FCC TEST REPORT

FCC ID	: ZWUM501-7
Applicant	: Everbest Co., Ltd.
Address	: Unit 704, 7/FL., Vanta Industrial Centre, 21-33 Tai Lin Pai Road, Kwai Chung, New Territories, Hong Kong

Equipment Under Test (EUT) :

Product Name	: Mobile Internet Device
Model No.	: M501-7, MXXX, SX-SP700A, SX-M728

Standards	: FCC CFR47 Part 15 Section 15.247:2009
Date of Test	: August 16, 2011 ~ August 20, 2011
Date of Issue	: August 23, 2011
Test Engineer	: Hunk yan
Reviewed By	: Philo zhong

Test Result	**: PASS**

Prepared By:
Waltek Services (Shenzhen) Co., Ltd.
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✧ 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.

2 Test Summary

Test Items	Test Requirement	Result
Mains Terminal Disturbance Voltage, 150kHz to 30MHz	15.207(a)	PASS
Radiated Spurious Emissions (9kHz to 25GHz)	15.205(a) 15.209 15.247(d)	PASS
6dB Bandwidth	15.247(a)(2)	PASS
Maximum Peak Output Power	15.247(b)(3)	PASS
Power Spectral Density	15.247(e)	PASS
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS

3 Contents

4 General Information

4.1 Client Information

Applicant	: Everbest Co., Ltd.
Address of Applicant	: Unit 704, 7/FL., Vanta Industrial Centre, 21-33 Tai Lin Pai Road, Kwai Chung, New Territories, Hong Kong
Manufacturer	: YONGGUAN ELECTRONIC TECHNOLOGY(D.G) LTD.
Address of Manufacturer	: No.1, 2nd Industrial Zone, Xinfeng Rd., Mowu Village, Wanjiang District, Dong Guan City, Guang Dong, China

4.2 General Description of E.U.T.

Product Name	: Mobile Internet Device
Model No.	: M501-7, MXXX, SX-SP700A, SX-M728
Difference Description	: All the models are exactly the same excepte different model names

4.3 Details of E.U.T.

Technical Data	: Adapter Input: 100 ~ 240VAC, 50/60Hz, 0.4A Max Adapter Output: 5VDC, 2A Internal Battery: 3.7V
Operation Frequency	: 2412MHz ~ 2462MHz
Antenna Gain	: 0dBi

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Standards Applicable for Testing

The customer requested FCC tests for a Mobile Internet Device. The standards used were FCC CFR47 Part 15 Section 15.247, Section 15.209, and Section 15.207.

4.6 Test Facility

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

- **IC – Registration No.: IC7760A**
  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, August 3, 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	MY45114943	W2008001	9k-26.5GHz	Aug. 2, 2011	Aug. 1, 2012	Wws20081596	±1dB
Trilog Broadband Antenne	SCHWARZBECK MESS-ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug. 2, 2011	Aug. 1, 2012	-	±1dB
Broad-band Horn Antenna	SCHWARZBECK MESS-ELEKTROM / BBHA 9120D(1201)	667	W2008003	1-18GHz	Aug. 2, 2011	Aug. 1, 2012	-	f＜10 GHz：±1dB 10GHz＜f＜18 GHz：±1.5dB
Broadband Preamplifier	SCHWARZBECK MESS-ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug. 2, 2011	Aug. 1, 2012	-	±1.2dB
10m Coaxial Cable with N-male Connectors	SCHWARZBECK MESS-ELEKTROM / AK 9515 H	-	-	-	Aug. 2, 2011	Aug. 1, 2012	-	-
10m 50 Ohm Coaxial Cable	SCHWARZBECK MESS-ELEKTROM / AK 9513	-	-	-	Aug. 2, 2011	Aug. 1, 2012	-	-
Positioning Controller	C&C LAB/ CC-C-IF	-	-	-	Aug. 2, 2011	Aug. 1, 2012	-	-
Color Monitor	SUNSPO/ SP-14C	-	-	-	Aug. 2, 2011	Aug. 1, 2012	-	-
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug. 2, 2011	Aug. 1, 2012	Wws20080942	±1dB
EMI Receiver	Beijingkehuan	KH3931	-	9k-1GHz	Aug. 2, 2011	Aug. 1, 2012	-	-
Two-Line V-Network	ROHDE&SCHWARZ/ ENV216	100115	W2005002	50Ω/50μH	Aug. 2, 2011	Aug. 1, 2012	Wws20080941	±10%
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Fraq-range：9K-1GHz RF voltage：-60 dBm-+10dBm	Aug. 2, 2011	Aug. 1, 2012	Wws20081890	Power_freq distinguish0.1Hz RFeletricity distinguish 0.1 B
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365	-	-	Aug. 2, 2011	Aug. 1, 2012	Wws20081597	-

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
All Modules Generator	SCHAFFNER/6150	34579	W2008006	voltage:200V -4.4KV Pulse current：100A-2.2KA	Aug. 2, 2011	Aug. 1, 2012	Wwc20082401	voltage: ±10% Pulse current：±10%
Capacitive Coupling Clamp	SCHAFFNER/ CDN 8014	25311	-	-	Aug. 2, 2011	Aug. 1, 2012	Wwc20082398	-
Signal and Data Line Coupling Network	SCHAFFNER/ CDN 117	25627	W2008011	1.2/50μS	Aug. 2, 2011	Aug. 1, 2012	Wwc20082399	-
AC Power Supply	TONGYUN/ DTDGC-4	-	-	-	Aug. 2, 2011	Aug. 1, 2012	Wws20080944	-
PC	Lenovo	T2900D	-	-	Aug. 2, 2011	Aug. 1, 2012	-	±1dB
Display	ViewSonic	S27996-1W	-	-	Aug. 2, 2011	Aug. 1, 2012	-	±0.5dB
K/B	Dell	L100	-	-	Aug. 2, 2011	Aug. 1, 2012	-	±0.5dB
Mouse	Acer	M-UVACR1	-	-	Aug. 2, 2011	Aug. 1, 2012	-	±0.5dB

6 Conducted Emission

Test Requirement:	FCC CFR47 Part 15 Section 15.207
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz 56 dBμV between 0.5MHz & 5MHz 60 dBμV between 5MHz & 30MHz The tighter limit applies at the band edges.
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

EUT Operation :

Operating Environment:

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

EUT Operation:

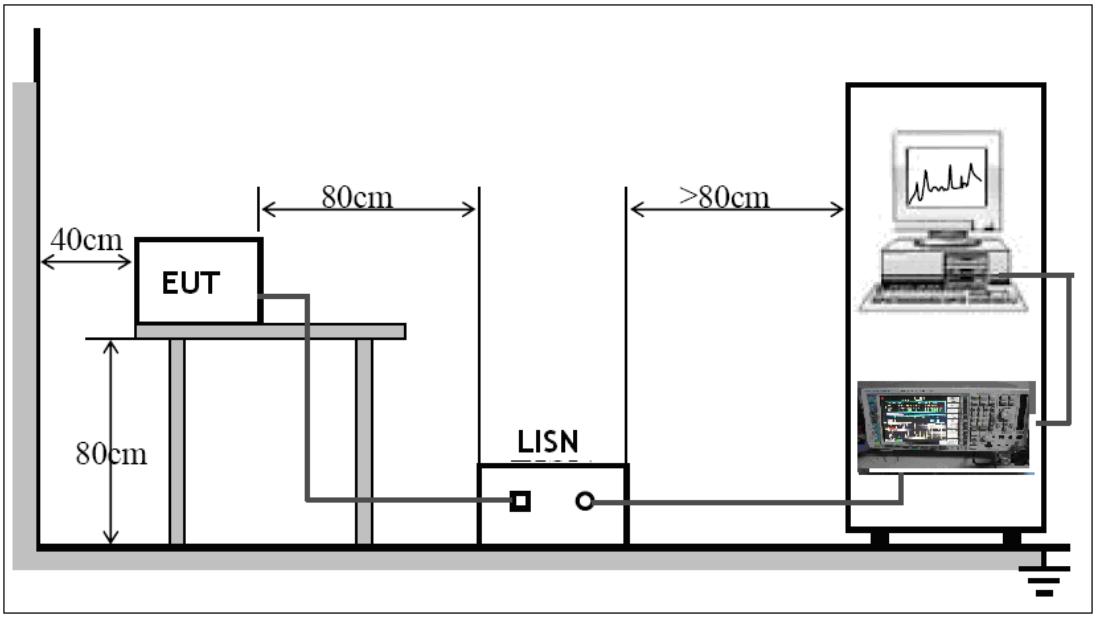
The EUT is tested in normal link with WIFI mode.

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.

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 CFR47 Part 15 Section 15.207 limits.

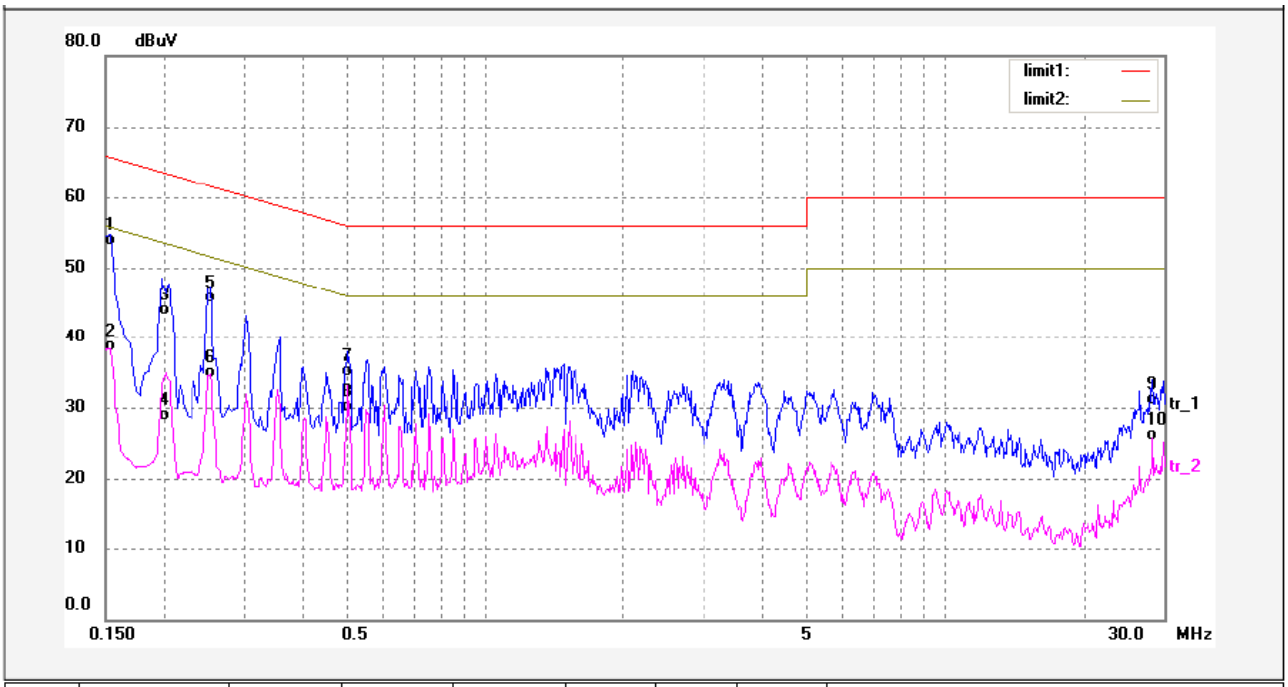


The EUT was placed on the test table in shielding room

Conducted Emission Test Result

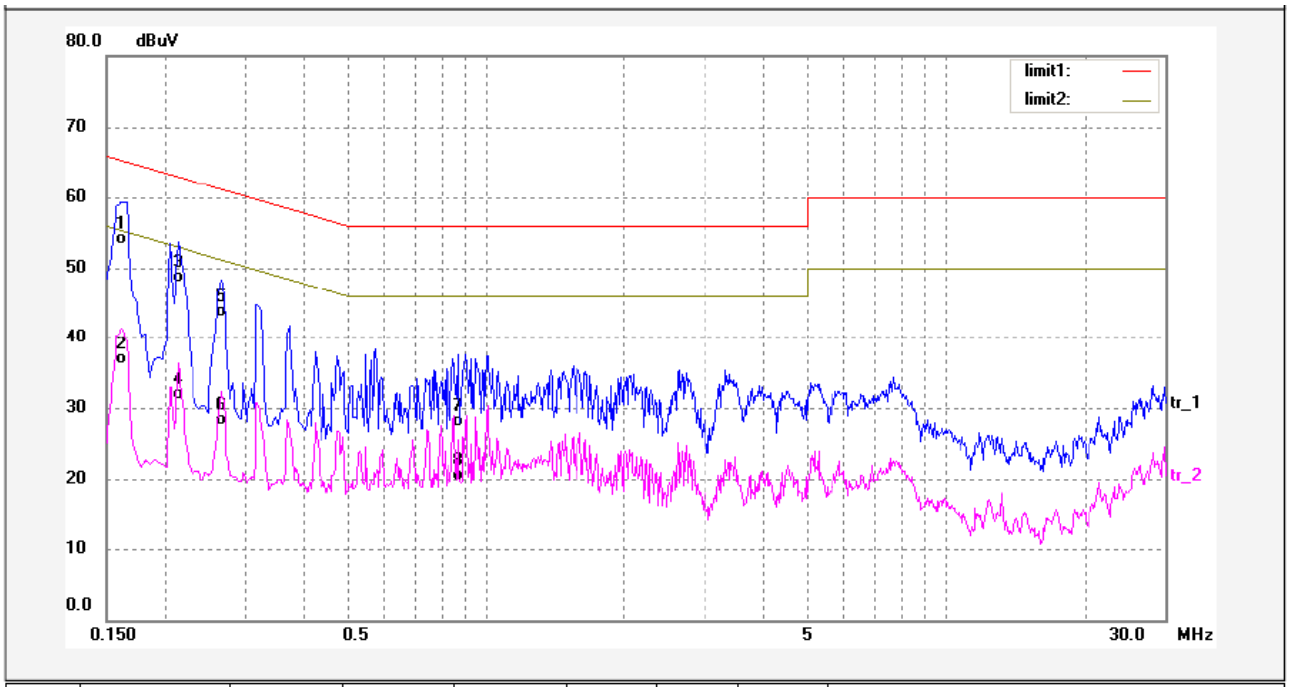
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1539	42.38	10.64	53.02	65.78	-12.76	QP	
2	0.1539	27.34	10.64	37.98	55.78	-17.80	AVG	
3	0.1980	32.48	10.67	43.15	63.69	-20.54	QP	
4	0.1980	17.44	10.67	28.11	53.69	-25.58	AVG	
5	0.2540	34.33	10.64	44.97	61.62	-16.65	QP	
6	0.2540	23.54	10.64	34.18	51.62	-17.44	AVG	
7	0.5060	22.58	11.79	34.37	56.00	-21.63	QP	
8	0.5060	17.55	11.79	29.34	46.00	-16.66	AVG	
9	28.3020	17.50	12.78	30.28	60.00	-29.72	QP	
10	28.3020	12.45	12.78	25.23	50.00	-24.77	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1620	42.76	10.62	53.38	65.36	-11.98	QP	
2	0.1620	25.49	10.62	36.11	55.36	-19.25	AVG	
3	0.2140	37.28	10.66	47.94	63.04	-15.10	QP	
4	0.2140	20.53	10.66	31.19	53.04	-21.85	AVG	
5	0.2660	32.35	10.63	42.98	61.24	-18.26	QP	
6	0.2660	16.96	10.63	27.59	51.24	-23.65	AVG	
7	0.8740	15.91	11.42	27.33	56.00	-28.67	QP	
8	0.8740	8.29	11.42	19.71	46.00	-26.29	AVG	

Photograph – Conducted Emission Test Setup

7 Radiated Spurious Emissions

Test Requirement:	FCC CFR47 Part 15 Section 15.209 & 15.247
Test Method:	Base on ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	9kHz to 25GHz
Measurement Distance:	3m
15.209 Limit:	40.0 dBuV/m between 30MHz & 88MHz 43.5 dBuV/m between 88MHz & 216MHz 46.0 dBuV/m between 216MHz & 960MHz 54.0 dBuV/m above 960MHz
15.247 (d) Limit:	(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. The radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that Contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.
Test mode:	The EUT was tested in continuously Transmit mode.

EUT Operation :

Operating Environment:

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

Measurement Uncertainty

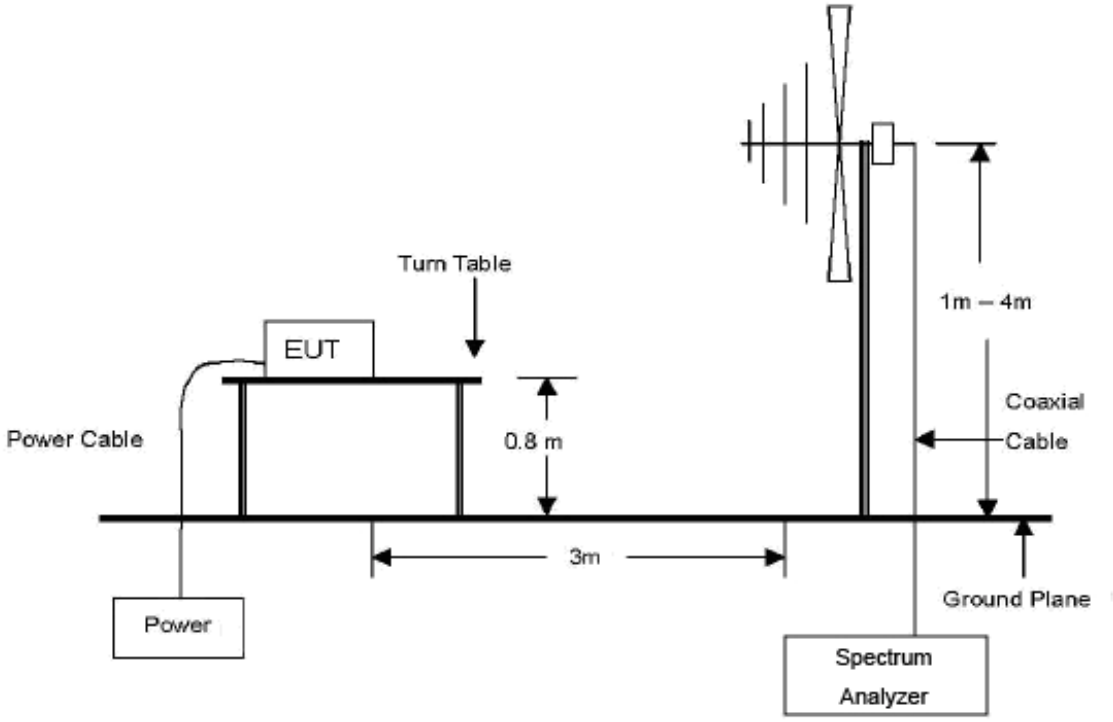
All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor 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 $\pm$5.03dB.

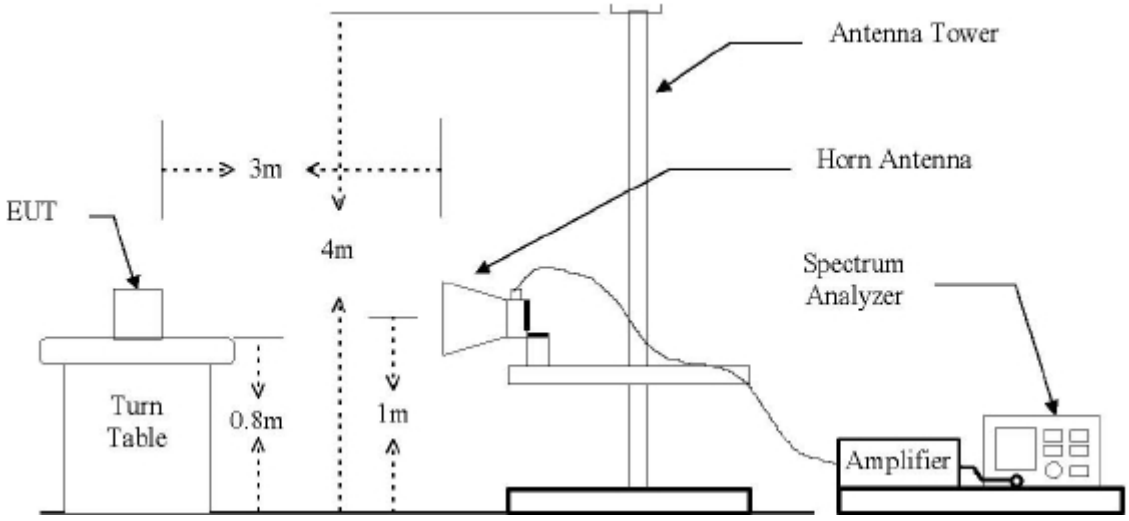
Test Setup

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 diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 25 GHz Emissions.



Spectrum Analyzer Setup

According to FCC Part15 Rules, the system was tested 9kHz to 25000MHz.

9kHz ~ 30MHz

Start Frequency	9kHz
Stop Frequency	30MHz
Sweep Speed	Auto
IF Bandwidth	10KHz
Video Bandwidth	10KHz
Resolution Bandwidth	10KHz

30MHz ~ 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	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

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(normal uses) axis positioning. And all the modes was tested in the report.Only the worst case is shown in the report.

Corrected Amplitude & Margin Calculation

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

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

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

Margin = Corr. Ampl. – Limit

Summary of Test Results

According to the data in this section, the EUT complied with the FCC CFR47 Part 15 Section 15.209 & 15.247 standards.

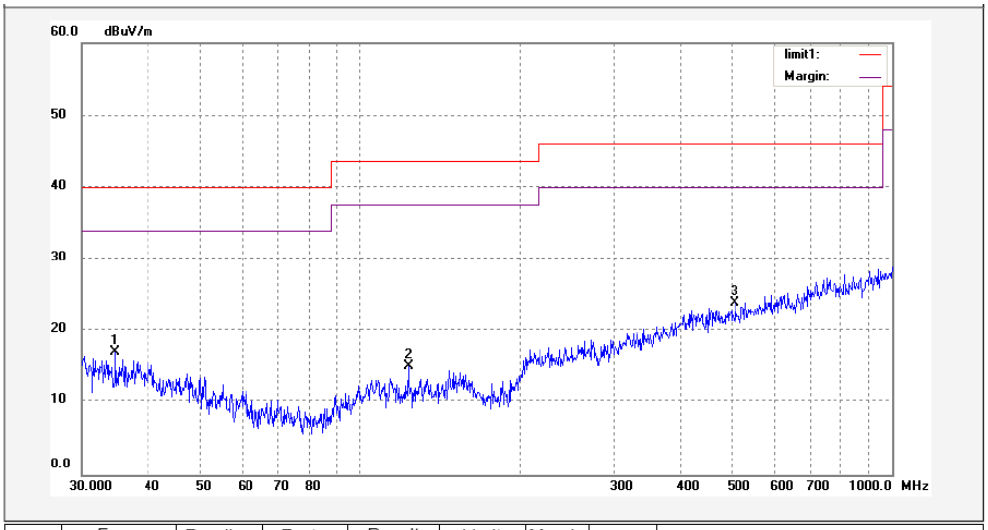
Modulation Technique: IEEE 802.11B Mode

Test mode: continuously recevie mode

Remark: the EUT was pretested at the high, middle and low channel, and the worse case was the low Channel, so the data show was the low channel only. Because the emissions below 30MHz are more than 20dB below the limit, the data is not show in the report.

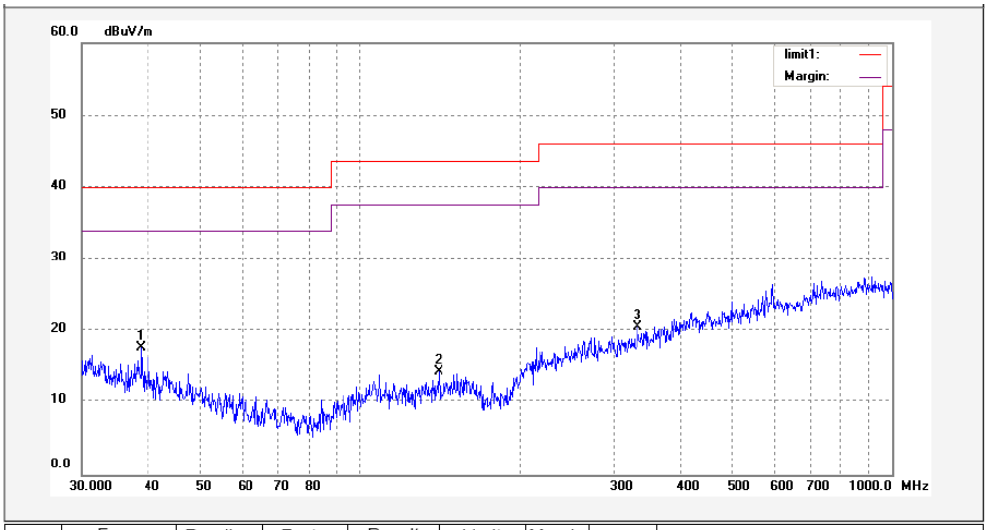
Test Frequency : 30MHz ~ 1000MHz

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	34.6485	0.59	16.56	17.15	40.00	-22.85	peak	
2	123.1815	2.38	12.78	15.16	43.50	-28.34	peak	
3	507.5694	1.12	22.74	23.86	46.00	-22.14	peak	

Antenna polarization: Horizontal

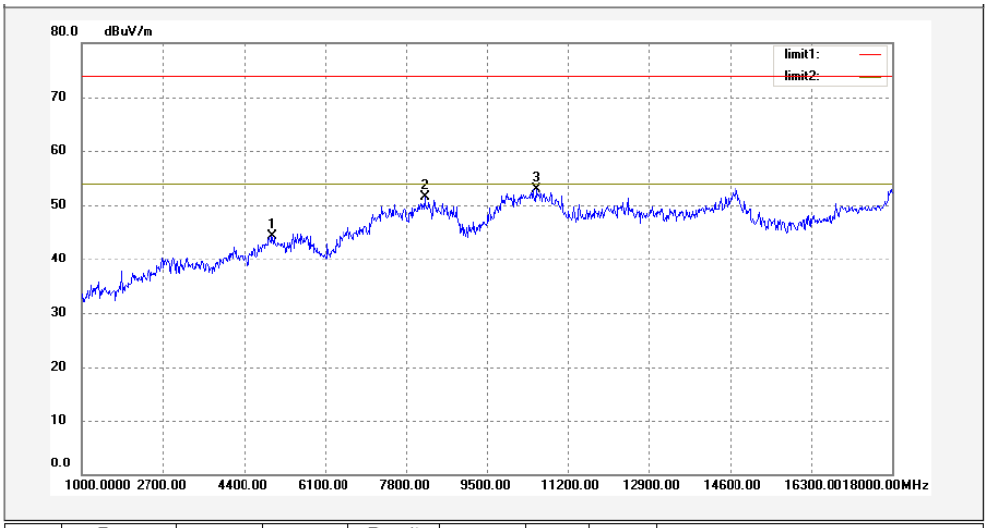


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	38.7716	1.54	16.20	17.74	40.00	-22.26	peak	
2	140.7767	1.38	13.12	14.50	43.50	-29.00	peak	
3	332.9536	1.17	19.44	20.61	46.00	-25.39	peak	

Test Frequency: Above 1GHz radiation test data:

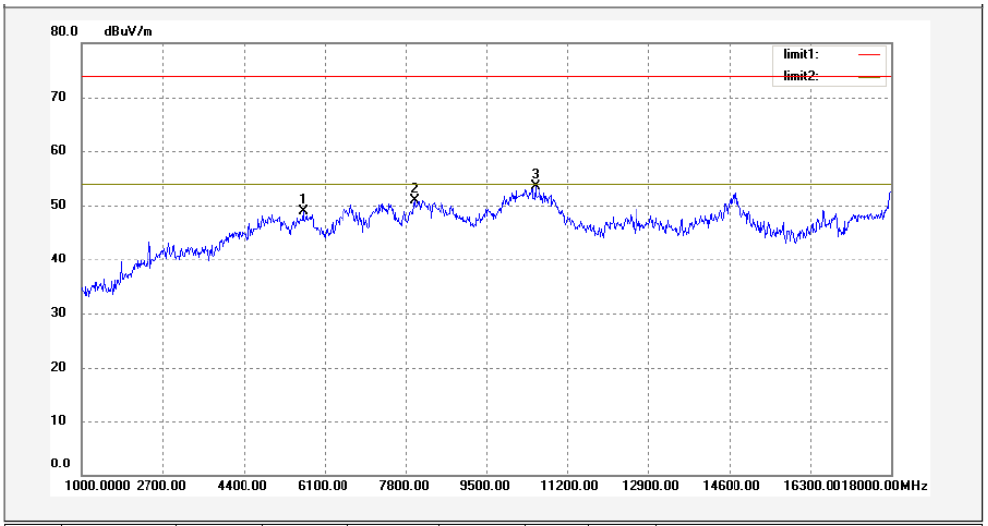
Remark: above 18GHz, the test signal below the noise level, so the data was not perfromed.

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	4985.972	39.15	5.12	44.27	74.00	-29.73	peak	
2	8188.377	36.98	14.58	51.56	74.00	-22.44	peak	
3	10522.044	34.45	18.52	52.97	74.00	-21.03	peak	

Antenna polarization: Horizontal



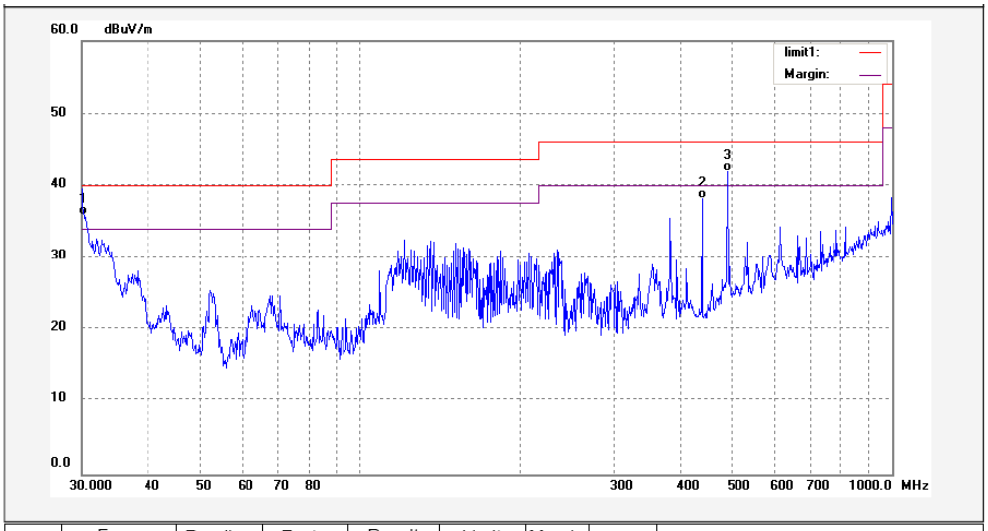
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	5650.301	39.56	9.37	48.93	74.00	-25.07	peak	
2	7983.968	32.74	18.16	50.90	74.00	-23.10	peak	
3	10522.044	32.60	20.84	53.44	74.00	-20.56	peak	

Test mode: continuously transmit mode

Test Frequency : 30MHz ~ 1000MHz

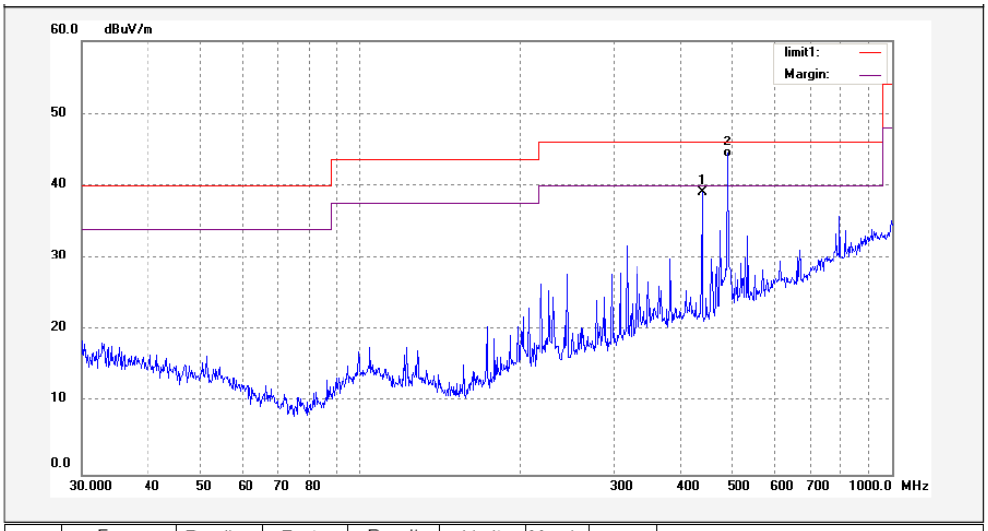
Remark: the EUT was pretested at the high, middle and low channel, and the worse case was the low Channel, so the data show was the low channel only. Because the emissions below 30MHz are more than 20dB below the limit, the data is not show in the report.

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	30.0000	19.83	16.15	35.98	40.00	-4.02	QP	
2	439.4730	18.20	20.01	38.21	46.00	-7.79	QP	
3	490.0451	16.24	25.75	41.99	46.00	-4.01	QP	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	439.4730	19.07	20.01	39.08	46.00	-6.92	peak	
2	490.0450	18.09	25.75	43.84	46.00	-2.16	QP	

Test Frequency: 1GHz ~ 25GHz

And the below is the Fundamental and Harmonic

Frequency (MHz)	Detector	Antenna Polarization	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Low frequency							
2412	AV	Vertical	84.62		(Fund.)	1.0	210
4824	AV	Vertical	37.24	54.00	-16.76	1.1	50
7236	AV	Vertical	31.78	54.00	-22.22	1.5	130
9648	AV	Vertical	34.75	54.00	-19.25	1.2	70
12060	AV	Vertical	36.41	54.00	-17.59	1.3	260
14472	AV	Vertical	30.54	54.00	-23.46	1.1	140
16884	AV	Vertical	39.18	54.00	-14.82	1.5	200
19296	AV	Vertical	27.55	54.00	-26.45	1.3	280
21708	AV	Vertical	34.23	54.00	-19.77	1.2	180
24120	AV	Vertical	31.12	54.00	-22.88	1.1	150
2412	AV	Horizontal	90.53		(Fund.)	2.1	110
4824	AV	Horizontal	43.74	54.00	-10.26	1.8	60
7236	AV	Horizontal	40.06	54.00	-13.94	1.9	190
9648	AV	Horizontal	36.15	54.00	-17.85	2.3	310
12060	AV	Horizontal	32.51	54.00	-21.49	2.0	200
14472	AV	Horizonta	39.44	54.00	-14.56	1.7	70
16884	AV	Horizontal	42.33	54.00	-11.67	1.8	40
19296	AV	Horizontal	35.21	54.00	-18.79	1.9	100
21708	AV	Horizontal	33.63	54.00	-20.37	1.5	160
24120	AV	Horizontal	36.24	54.00	-17.76	1.2	140
2412	PK	Vertical	104.62		(Fund.)	1.5	180
4824	PK	Vertical	58.14	74.00	-15.86	1.5	200
7236	PK	Vertical	55.33	74.00	-18.67	1.3	280
9648	PK	Vertical	57.21	74.00	-16.79	1.2	180
12060	PK	Vertical	53.52	74.00	-20.48	1.2	90
14472	PK	Vertical	49.27	74.00	-24.73	1.8	60
16884	PK	Vertical	56.12	74.00	-17.88	1.9	190
19296	PK	Vertical	58.34	74.00	-15.66	2.3	310

21708	PK	Vertical	49.33	74.00	-24.67	1.3	260
24120	PK	Vertical	45.06	74.00	-28.94	1.1	140
2412	PK	Horizontal	112.14		(Fund.)	2.3	310
4824	PK	Horizontal	65.24	74.00	-8.76	2.0	200
7236	PK	Horizontal	57.43	74.00	-16.57	1.7	70
9648	PK	Horizontal	60.15	74.00	-13.85	1.8	60
12060	PK	Horizontal	62.24	74.00	-11.76	2.1	110
14472	PK	Horizontal	57.41	74.00	-16.59	1.8	60
16884	PK	Horizontal	52.36	74.00	-21.64	1.9	190
19296	PK	Horizontal	54.07	74.00	-19.93	1.9	100
21708	PK	Horizontal	56.30	74.00	-17.70	1.5	160
24120	PK	Horizontal	50.26	74.00	-23.74	1.7	140
Middle frequency							
2437	AV	Vertical	82.12		(Fund.)	1.3	280
4874	AV	Vertical	35.14	54.00	-18.86	1.2	180
7311	AV	Vertical	32.21	54.00	-21.79	1.1	150
9748	AV	Vertical	36.24	54.00	-17.76	1.1	140
12185	AV	Vertical	30.62	54.00	-23.38	1.5	200
14622	AV	Vertical	34.13	54.00	-19.87	1.3	280
17059	AV	Vertical	28.52	54.00	-25.48	1.1	50
19496	AV	Vertical	29.53	54.00	-24.47	1.5	130
21933	AV	Vertical	29.41	54.00	-24.59	1.2	70
24370	AV	Vertical	28.36	54.00	-25.64	1.1	140
2437	AV	Horizontal	90.36		(Fund.)	2.0	200
4874	AV	Horizontal	40.20	54.00	-13.80	1.7	70
7311	AV	Horizontal	42.12	54.00	-11.88	1.8	40
9748	AV	Horizontal	36.24	54.00	-17.76	1.8	60
12185	AV	Horizontal	37.42	54.00	-16.58	1.9	190
14622	AV	Horizontal	40.15	54.00	-13.85	2.3	310
17059	AV	Horizontal	35.23	54.00	-18.77	1.9	100
19496	AV	Horizontal	37.14	54.00	-16.86	1.5	160
21933	AV	Horizontal	33.58	54.00	-20.42	1.7	140
24370	AV	Horizontal	36.14	54.00	-17.86	1.7	120

2437	PK	Vertical	102.14		(Fund.)	1.0	0
4874	PK	Vertical	59.87	74.00	-14.13	1.1	90
7311	PK	Vertical	61.36	74.00	-12.64	1.4	100
9748	PK	Vertical	60.44	74.00	-13.56	1.3	120
12185	PK	Vertical	55.41	74.00	-18.59	1.7	180
14622	PK	Vertical	57.26	74.00	-16.74	1.2	0
17059	PK	Vertical	52.14	74.00	-21.86	1.4	0
19496	PK	Vertical	50.31	74.00	-23.69	1.5	120
21933	PK	Vertical	49.54	74.00	-24.46	1.5	135
24370	PK	Vertical	53.13	74.00	-20.87	1.2	120
2437	PK	Horizontal	109.26		(Fund.)	1.0	0
4874	PK	Horizontal	60.61	74.00	-13.39	1.7	45
7311	PK	Horizontal	64.10	74.00	-9.90	1.6	90
9748	PK	Horizontal	57.65	74.00	-16.35	1.5	60
12185	PK	Horizontal	59.31	74.00	-14.69	1.4	150
14622	PK	Horizontal	62.73	74.00	-11.27	1.2	150
17059	PK	Horizontal	52.62	74.00	-21.38	1.1	120
19496	PK	Horizontal	54.05	74.00	-19.95	1.5	150
21933	PK	Horizontal	50.31	74.00	-23.69	1.1	0
24370	PK	Horizontal	52.22	74.00	-21.78	1.6	135
High frequency							
2462	AV	Vertical	83.26		(Fund.)	1.0	0
4924	AV	Vertical	38.32	54.00	-15.68	1.2	45
7386	AV	Vertical	41.25	54.00	-12.75	1.2	120
9848	AV	Vertical	40.36	54.00	-13.64	1.4	60
12310	AV	Vertical	37.74	54.00	-16.26	1.5	135
14772	AV	Vertical	36.21	54.00	-17.79	1.8	120
17234	AV	Vertical	34.23	54.00	-19.77	1.1	100
19696	AV	Vertical	36.12	54.00	-17.88	1.1	60
22158	AV	Vertical	30.06	54.00	-23.94	1.4	0
24620	AV	Vertical	31.41	54.00	-22.59	1.5	60
2462	AV	Horizontal	91.54		(Fund.)	1.0	0
4924	AV	Horizontal	37.44	54.00	-16.56	1.8	120

7386	AV	Horizontal	43.24	54.00	-10.76	1.2	60
9848	AV	Horizontal	40.50	54.00	-13.50	1.5	100
12310	AV	Horizontal	39.71	54.00	-14.29	1.2	60
14772	AV	Horizontal	37.52	54.00	-16.48	1.2	120
17234	AV	Horizontal	36.66	54.00	-17.34	1.4	100
19696	AV	Horizontal	38.01	54.00	-15.99	1.8	100
22158	AV	Horizontal	30.16	54.00	-23.84	1.3	100
24620	AV	Horizontal	30.38	54.00	-23.62	1.6	10
2462	PK	Vertical	104.41		(Fund.)	1.0	0
4924	PK	Vertical	57.24	74.00	-16.76	1.2	60
7386	PK	Vertical	59.01	74.00	-14.99	1.8	90
9848	PK	Vertical	55.13	74.00	-18.87	1.5	180
12310	PK	Vertical	52.05	74.00	-21.95	1.4	60
14772	PK	Vertical	54.36	74.00	-19.64	1.2	60
17234	PK	Vertical	50.47	74.00	-23.53	1.2	135
19696	PK	Vertical	48.32	74.00	-25.68	1.2	120
22158	PK	Vertical	45.17	74.00	-28.83	1.6	60
24620	PK	Vertical	46.63	74.00	-27.37	1.4	90
2462	PK	Horizontal	110.95		(Fund.)	1.1	60
4924	PK	Horizontal	62.20	74.00	-11.80	1.4	90
7386	PK	Horizontal	63.14	74.00	-10.86	1.5	60
9848	PK	Horizontal	59.94	74.00	-14.06	1.3	0
12310	PK	Horizontal	57.32	74.00	-16.68	1.2	135
14772	PK	Horizontal	55.62	74.00	-18.38	1.7	0
17234	PK	Horizontal	58.23	74.00	-15.77	1.8	180
19696	PK	Horizontal	56.37	74.00	-17.63	1.5	60
22158	PK	Horizontal	51.13	74.00	-22.87	1.8	120
24620	PK	Horizontal	52.41	74.00	-21.59	1.0	60

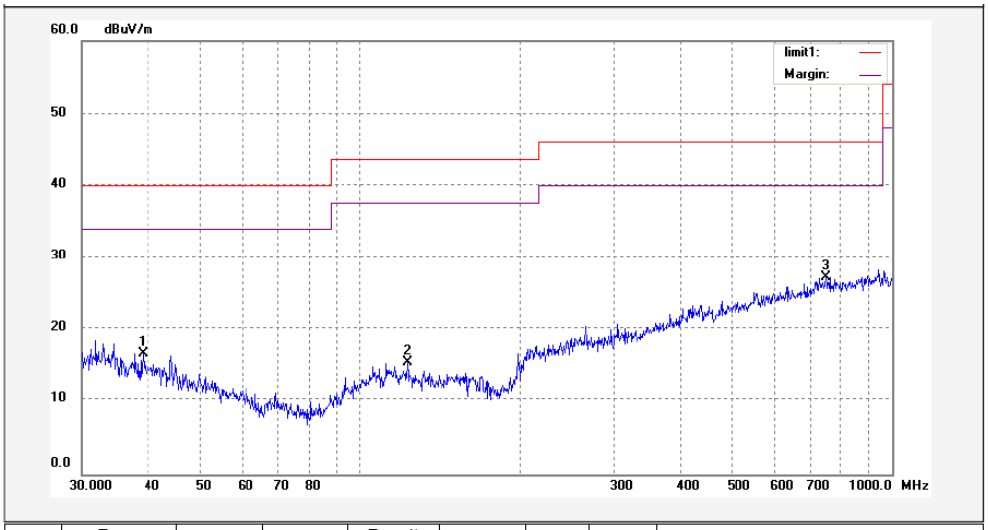
Modulation Technique: IEEE 802.11G Mode

Test mode: continuously recevie mode

Remark: the EUT was pretested at the high, middle and low channel, and the worse case was the low Channel, so the data show was the low channel only. Because the emissions below 30MHz are more than 20dB below the limit, the data is not show in the report.

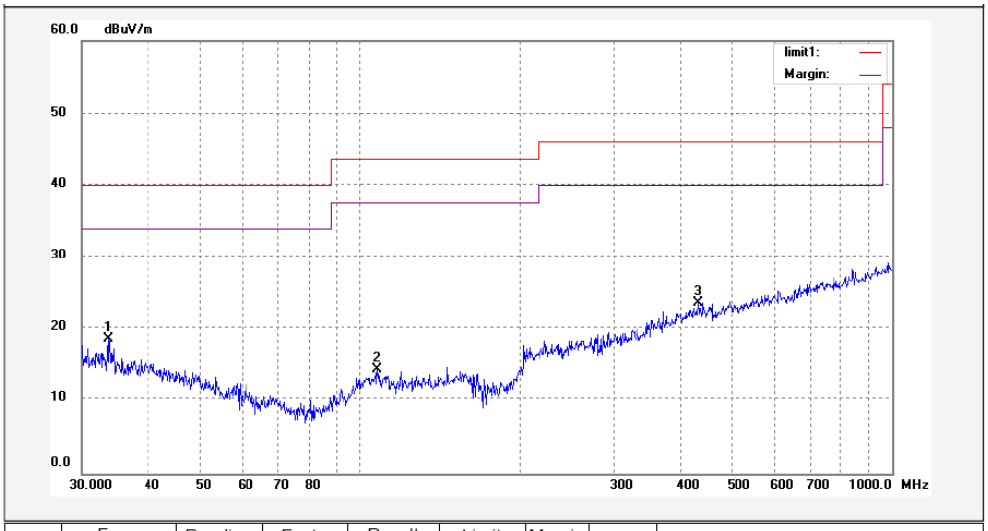
Test Frequency : 30MHz ~ 1000MHz

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	39.0449	0.58	16.18	16.76	40.00	-23.24	peak	
2	122.7493	2.81	12.73	15.54	43.50	-27.96	peak	
3	749.6761	1.90	25.36	27.26	46.00	-18.74	peak	

Antenna polarization: Horizontal

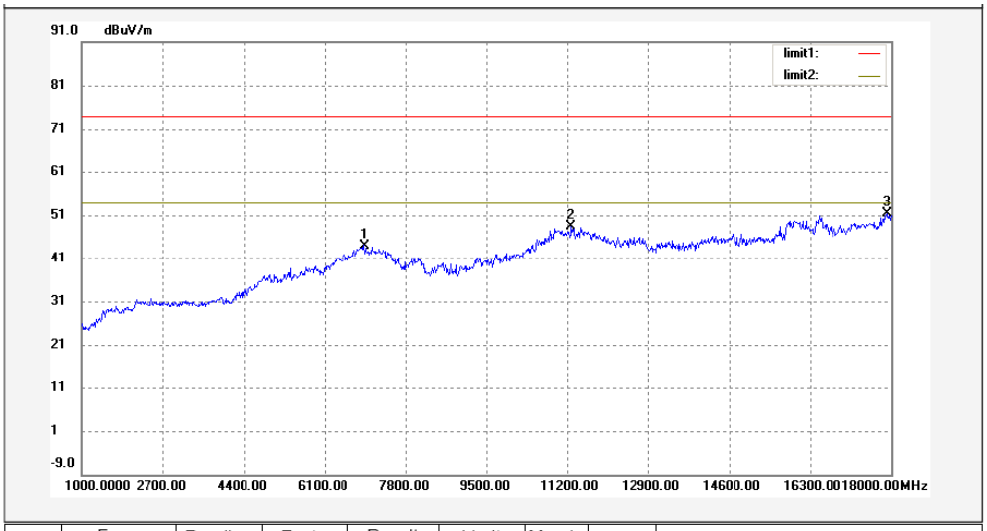


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	33.5700	1.89	16.76	18.65	40.00	-21.35	peak	
2	107.7853	1.12	13.35	14.47	43.50	-29.03	peak	
3	431.8197	1.99	21.63	23.62	46.00	-22.38	peak	

Test Frequency: Above 1GHz radiation test data:

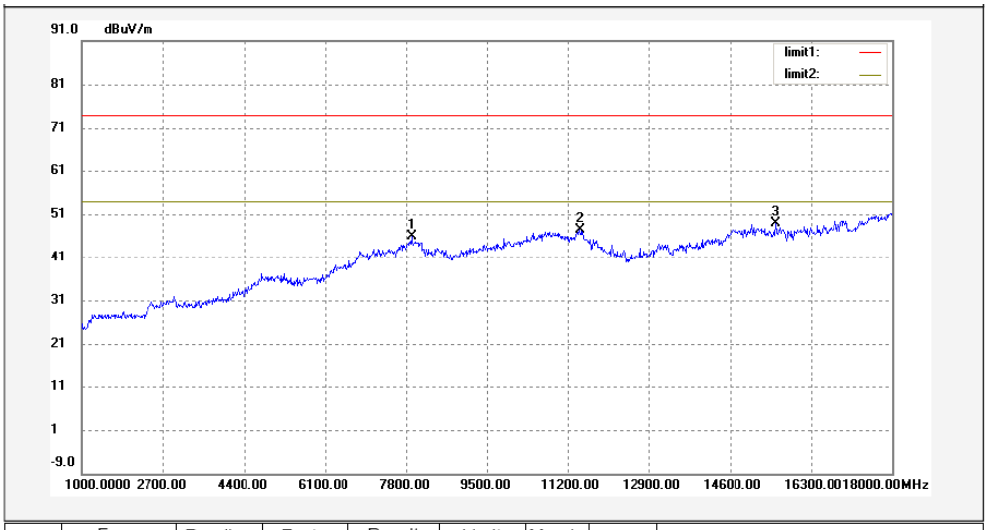
Remark: above 18GHz, the test signal below the noise level, so the data was not perfromed.

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	6927.856	39.45	4.55	44.00	74.00	-30.00	peak	
2	11288.577	37.68	10.61	48.29	74.00	-25.71	peak	
3	17914.830	-16.26	67.68	51.42	74.00	-22.58	peak	

Antenna polarization: Horizontal



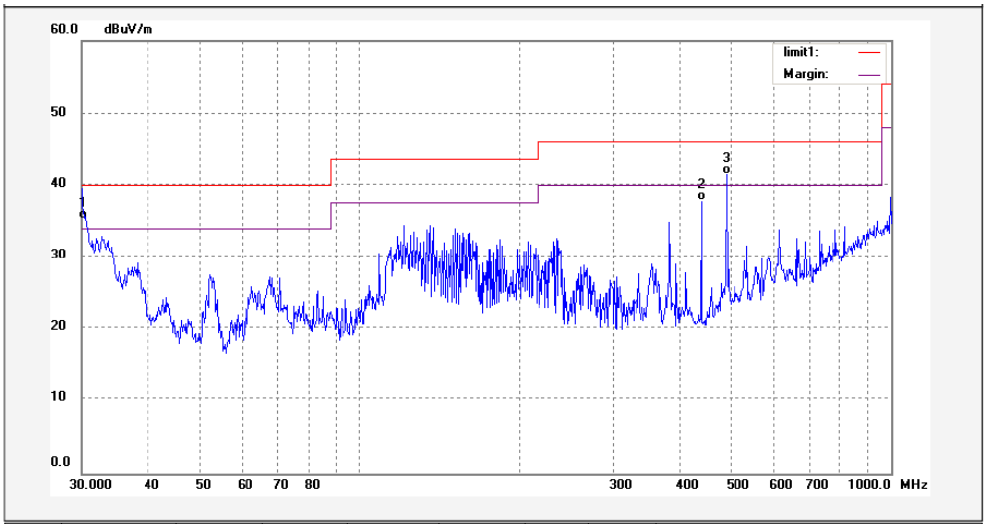
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	7915.832	40.33	5.43	45.76	74.00	-28.24	peak	
2	11441.884	36.33	10.94	47.27	74.00	-26.73	peak	
3	15564.128	-7.95	56.94	48.99	74.00	-25.01	peak	

Test mode: continuously transmit mode

Test Frequency : 30MHz ~ 1000MHz

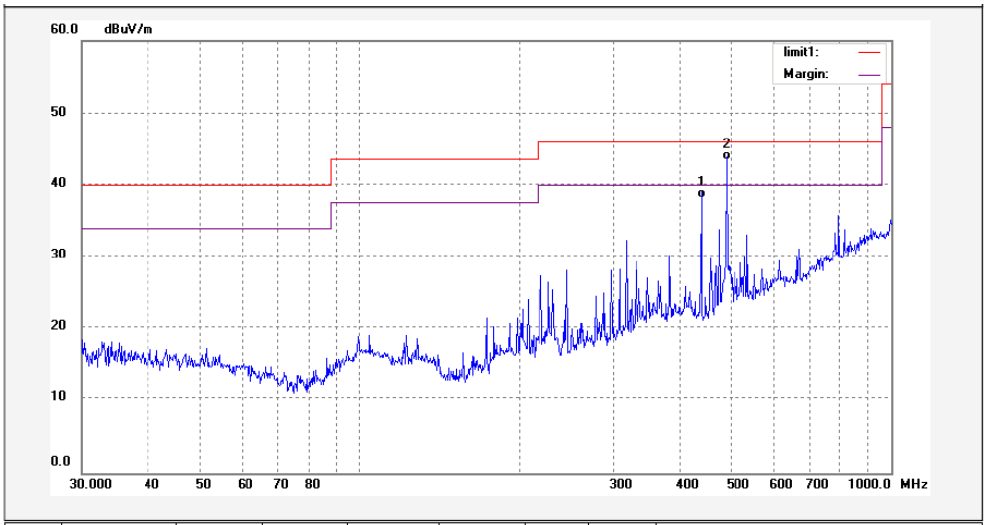
Remark: the EUT was pretested at the high, middle and low channel, and the worse case was the low Channel, so the data show was the low channel only. Because the emissions below 30MHz are more than 20dB below the limit, the data is not show in the report.

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	30.0000	19.25	16.15	35.40	40.00	-4.60	QP	
2	439.4730	17.86	20.01	37.87	46.00	-8.13	QP	
3	490.0451	15.74	25.75	41.49	46.00	-4.51	QP	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	439.4730	18.24	20.01	38.25	46.00	-7.75	QP	
2	490.0450	17.68	25.75	43.43	46.00	-2.57	QP	

Test Frequency: 1GHz ~ 25GHz

And the below is the Fundamental and Harmonic

Frequency (MHz)	Detector	Antenna Polarization	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Low frequency							
2412	AV	Vertical	82.24		(Fund.)	1.2	150
4824	AV	Vertical	36.54	54.00	-17.46	1.2	0
7236	AV	Vertical	38.16	54.00	-15.84	1.5	120
9648	AV	Vertical	37.31	54.00	-16.69	1.8	60
12060	AV	Vertical	40.12	54.00	-13.88	1.6	90
14472	AV	Vertical	39.71	54.00	-14.29	1.4	120
16884	AV	Vertical	32.10	54.00	-21.90	1.7	100
19296	AV	Vertical	33.25	54.00	-20.75	1.5	180
21708	AV	Vertical	31.25	54.00	-22.75	1.6	120
24120	AV	Vertical	32.62	54.00	-21.38	1.2	135
2412	AV	Horizontal	90.53		(Fund.)	1.2	120
4824	AV	Horizontal	41.14	54.00	-12.86	1.2	150
7236	AV	Horizontal	43.26	54.00	-10.74	1.5	120
9648	AV	Horizontal	40.51	54.00	-13.49	1.2	180
12060	AV	Horizontal	36.28	54.00	-17.72	1.5	135
14472	AV	Horizonta	37.44	54.00	-16.56	1.2	120
16884	AV	Horizontal	35.36	54.00	-18.64	1.5	180
19296	AV	Horizontal	33.11	54.00	-20.89	1.8	60
21708	AV	Horizontal	32.71	54.00	-21.29	1.2	90
24120	AV	Horizontal	30.65	54.00	-23.35	1.5	90
2412	PK	Vertical	100.36		(Fund.)	1.5	180
4824	PK	Vertical	57.74	74.00	-16.26	1.8	30
7236	PK	Vertical	55.63	74.00	-18.37	1.6	110
9648	PK	Vertical	59.21	74.00	-14.79	1.4	100
12060	PK	Vertical	60.15	74.00	-13.85	1.2	90
14472	PK	Vertical	55.24	74.00	-18.76	1.2	60
16884	PK	Vertical	53.23	74.00	-20.77	1.4	90
19296	PK	Vertical	54.52	74.00	-19.48	1.2	120

21708	PK	Vertical	52.33	74.00	-21.67	1.7	120
24120	PK	Vertical	50.82	74.00	-23.18	1.4	135
2412	PK	Horizontal	108.86		(Fund.)	1.8	180
4824	PK	Horizontal	63.32	74.00	-10.68	1.8	60
7236	PK	Horizontal	57.65	74.00	-16.35	1.8	120
9648	PK	Horizontal	61.42	74.00	-12.58	1.2	180
12060	PK	Horizontal	60.37	74.00	-13.63	1.2	90
14472	PK	Horizontal	55.14	74.00	-18.86	1.5	90
16884	PK	Horizontal	52.97	74.00	-21.03	1.8	150
19296	PK	Horizontal	53.20	74.00	-20.80	1.5	150
21708	PK	Horizontal	51.11	74.00	-22.89	1.2	120
24120	PK	Horizontal	49.86	74.00	-24.14	1.2	180
Middle frequency							
2437	AV	Vertical	80.12		(Fund.)	1.0	210
4874	AV	Vertical	36.74	54.00	-17.26	1.1	50
7311	AV	Vertical	40.12	54.00	-13.88	1.5	130
9748	AV	Vertical	36.62	54.00	-17.38	1.2	70
12185	AV	Vertical	36.21	54.00	-17.79	1.5	200
14622	AV	Vertical	35.47	54.00	-18.53	1.3	280
17059	AV	Vertical	33.55	54.00	-20.45	1.2	180
19496	AV	Vertical	32.41	54.00	-21.59	1.1	150
21933	AV	Vertical	36.12	54.00	-17.88	1.3	260
24370	AV	Vertical	32.04	54.00	-21.96	1.1	140
2437	AV	Horizontal	89.24		(Fund.)	1.7	70
4874	AV	Horizontal	41.12	54.00	-12.88	1.8	40
7311	AV	Horizontal	38.74	54.00	-15.26	1.9	100
9748	AV	Horizontal	37.46	54.00	-16.54	1.5	160
12185	AV	Horizontal	35.21	54.00	-18.79	1.9	190
14622	AV	Horizontal	32.05	54.00	-21.95	2.3	310
17059	AV	Horizontal	31.54	54.00	-22.46	2.0	200
19496	AV	Horizontal	34.23	54.00	-19.77	1.9	100
21933	AV	Horizontal	30.15	54.00	-23.85	1.5	160
24370	AV	Horizontal	30.89	54.00	-23.11	1.7	140

2437	PK	Vertical	98.86		(Fund.)	1.5	130
4874	PK	Vertical	61.15	74.00	-12.85	1.2	70
7311	PK	Vertical	62.41	74.00	-11.59	1.3	260
9748	PK	Vertical	57.52	74.00	-16.48	1.5	200
12185	PK	Vertical	54.37	74.00	-19.63	1.3	280
14622	PK	Vertical	55.36	74.00	-18.64	1.2	180
17059	PK	Vertical	52.17	74.00	-21.83	1.3	260
19496	PK	Vertical	53.12	74.00	-20.88	1.1	140
21933	PK	Vertical	50.14	74.00	-23.86	1.5	200
24370	PK	Vertical	51.06	74.00	-22.94	1.3	280
2437	PK	Horizontal	107.69		(Fund.)	1.7	70
4874	PK	Horizontal	63.35	74.00	-10.65	1.8	40
7311	PK	Horizontal	60.23	74.00	-13.77	1.9	100
9748	PK	Horizontal	61.47	74.00	-12.53	1.8	60
12185	PK	Horizontal	58.34	74.00	-15.66	1.9	190
14622	PK	Horizontal	55.21	74.00	-18.79	2.3	310
17059	PK	Horizontal	52.17	74.00	-21.83	2.0	200
19496	PK	Horizontal	50.24	74.00	-23.76	1.7	70
21933	PK	Horizontal	51.64	74.00	-22.36	1.5	160
24370	PK	Horizontal	50.15	74.00	-23.85	1.7	140
High frequency							
2462	AV	Vertical	81.06		(Fund.)	1.0	0
4924	AV	Vertical	39.21	54.00	-14.79	1.3	280
7386	AV	Vertical	36.43	54.00	-17.57	1.2	180
9848	AV	Vertical	37.12	54.00	-16.88	1.1	150
12310	AV	Vertical	38.24	54.00	-15.76	1.2	70
14772	AV	Vertical	35.62	54.00	-18.38	1.3	260
17234	AV	Vertical	32.13	54.00	-21.87	1.1	140
19696	AV	Vertical	31.24	54.00	-22.76	1.5	200
22158	AV	Vertical	32.20	54.00	-21.80	1.3	280
24620	AV	Vertical	30.63	54.00	-23.37	1.2	180
2462	AV	Horizontal	90.52		(Fund.)	1.9	190
4924	AV	Horizontal	41.16	54.00	-12.84	2.3	310

7386	AV	Horizontal	40.27	54.00	-13.73	1.7	70
9848	AV	Horizontal	37.24	54.00	-16.76	1.8	40
12310	AV	Horizontal	35.41	54.00	-18.59	2.0	200
14772	AV	Horizontal	36.54	54.00	-17.46	1.5	160
17234	AV	Horizontal	33.41	54.00	-20.59	1.8	40
19696	AV	Horizontal	30.26	54.00	-23.74	1.8	100
22158	AV	Horizontal	31.04	54.00	-22.96	2.1	110
24620	AV	Horizontal	30.26	54.00	-23.74	1.8	60
2462	PK	Vertical	105.26		(Fund.)	1.0	0
4924	PK	Vertical	60.62	74.00	-13.38	1.2	60
7386	PK	Vertical	61.07	74.00	-12.93	1.3	260
9848	PK	Vertical	57.85	74.00	-16.15	1.1	140
12310	PK	Vertical	56.31	74.00	-17.69	1.5	200
14772	PK	Vertical	58.23	74.00	-15.77	1.2	60
17234	PK	Vertical	52.47	74.00	-21.53	1.3	280
19696	PK	Vertical	53.16	74.00	-20.84	1.2	180
22158	PK	Vertical	50.37	74.00	-23.63	1.1	150
24620	PK	Vertical	51.15	74.00	-22.85	1.4	90
2462	PK	Horizontal	112.23		(Fund.)	2.1	110
4924	PK	Horizontal	63.36	74.00	-10.64	1.8	60
7386	PK	Horizontal	60.54	74.00	-13.46	1.9	190
9848	PK	Horizontal	59.41	74.00	-14.59	2.0	200
12310	PK	Horizontal	57.30	74.00	-16.70	1.7	70
14772	PK	Horizontal	54.02	74.00	-19.98	1.8	40
17234	PK	Horizontal	51.33	74.00	-22.67	1.8	60
19696	PK	Horizontal	52.18	74.00	-21.82	1.9	190
22158	PK	Horizontal	50.86	74.00	-23.14	1.8	40
24620	PK	Horizontal	50.04	74.00	-23.96	1.9	100

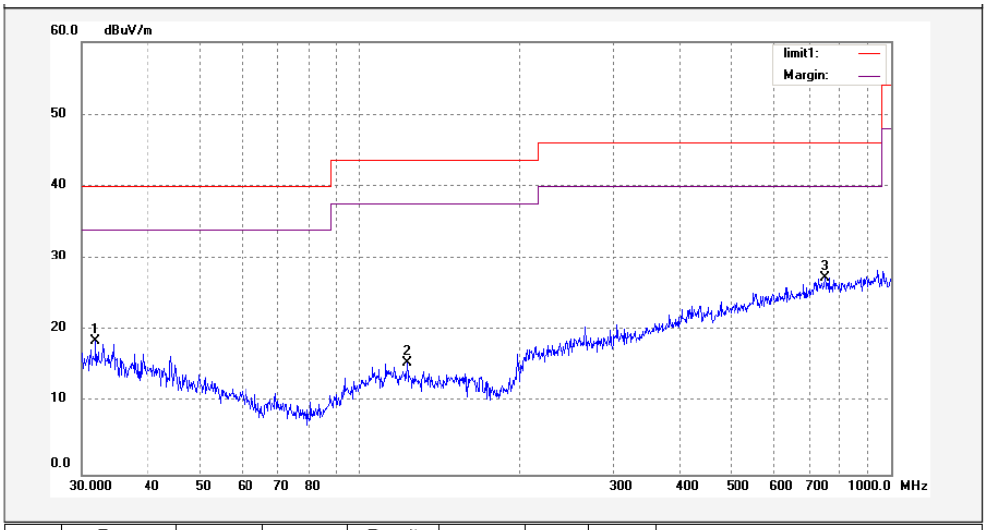
Modulation Technique: IEEE 802.11N Mode

Test mode: continuously recevie mode

Remark: the EUT was pretested at the high, middle and low channel, and the worse case was the low Channel, so the data show was the low channel only. Because the emissions below 30MHz are more than 20dB below the limit, the data is not show in the report.

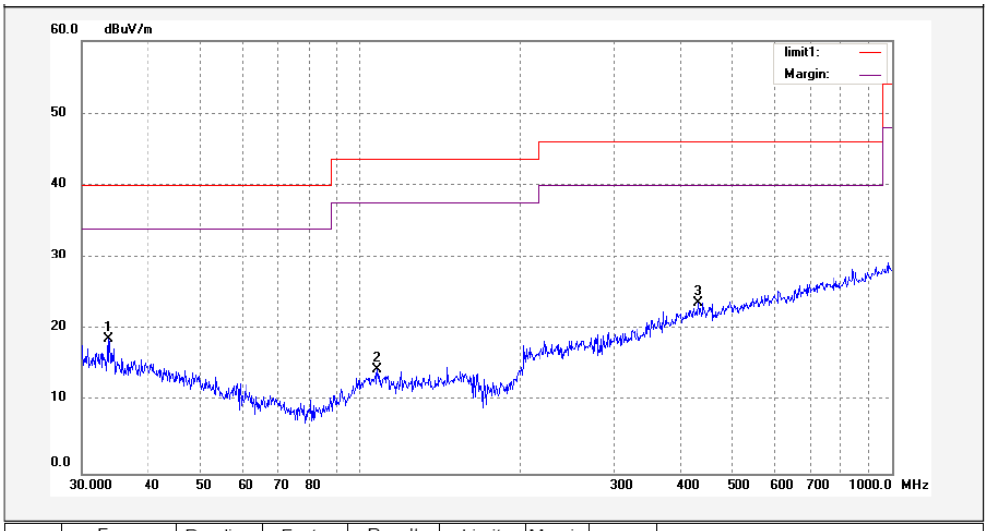
Test Frequency : 30MHz ~ 1000MHz

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	31.8460	1.41	17.07	18.48	40.00	-21.52	peak	
2	122.7493	2.81	12.73	15.54	43.50	-27.96	peak	
3	749.6761	1.90	25.36	27.26	46.00	-18.74	peak	

Antenna polarization: Horizontal

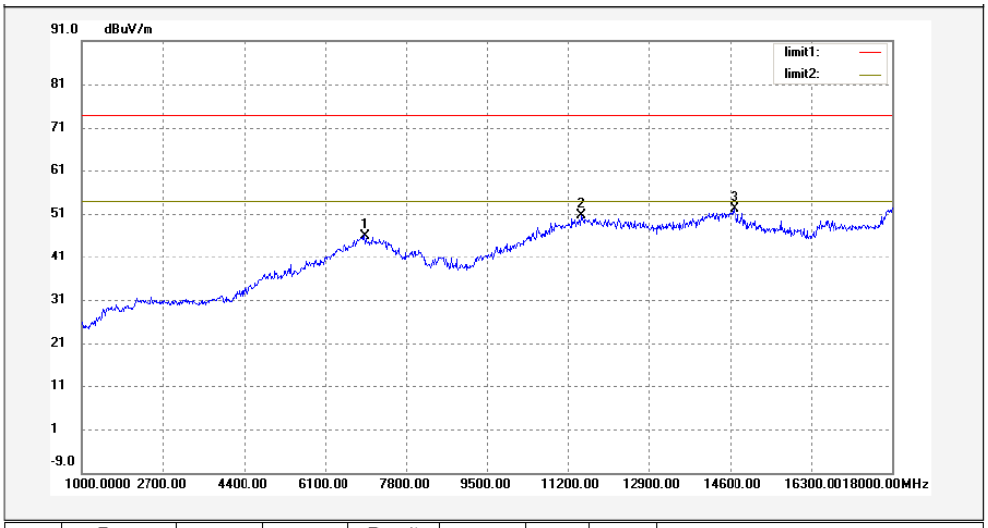


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	33.5700	1.89	16.76	18.65	40.00	-21.35	peak	
2	107.7853	1.12	13.35	14.47	43.50	-29.03	peak	
3	431.8197	1.99	21.63	23.62	46.00	-22.38	peak	

Test Frequency: Above 1GHz radiation test data:

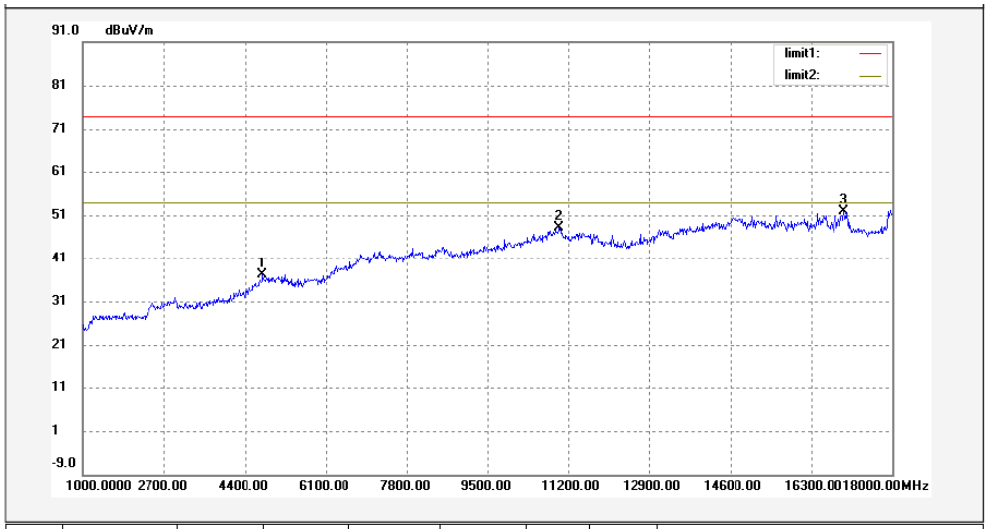
Remark: above 18GHz, the test signal below the noise level, so the data was not perfromed.

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	6927.856	41.45	4.55	46.00	74.00	-28.00	peak	
2	11475.952	39.61	10.99	50.60	74.00	-23.40	peak	
3	14678.357	-8.21	60.44	52.23	74.00	-21.77	peak	

Antenna polarization: Horizontal



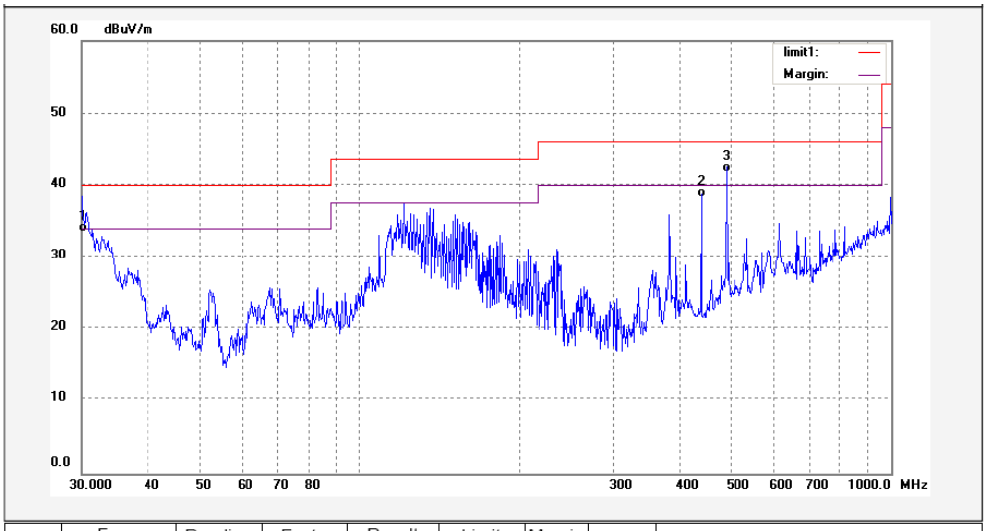
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	4781.563	38.12	-1.09	37.03	74.00	-36.97	peak	
2	11016.032	37.23	10.78	48.01	74.00	-25.99	peak	
3	16994.990	-9.20	61.12	51.92	74.00	-22.08	peak	

Test mode: continuously transmit mode

Test Frequency : 30MHz ~ 1000MHz

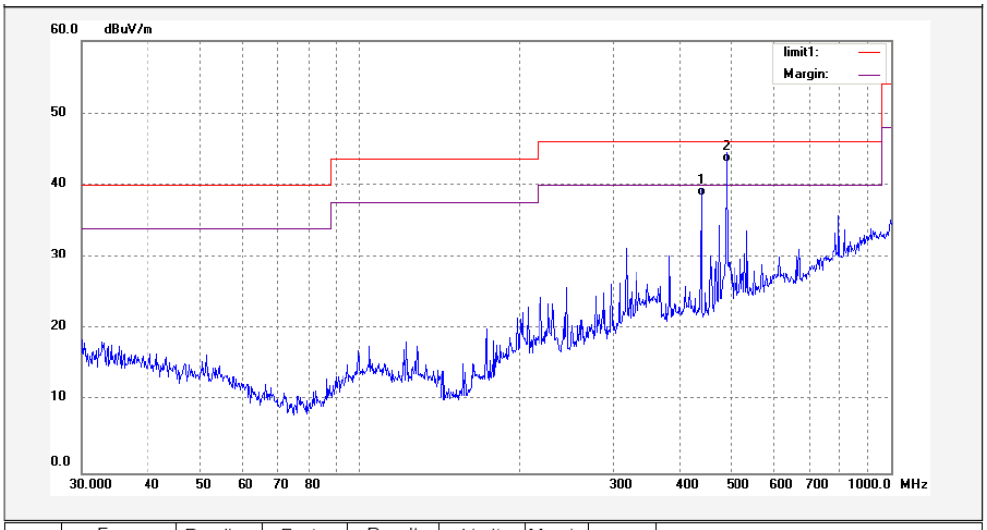
Remark: the EUT was pretested at the high, middle and low channel, and the worse case was the low Channel, so the data show was the low channel only. Because the emissions below 30MHz are more than 20dB below the limit, the data is not show in the report.

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	30.0000	17.42	16.15	33.57	40.00	-6.43	QP	
2	439.4730	18.35	20.01	38.36	46.00	-7.64	QP	
3	490.0451	16.03	25.75	41.78	46.00	-4.22	QP	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	439.4730	18.53	20.01	38.54	46.00	-7.46	QP	
2	490.0450	17.38	25.75	43.13	46.00	-2.87	QP	

Test Frequency: 1GHz ~ 25GHz

And the below is the Fundamental and Harmonic

Frequency (MHz)	Detector	Antenna Polarization	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Low frequency							
2412	AV	Vertical	77.59		(Fund.)	1.1	50
4824	AV	Vertical	37.71	54.00	-16.29	1.5	130
7236	AV	Vertical	34.59	54.00	-19.41	1.2	70
9648	AV	Vertical	38.62	54.00	-15.38	1.1	140
12060	AV	Vertical	39.32	54.00	-14.68	1.5	200
14472	AV	Vertical	36.10	54.00	-17.90	1.3	280
16884	AV	Vertical	33.31	54.00	-20.69	1.3	280
19296	AV	Vertical	31.07	54.00	-22.93	1.2	180
21708	AV	Vertical	30.36	54.00	-23.64	1.1	150
24120	AV	Vertical	31.27	54.00	-22.73	1.2	135
2412	AV	Horizontal	85.72		(Fund.)	1.9	190
4824	AV	Horizontal	41.15	54.00	-12.85	2.3	310
7236	AV	Horizontal	43.06	54.00	-10.94	2.0	200
9648	AV	Horizontal	38.26	54.00	-15.74	1.8	40
12060	AV	Horizontal	39.43	54.00	-14.57	1.9	100
14472	AV	Horizonta	36.15	54.00	-17.85	1.5	160
16884	AV	Horizontal	34.20	54.00	-19.80	2.1	110
19296	AV	Horizontal	31.86	54.00	-22.14	1.8	60
21708	AV	Horizontal	32.11	54.00	-21.89	1.9	190
24120	AV	Horizontal	30.62	54.00	-23.38	1.7	70
2412	PK	Vertical	98.16		(Fund.)	1.5	180
4824	PK	Vertical	59.84	74.00	-14.16	1.8	30
7236	PK	Vertical	55.69	74.00	-18.31	1.6	110
9648	PK	Vertical	57.17	74.00	-16.83	1.4	100
12060	PK	Vertical	52.90	74.00	-21.10	1.2	90
14472	PK	Vertical	54.27	74.00	-19.73	1.2	60
16884	PK	Vertical	51.06	74.00	-22.94	1.4	90
19296	PK	Vertical	50.38	74.00	-23.62	1.2	120

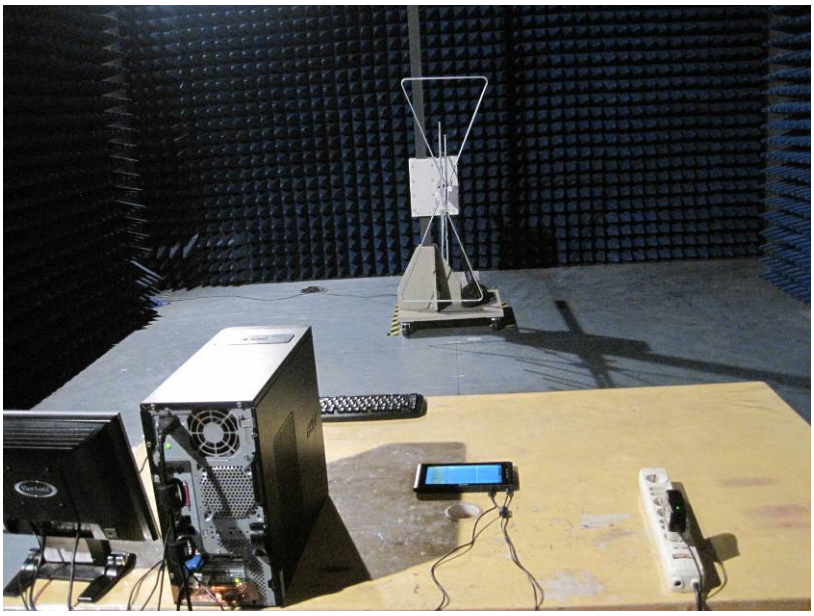
21708	PK	Vertical	52.15	74.00	-21.85	1.7	120
24120	PK	Vertical	50.49	74.00	-23.51	1.4	135
2412	PK	Horizontal	109.87		(Fund.)	1.8	180
4824	PK	Horizontal	61.11	74.00	-12.89	1.8	60
7236	PK	Horizontal	63.08	74.00	-10.92	1.8	120
9648	PK	Horizontal	57.74	74.00	-16.26	1.2	180
12060	PK	Horizontal	52.26	74.00	-21.74	1.2	90
14472	PK	Horizontal	55.31	74.00	-18.69	1.5	90
16884	PK	Horizontal	51.49	74.00	-22.51	1.8	150
19296	PK	Horizontal	53.10	74.00	-20.90	1.5	150
21708	PK	Horizontal	50.26	74.00	-23.74	1.2	120
24120	PK	Horizontal	51.39	74.00	-22.61	1.2	180
Middle frequency							
2437	AV	Vertical	76.47		(Fund.)	1.5	0
4874	AV	Vertical	35.52	54.00	-18.48	1.2	90
7311	AV	Vertical	37.21	54.00	-16.79	1.2	70
9748	AV	Vertical	36.41	54.00	-17.59	1.3	260
12185	AV	Vertical	34.74	54.00	-19.26	1.1	140
14622	AV	Vertical	31.15	54.00	-22.85	1.2	150
17059	AV	Vertical	32.53	54.00	-21.47	1.5	0
19496	AV	Vertical	36.14	54.00	-17.86	1.3	280
21933	AV	Vertical	31.02	54.00	-22.98	1.2	180
24370	AV	Vertical	30.62	54.00	-23.38	1.1	150
2437	AV	Horizontal	84.96		(Fund.)	1.9	190
4874	AV	Horizontal	40.25	54.00	-13.75	2.3	310
7311	AV	Horizontal	41.36	54.00	-12.64	2.0	200
9748	AV	Horizontal	39.27	54.00	-14.73	1.7	70
12185	AV	Horizontal	37.41	54.00	-16.59	1.8	40
14622	AV	Horizontal	38.15	54.00	-15.85	2.1	110
17059	AV	Horizontal	34.14	54.00	-19.86	1.8	60
19496	AV	Horizontal	32.33	54.00	-21.67	1.9	190
21933	AV	Horizontal	31.08	54.00	-22.92	1.5	160
24370	AV	Horizontal	30.46	54.00	-23.54	1.7	120

2437	PK	Vertical	97.26		(Fund.)	1.0	0
4874	PK	Vertical	58.14	74.00	-15.86	1.1	90
7311	PK	Vertical	55.33	74.00	-18.67	1.4	100
9748	PK	Vertical	50.69	74.00	-23.31	1.3	120
12185	PK	Vertical	56.15	74.00	-17.85	1.7	180
14622	PK	Vertical	53.11	74.00	-20.89	1.2	0
17059	PK	Vertical	52.61	74.00	-21.39	1.4	0
19496	PK	Vertical	51.09	74.00	-22.91	1.5	120
21933	PK	Vertical	50.78	74.00	-23.22	1.5	135
24370	PK	Vertical	51.10	74.00	-22.90	1.2	120
2437	PK	Horizontal	108.84		(Fund.)	1.0	0
4874	PK	Horizontal	62.23	74.00	-11.77	1.7	45
7311	PK	Horizontal	60.52	74.00	-13.48	1.6	90
9748	PK	Horizontal	58.46	74.00	-15.54	1.5	60
12185	PK	Horizontal	56.39	74.00	-17.61	1.4	150
14622	PK	Horizontal	50.24	74.00	-23.76	1.2	150
17059	PK	Horizontal	54.40	74.00	-19.60	1.1	120
19496	PK	Horizontal	51.12	74.00	-22.88	1.5	150
21933	PK	Horizontal	53.06	74.00	-20.94	1.1	0
24370	PK	Horizontal	50.82	74.00	-23.18	1.6	135
High frequency							
2462	AV	Vertical	76.85		(Fund.)	1.2	180
4924	AV	Vertical	38.84	54.00	-15.16	1.1	150
7386	AV	Vertical	36.15	54.00	-17.85	1.3	260
9848	AV	Vertical	36.23	54.00	-17.77	1.1	140
12310	AV	Vertical	34.28	54.00	-19.72	1.5	200
14772	AV	Vertical	35.72	54.00	-18.28	1.3	280
17234	AV	Vertical	30.63	54.00	-23.37	1.2	180
19696	AV	Vertical	34.44	54.00	-19.56	1.1	140
22158	AV	Vertical	31.10	54.00	-22.90	1.5	200
24620	AV	Vertical	30.26	54.00	-23.74	1.3	280
2462	AV	Horizontal	84.92		(Fund.)	2.1	110
4924	AV	Horizontal	41.30	54.00	-12.70	1.8	60

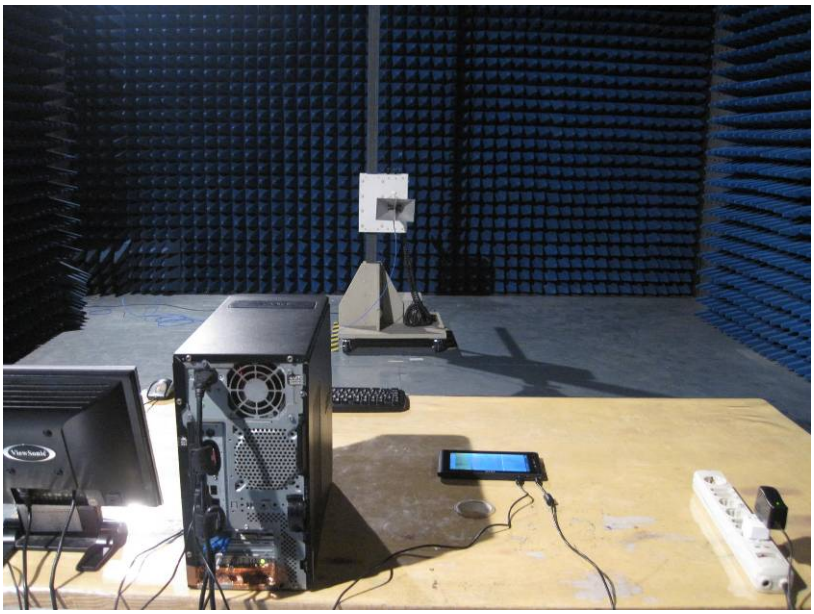
7386	AV	Horizontal	40.12	54.00	-13.88	1.9	190
9848	AV	Horizontal	38.15	54.00	-15.85	2.0	200
12310	AV	Horizontal	33.27	54.00	-20.73	1.7	70
14772	AV	Horizontal	34.06	54.00	-19.94	1.8	40
17234	AV	Horizontal	31.21	54.00	-22.79	1.9	100
19696	AV	Horizontal	35.50	54.00	-18.50	1.5	160
22158	AV	Horizontal	32.69	54.00	-21.31	1.2	140
24620	AV	Horizontal	31.17	54.00	-22.83	1.6	10
2462	PK	Vertical	98.28		(Fund.)	1.2	70
4924	PK	Vertical	55.44	74.00	-18.56	1.3	260
7386	PK	Vertical	52.63	74.00	-21.37	1.1	140
9848	PK	Vertical	57.37	74.00	-16.63	1.5	200
12310	PK	Vertical	52.41	74.00	-21.59	1.3	280
14772	PK	Vertical	50.43	74.00	-23.57	1.0	210
17234	PK	Vertical	52.20	74.00	-21.80	1.1	50
19696	PK	Vertical	51.57	74.00	-22.43	1.5	130
22158	PK	Vertical	50.62	74.00	-23.38	1.2	180
24620	PK	Vertical	51.74	74.00	-22.26	1.1	150
2462	PK	Horizontal	109.83		(Fund.)	1.7	70
4924	PK	Horizontal	63.34	74.00	-10.66	1.8	40
7386	PK	Horizontal	60.16	74.00	-13.84	1.9	100
9848	PK	Horizontal	57.33	74.00	-16.67	1.5	160
12310	PK	Horizontal	59.15	74.00	-14.85	1.9	190
14772	PK	Horizontal	56.37	74.00	-17.63	1.7	0
17234	PK	Horizontal	52.20	74.00	-21.80	1.8	180
19696	PK	Horizontal	51.28	74.00	-22.72	1.5	60
22158	PK	Horizontal	50.40	74.00	-23.60	1.8	120
24620	PK	Horizontal	51.19	74.00	-22.81	1.9	100

Photograph – Radiation Spurious Emission Test Setup

Below 1GHz



Above 1GHz



8 Radiated Emissions which fall in the restricted bands

Test Requirement:	Section 15.247(d) In addition, radiated emissions which fall in the restricted bands. as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).
Test Method:	Base on ANSI C63.4:2003
Measurement Distance:	3m
Limit:	40.0 dBuV/m between 30MHz & 88MHz; 43.5 dBuV/m between 88MHz & 216MHz; 46.0 dBuV/m between 216MHz & 960MHz; 54.0 dBuV/m above 960MHz. 74.0 dBuV/m for peak above 1GHz 54.0 dBuV/m for AVG above 1GHz
Detector:	For Peak value: RBW = 1 MHz for f ≥ 1 GHz VBW ≥ RBW; Sweep = auto Detector function = peak Trace = max hold For AVG value: RBW = 1 MHz for f ≥ 1 GHz VBW = 10Hz; Sweep = auto Detector function = AVG Trace = max hold

Test mode: IEEE 802.11B

Test Result:

1. Low Channel

Frequency (MHz)	Peak Emission Level (dBuV/m)	AVG Emission Level (dBuV/m)
2390	65.75	48.57
2483.5	42.51	27.78

2. High Channel

Frequency (MHz)	Peak Emission Level (dBuV/m)	AVG Emission Level (dBuV/m)
2390	43.20	27.95
2483.5	67.27	47.54

Test mode: IEEE 802.11G

Test Result:

3. Low Channel

Frequency (MHz)	Peak Emission Level (dBuV/m)	AVG Emission Level (dBuV/m)
2390	62.47	44.62
2483.5	40.13	27.51

4. High Channel

Frequency (MHz)	Peak Emission Level (dBuV/m)	AVG Emission Level (dBuV/m)
2390	42.75	28.46
2483.5	64.44	43.78

Test mode: IEEE 802.11N

Test Result:

5. Low Channel

Frequency (MHz)	Peak Emission Level (dBuV/m)	AVG Emission Level (dBuV/m)
2390	60.86	43.17
2483.5	39.58	25.49

6. High Channel

Frequency (MHz)	Peak Emission Level (dBuV/m)	AVG Emission Level (dBuV/m)
2390	39.75	26.74
2483.5	61.17	42.62

9 6 dB Bandwidth Measurement

Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	Based on FCC Part 15.247
Limit:	Regulation 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.
Test Mode:	Test in fixing operating frequency at low, Middle, high channel.

Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: Span = 30MHz, RBW = 100kHz, VBW = 100kHz

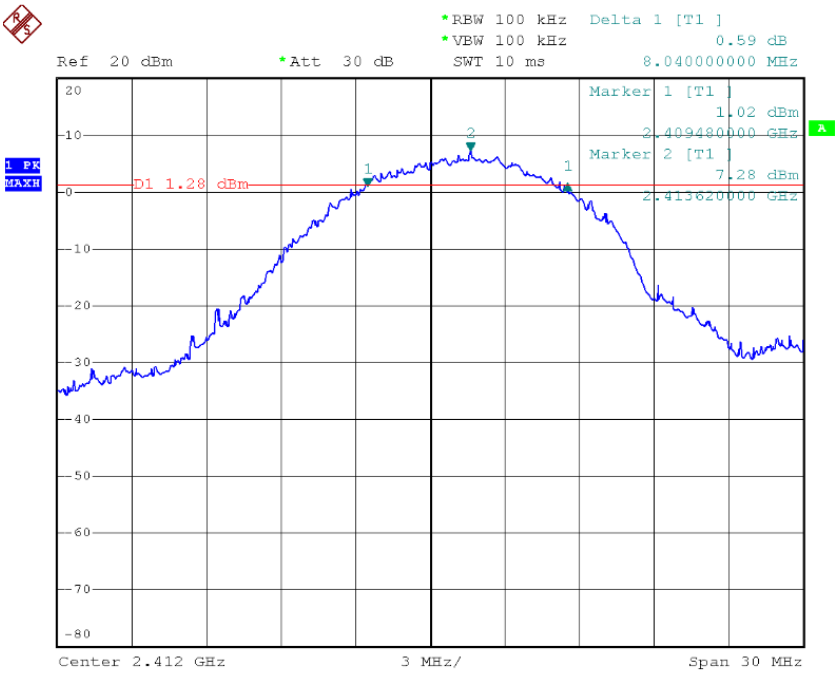
Test Result:

Test Mode: IEEE 802.11B

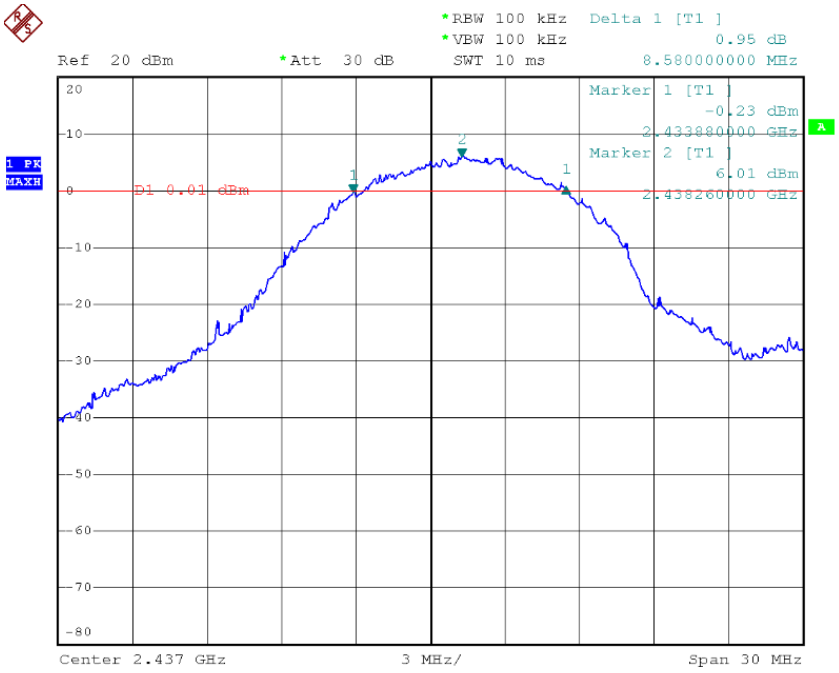
Test Channel	Bandwidth	Result
Low	8.04MHz	PASS
Middle	8.58MHz	PASS
High	8.28MHz	PASS

Test result plot as follows:

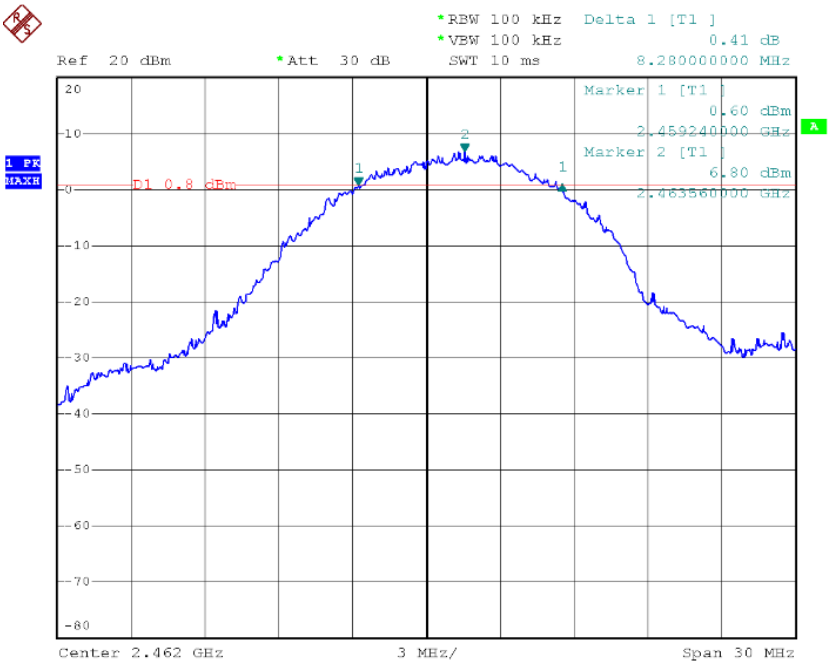
Low Channel



Middle Channel



High Channel



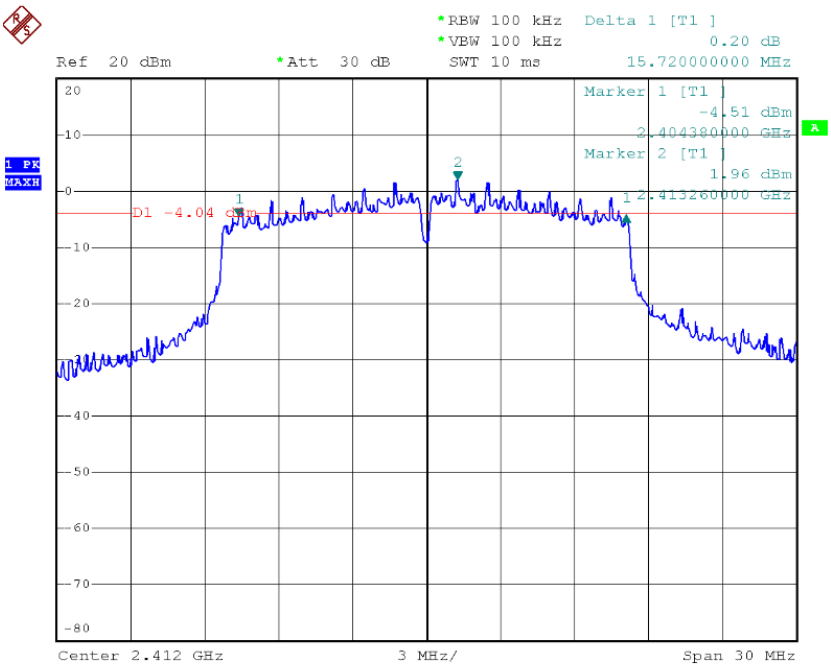
Test Result:

Test Mode: IEEE 802.11G

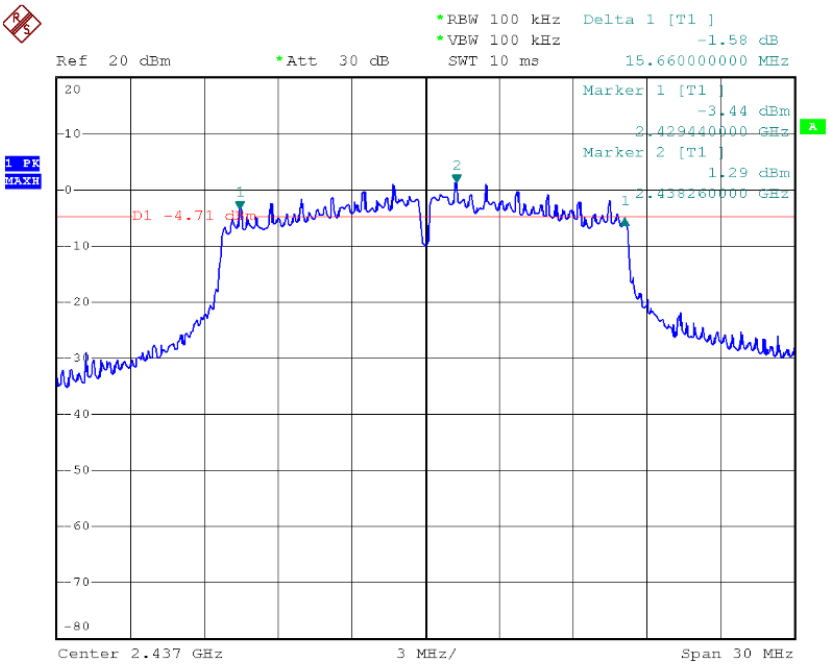
Test Channel	Bandwidth	Result
Low	15.72MHz	PASS
Middle	15.66MHz	PASS
High	15.66MHz	PASS

Test result plot as follows:

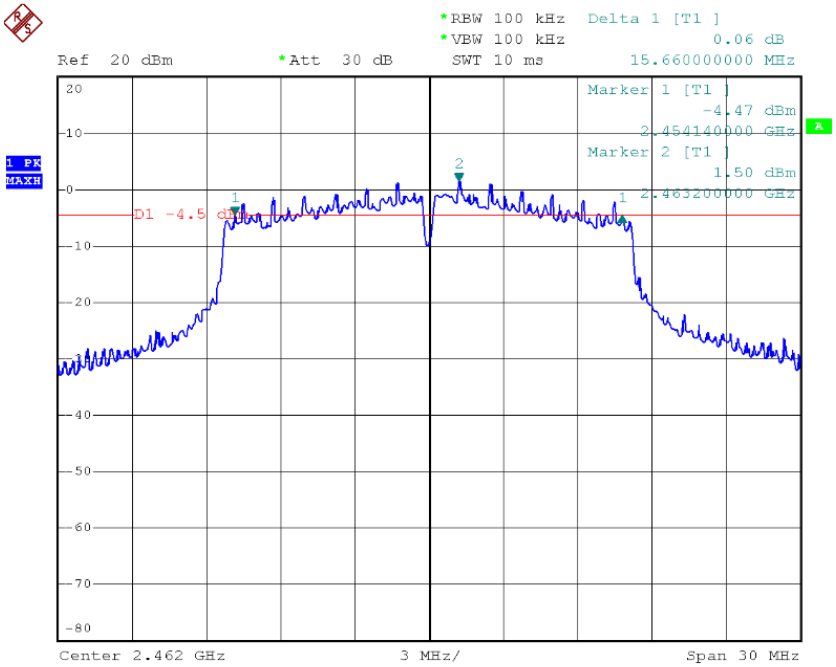
Low Channel



Middle Channel



High Channel



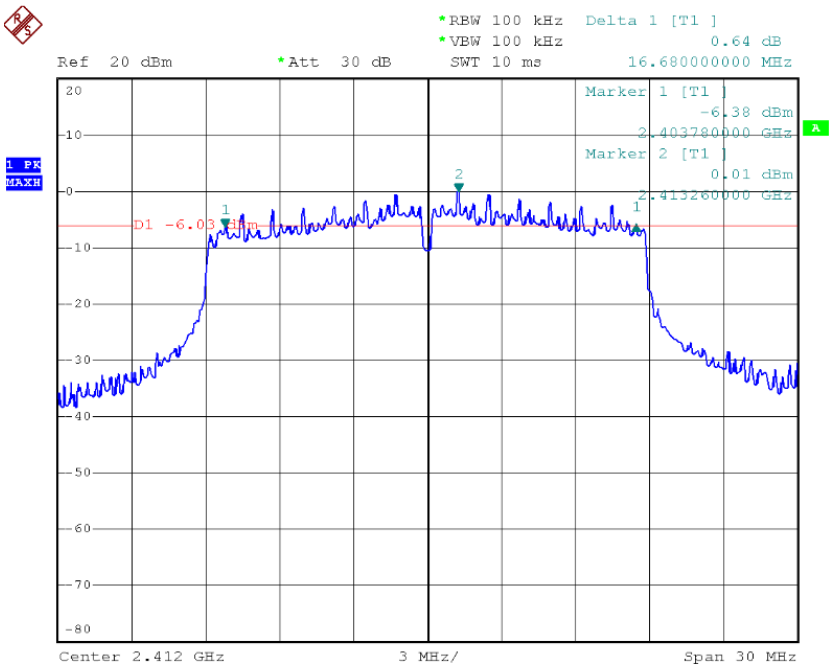
Test Result:

Test Mode: IEEE 802.11N

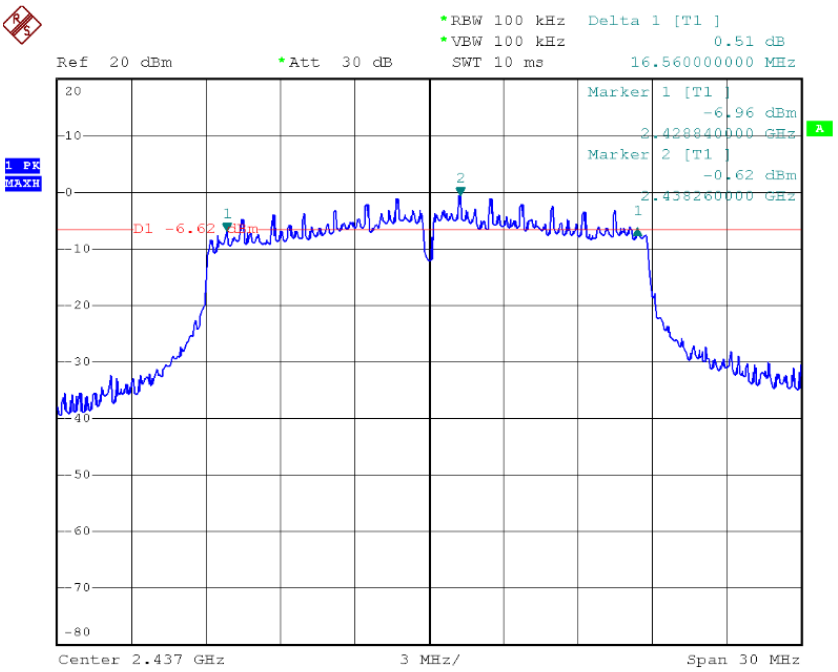
Test Channel	Bandwidth	Result
Low	16.68MHz	PASS
Middle	16.56MHz	PASS
High	16.62MHz	PASS

Test result plot as follows:

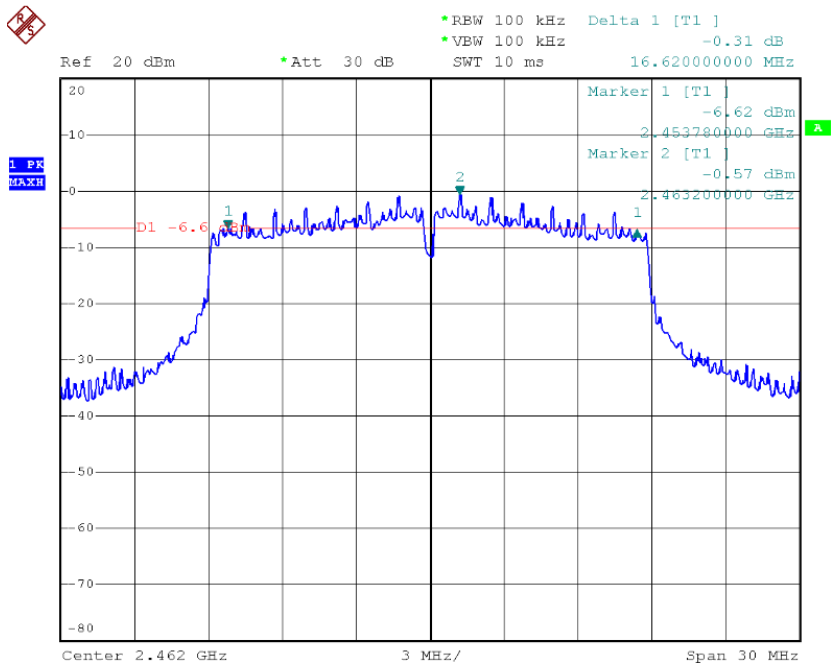
Low Channel



Middle Channel



High Channel



10 Maximum Peak Output Power

Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	Based on ANSI C63.4:2003
Test Limit:	Regulation 15.247 (b)(3) For systems using digital modulation in the 902–928 MHz, 2400–2483.5MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode. Refer to the result "Number of Hopping Frequency" of this document. The 1watts (30 dBm) limit applies.
Test mode:	Test in fixing operating frequency at low, Middle, high channel.

Test Procedure:

1． Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2． Set the spectrum analyzer: RBW = 1 MHz, VBW = 3 MHz, Sweep = auto; Detector Function = Peak.

3． Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

Test Result:

Test Mode: IEEE 802.11B

Test Channel	Output Power (dBm)	Limit (dBm)
Low	13.65	30
Middle	13.17	30
High	13.42	30

Test Mode: IEEE 802.11G

Test Channel	Output Power (dBm)	Limit (dBm)
Low	10.92	30
Middle	10.28	30
High	11.00	30

Test Mode: IEEE 802.11N

Test Channel	Output Power (dBm)	Limit (dBm)
Low	8.94	30
Middle	8.35	30
High	8.75	30

11 Power Spectral Density

Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	Based on FCC Part 15.247
Test Limit:	Regulation 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. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Mode:	Test in fixing operating frequency at low, Middle, high channel.

Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.

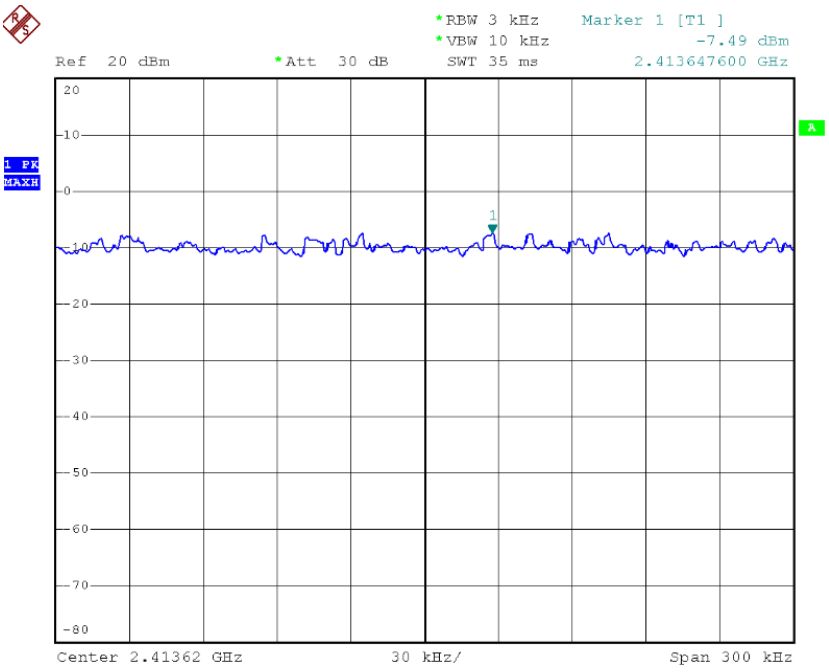
Test Result:

Test Mode: IEEE 802.11B

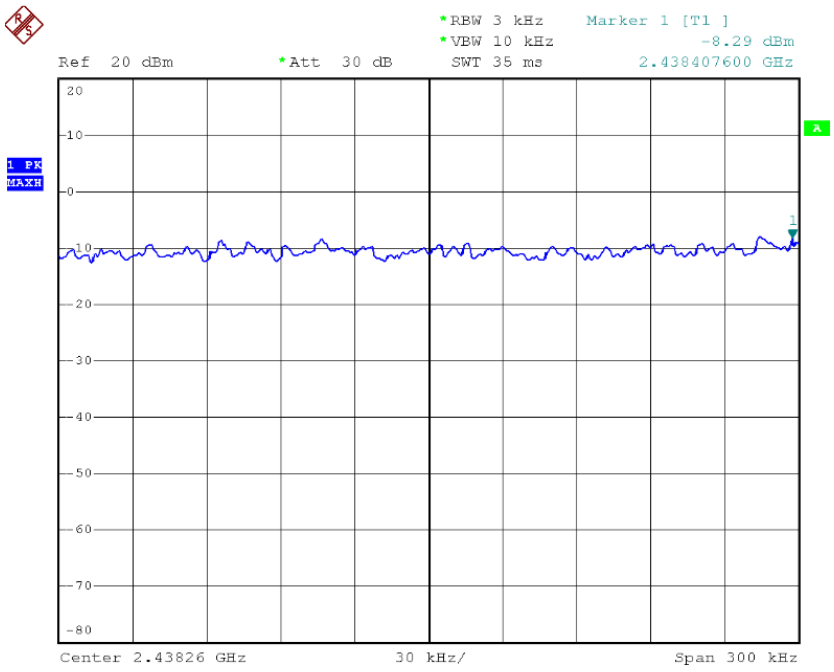
Test result: PASS

Test result plot as follows:

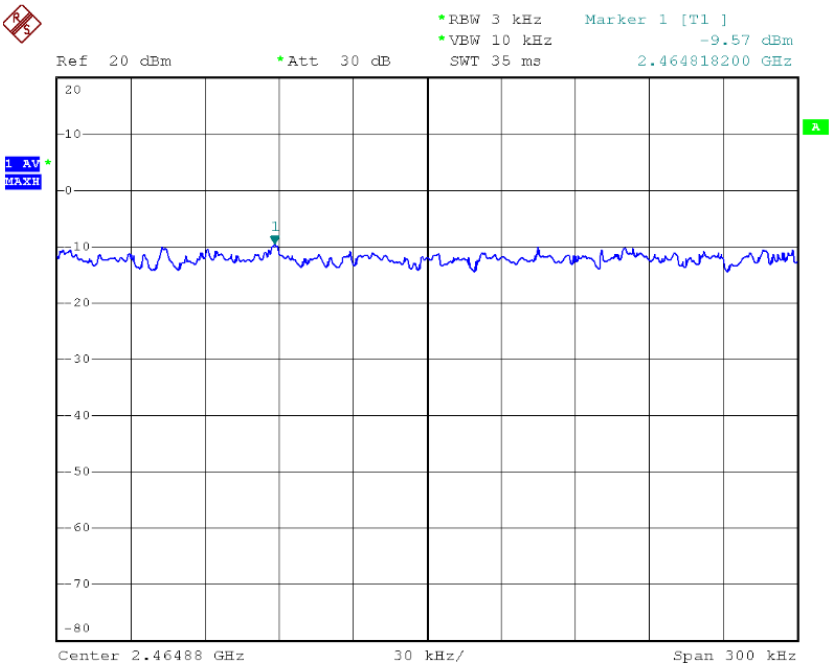
Low Channel



Middle Channel



High Channel

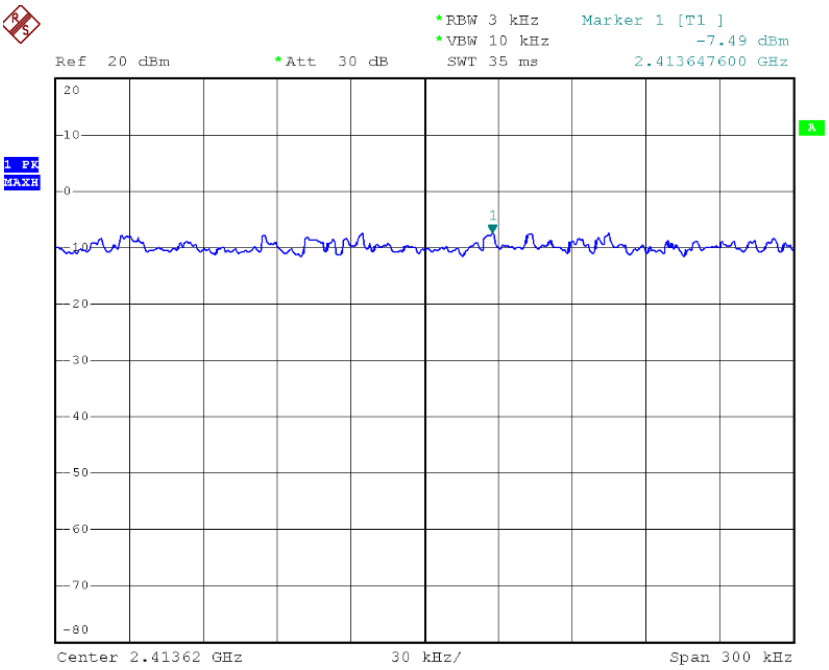


Test Mode: IEEE 802.11G

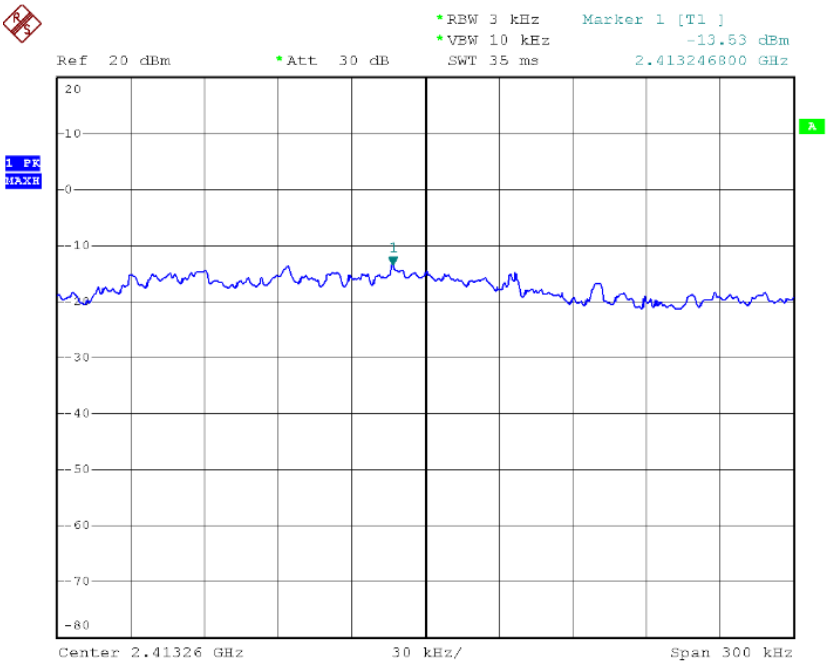
Test result: PASS

Test result plot as follows:

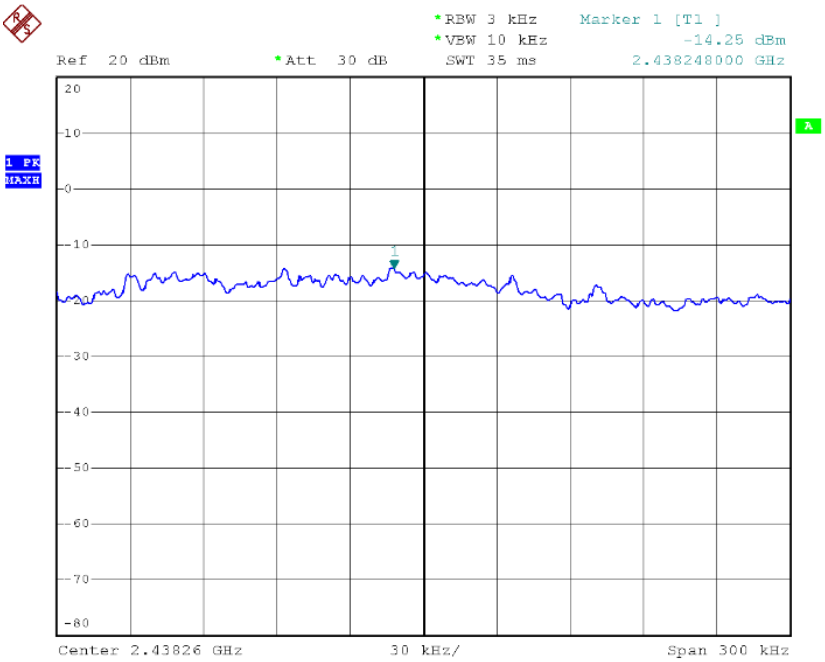
Low Channel



Middle Channel



High Channel

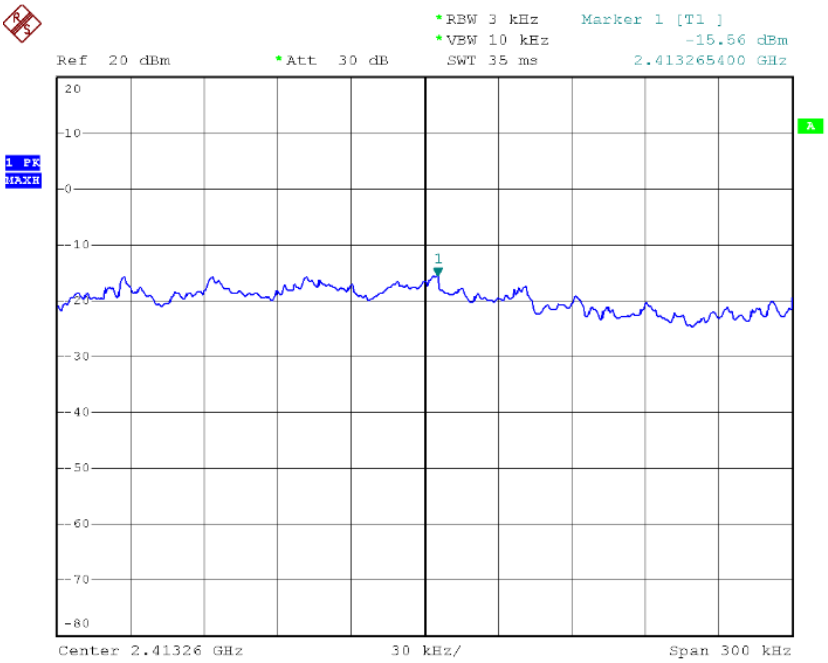


Test Mode: IEEE 802.11N

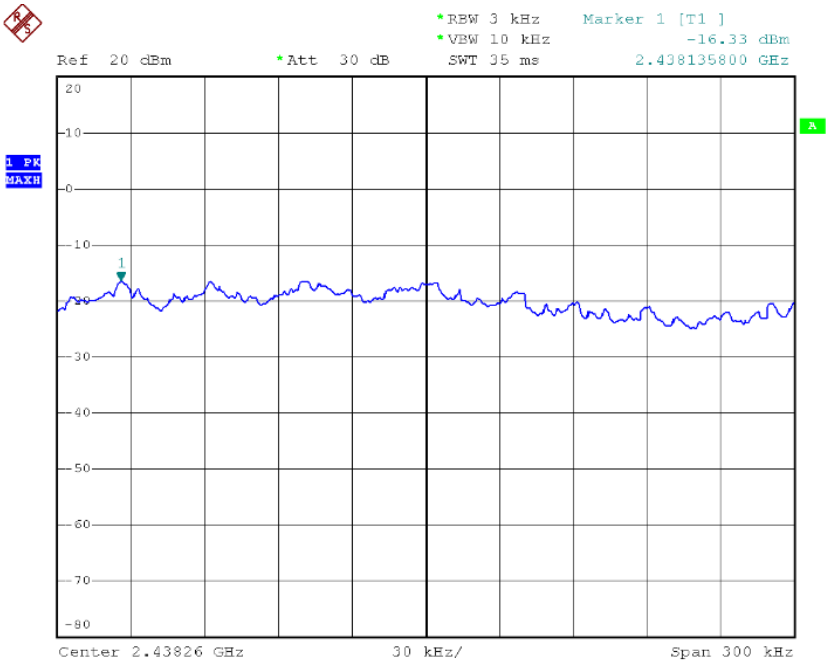
Test result: PASS

Test result plot as follows:

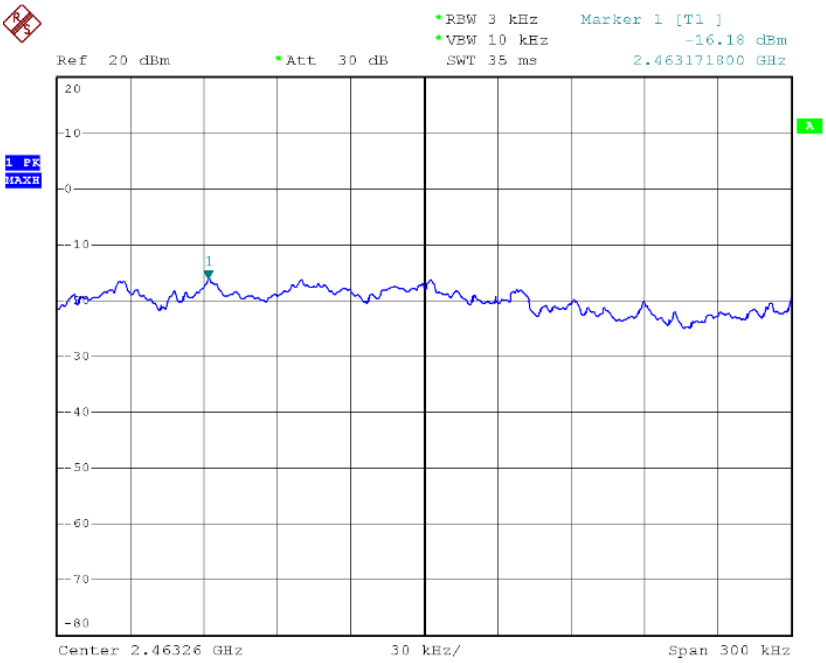
Low Channel



Middle Channel



High Channel



12 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 or of an antenna that uses a unique coupling 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.

13 RF Exposure

Test Requirement: FCC CFR47 Part 1 Section 1.1307

Test Method: Based on FCC Part 15.247

Test Mode: The EUT work in test mode(Tx).

Requiments:

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

The procedures / limit

(A) Limits for Occupational / Controlled Exposure

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

(B) Limits for General Population / Uncontrolled Exposure

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

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

MPE Calculation Method

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

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

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

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

Test Mode: IEEE 802.11B

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
0	1	13.65	23.174	0.004610	1	Complies
0	1	13.17	20.749	0.004128	1	Complies
0	1	13.42	21.979	0.004372	1	Complies

Test Mode: IEEE 802.11G

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
0	1	10.92	12.359	0.002459	1	Complies
0	1	10.28	10.666	0.002122	1	Complies
0	1	11.00	12.589	0.002504	1	Complies

Test Mode: IEEE 802.11N

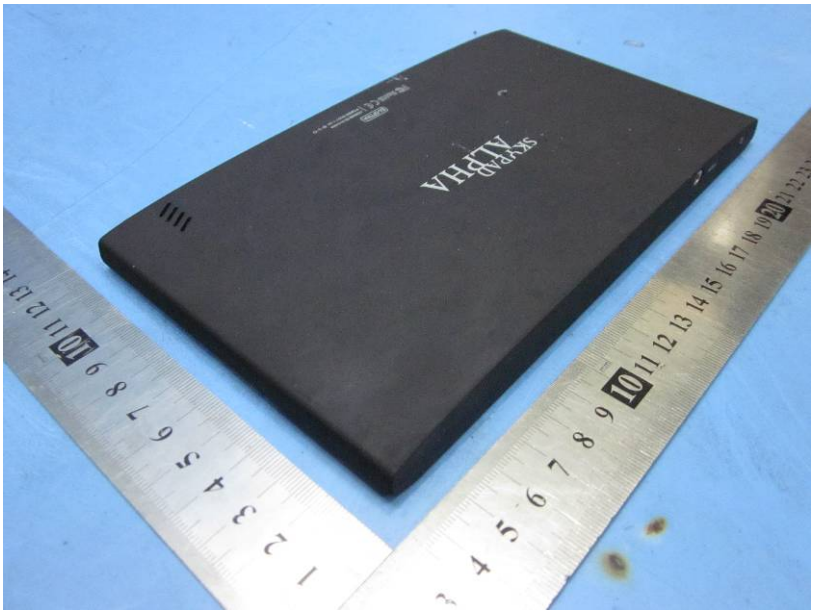
Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
0	1	8.94	7.834	0.001559	1	Complies
0	1	8.35	6.839	0.001361	1	Complies
0	1	8.75	7.499	0.001492	1	Complies

14 Photographs - Constructional Details

14.1 Product View

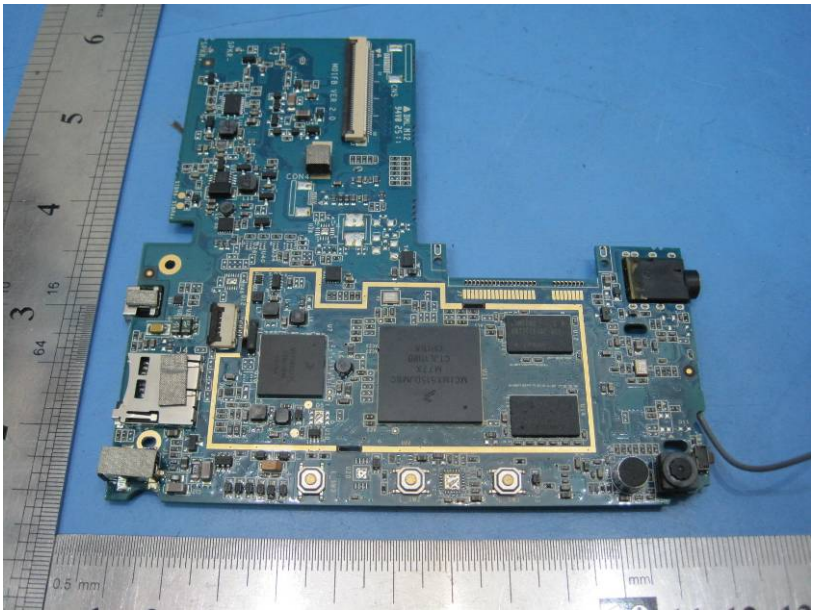
14.2 EUT - Front View

14.3 EUT - Back View

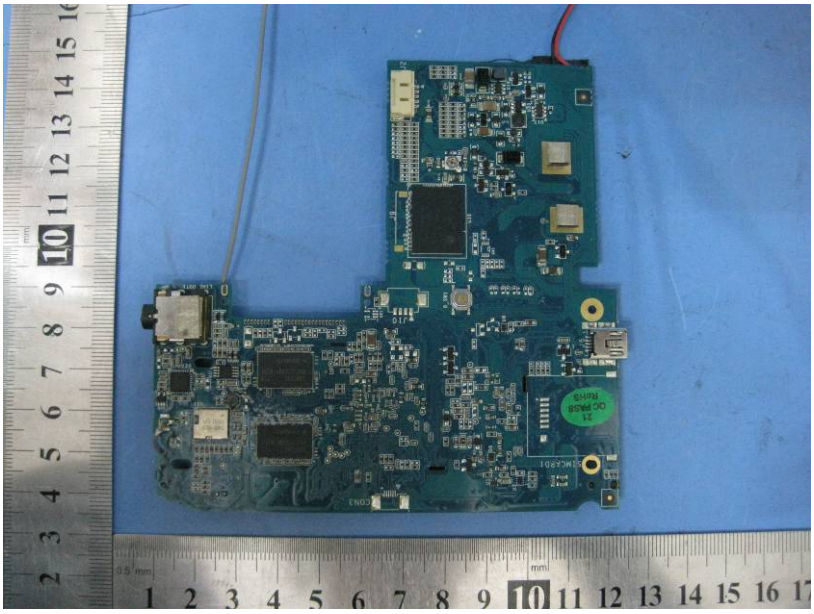


14.4 EUT - Open View

14.5 PCB - Front View



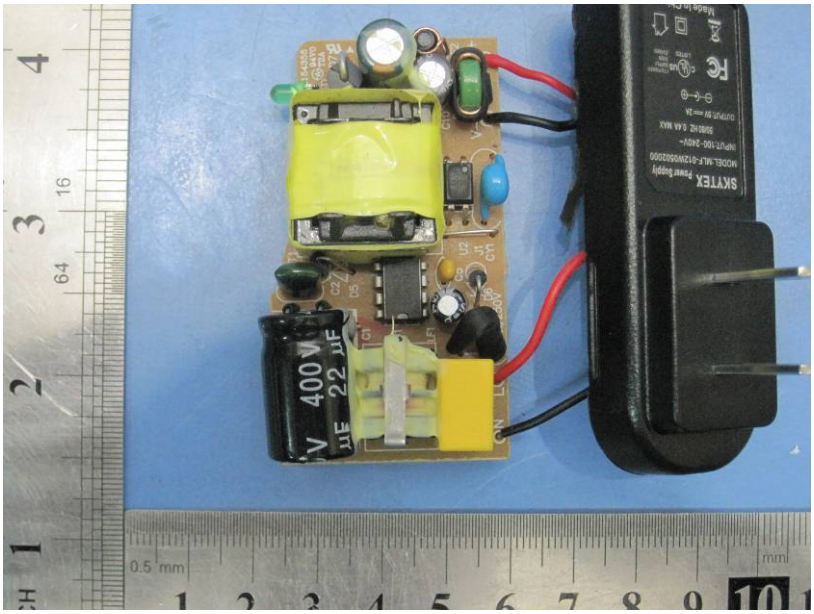
14.6 PCB - Back View



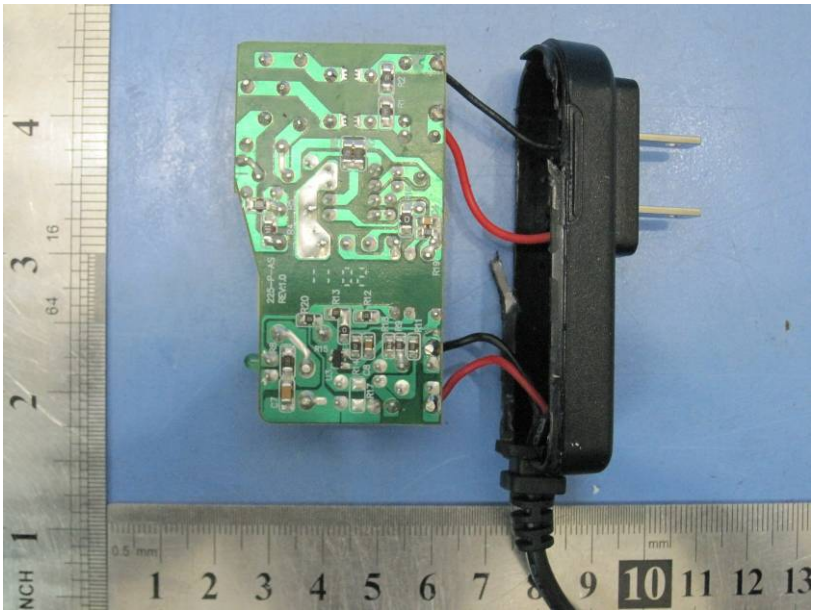
14.7 Adapter - Front View

14.8 Adapter - Back View

14.9 PCB of Adapter - Front View



14.10 PCB of Adapter - Back View



15 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.