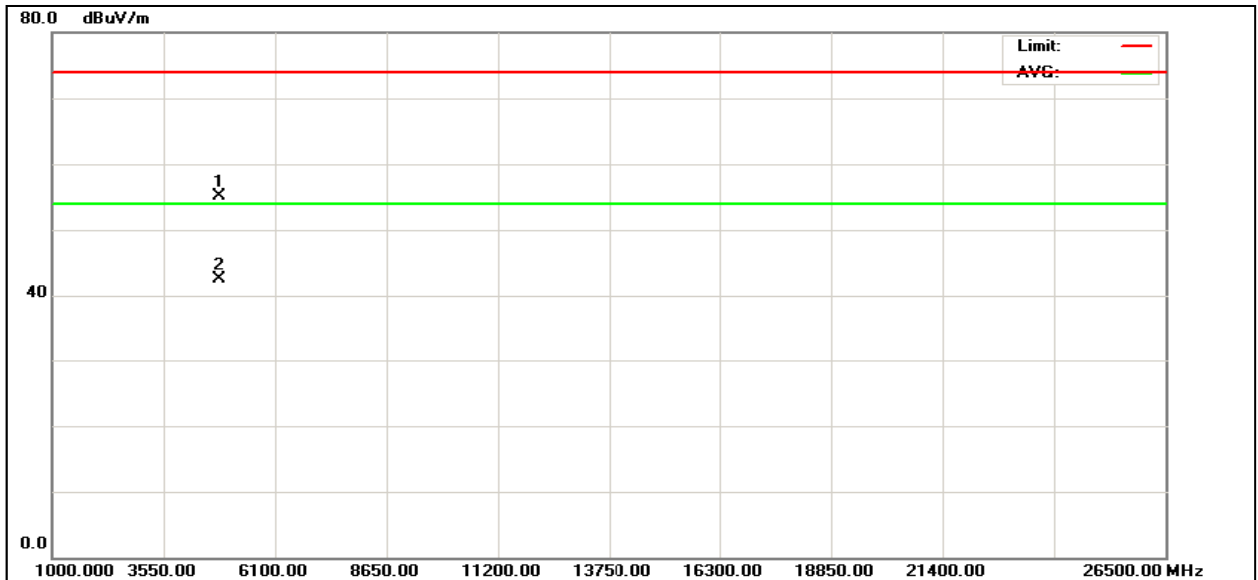
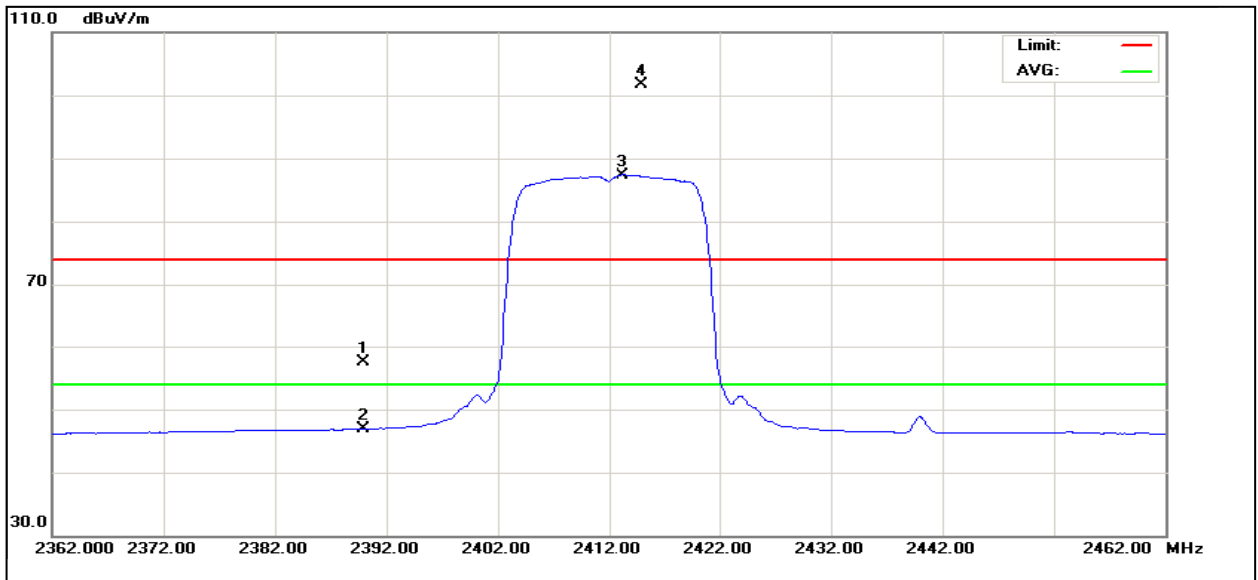
Test results

Freq. (MHz)	Ant Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
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

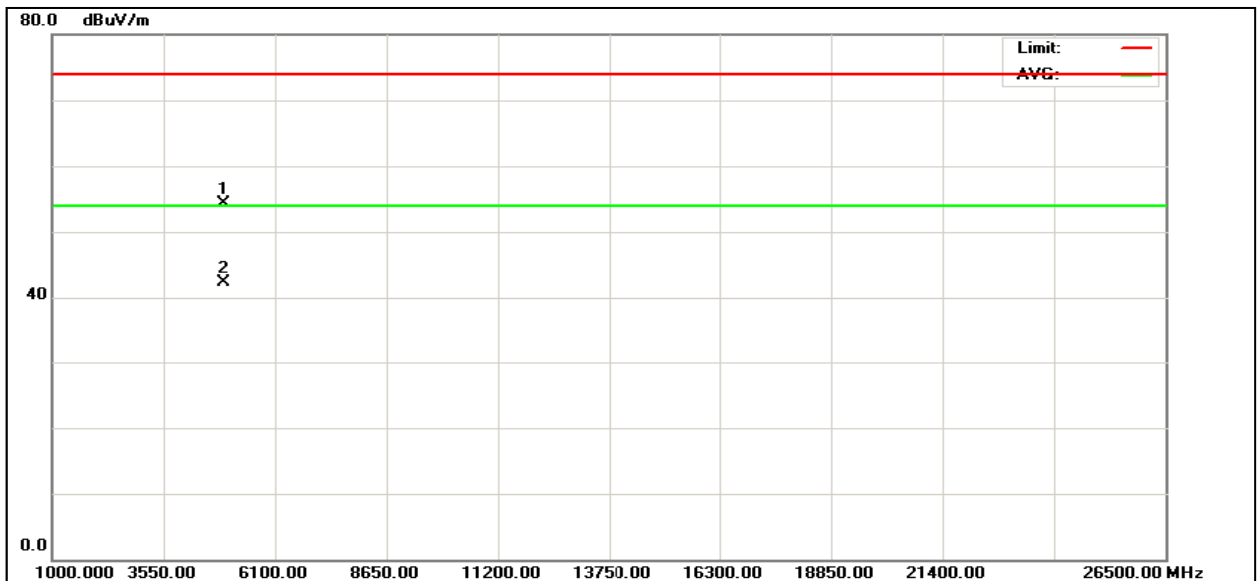
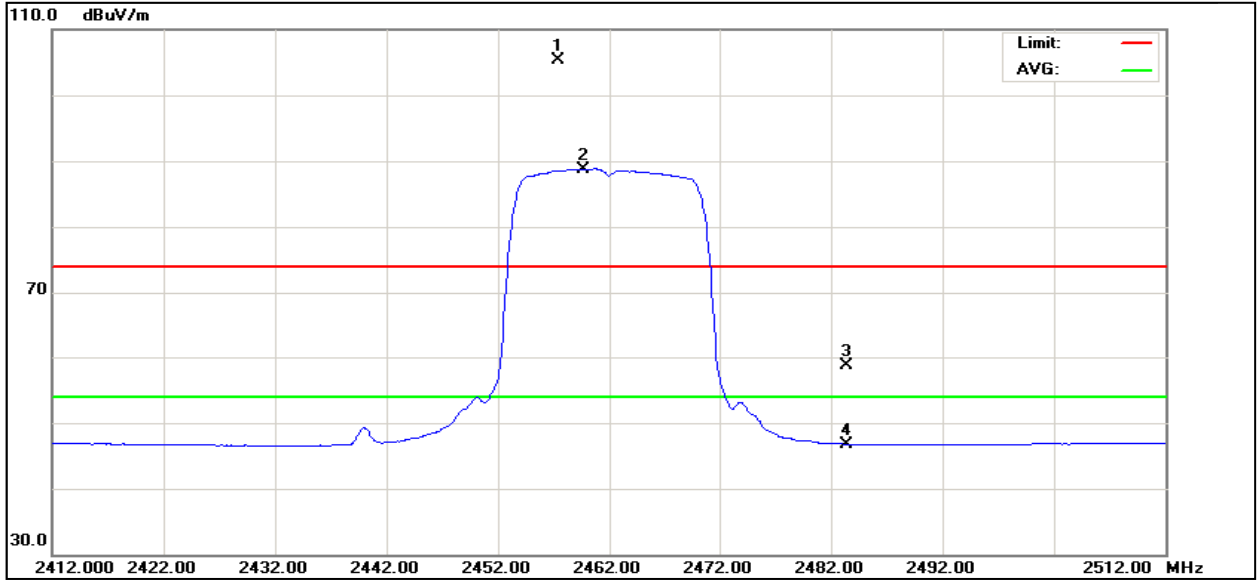
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	23.81	13.16	33.76	57.57	46.92	74.00	74.00	
2413.20	V	53.61	67.99	33.79	101.78	87.40			
4824.23	V	48.88	36.30	6.25	55.13	42.55	74.00	54.00	

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

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

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

7.5 6dB Bandwidth Measurement

7.5.1 Limit:

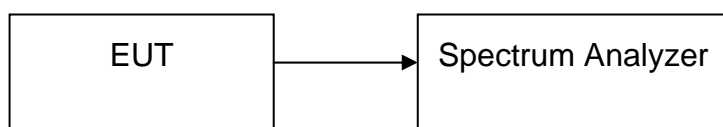
According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

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

7.5.2 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.

7.5.3 Test Setup:



7.5.4 Operating Environment:

Temperature: 25.50 °C

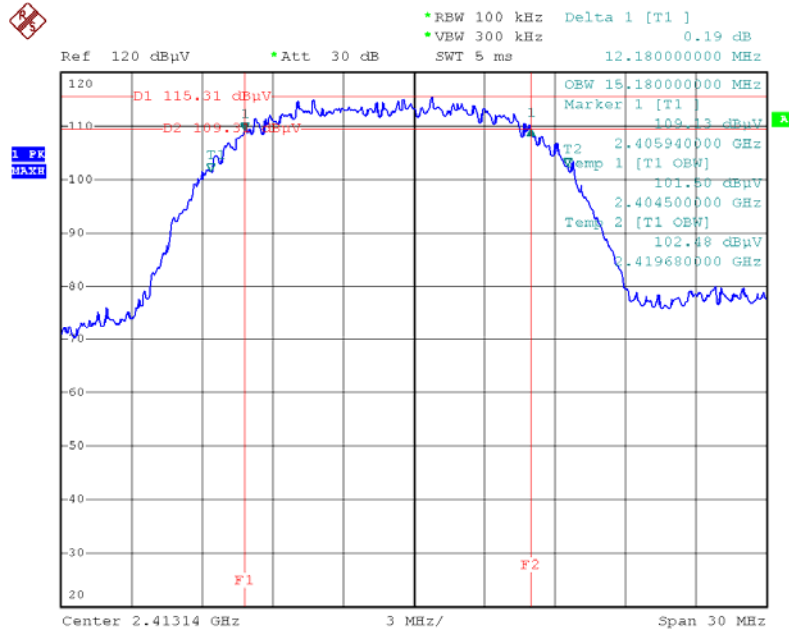
Humidity: 51 % RH

Barometric Pressure: 1012 mbar

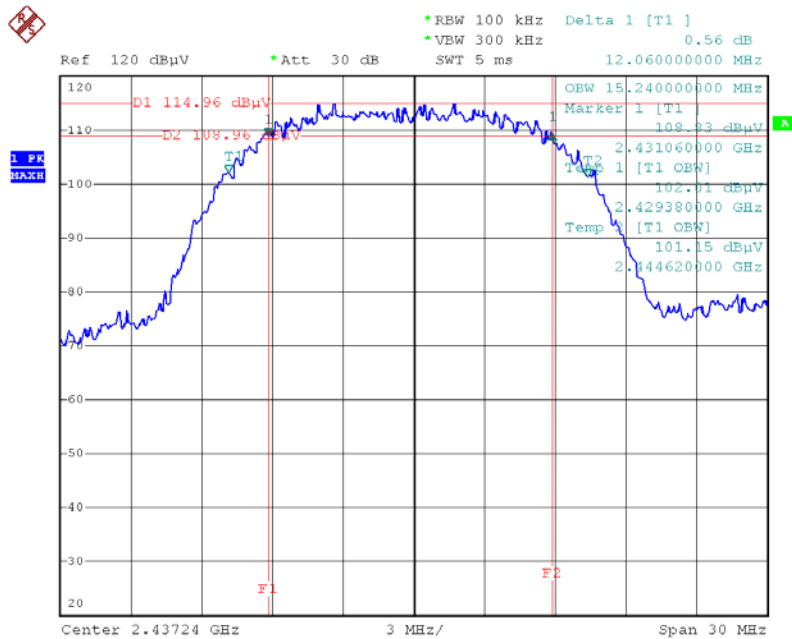
7.5.5 Test Result

Test mode:IEEE802.11B

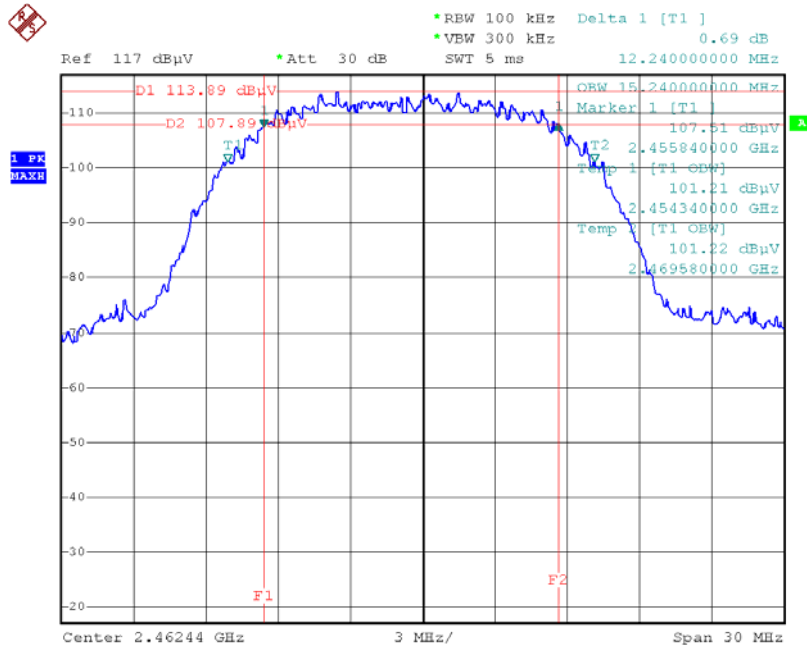
Low channel



Middle channel

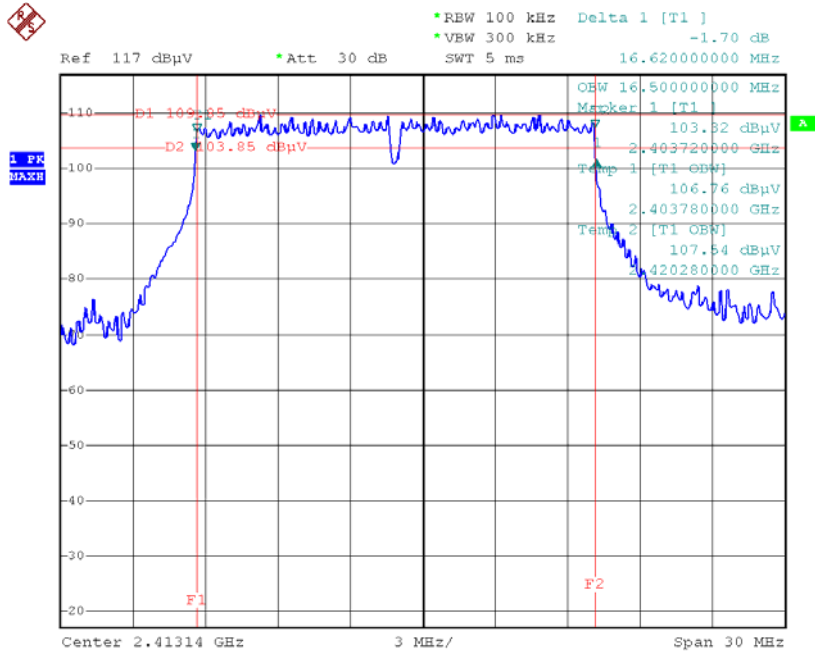


High channel

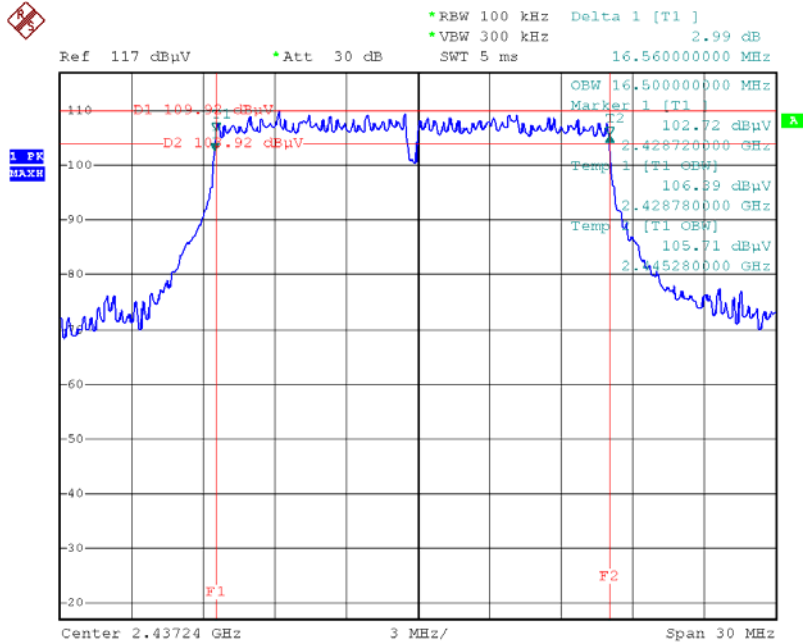


Test mode: IEEE802.11G

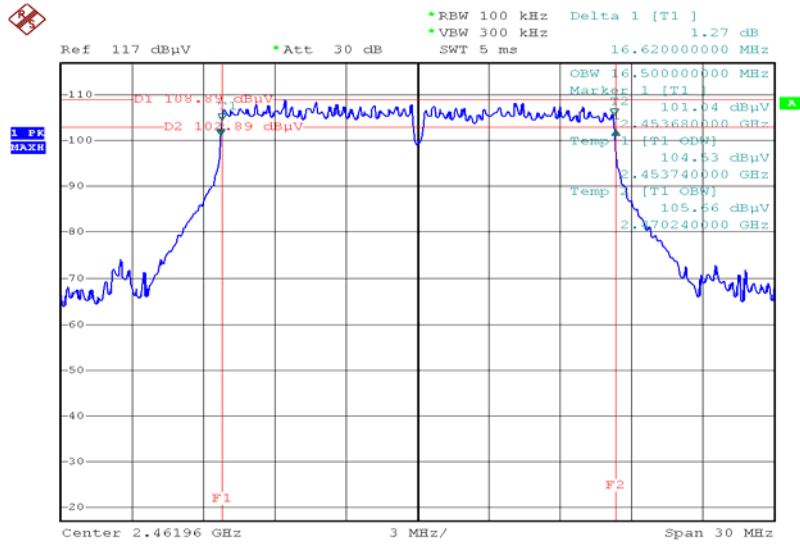
Low channel



Middle channel



High channel



7.6 Peak Power Spectral Density Measurement

7.6.1 Limit:

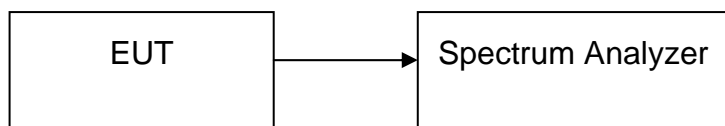
According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

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.

7.6.2 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.

7.6.3 Test Setup:



7.6.4 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.

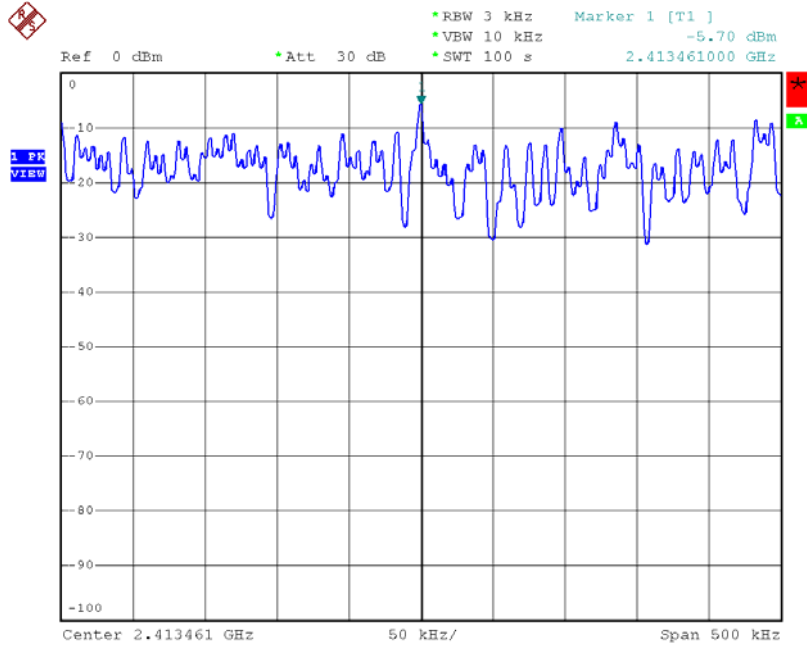
7.6.5 Test Result:

Test Result: PASS

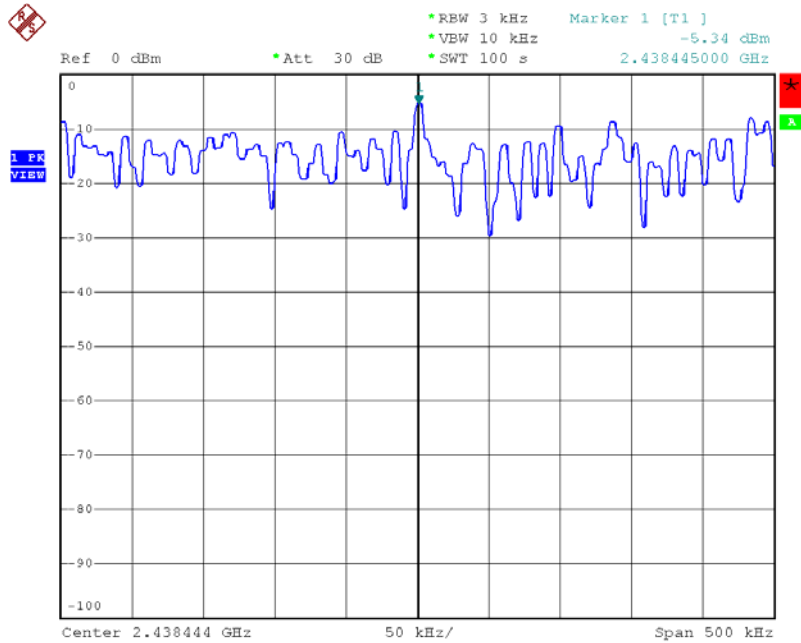
Please refer to the below photos for more details.

Test mode:IEEE802.11B

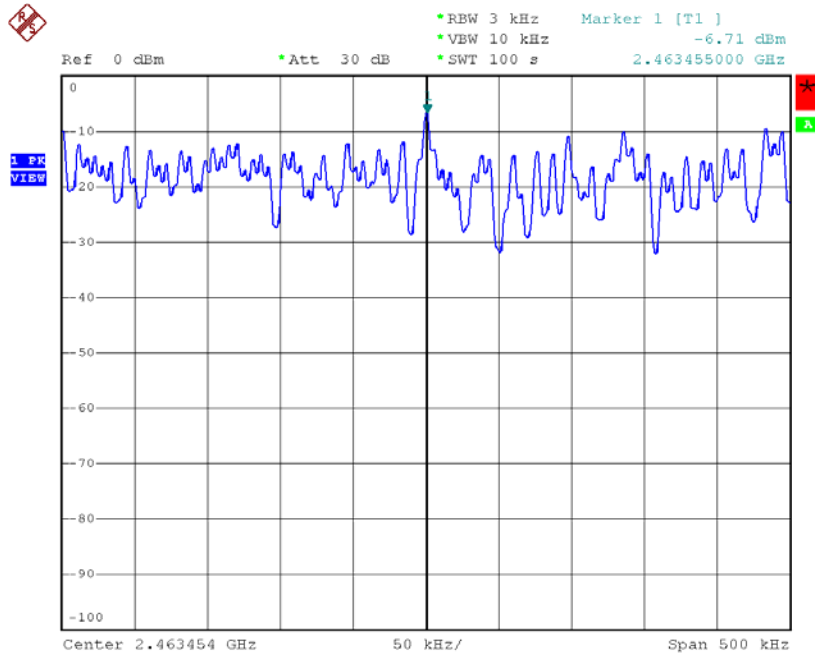
Low Channel



Middle Channel

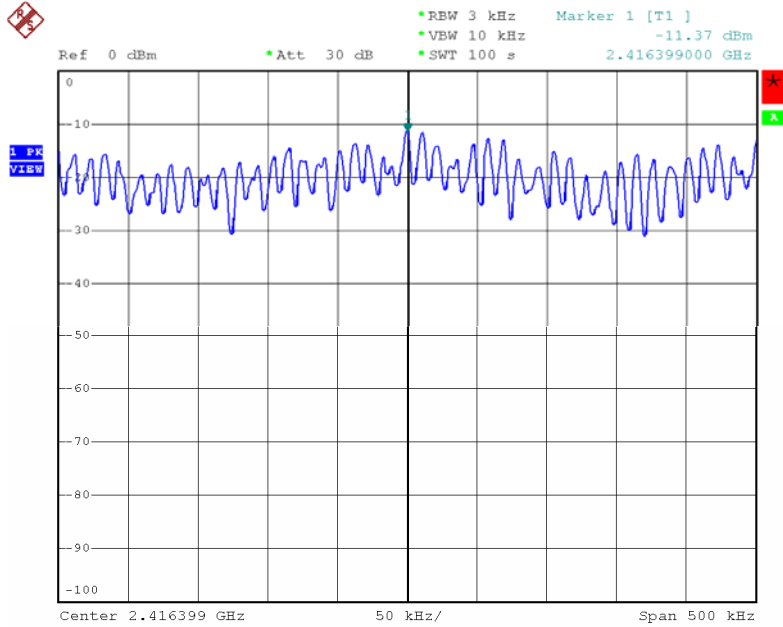


High Channel

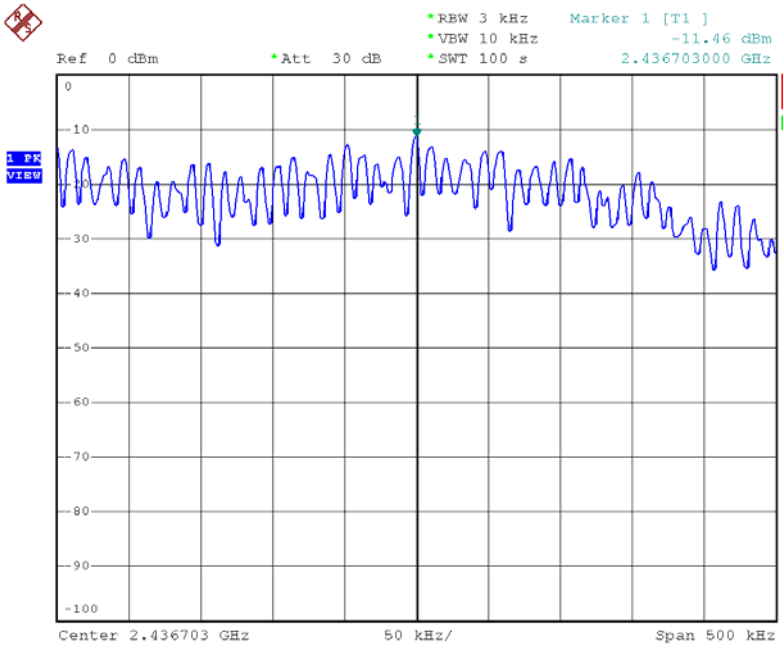


Test mode: IEEE802.11G

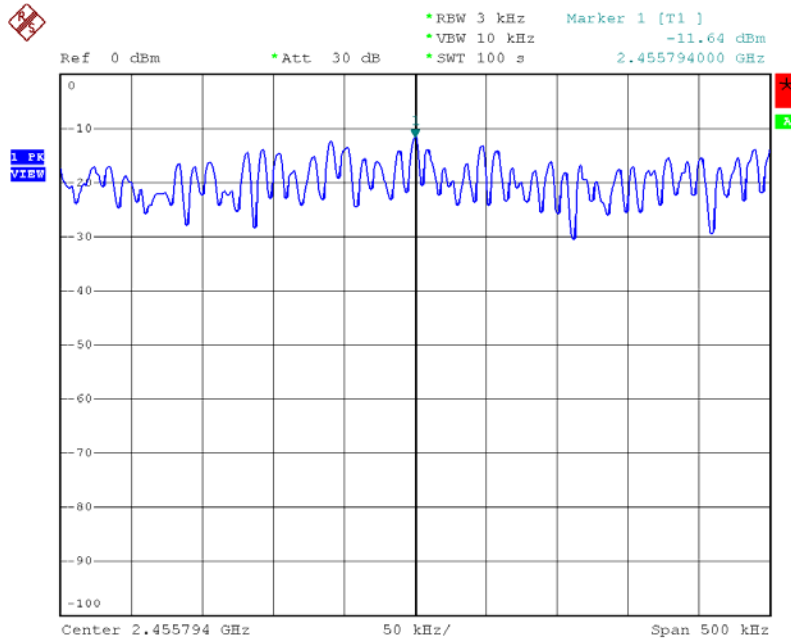
Low Channel



Middle Channel



High Channel



7.7 RF Exposure Test

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

Requirements:

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

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

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

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

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

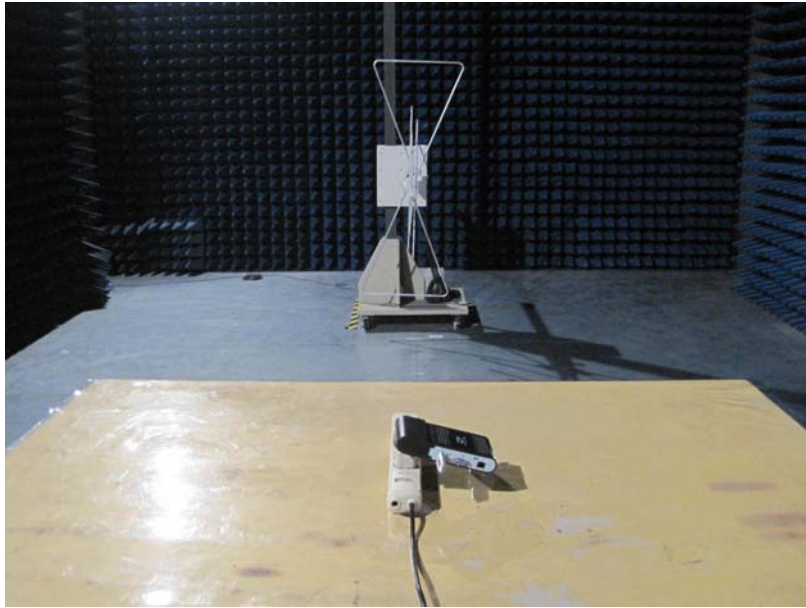
Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0	1	15.23	33.34	0.0105	1	Complies
0	1	17.25	53.09	0.0167	1	Complies
0	1	13.65	23.17	0.009996	1	Complies

Test mode: IEEE 802.11G

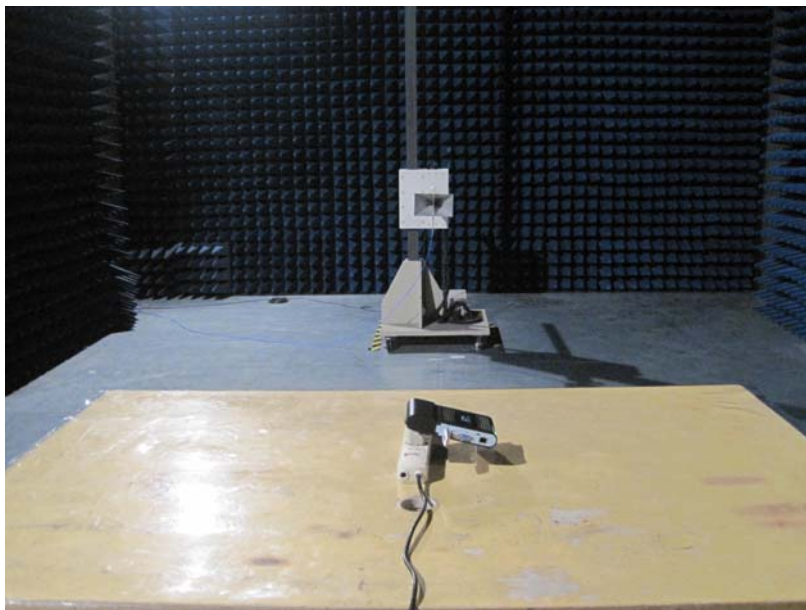
Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0	1	12.36	17.22	0.00543	1	Complies
0	1	13.61	22.96	0.00724	1	Complies
0	1	10.25	10.59	0.00334	1	Complies

7.8 Photographs of Test Setup for CRX and CTX

Radiation Emission Test View For 30MHz-1000MHz



Radiation Emission Test View For 1GHz-25GHz



8 FCC Part 15C Requirements for Bluetooth

8.1 Radiation Emission Test

Test Requirement:	FCC Part15 Paragraph 15.247
Test Method:	Based on ANSI 63.4:2003
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

8.1.1 Test Equipment

Please refer to Section 5 this report.

8.1.2 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.

8.1.3 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

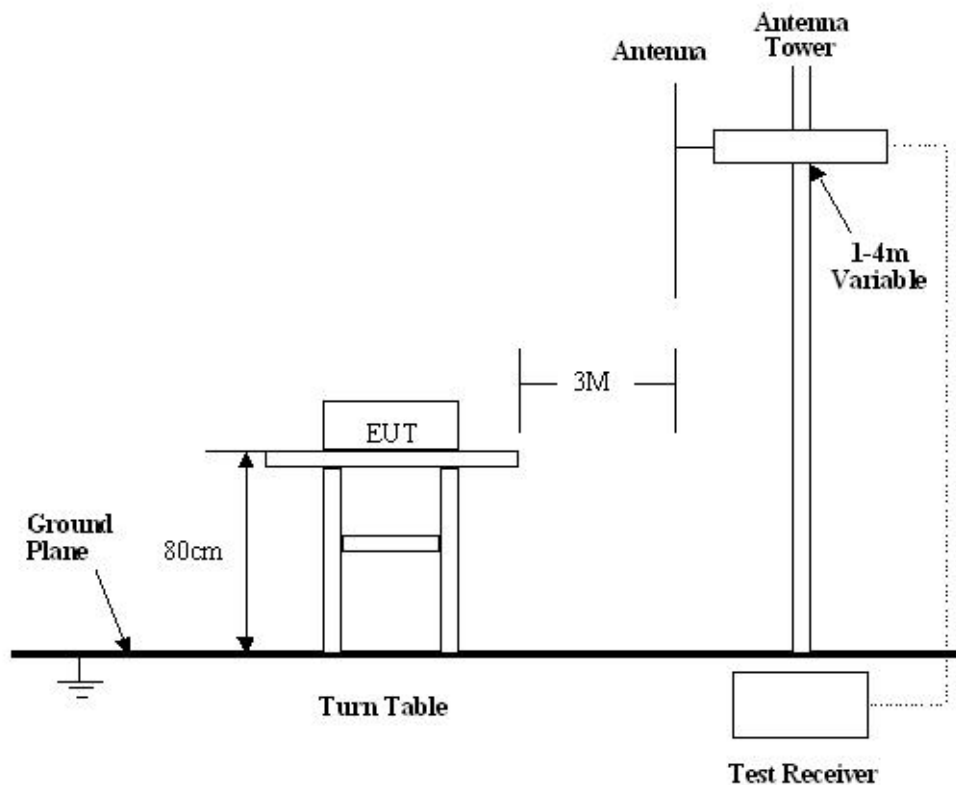
WALTEK SERVICES

Reference No.: WT11063132-D-E-F

6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

8.1.4 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.



8.1.5 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

8.1.6 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

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

$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

8.1.7 Summary of Test Results

According to the data in section 8.1.11, the EUT complied with the FCC Part15 Paragraph 15.247 standards.

8.1.8 EUT Operating Condition

The EUT was tested in Continuously Transmit, and Continuously Receive Mode.

8.1.9 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 instrumentation 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.

8.1.10 Radiated Emissions Test Result

Formula of conversion factors:the field strength at 3m was established 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 stated 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

8.1.11 Radiated Emission Data

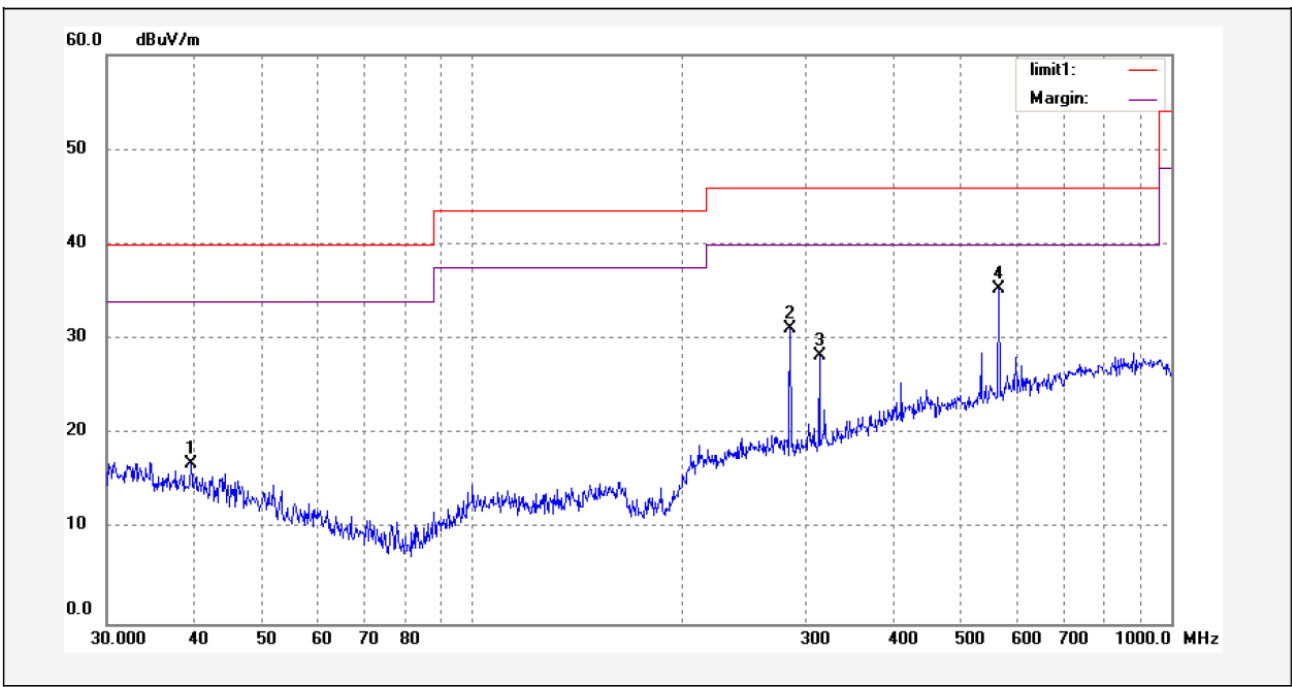
Test Item:	Radiated Emission Data
Test Voltage:	Adapter input 120.0V
Test Mode:	TX On
Temperature:	25.0 °C
Humidity:	51%RH
Test Result:	PASS

8.1.11.1 Test mode: continuously receive 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.

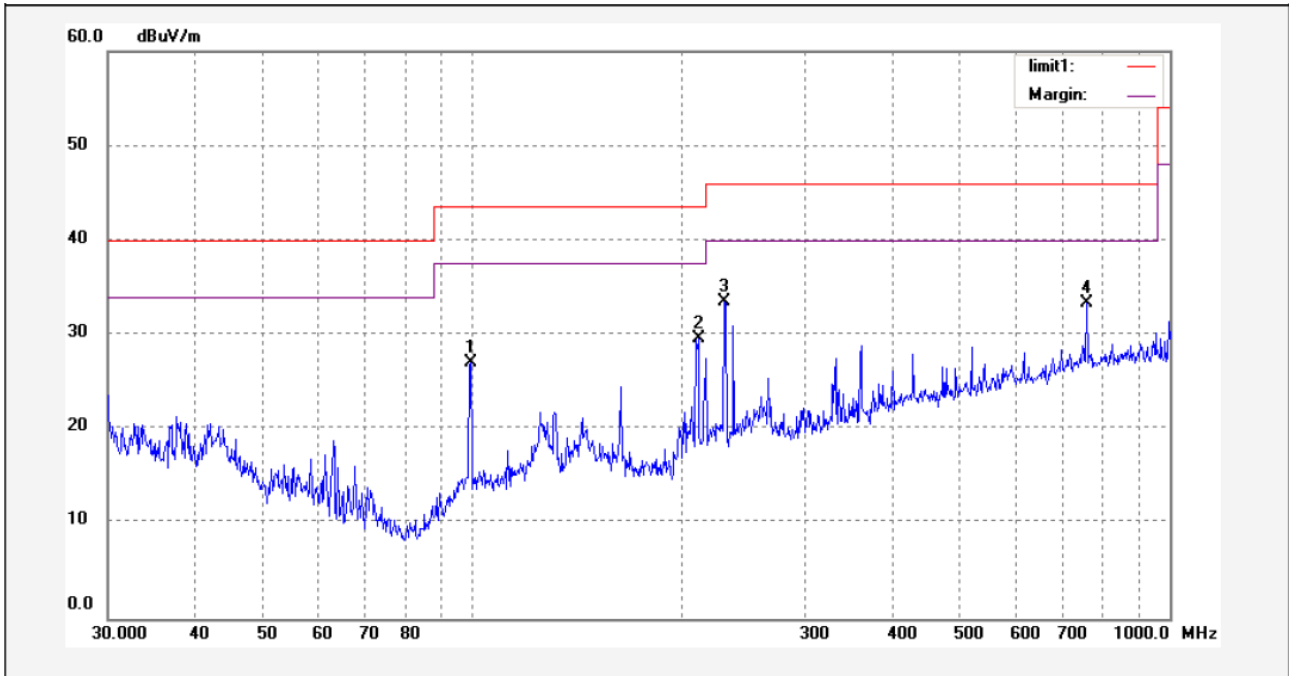
Test frequency : 30-1000MHz radiation test data:

Vertical:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	39.5977	0.68	16.13	16.81	40.00	-23.19	peak	
2	285.2611	13.03	18.04	31.07	46.00	-14.93	peak	
3	313.6482	9.25	19.00	28.25	46.00	-17.75	peak	
4	565.9776	11.55	23.74	35.29	46.00	-10.71	peak	

Horizontal

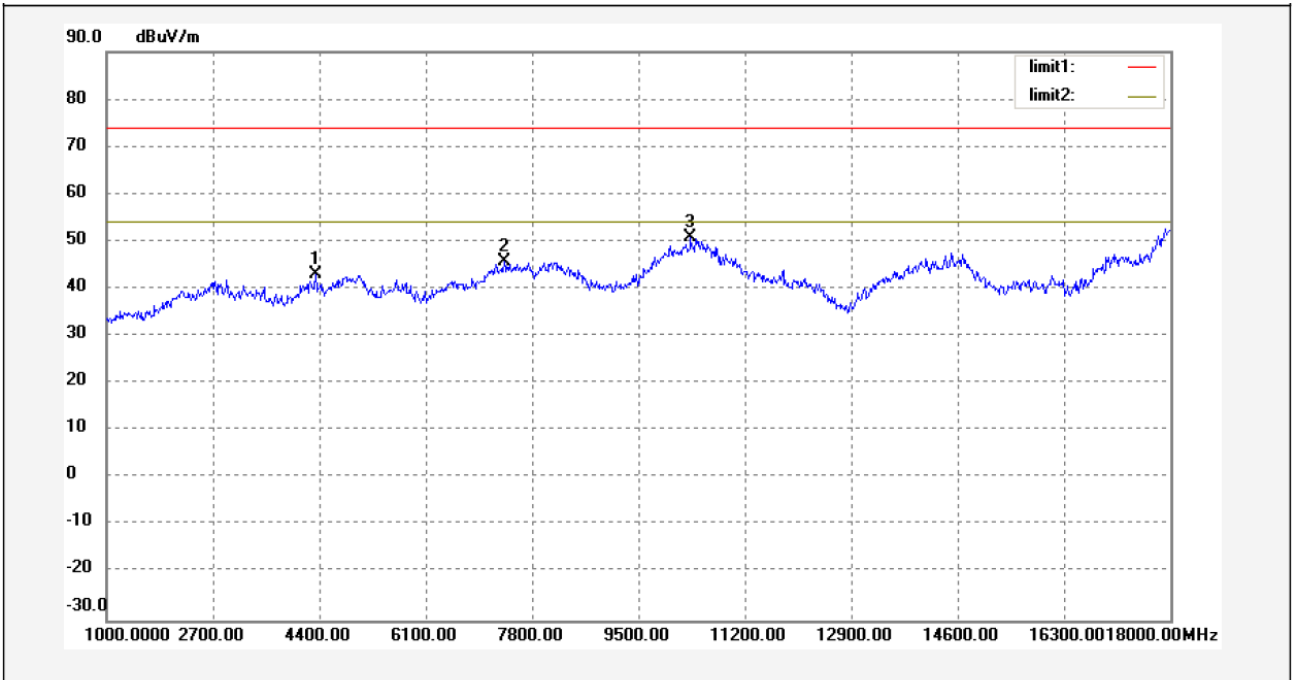


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	99.4177	14.12	12.93	27.05	43.50	-16.45	peak	
2	210.8690	12.91	16.73	29.64	43.50	-13.86	peak	
3	229.4220	16.70	16.85	33.55	46.00	-12.45	peak	
4	760.2867	7.95	25.44	33.39	46.00	-12.61	peak	

Test frequency: Above 1GHz radiation test data:

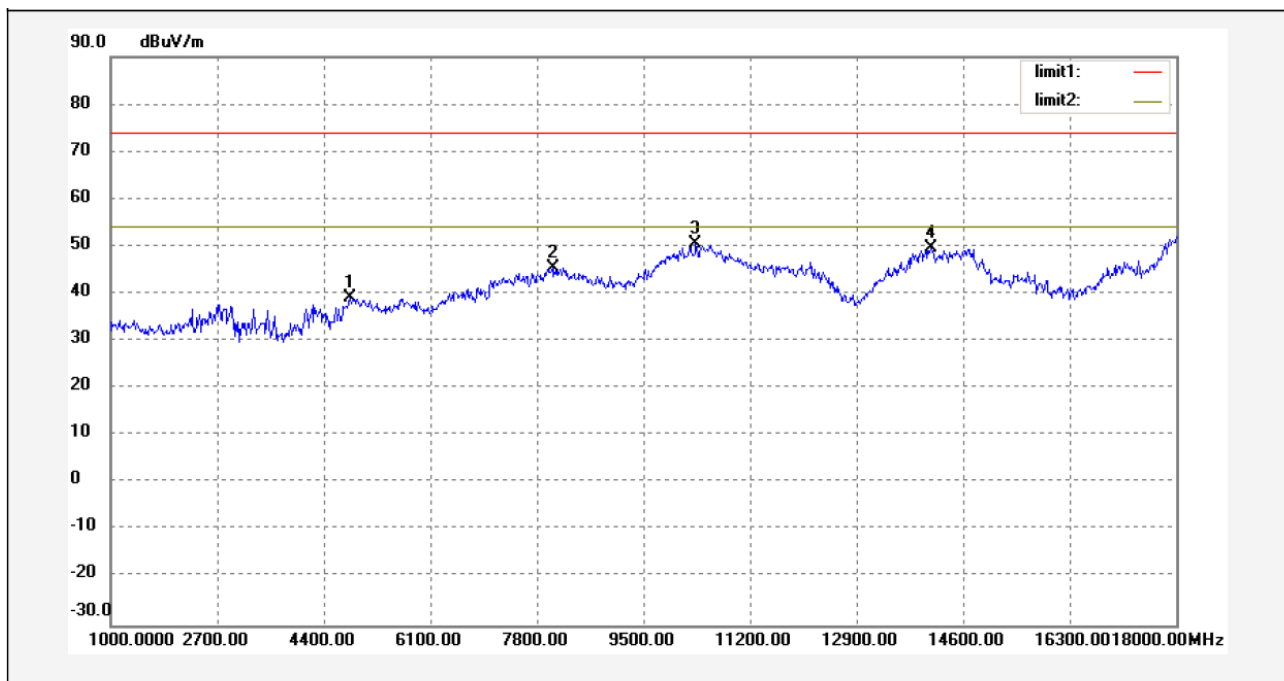
Remark: above 18GHz, the test signal below the noise level, so the data was not performed.

Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	4338.677	35.84	7.16	43.00	74.00	-31.00	peak	
2	7353.707	29.64	16.06	45.70	74.00	-28.30	peak	
3	10334.669	30.10	20.72	50.82	74.00	-23.18	peak	

Horizontal

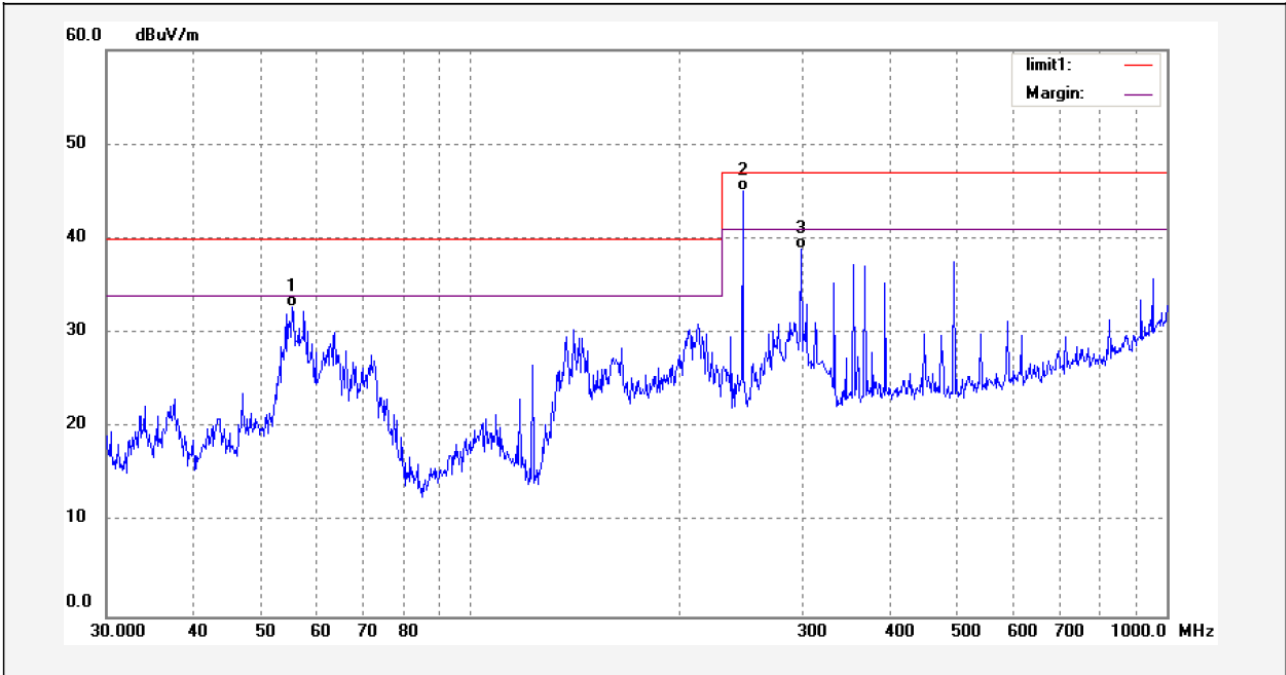


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	4815.631	34.38	4.77	39.15	74.00	-34.85	peak	
2	8052.104	30.68	14.91	45.59	74.00	-28.41	peak	
3	10334.669	32.56	18.05	50.61	74.00	-23.39	peak	
4	14082.164	26.66	23.01	49.67	74.00	-24.33	peak	

8.1.11.2 Test mode: continuously transmit mode.

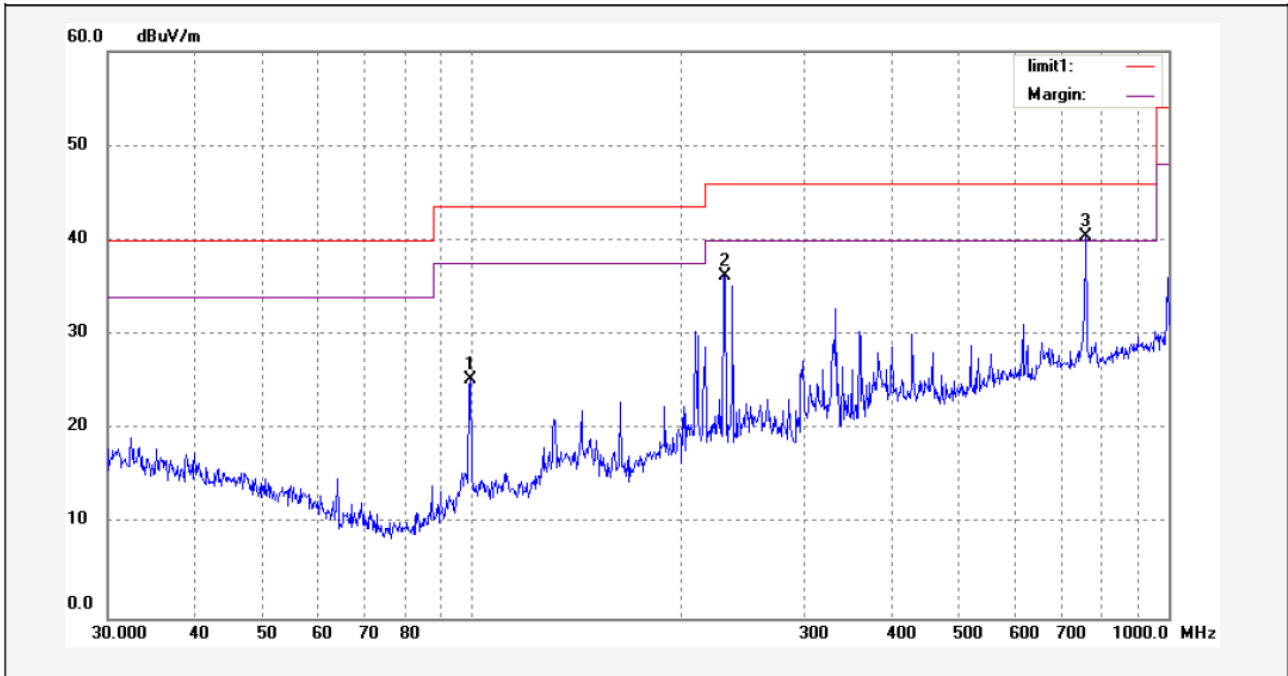
Test frequency :30-1000MHz radiation test data:

Vertical:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	55.4829	19.41	13.40	32.81	40.00	-7.19	QP	
2	246.1238	27.90	17.06	44.96	47.00	-2.04	QP	
3	298.5932	20.60	18.30	38.90	47.00	-8.10	QP	

Horizontal :



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	99.4177	12.36	12.93	25.29	43.50	-18.21	peak	
2	231.0399	19.42	16.84	36.26	46.00	-9.74	peak	
3	760.2867	14.95	25.44	40.39	46.00	-5.61	peak	

Test frequency above 1GHz test data record:

And the below is the Fundamental and Harmonic

Frequency (MHz)	Detect or	Antenna Polarization	Emission Level (dBuV/m)	FCC Part15 Subpart C Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Low frequency							
2402.00	AV	Vertical	96.52		(Fund.)	1.2	150
4804.00	AV	Vertical	41.02	54.00	13.98	1.2	0
7206.00	AV	Vertical	35.23	54.00	19.73	1.5	120
9608.00	AV	Vertical	32.52	54.00	21.48	1.8	60
12010.00	AV	Vertical	31.25	54.00	22.75	1.6	90
14412.00	AV	Vertical	31.01	54.00	22.99	1.4	120
16814.00	AV	Vertical	30.02	54.00	23.98	1.7	100
19216.00	AV	Vertical	30.67	54.00	23.33	1.5	180
21618.00	AV	Vertical	29.63	54.00	24.34	1.6	120
24020.00	AV	Vertical	29.01	54.00	24.99	1.2	135
2402.00	AV	Horizontal	92.23		(Fund.)	1.2	120
4804.00	AV	Horizontal	41.12	54.00	12.88	1.2	150
7206.00	AV	Horizontal	36.21	54.00	17.79	1.5	120
9608.00	AV	Horizontal	34.25	54.00	19.75	1.2	180
12010.00	AV	Horizontal	33.21	54.00	20.79	1.5	135
14412.00	AV	Horizontal	31.25	54.00	22.75	1.2	120
16814.00	AV	Horizontal	30.74	54.00	23.26	1.5	180
19216.00	AV	Horizontal	32.01	54.00	21.99	1.8	60
21618.00	AV	Horizontal	31.53	54.00	22.47	1.2	90
24020.00	AV	Horizontal	30.01	54.00	23.99	1.5	90
2402.00	PK	Vertical	106.41		(Fund.)	1.5	180
4804.00	PK	Vertical	45.21	74.00	29.64	1.8	30
7206.00	PK	Vertical	40.01	74.00	33.99	1.6	110
9608.00	PK	Vertical	37.42	74.00	36.58	1.4	100
12010.00	PK	Vertical	36.21	74.00	37.79	1.2	90
14412.00	PK	Vertical	32.01	74.00	41.99	1.2	60
16814.00	PK	Vertical	33.21	74.00	40.79	1.4	90
19216.00	PK	Vertical	30.10	74.00	43.90	1.2	120
21618.00	PK	Vertical	29.01	74.00	44.99	1.7	120
24020.00	PK	Vertical	29.01	74.00	44.99	1.4	135
2402.00	PK	Horizontal	102.32		(Fund.)	1.8	180
4804.00	PK	Horizontal	41.24	74.00	32.76	1.8	60
7206.00	PK	Horizontal	38.25	74.00	35.75	1.8	120
9608.00	PK	Horizontal	36.98	74.00	37.02	1.2	180
12010.00	PK	Horizontal	35.69	74.00	38.31	1.2	90
14412.00	PK	Horizontal	35.62	74.00	38.38	1.5	90
16814.00	PK	Horizontal	33.35	74.00	40.65	1.8	150
19216.00	PK	Horizontal	33.01	74.00	40.99	1.5	150

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

21618.00	PK	Horizontal	30.21	74.00	43.79	1.2	120
24020.00	PK	Horizontal	30.01	74.00	43.99	1.2	180
Middle frequency							
2441.00	AV	Vertical	92.21		(Fund.)	1.5	0
4882.00	AV	Vertical	39.02	54.00	14.98	1.2	90
7323.00	AV	Vertical	35.21	54.00	18.71	1.0	90
9764.00	AV	Vertical	33.33	54.00	20.67	1.2	0
12205.00	AV	Vertical	32.02	54.00	21.98	1.2	0
14646.00	AV	Vertical	32.01	54.00	21.99	1.2	150
17087.00	AV	Vertical	30.26	54.00	23.74	1.5	0
19528.00	AV	Vertical	30.01	54.00	23.99	1.5	0
21969.00	AV	Vertical	29.02	54.00	24.98	1.8	180
24410.00	AV	Vertical	28.23	54.00	25.77	1.2	90
2441.00	AV	Horizontal	92.96		(Fund.)	1.0	120
4882.00	AV	Horizontal	35.69	54.00	18.31	1.0	90
7323.00	AV	Horizontal	34.25	54.00	19.75	1.5	270
9764.00	AV	Horizontal	33.52	54.00	20.48	1.2	120
12205.00	AV	Horizontal	31.21	54.00	22.79	1.2	150
14646.00	AV	Horizontal	30.25	54.00	23.75	1.4	180
17087.00	AV	Horizontal	29.25	54.00	24.75	1.6	135
19528.00	AV	Horizontal	28.36	54.00	25.64	1.4	90
21969.00	AV	Horizontal	28.02	54.00	25.98	1.2	150
24410.00	AV	Horizontal	28.02	54.00	25.98	1.7	120
2441.00	PK	Vertical	107.52		(Fund.)	1.0	0
4882.00	PK	Vertical	44.21	74.00	29.79	1.1	90
7323.00	PK	Vertical	38.25	74.00	35.75	1.4	100
9764.00	PK	Vertical	37.94	74.00	36.06	1.3	120
12205.00	PK	Vertical	37.87	74.00	36.13	1.7	180
14646.00	PK	Vertical	36.10	74.00	38.90	1.2	0
17087.00	PK	Vertical	32.03	74.00	41.97	1.4	0
19528.00	PK	Vertical	30.21	74.00	43.79	1.5	120
21969.00	PK	Vertical	28.30	74.00	45.70	1.5	135
24410.00	PK	Vertical	28.30	74.00	45.70	1.2	120
2441.00	PK	Horizontal	103.45		(Fund.)	1.0	0
4882.00	PK	Horizontal	43.56	74.00	30.44	1.7	45
7323.00	PK	Horizontal	41.51	74.00	32.49	1.6	90
9764.00	PK	Horizontal	40.14	74.00	33.86	1.5	60
12205.00	PK	Horizontal	39.36	74.00	34.64	1.4	150
14646.00	PK	Horizontal	37.44	74.00	36.56	1.2	150
17087.00	PK	Horizontal	34.21	74.00	39.79	1.1	120
19528.00	PK	Horizontal	38.86	74.00	35.14	1.5	150
21969.00	PK	Horizontal	34.21	74.00	39.79	1.1	0
24410.00	PK	Horizontal	33.33	74.00	40.67	1.6	135
High frequency							

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

2480.00	AV	Vertical	93.42		(Fund.)	1.0	0
4960.00	AV	Vertical	36.25	54.00	17.75	1.2	45
7440.00	AV	Vertical	32.25	54.00	21.75	1.2	120
9920.00	AV	Vertical	30.26	54.00	23.74	1.4	60
12400.00	AV	Vertical	30.55	54.00	23.45	1.5	135
14880.00	AV	Vertical	30.34	54.00	23.66	1.8	120
17360.00	AV	Vertical	30.62	54.00	23.38	1.1	100
19840.00	AV	Vertical	30.13	54.00	23.87	1.1	60
22320.00	AV	Vertical	30.27	54.00	23.73	1.4	0
24800.00	AV	Vertical	28.25	54.00	25.75	1.5	60
2480.00	AV	Horizontal	92.51		(Fund.)	1.0	0
4960.00	AV	Horizontal	34.56	54.00	19.44	1.8	120
7440.00	AV	Horizontal	30.35	54.00	23.65	1.2	60
9920.00	AV	Horizontal	31.47	54.00	22.53	1.5	100
12400.00	AV	Horizontal	31.89	54.00	22.11	1.2	60
14880.00	AV	Horizontal	32.42	54.00	21.58	1.2	120
17360.00	AV	Horizontal	31.17	54.00	22.83	1.4	100
19840.00	AV	Horizontal	32.55	54.00	21.45	1.8	100
22320.00	AV	Horizontal	32.86	54.00	21.14	1.3	100
24800.00	AV	Horizontal	30.25	54.00	22.75	1.6	10
2480.00	PK	Vertical	107.53		(Fund.)	1.0	0
4960.00	PK	Vertical	44.21	74.00	29.79	1.2	60
7440.00	PK	Vertical	35.62	74.00	38.38	1.8	90
9920.00	PK	Vertical	35.35	74.00	38.65	1.5	180
12400.00	PK	Vertical	35.56	74.00	38.44	1.4	60
14880.00	PK	Vertical	34.21	74.00	39.79	1.2	60
17360.00	PK	Vertical	33.54	74.00	40.46	1.2	135
19840.00	PK	Vertical	36.26	74.00	37.74	1.2	120
22320.00	PK	Vertical	36.73	74.00	37.27	1.6	60
24800.00	PK	Vertical	30.21	74.00	43.99	1.4	90
2480.00	PK	Horizontal	93.64		(Fund.)	1.1	60
4960.00	PK	Horizontal	42.58	74.00	31.42	1.4	90
7440.00	PK	Horizontal	38.64	74.00	35.36	1.5	60
9920.00	PK	Horizontal	35.37	74.00	38.63	1.3	0
12400.00	PK	Horizontal	35.52	74.00	38.48	1.2	135
14880.00	PK	Horizontal	35.26	74.00	38.74	1.7	0
17360.00	PK	Horizontal	36.41	74.00	37.59	1.8	180
19840.00	PK	Horizontal	32.41	74.00	41.59	1.5	60
22320.00	PK	Horizontal	31.11	74.00	42.89	1.8	120
24800.00	PK	Horizontal	28.21	74.00	45.79	1.0	60

WALTEK SERVICES

Reference No.: WT11063132-D-E-F

8.2 Maximum Peak Output Power

Test Requirement:	FCC Part15 Paragraph 15.247
Test Method:	Based on ANSI 63.4:2003
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 1W(30dBm)

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.

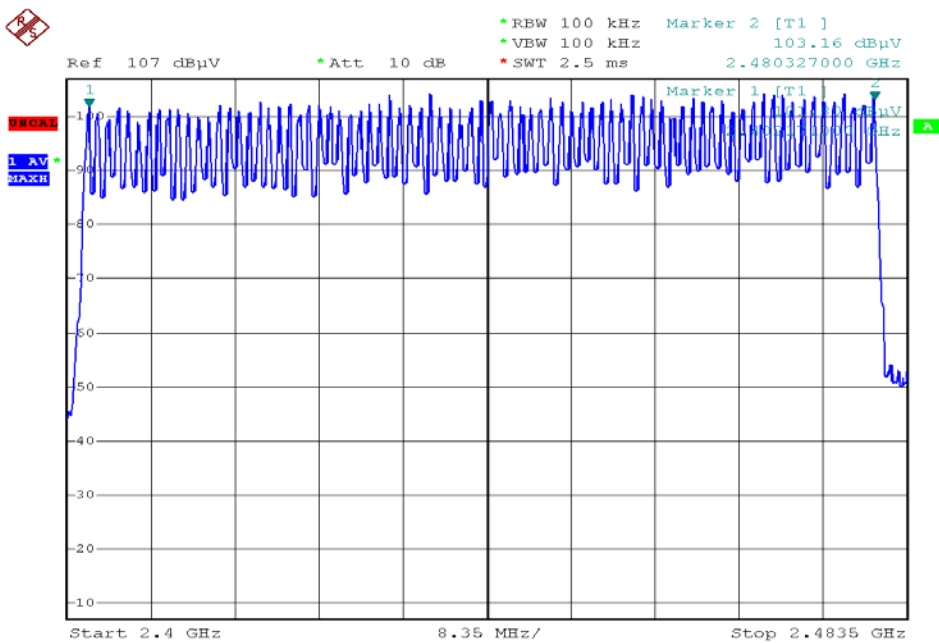
The bandwidth of the fundamental frequency was measured with the spectrum analyser using 100kHz RBW and 100kHz VBW.

Test Result: The unit does meet the FCC requirements.

Test Channel	Fundamental Frequency(MHz)	Output Power (mW)	Limit (W)	Power output level
Lower	2402	1.32	1	conducted
Middle	2441	1.32	1	conducted
Upper	2480	1.30	1	conducted

8.3 Hopping Channel Number

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 Paragraph 15.247
Test mode: The EUT work in test mode(Tx) and test it
Requirements: Regulation 15.247(b) For frequency hopping systems operating In the 2400-2483.5MHz band employing at least 15 hopping channels.
Test result: The total number of channels would be 79 channels.
The unit does meet the FCC requirements.
Please refer the graph as below:



8.4 Frequency Separated

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

Channel Separated

Definition:

A hopping channel is any of the centre frequencies defined within the hopping sequence of a FHSS system.

Limit:

Non-adaptive frequency hopping system shall make use of non-overlapping channels separated by the channel bandwidth as measured at 20dB below peak power.

The hopping channels defined within a hopping sequence shall be at least 1MHz apart(channel separation)

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Barometric Pressure: 1012 mbar

EUT Operation Condition:

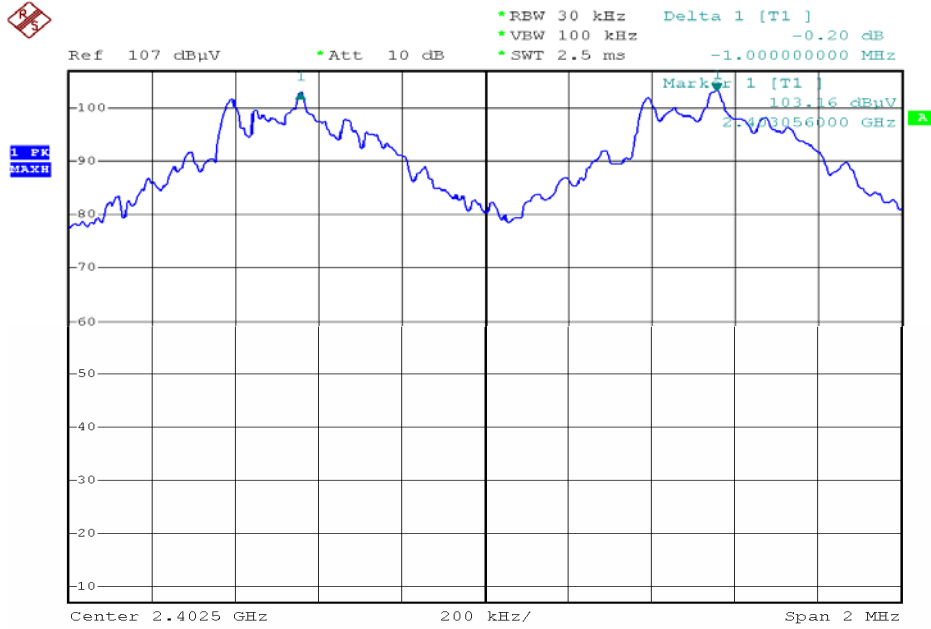
The EUT was programmed to be in continuously transmitting mode.

Test Result: PASS

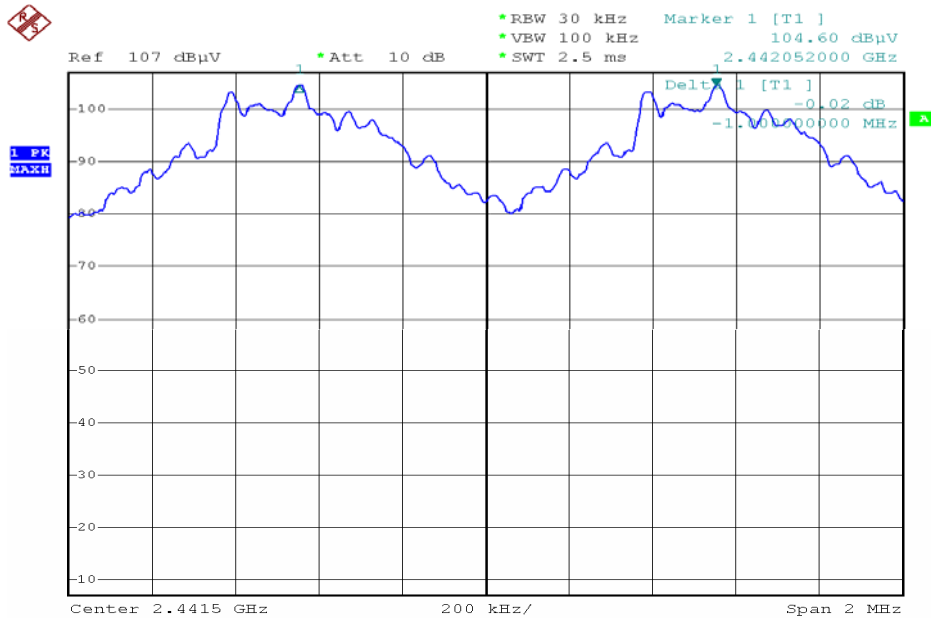
Test Channel	Channel Separation	PASS/FAIL
Lower Channels	1MHz	Pass
Middle Channels	1MHz	Pass
Upper Channels	1MHz	Pass

Please refer to the below photos for more details

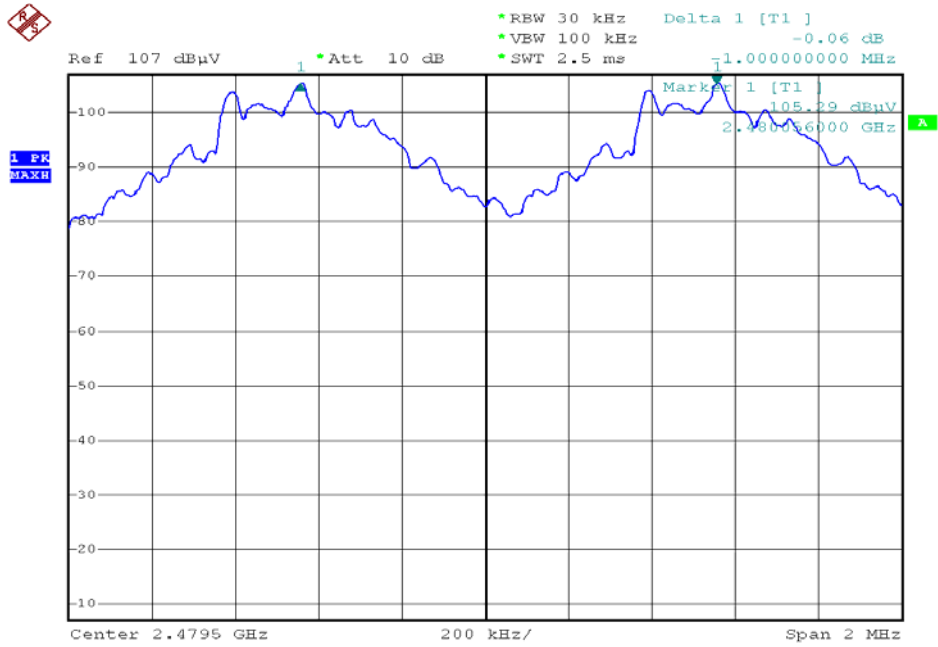
Lower Channel 2402MHz



Middle Channel 2441MHz



Upper Channel 2480MHz



8.5 Dwell time

8.5.1 Definition:

The dwell time is the time spent at a particular frequency during any single hop.

Limit: the maximum dwell time shall be less than 0.4s.

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.

8.5.2 Test Procedure

The EUT output antenna port was connected to the spectrum analyzer. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz, and the frequency span to 0 Hz, measure the maximum time duration of one single pulse. Set the EUT for DH5, DH3 and DH1 packet transmitting.

DH5 Packet permit maximum $1600 / 79 / 6$ hops per second in each channel (5 time slots RX, 1 time slot TX).

DH3 Packet permit maximum $1600 / 79 / 4$ hops per second in each channel (3 time slots RX, 1 time slot TX).

DH1 Packet permit maximum $1600 / 79 / 2$ hops per second in each channel (1 time slot RX, 1 time slot TX). So, the Dwell Time can be calculated as follows:

Data Packet	Dwell Time(s)
DH5	$1600/79/6*31.6*(MkrDelta)/1000$
DH3	$1600/79/4*31.6*(MkrDelta)/1000$
DH1	$1600/79/2*31.6*(MkrDelta)/1000$

Note : Mkr Delta is once pulse time .

8.5.3 Test Result: PASS

Please refer to the below photos for more details.

Channel 00 2402MHz

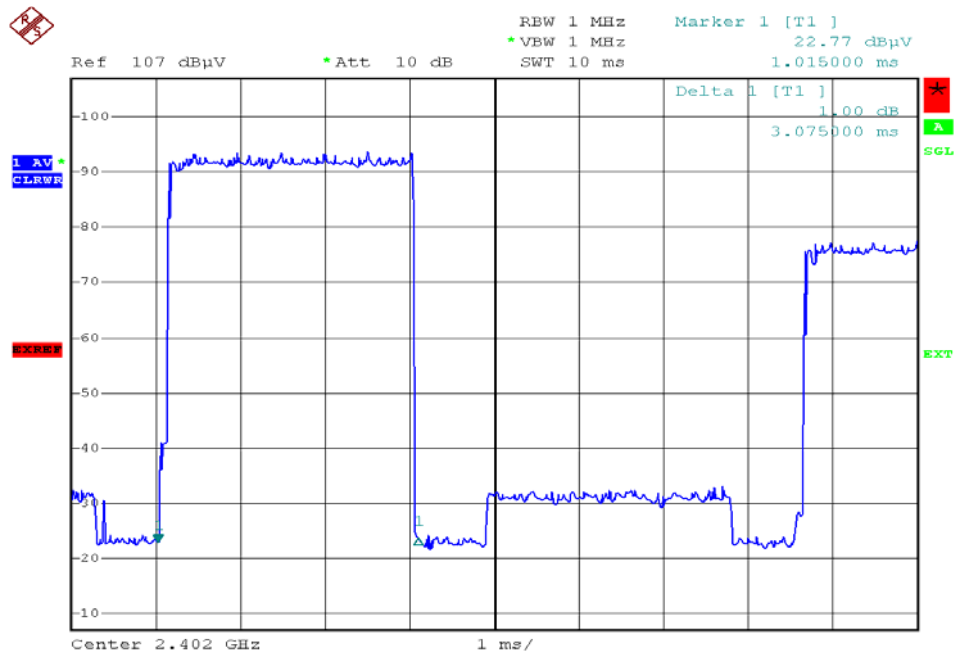
Dwell time of each occupation in this channel as follows:

Data Packet	Frequency	Mkr Delta(ms)	Dwell Time(s)	Limits(s)
DH5	2402 MHz	3.075	0.326	0.400
DH3	2402 MHz	1.845	0.295	0.400
DH1	2402 MHz	0.535	0.195	0.400

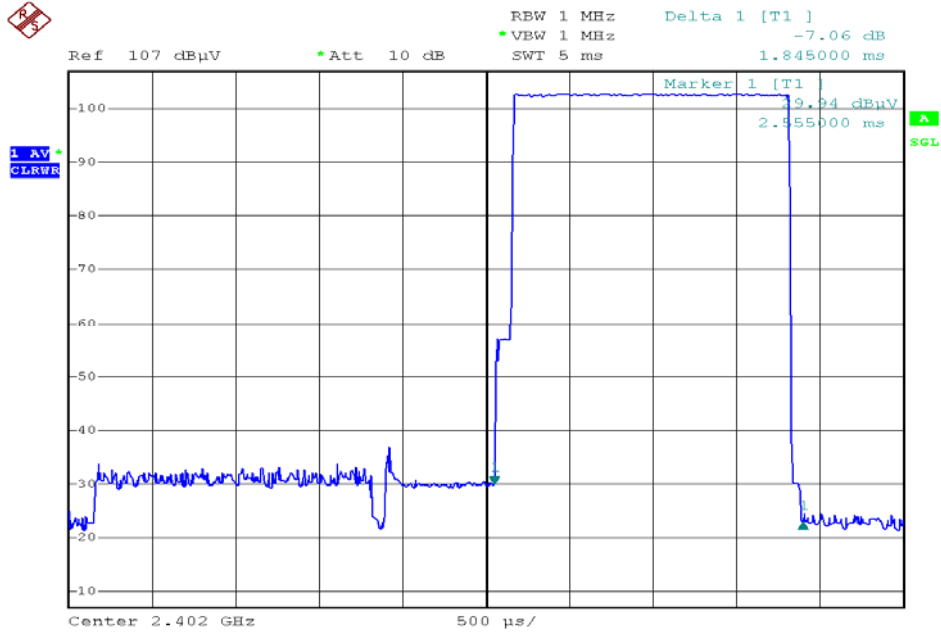
Test Result: PASS

The Results are not be greater than 0.4 seconds.

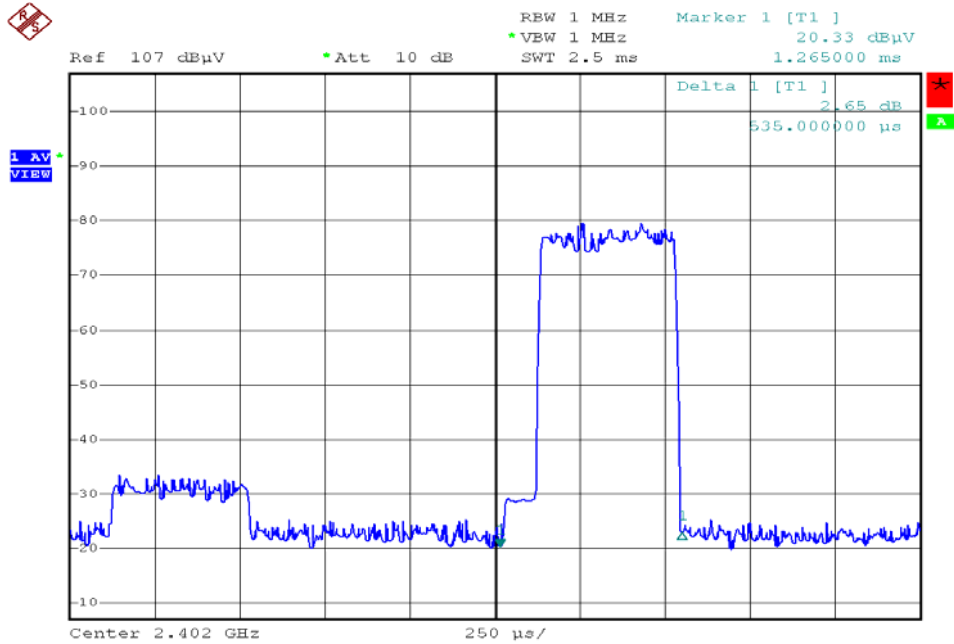
Channel 00 2402 MHz DH5



Channel 00 2402 MHz DH3



Channel 00 2402 MHz DH1



Channel 39 2441MHz

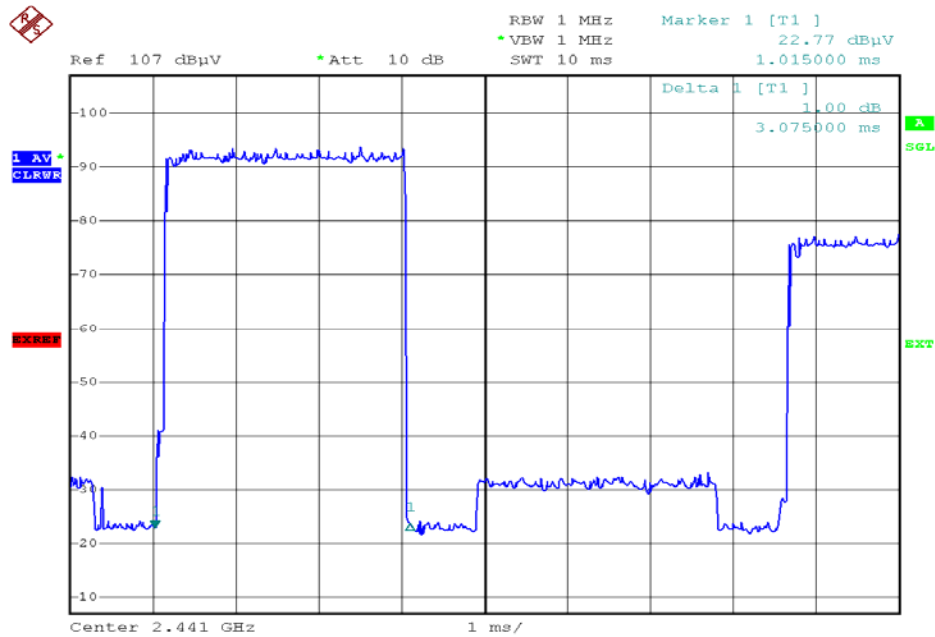
Dwell time of each occupation in this channel as follows:

Data Packet	Frequency	Mkr Delta(ms)	Dwell Time(s)	Limits(s)
DH5	2441 MHz	3.075	0.326	0.400
DH3	2441 MHz	1.855	0.298	0.400
DH1	2441 MHz	0.530	0.192	0.400

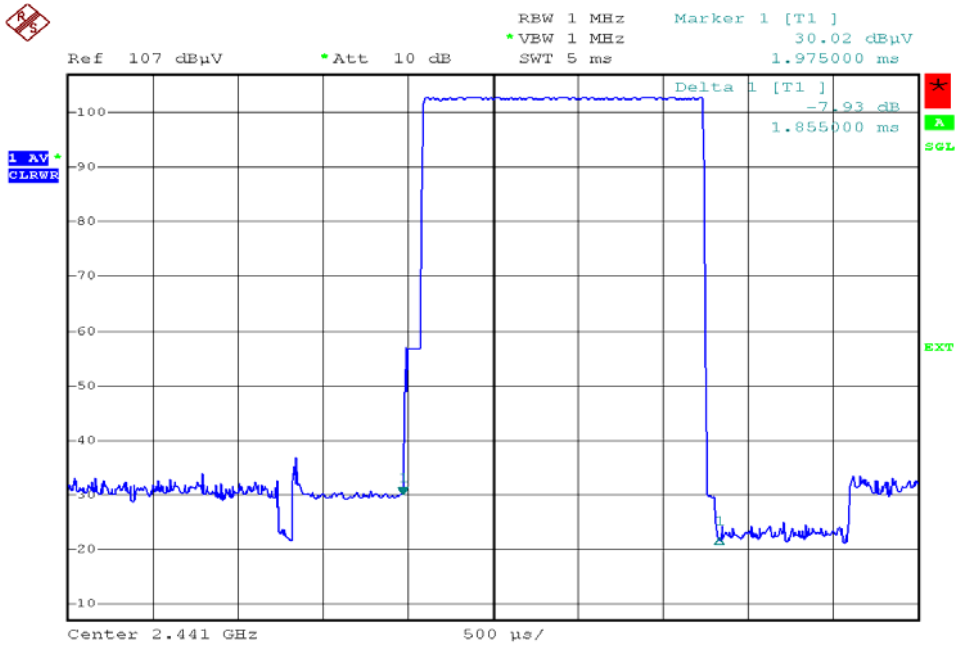
Test Result: PASS

The Results are not be greater than 0.4 seconds.

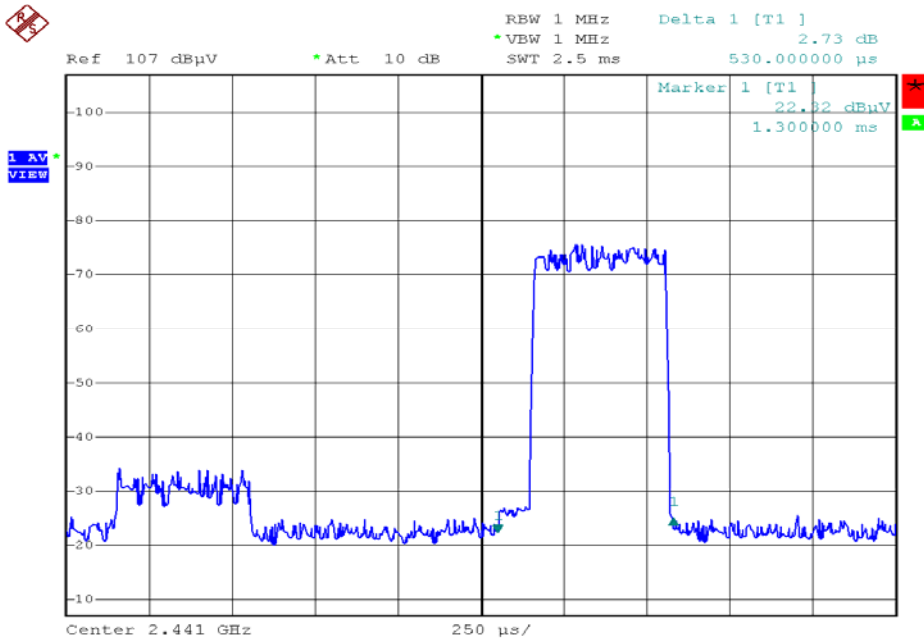
Channel 39 2441 MHz DH5



Channel 39 2441 MHz DH3



Channel 39 2441 MHz DH1



Channel 78 2480MHz

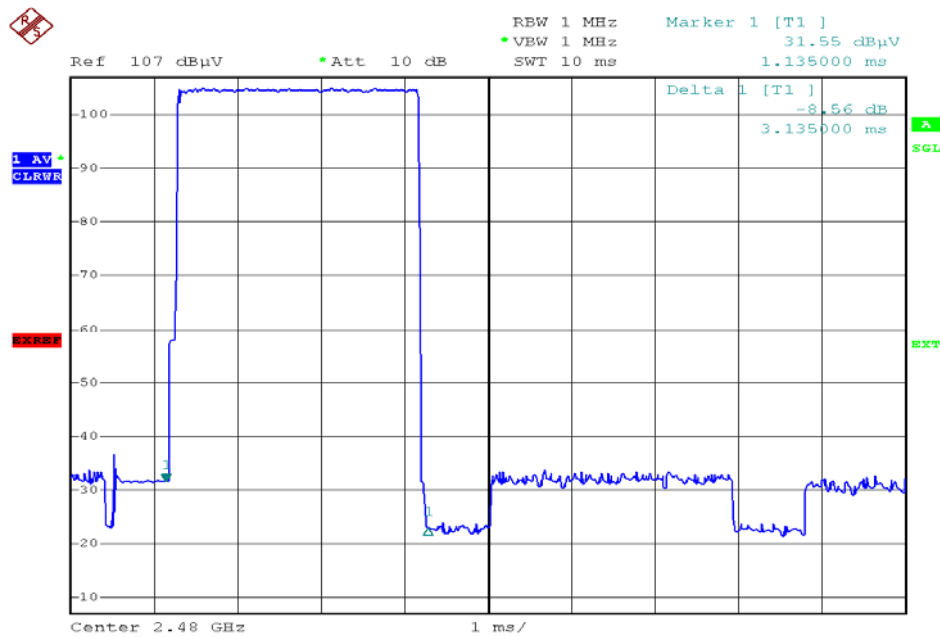
Dwell time of each occupation in this channel as follows:

Data Packet	Frequency	Mkr Delta(ms)	Dwell Time(s)	Limits(s)
DH5	2480 MHz	3.135	0.334	0.400
DH3	2480 MHz	1.855	0.298	0.400
DH1	2480 MHz	0.535	0.195	0.400

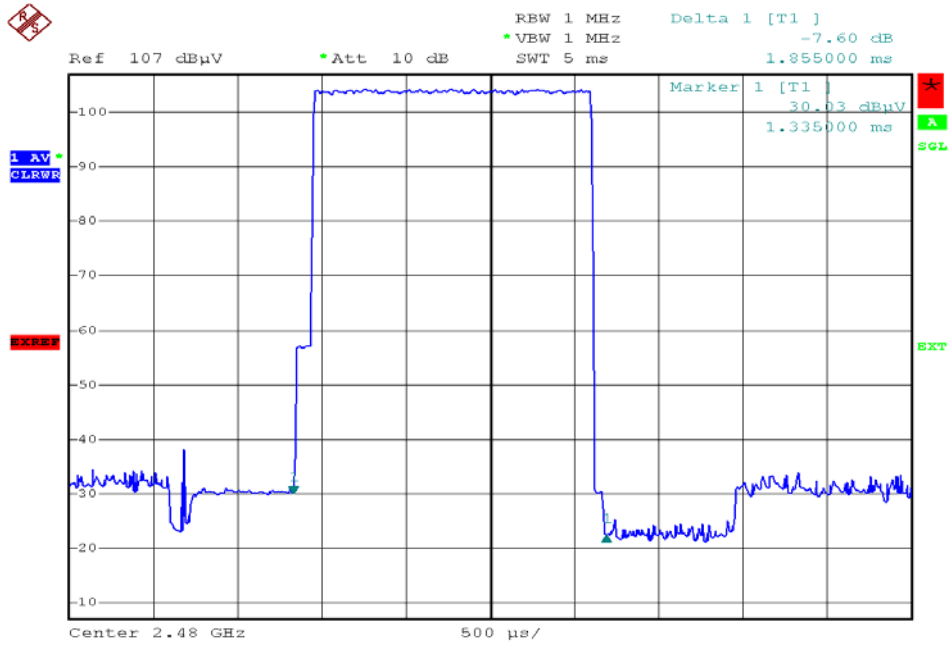
Test Result: PASS

The Results are not be greater than 0.4 seconds.

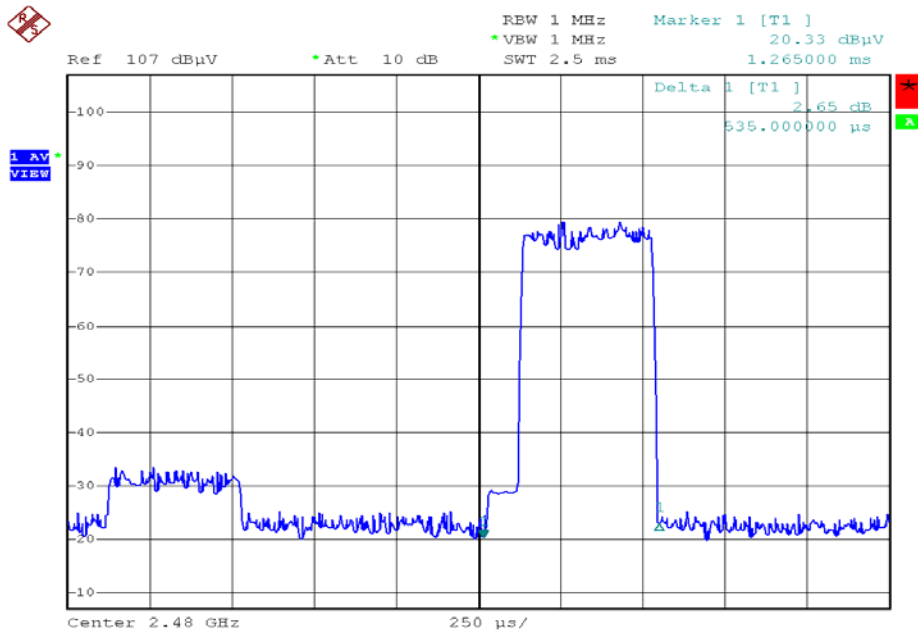
Channel 78 2480 MHz DH5



Channel 78 2480 MHz DH3



Channel 78 2480 MHz DH1



8.6 20dB Bandwidth

Test Requirement: FCC Part15 C
 Test Method: Based on FCC Part15 Paragraph 15.247
 Test mode: The EUT work in test mode(Tx) and test it

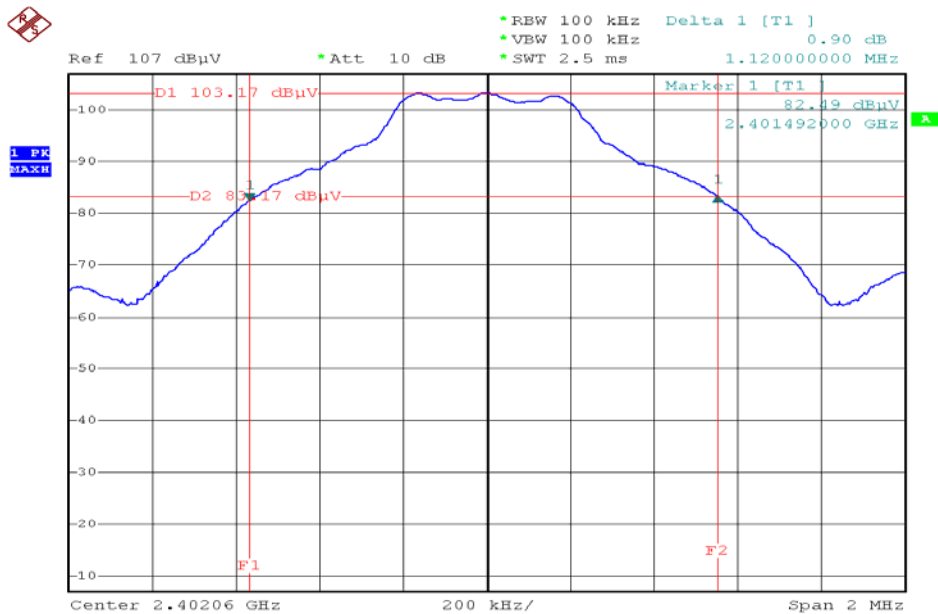
Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. The bandwidth of the fundamental frequency was measure by spectrum analyser with 100KHz RBW and 100KHz VBW.The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power 20dB.

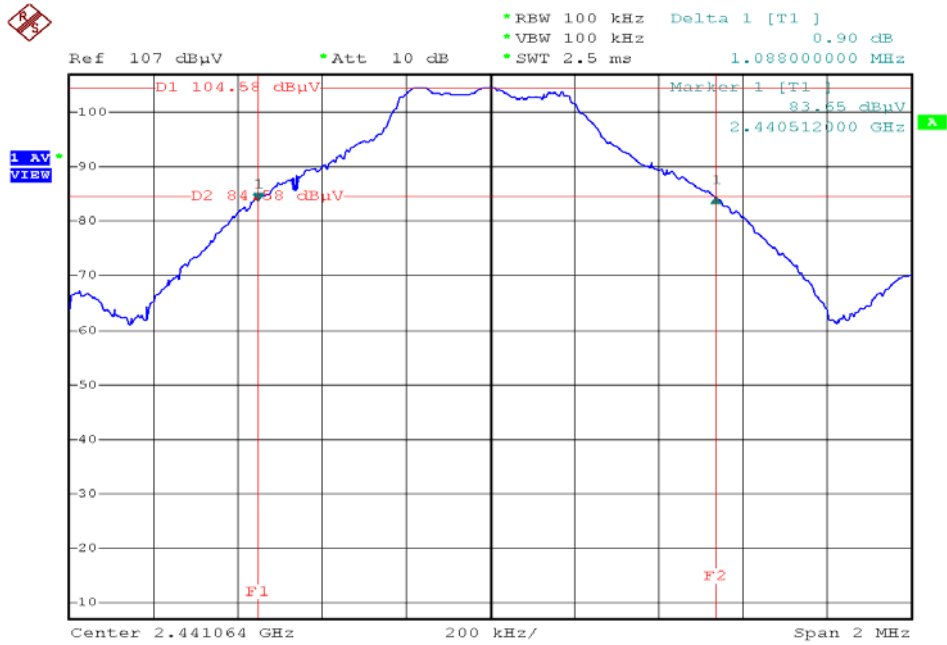
Test Result

Please refer the graph as below:

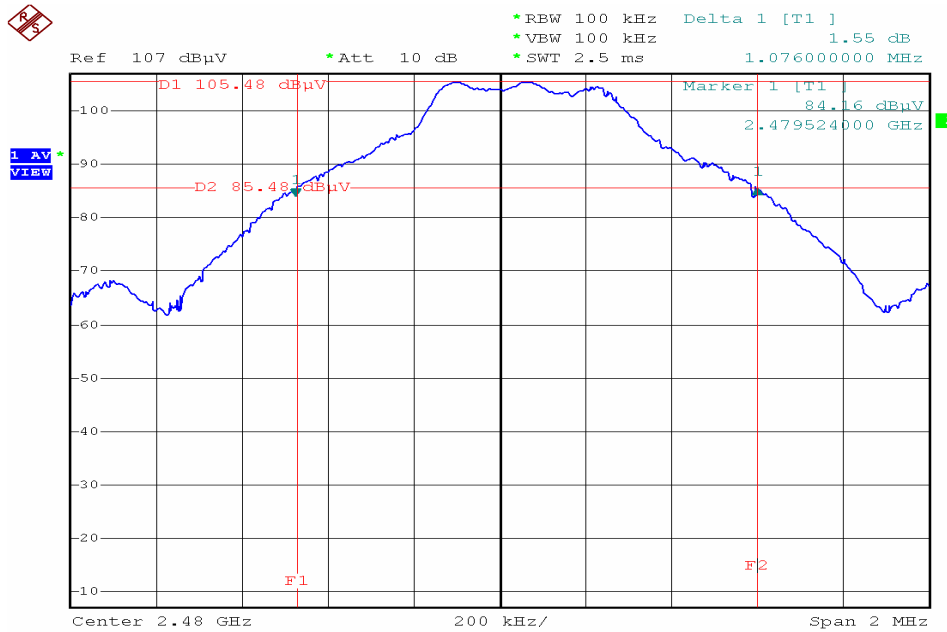
Lower Channel 2402MHz



Middle Channel 2441MHz



Upper Channel 2480MHz



8.7 Radiated Spurious Emissions Into Adjacent Restricted Band

Test Requirement: FCC Part15 Paragraph 15.205
 Test Method: Based on FCC Part 15 Paragraph 15.247
 Requirements:The EUT work in test mode(Tx) and test it

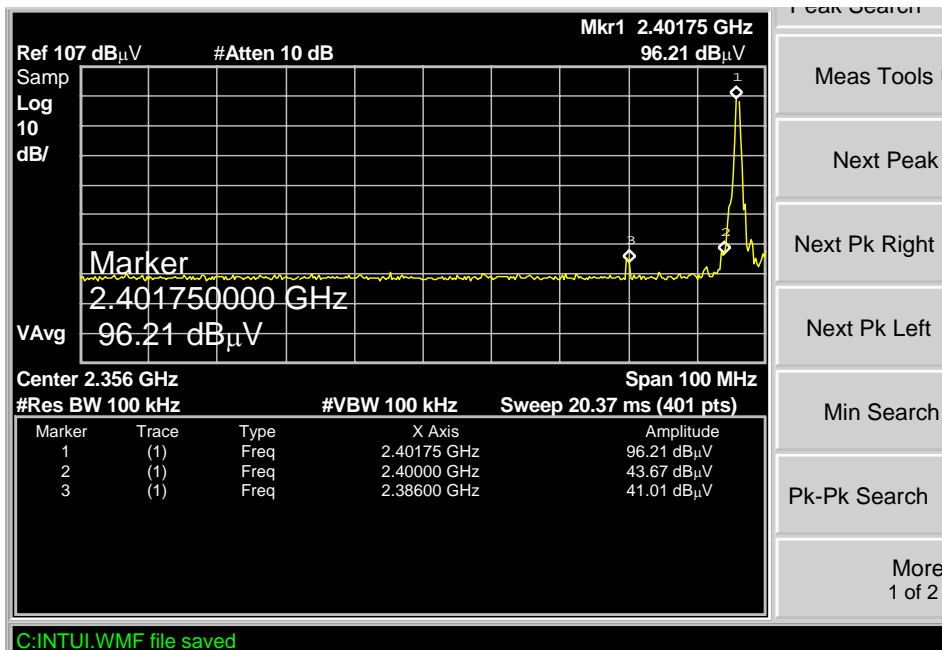
Requiments:

emissions that fall in the restricted bands(15.205).Above 1000MHz, compliance with the emissions limits in section 15.209 shall be demonstrated based on the average value of the measured emissions,The provisions in section 15.35 apply to these measurements.

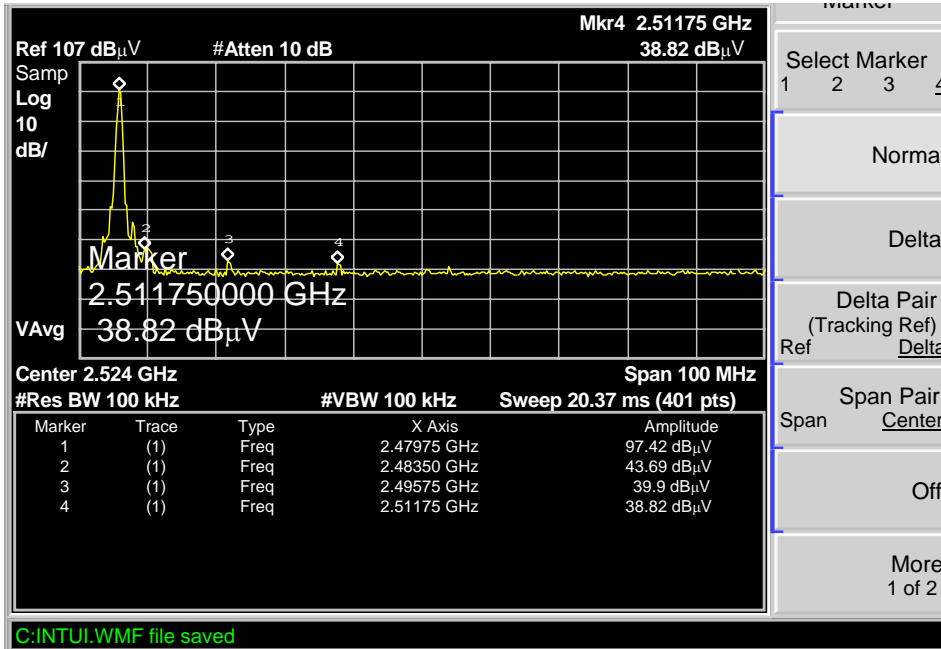
Test procedure:

An in band field strength measurement of the fundamental emission using the RBW and detector function required by C63.4-2003 and FCC Rules.The procedure was repeated with an average detector and a plot made.The calculated field strength in the adjacent restricted band is presented below.

Lower Bandedge/ Restricted Band (Peak Value)



Upper Bandedge/ Restricted Band (Peak Value)



8.8 RF Exposure Test

Test Requirement: FCC Part 2 Subpart J

Test Method: Based on FCC Part 15 Paragraph 15.247

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

Requirements:

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

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

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

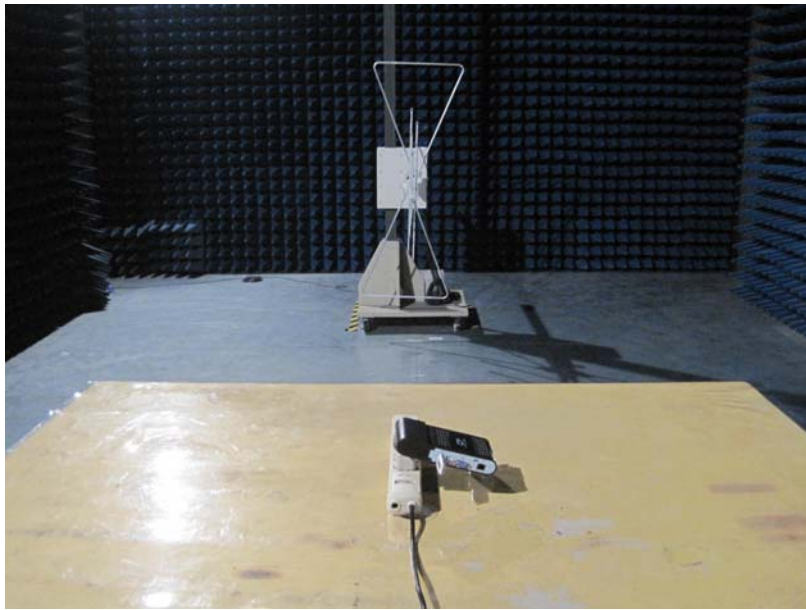
$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

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

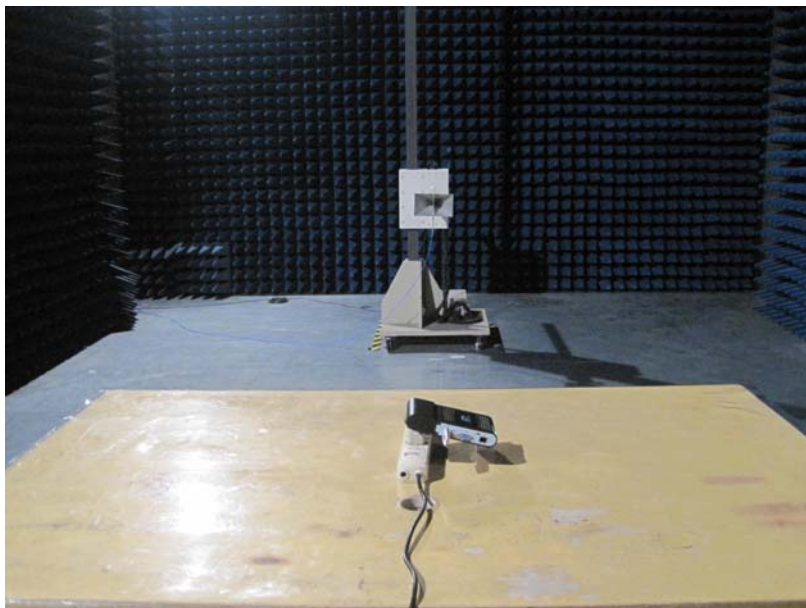
Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0	1	-1.21	1.32	0.000263	1	Complies
0	1	-1.21	1.32	0.000263	1	Complies
0	1	-1.15	1.30	0.000259	1	Complies

9 Photographs of Testing

Radiation Emission Test View For 30MHz-1000MHz



Radiation Emission Test View For 1GHz-25GHz



10 Photographs - Constructional Details

10.1 EUT – Front View



10.2 EUT – Back View



10.3 EUT – Open View1



10.4 EUT – Open View2



10.5 EUT – Open View3



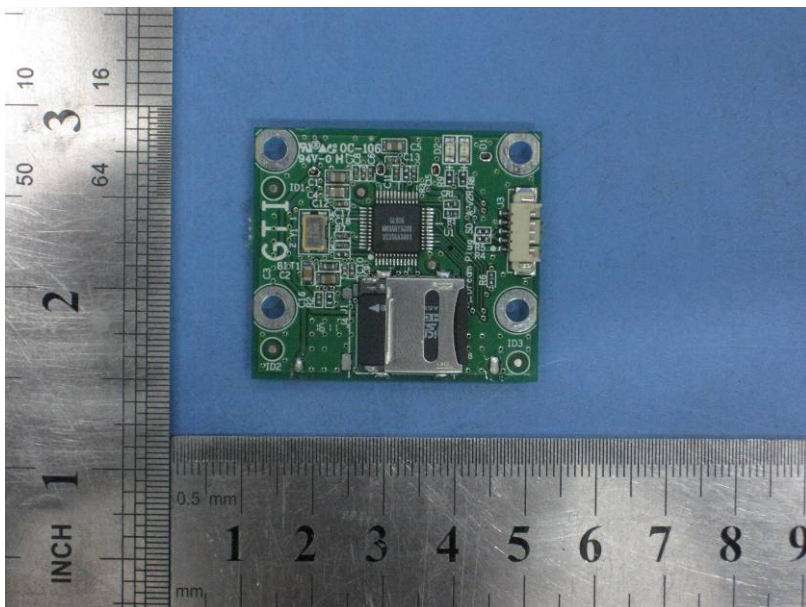
10.6 PCB1 – Front View



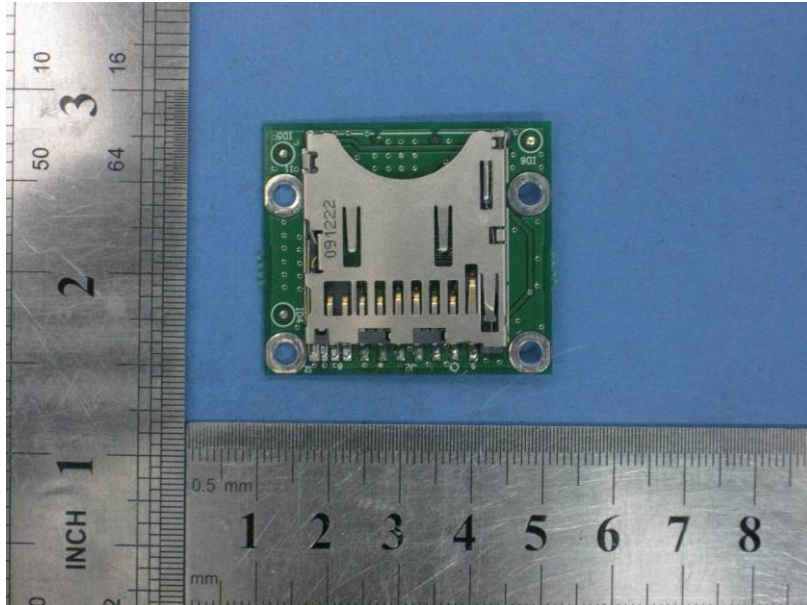
10.7 PCB1 – Back View



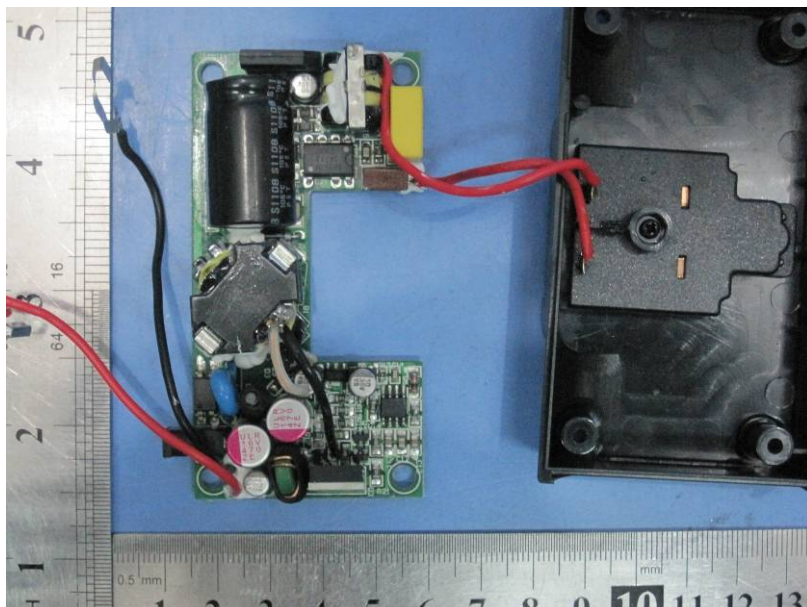
10.8 PCB2 – Front View



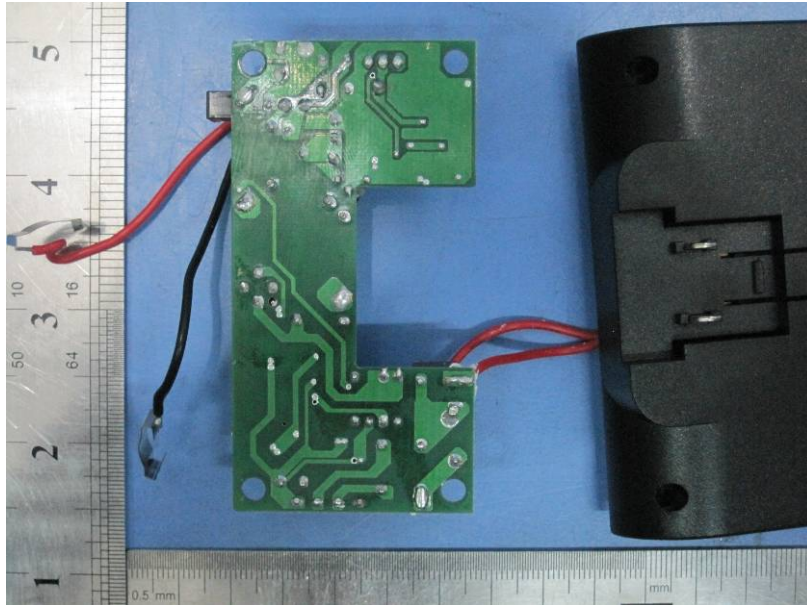
10.9 PCB2 – Back View



10.10 PCB3 – Front View



10.11 PCB3 – Back View



11 FCC 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.

