FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Applicant :	**Honey Bee (Hong Kong) Ltd.**
Address :	**Flat L,12/F,Phase 4, Kwun Tong Industrial Centre, 436-446 Kwun Tong Road,Kowloon, Hong Kong**
Product Name :	**VitaSound TV**
Model Name :	**PAE-200**
Brand Name :	**VitaSound**
FCC ID :	**S9X-HB-1131**
Report No. :	**STS140528F1**
Date of Issue :	**May 08,2014**

Issued by :	**Shenzhen Super Test Service Technology Co., Ltd.**
Address :	**No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China**
Tel :	**86-755-27958522**
Fax :	**86-755-27958022**

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1. VERIFICATION OF CONFORMITY

Equipment Under Test:	VitaSound TV
Brand Name:	VitaSound
Model Number:	PAE-200
Series Model Name:	N/A
Difference description:	N/A
FCC ID:	S9X-HB-1131
Applicant:	Honey Bee (Hong Kong) Ltd.
	Flat L,12/F,Phase 4, Kwun Tong Industrial Centre, 436-446 Kwun Tong Road,Kowloon, Hong Kong
Manufacturer:	Shantou S.E.Z. Honey Bee Electronics Co., Ltd.
	5/F, Blk 3, Zhu Hua Industrial Zone, Li Shui Zhuang, Zhong Qu, Long Hu Qu, Shantou City, Guangdong Province, China
Technical Standards:	47 CFR Part 15 Subpart C, DA 00-705
File Number:	STS140528F1
Date of test:	April 9, 2014~ April 29, 2014
Deviation:	None
Condition of Test Sample:	Normal
Test Result:	PASS

The above equipment was tested by *STS* for compliance with the requirements set forth in FCC rules and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Tested by (+ signature): Petter Ping

Petter Ping May 08,2014

Review by (+ signature):

July Wen May 08,2014

Approved by (+ signature): Teo Yang

Terry Yang May 08,2014

2. GENERAL INFORMATION

2.1 Product Information

Product	VitaSound TV
Applicant Company	Honey Bee (Hong Kong) Ltd.
Applicant Address	Flat L,12/F,Phase 4, Kwun Tong Industrial Centre, 436-446 Kwun Tong Road,Kowloon, Hong Kong
Manufacturer Company	Shantou S.E.Z. Honey Bee Electronics Co., Ltd.
Manufacturer Address	5/F, Blk 3, Zhu Hua Industrial Zone, Li Shui Zhuang, Zhong Qu, Long Hu Qu, Shantou City, Guangdong Province, China
Brand Name	VitaSound
Model Number	PAE-200
Frequency Range	2403MHz -2477MHz
Modulation Technique	GFSK
Channel Number	75 (CH Low: 2403MHz, CH Mid: 2440MHz, CH High: 2477MHz)
Antenna Type:	0.0 dBi, PCB Antenna
Power Supply	Model:SKB0501000BP, INPUT:AC100-240V,50-60Hz,0.3A; OUTPUT:DC5V,1000mA

NOTE:

1. For a more detailed features description about the EUT, please refer to User's Manual.

2.2 Objective

The objective of the report is to perform tests according to 47 CFR Part 15 Subpart C for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15(10-1-11 Edition)	Radio Frequency Devices

2.3 Test Standards and Results

Test items and the results are as bellow:

No.	Section	Description	Result	Date of Test
1	15.247(a)	20dB Bandwidth	PASS	2014-04-17
2	15.247(b)	Peak Output Power	PASS	2014-04-17
3	15.247(d)	Conducted Spurious Emission	PASS	2014-04-17
4	15.247(d)	Band Edge	PASS	2014-04-17
5	15.247(a)	Number of Hopping Frequency	PASS	2014-04-17
6	15.247(a)	Carrier Frequency Separation	PASS	2014-04-17
7	15.247(a)	Time of Occupancy (Dwell time)	PASS	2014-04-17
8	15.207	Conducted Emission	PASS	2014-04-17
9	15.247(d) 15.205 15.209	Radiated Emission	PASS	2014-04-17

Note: 1. The test result judgment is decided by the limit of measurement standard
2. The information of measurement uncertainty is available upon the customer's request.
3. The method of measurement is refer to FCC DA 00-705 (Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems March 30, 2010).

2.4 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

3. TEST FACILITY

3.1 TEST FACILITY

Test Site:	Compliance Certification Services Inc. (Kun shan) Laboratory
Location:	No.10 Weiye Rd, Innovation park, Eco&Tec,Development Zone, Kunshan City, Jiangsu, China
Description:	There is one 3m semi-anechoic an area test sites and two line conducted labs for final test. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009 and CISPR 16 requirements. The FCC Registration Number is **238958.** The IC Registration Number is **2324E-2.** The **CNAS** Registration Number is **CNAS L4354.**
Site Filing:	The site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4:2009 and CISPR 16 requirements that meet industry regulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

3.2 GENERAL TEST PROCEDURES

EUT Function and Test Mode

The EUT has been tested under normal operating（TX）and standby（RX）condition.

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis).

The following data show only with the worst case setup.

The worst case was reported.

Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report.

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4:2009,Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4:2009.

3.3 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission 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

4. SETUP OF TEST EQUIPMENT LIST

4.1 SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
Notebook	Acer	ZQT	N/A	N/A	
POWER ADAPTOR	Honey Bee	SKB0501000BP	N/A	2.0-Shield	
EARPHONE	SONY	N/A	N/A	N/A	
DVD Player	Pioneer	DV-490-G	N/A	N/A	

Remark:

All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.2 TEST EQUIPMENT LIST

Equipment Used for Emissions Measurement

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	RS	FSU26	200789	2014-6-30
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2015-3-14
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	2015-3-14
EPM-P Series Power Meter	Agilent	E4416A	GB41292714	2015-3-14
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R
DC POWER SUPPLY	AGILENT	E3632A	MY50340053	2015-3-14
Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	2015-1-24
Test Software	EZ-EMC			

977 Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-4-16
Pre-Amplfier	MITEQ	JS41-00101800-32-10P	1675713	2014-10-8
Pre-Amplfier	MITEQ	NSP400-NF	870731	2015-4-26
Bilog Antenna	Sunol Sciences	JB1	A062604	2015-5-2
Horn-antenna	SCHWARZBECK	BBHA9120D	267	2015-4-28
Horn-antenna	SCHWARZBECK	BBHA9170	171	2015-4-28
Loop Antenna	Hengwei	HOPEV39501C	20051	2015-4-5
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT1OO	95637	N.C.R
Test Software	EZ-EMC			

Conducted Emission				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI TEST RECEIVER	R&S	ESCI3	100781	2015-3-14
V (V-LISN)	Schwarzbeck	NNLK 8129	8129-143	2015-3-14
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	SN:05012	2015-3-14
TRANSIENT LIMITER	SCHAFFNER	CFL9206	1710	2015-3-14
Test Software	EZ-EMC			

Remark: *The measurement uncertainty is less than +/- 2.81dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

Expanded Uncertainty (95% CONFIDENCE INTERVAL): K=2

NOTE: Equipments listed above have been calibrated and the period of calibration interval is 1 year.

5. 47 CFR Part 15 C 15.247 Requirements

5.1 20dB Bandwidth

5.1.1 Definition

The 20dB bandwidth is known as the 99% emission bandwidth, or 20dB bandwidth (10*log1% = 20dB) taking the total RF output power.

5.1.2 Test Description

The EUT is powered by the Battery, is coupled to the Spectrum Analyzer (SA) through the Attenuator/DC Block. The path loss as the factor is calibrated to correct the reading. During the measurement, the EUT is activated and is set to operate at maximum power. The RF load attached to the EUT antenna terminal is 50Ohm.

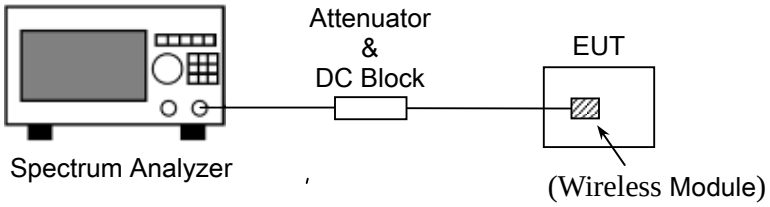
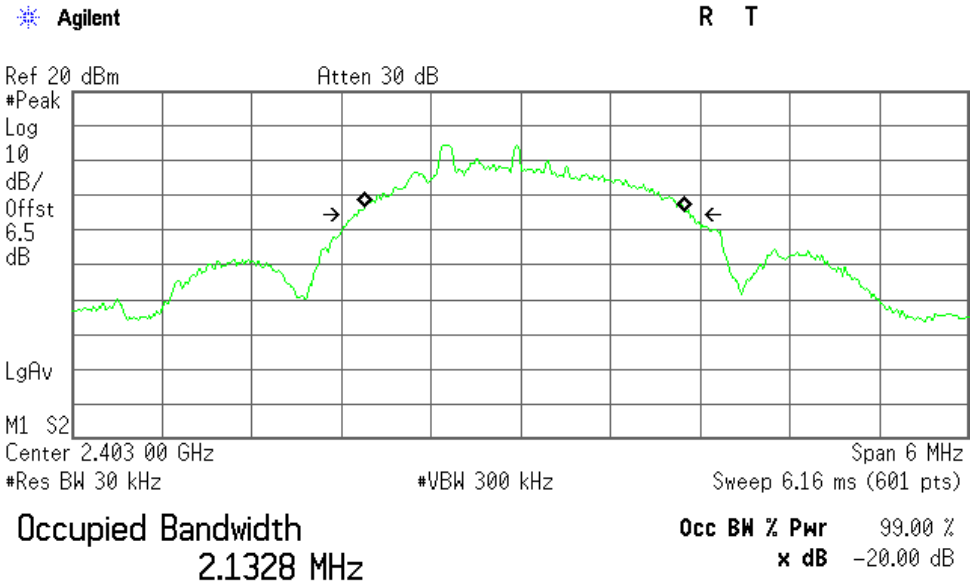


Figure 1: RF Test Setup

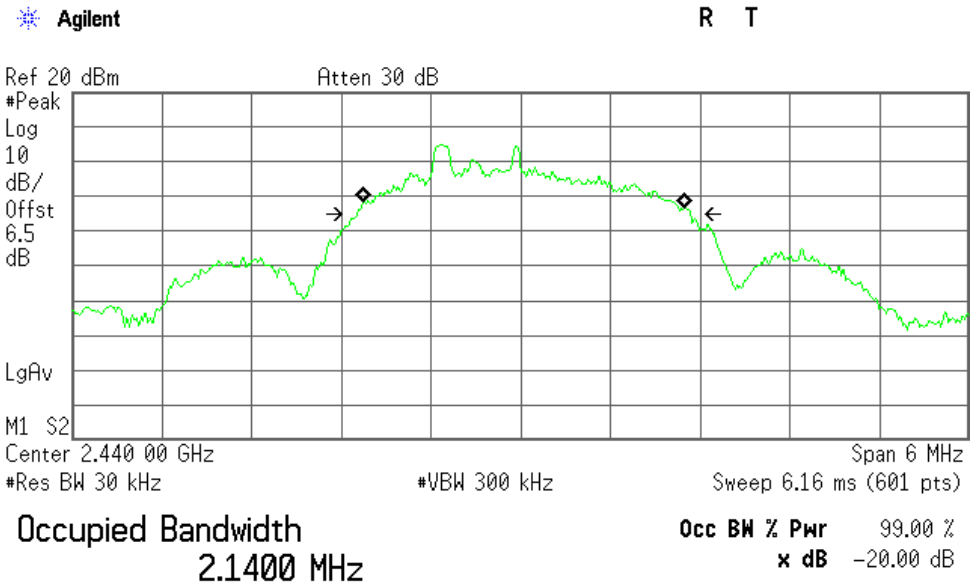
5.1.3 Test Result

The lowest, middle and highest channels are selected to perform testing to record the 20 dB bandwidth of the Module.

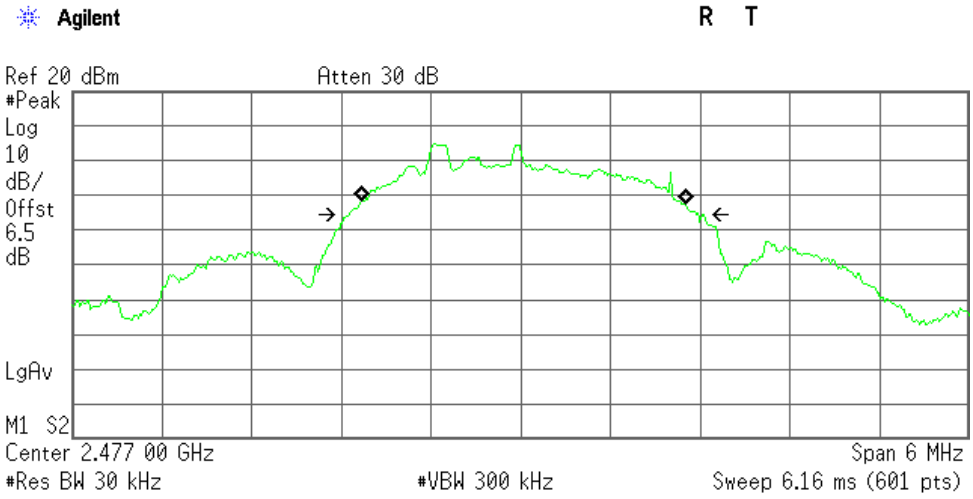
Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2403	2.238
Mid	2440	2.226
High	2477	2.325


Agilent
R T
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
LgAv
M1 S2
Center 2.403 00 GHz
Span 6 MHz
#Res BW 30 kHz
#VBW 300 kHz
Sweep 6.16 ms (601 pts)
Occupied Bandwidth
2.1328 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error 28.011 kHz
x dB Bandwidth 2.238 MHz

(CH Low)


Agilent
R T
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
LgAv
M1 S2
Center 2.440 00 GHz
Span 6 MHz
#Res BW 30 kHz
#VBW 300 kHz
Sweep 6.16 ms (601 pts)
Occupied Bandwidth
2.1400 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error 21.813 kHz
x dB Bandwidth 2.226 MHz

(CH Mid)


Agilent
R T
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
LgAv
M1 S2
Center 2.477 00 GHz
Span 6 MHz
#Res BW 30 kHz
#VBW 300 kHz
Sweep 6.16 ms (601 pts)
Occupied Bandwidth
2.1503 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error 20.110 kHz
x dB Bandwidth 2.325 MHz

(CH High)

5.2 Peak Output Power

5.2.1 Definition

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, 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.

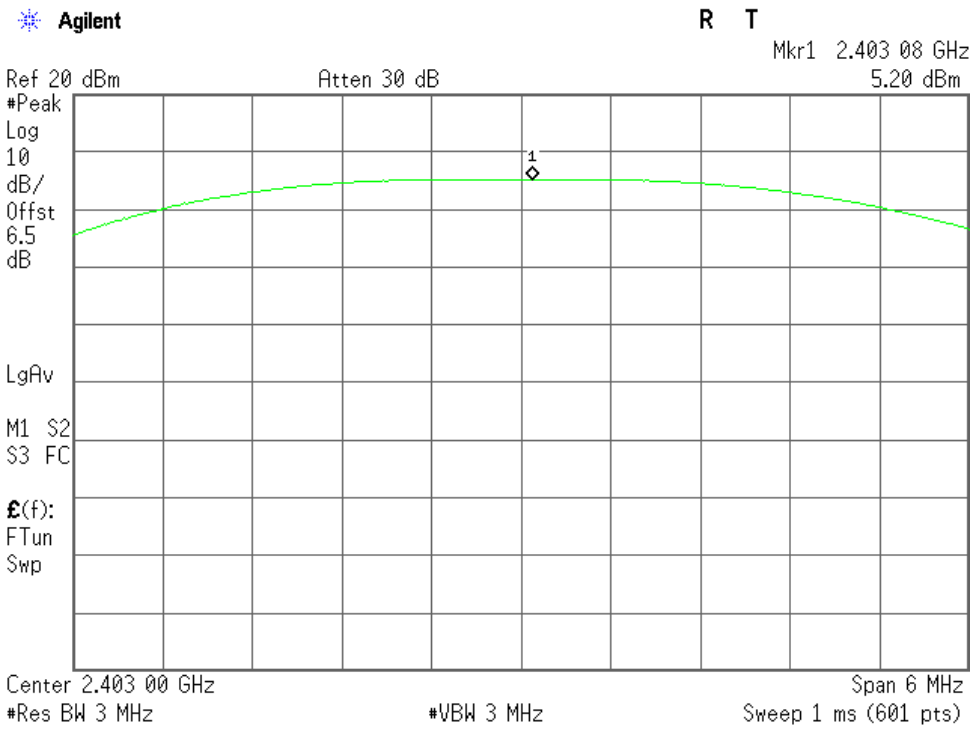
5.2.2 Test Description

See section 5.1.2 of this report.

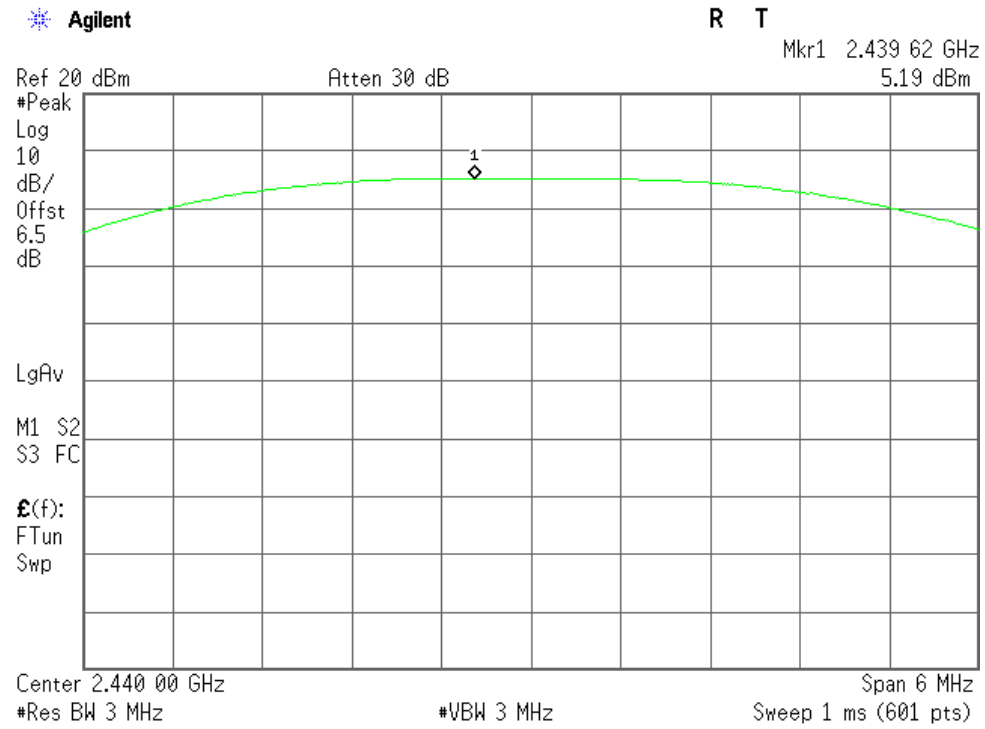
5.2.3 Test Result

The EUT operates at maximum output power mode. The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

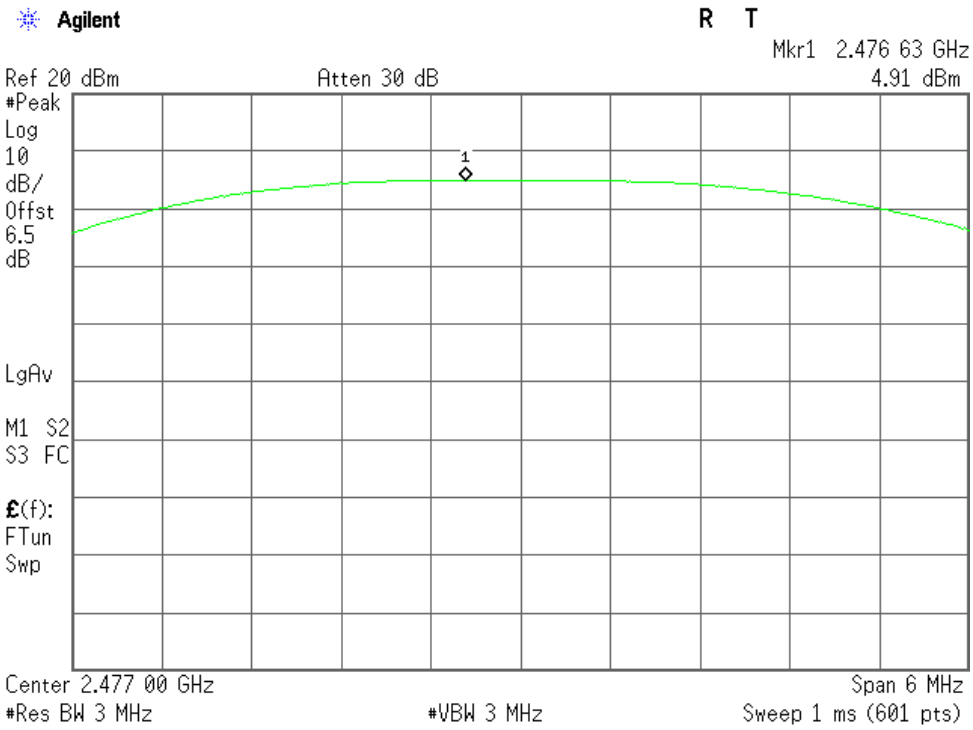
Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	mW	dBm	mW	
Low	2403	5.20	3.311	30	1000	PASS
Mid	2440	5.19	3.304			PASS
High	2477	4.91	3.097			PASS



(CH Low)



(CH Mid)



(CH High)

5.3 Conducted Spurious Emission

5.3.1 Definition

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.

5.3.2 Test Description

See section 5.1.2 of this report.

5.3.3 Test Result

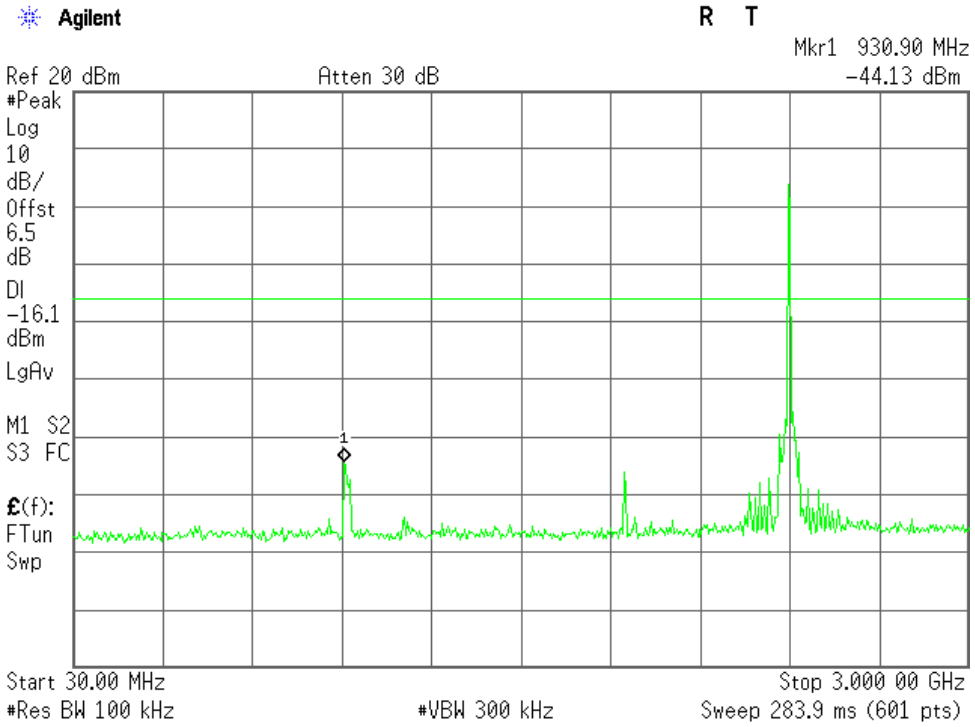
1. Table for the Harmonics:

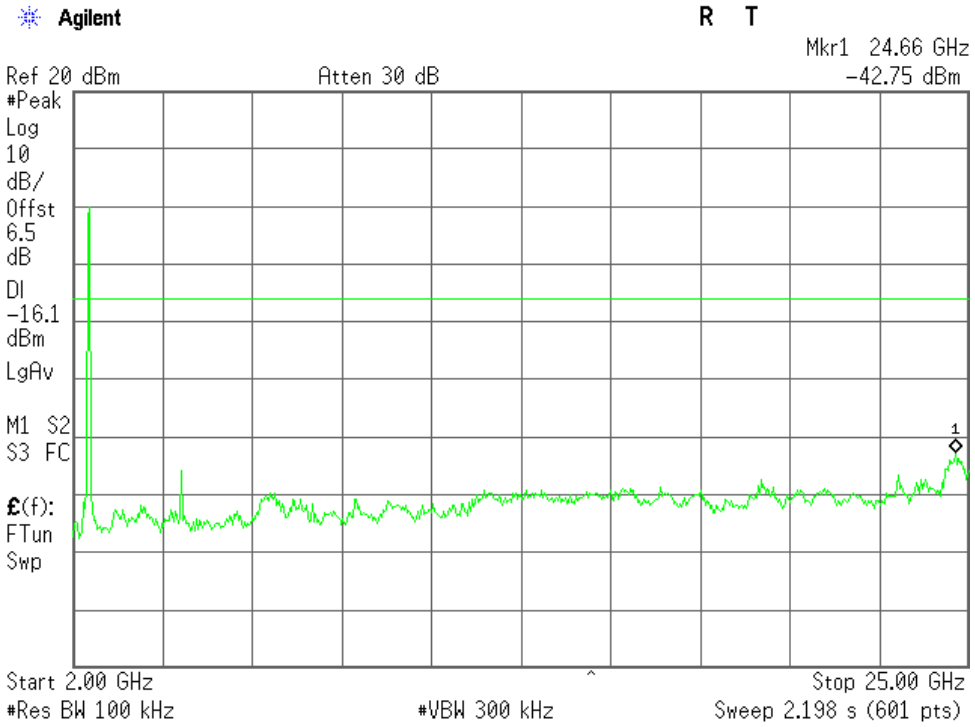
No.	Frequency (MHz)	RBW (KHz)	VBW (KHz)	Emission Power (dBm)	Limit (dBm)
Low Channel (2403MHz)					
Form 9KHz to 150KHz					
1	--	1	10	---	-13
Form 150KHz to 30MHz					
2	--	10	30	---	-13
Form 30MHz to 1000MHz					
3	930.90	100	300	-44.13	-13
Above 1000MHz					
4	3710.60	1000	3000	-45.69	-13
5	--	1000	3000	---	-13
6	--	1000	3000	---	-13
Middle Channel (2440MHz)					
Form 9KHz to 150KHz					
7	--	1	10	--	-13
Form 150KHz to 30MHz					
8	--	10	30	---	-13
Form 30MHz to 1000MHz					
9	930.90	100	300	-42.03	-13
Above 1000MHz					
10	4880.10	1000	3000	-44.04	-13
11	--	1000	3000	---	-13
12	--	1000	3000	---	
High Channel (2477MHz)					
Form 9KHz to 150KHz					
13	--	1	10	---	-13
Form 150KHz to 30MHz					
14	--	10	30	---	-13
Form 30MHz to 1000MHz					
15	930.90	100	300	-41.73	-13
Above 1000MHz					
16	6750.40	1000	3000	-46.25	-13
17	--	1000	3000	---	-13

Note: *"---" in the table above means that the emissions are too small to be measured and are at least 10 dB below the limit.*

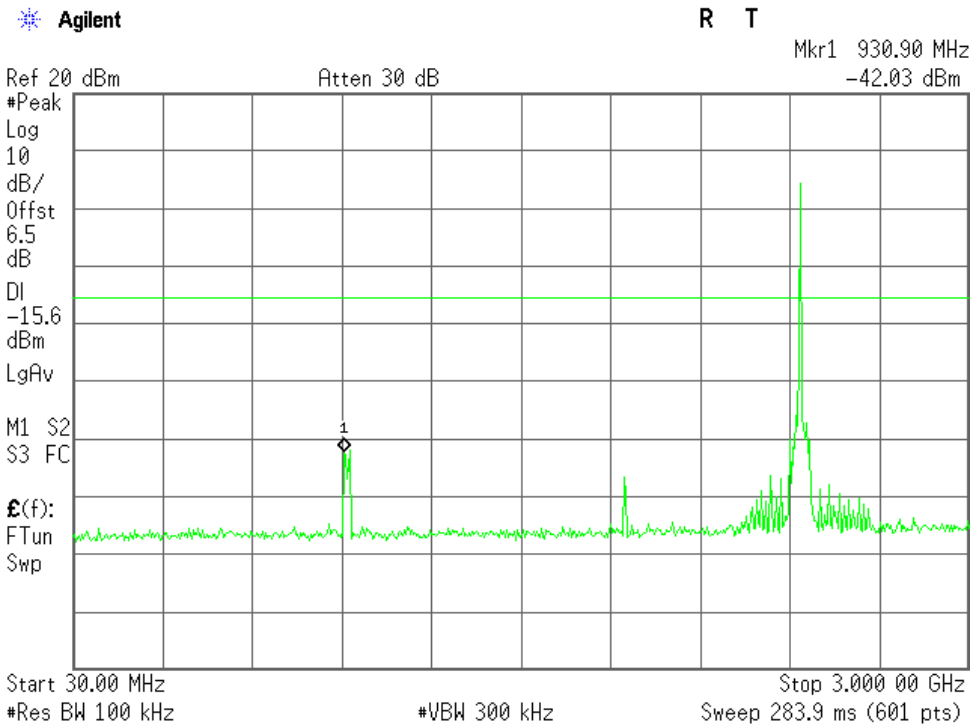
2. Plot for Spurious Emission:

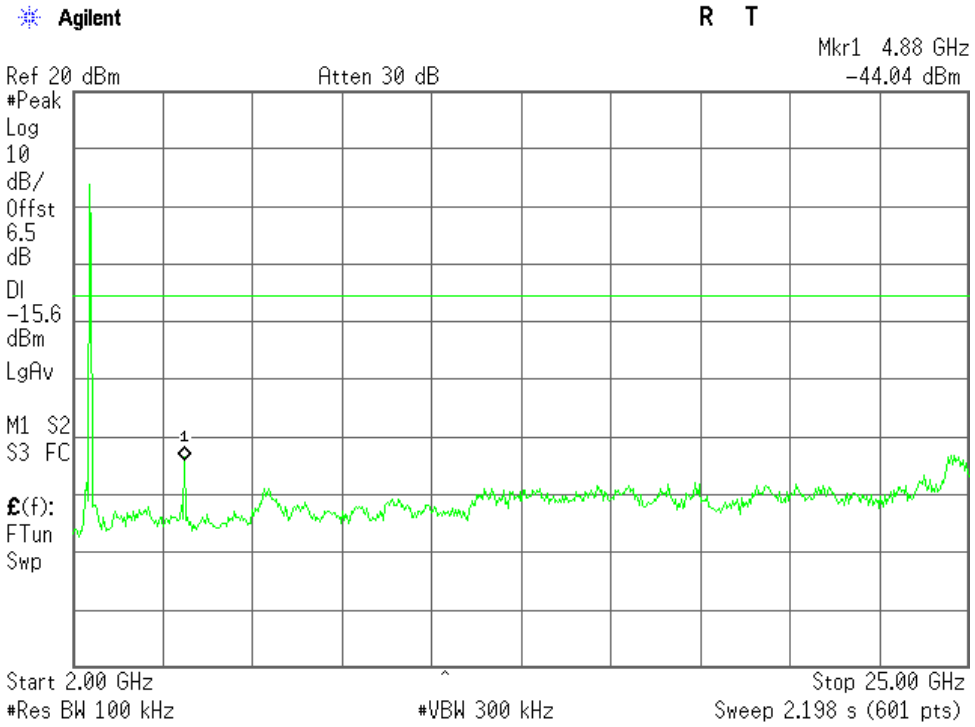
The measuring frequency range was from 9 kHz to 10GHz, but only the worst (above 1000MHz band) test plots were display as below.



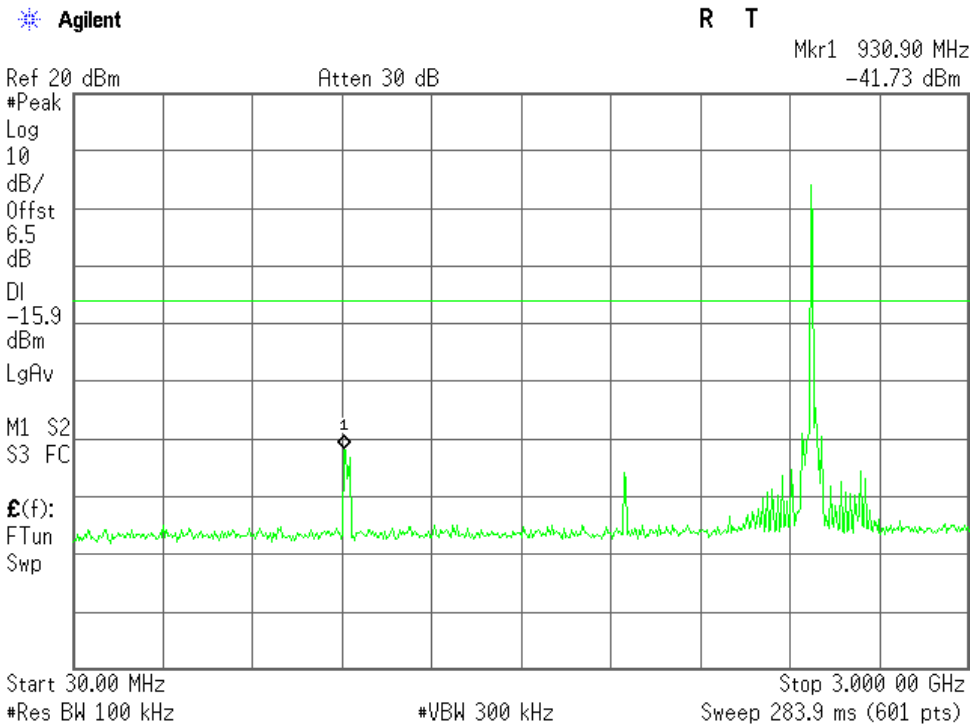

Agilent
R T
Mkr1 24.66 GHz
-42.75 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-16.1
dBm
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Start 2.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.00 GHz
Sweep 2.198 s (601 pts)

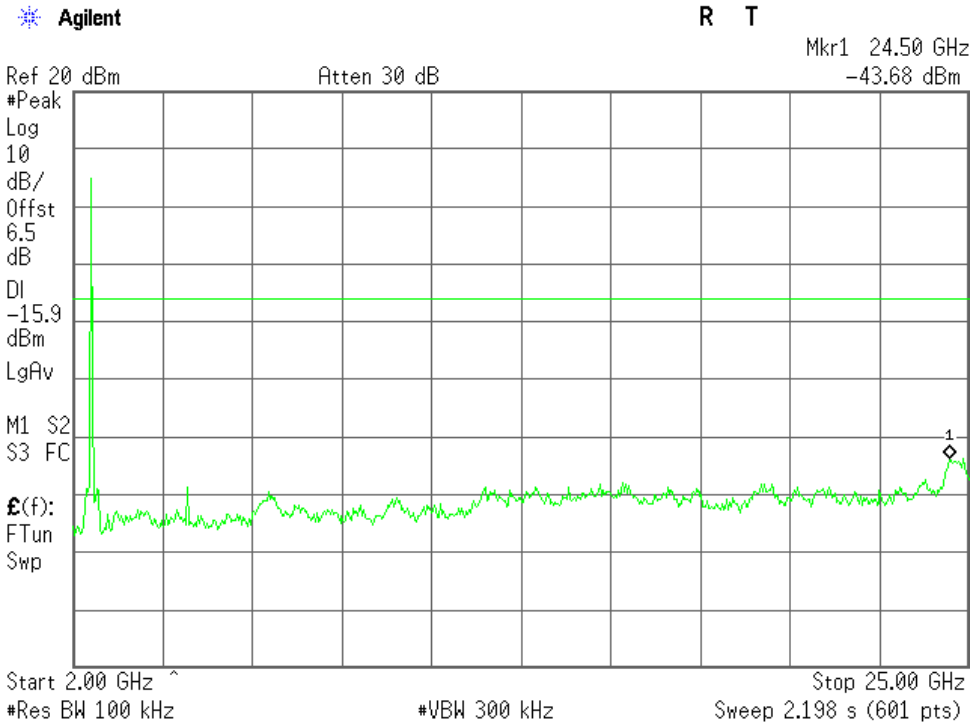
(Low Channel)


Agilent
R T
Mkr1 930.90 MHz
-42.03 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-15.6
dBm
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Start 30.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 00 GHz
Sweep 283.9 ms (601 pts)



(Middle Channel)





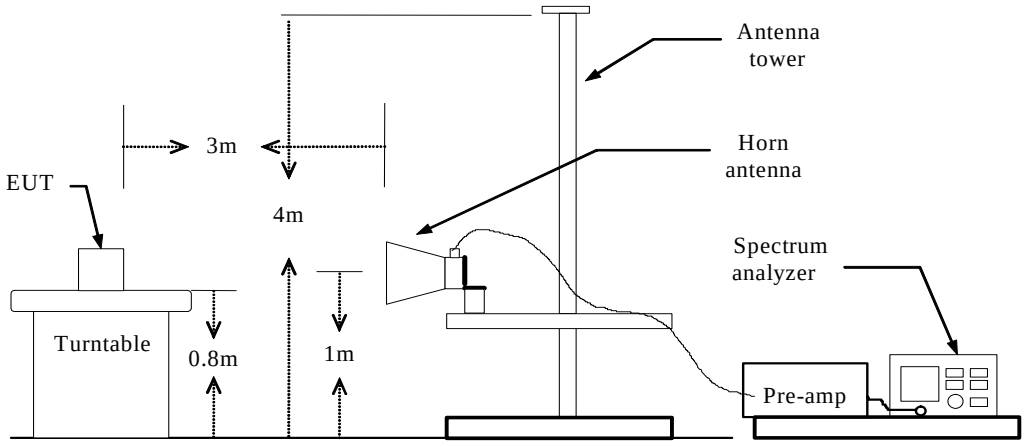
(High Channel)

5.4 Band Edge

5.4.1 Definition

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.

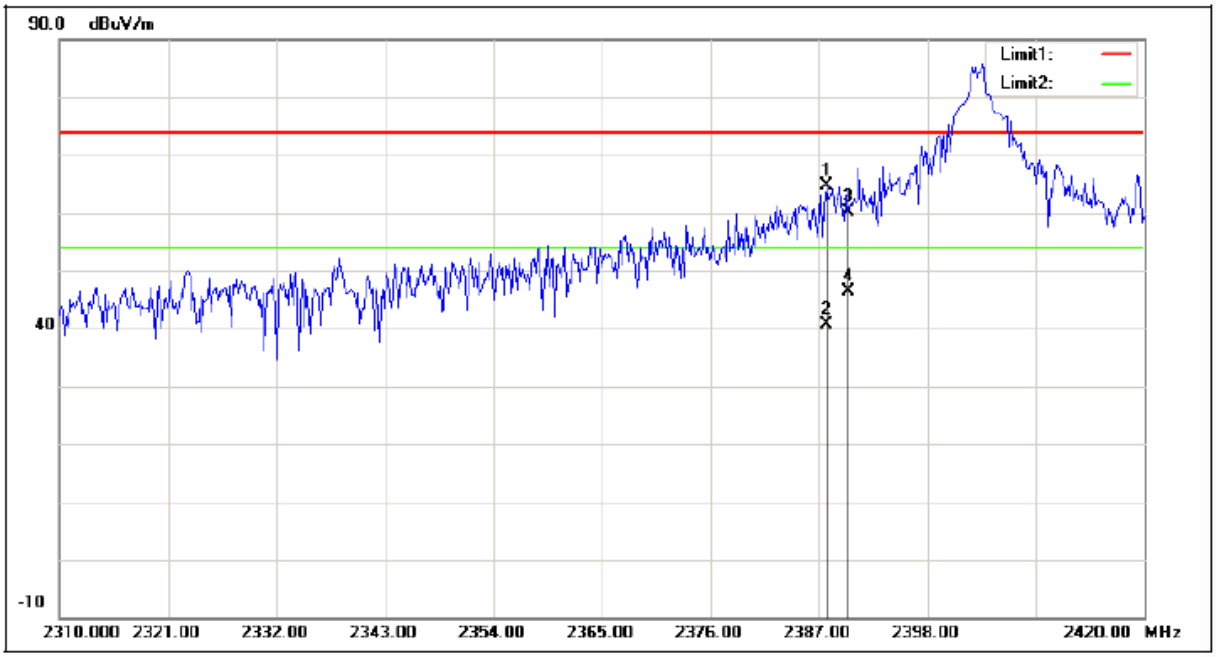
5.4.2 Test Description



5.4.3 Test Result

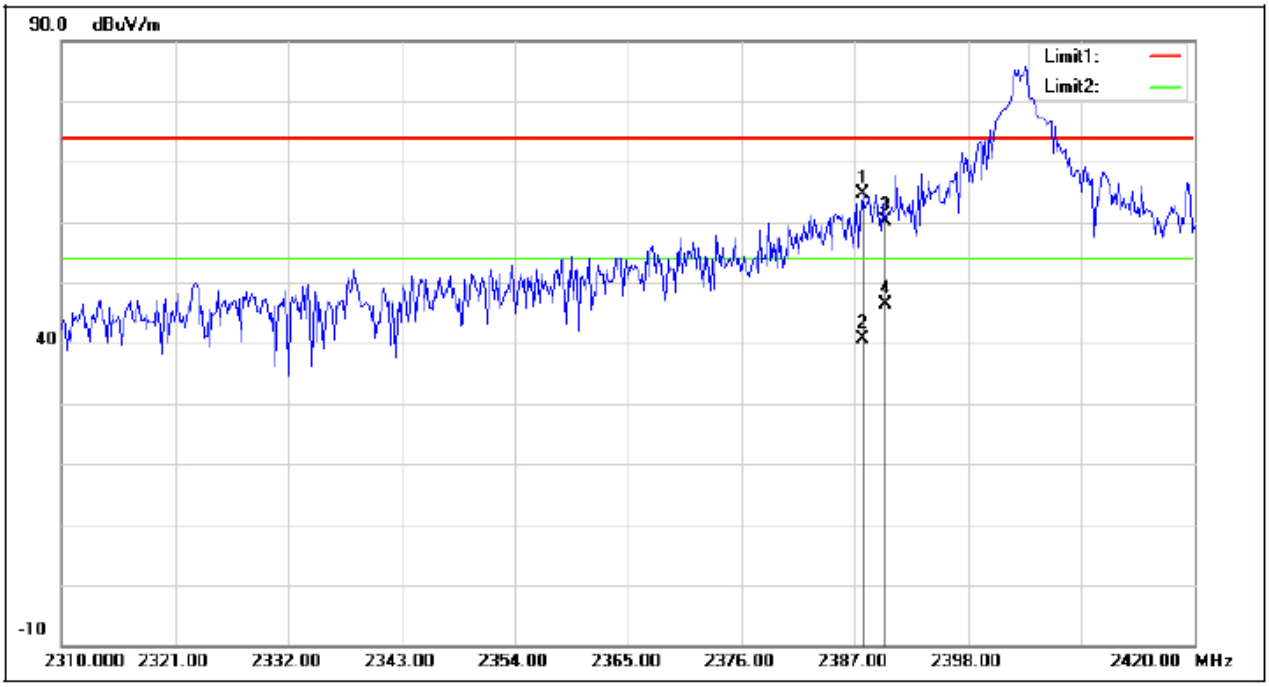
The EUT operates at continuous transmit test mode. The peak and average test data of the lowest and highest channels are tested to verify the band edge emissions.

Test Plot:



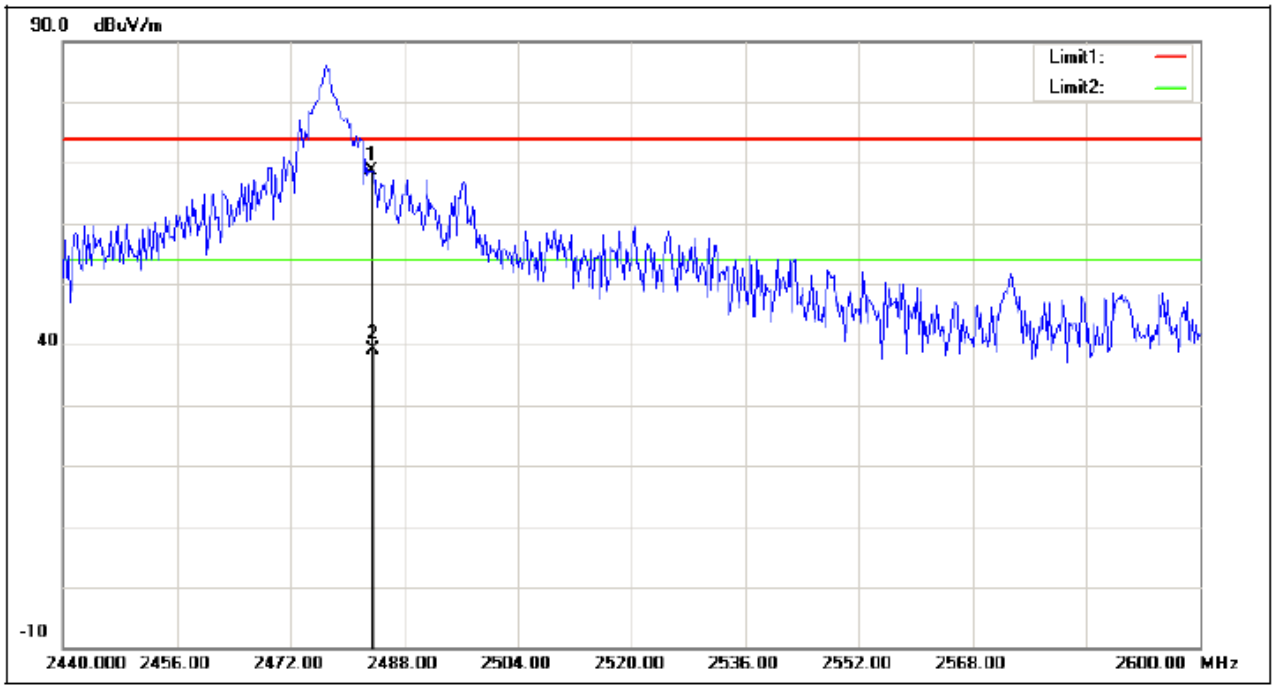
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2387.740	78.81	-14.29	64.52	74.00	-9.48	100	139	peak
2	2387.740	54.83	-14.29	40.54	54.00	-13.46	100	138	AVG
3	2390.000	74.33	-14.28	60.05	74.00	-13.95	100	141	peak
4	2390.000	60.54	-14.28	46.26	54.00	-7.74	100	141	AVG

(CH Low, Horizontal)



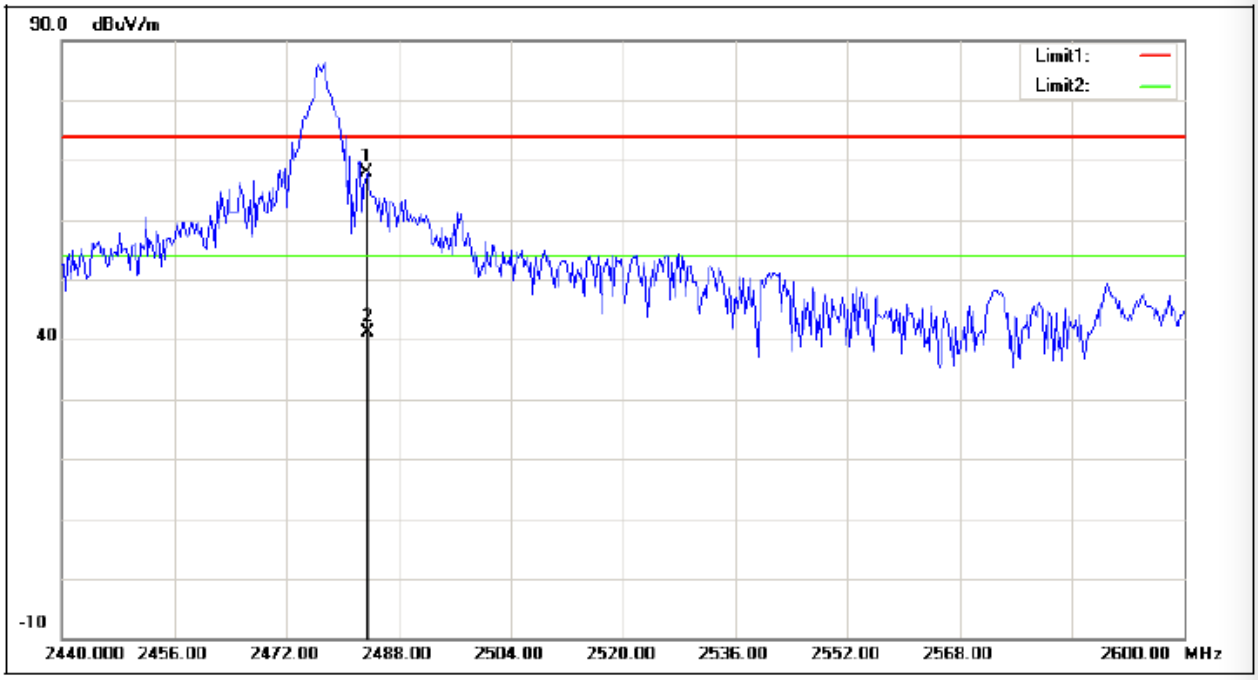
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2387.740	78.81	-14.29	64.52	74.00	-9.48	100	139	peak
2	2387.740	54.83	-14.29	40.54	54.00	-13.46	100	138	AVG
3	2390.000	74.33	-14.28	60.05	74.00	-13.95	100	141	peak
4	2390.000	60.54	-14.28	46.26	54.00	-7.74	100	141	AVG

(CH Low, Vertical)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.333	82.24	-13.65	68.59	74.00	-5.41	100	279	peak
2	2483.600	52.79	-13.65	39.14	54.00	-14.86	100	278	AVG

(CH High, Vertical)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	81.56	-13.65	67.91	74.00	-6.09	100	138	peak
2	2483.600	54.81	-13.65	41.16	54.00	-12.84	100	138	AVG

(CH High, Horizontal)

5.5 Number of Hopping Frequency

5.5.1 Definition

According to FCC section 15.247(a)(1)(iii), frequency hopping systems operating in the 2400MHz to 2483.5MHz bands shall use at least 15 hopping frequencies.

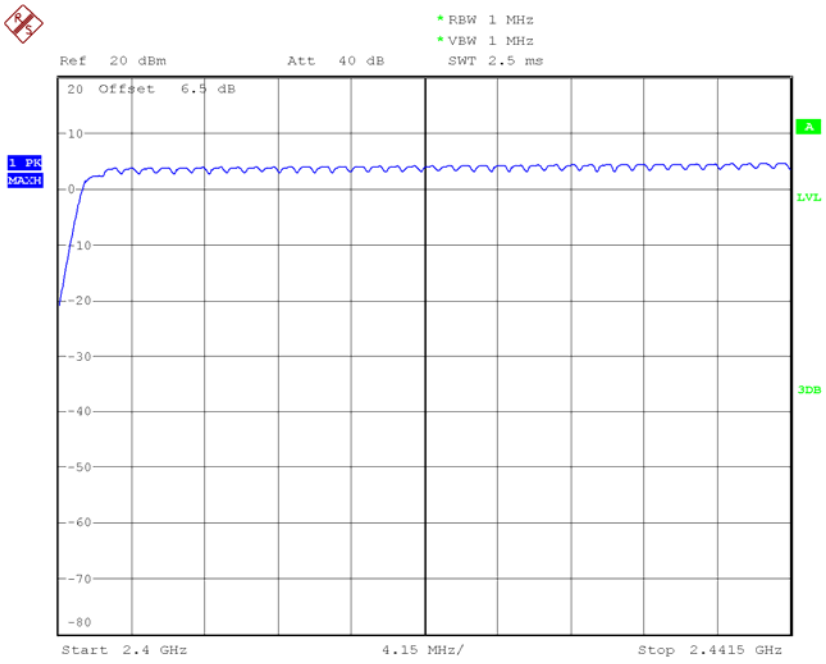
5.5.2 Test Description

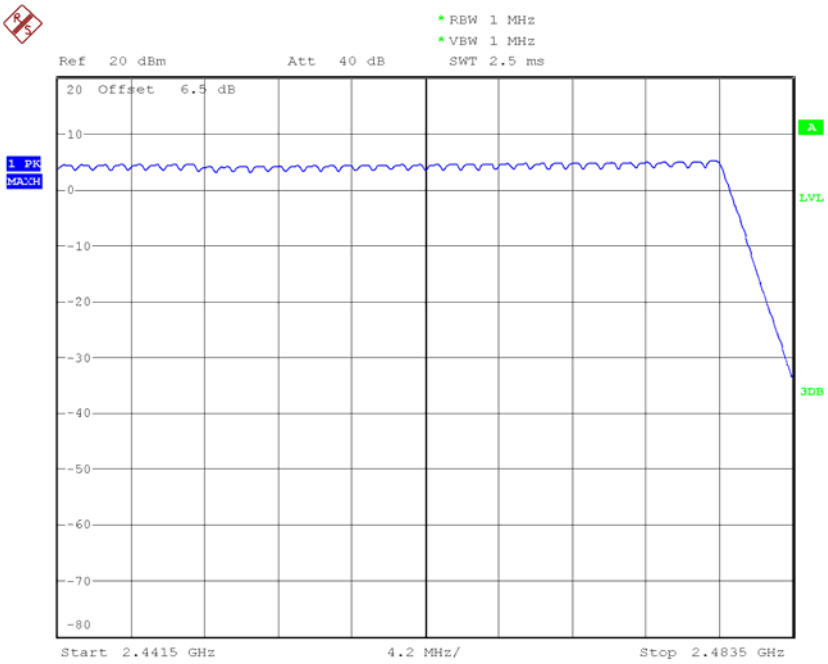
See section 5.1.2 of this report.

5.5.3 Test Result

Frequency Block (MHz)	Measured Channel Numbers	Min. Limit	Verdict
2400 - 2483.5	75	15	PASS

Test Plots:




RBW 1 MHz
VBW 1 MHz
Ref 20 dBm
Att 40 dB
SWT 2.5 ms
20 Offset 6.5 dB
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1 PK
MAXH
A
LVL
3DB
Start 2.4415 GHz
4.2 MHz/
Stop 2.4835 GHz

5.6 Carried Frequency Separation

5.6.1 Definition

According to FCC section 15.247(a)(1), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

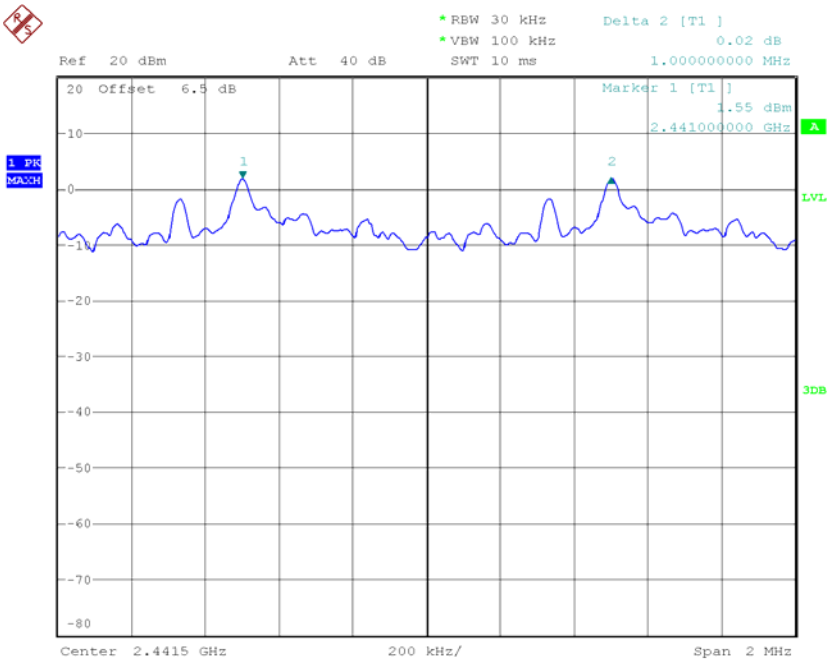
5.6.2 Test Description

See section 5.1.2 of this report.

5.6.3 Test Result

The EUT operates at hopping-on test mode.

For any adjacent channels, the sample does have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. So, the verdict is PASS.



5.7 Time of Occupancy (Dwell time)

5.7.1 Requirement

According to FCC section 15.247(a)(1)(iii), frequency hopping systems in the 2400 - 2483.5MHz band shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

5.7.2 Test Description

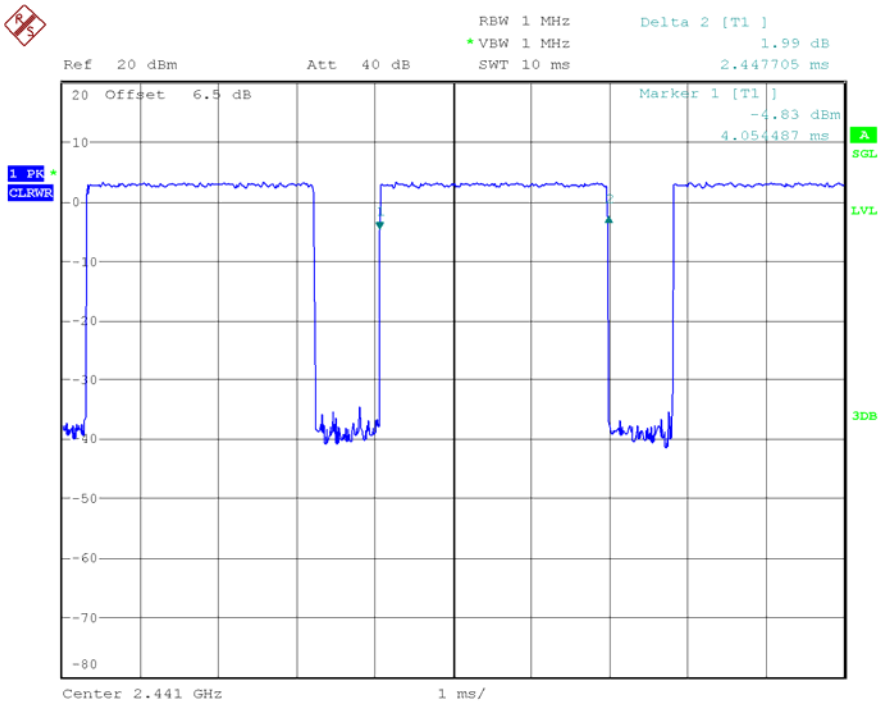
See section 5.1.2 of this report.

5.7.3 Test Result

Middle Channel:
2.448 * (1600/6)/75 * 30.00 = 261.12 (ms)

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2.448	261.12	30.00	400.00	PASS

Test Plots:


RBW 1 MHz
VBW 1 MHz
SWT 10 ms
Delta 2 [T1]
1.99 dB
2.447705 ms
Ref 20 dBm
Att 40 dB
20 Offset 6.5 dB
Marker 1 [T1]
-4.83 dBm
4.054487 ms
1 PK
CLRWR
A
SGL
LVL
3DB
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.441 GHz
1 ms/

5.8 Conducted Emission

5.8.1 Definition

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

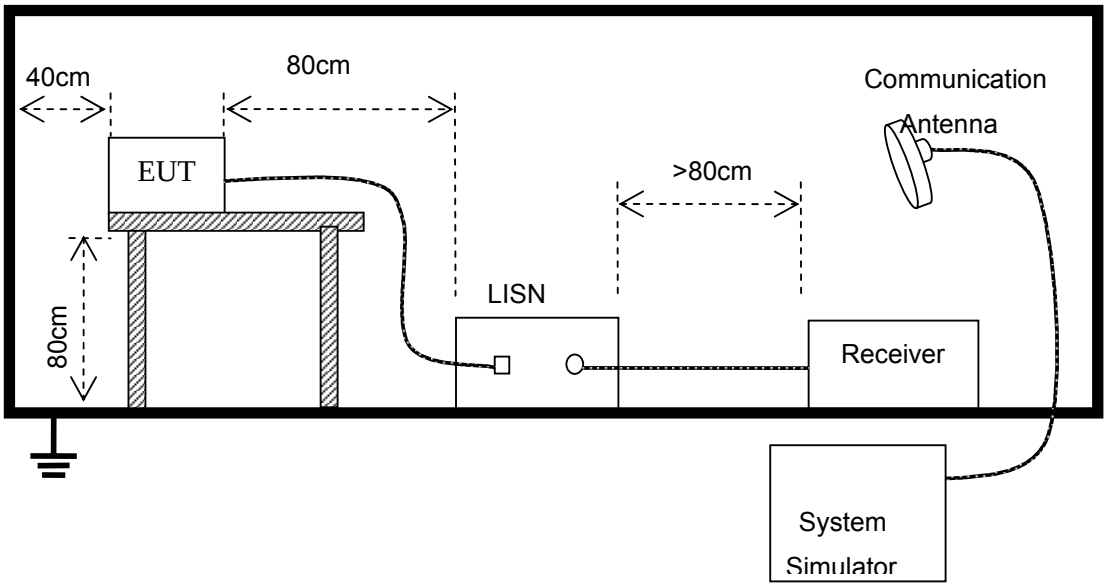
Note:

1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

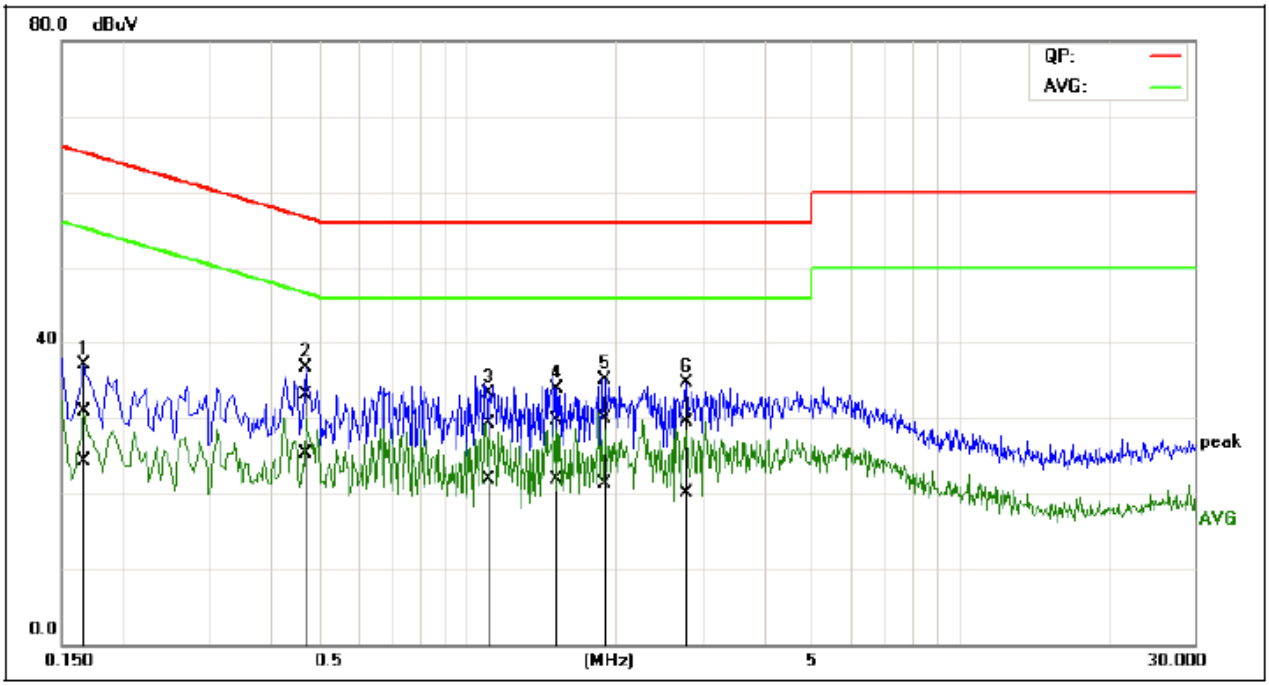
5.8.2 Test Description

The EUT is powered by the Battery charged with the AC Adapter which is powered by 120V, 60Hz AC mains supply. The path loss as the factor is calibrated to correct the reading. During the measurement, the EUT is activated and is set to operate at maximum power.



5.8.3Test Result

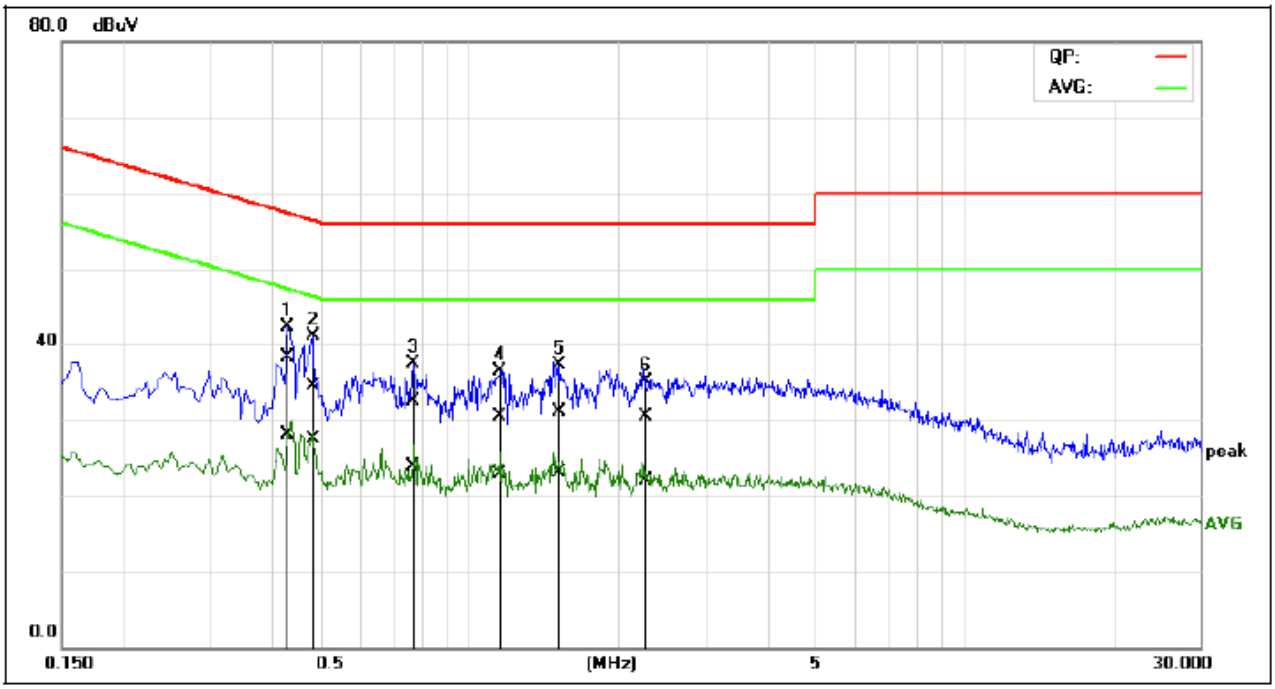
Standard:	**FCC Class B Conduction(QP)**	**Temp.(C)/Hum.(%):**	**22(C)/48%**
Test item:	**Conduction test**	**Test By:**	**Vincant.Peng**
Line:	**L1**	**Test Voltage:**	**AC 120V/60Hz**
Model:	**PAE-200**		
Description:			



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1666	11.22	4.55	19.74	30.96	24.29	65.13	55.13	-34.17	-30.84	Pass
2*	0.4701	13.22	5.52	19.81	33.03	25.33	56.51	46.51	-23.48	-21.18	Pass
3	1.1010	9.41	2.04	19.85	29.26	21.89	56.00	46.00	-26.74	-24.11	Pass
4	1.5238	9.87	2.04	19.89	29.76	21.93	56.00	46.00	-26.24	-24.07	Pass
5	1.9157	9.90	1.38	19.92	29.82	21.30	56.00	46.00	-26.18	-24.70	Pass
6	2.7419	9.41	-0.01	20.02	29.43	20.01	56.00	46.00	-26.57	-25.99	Pass

Standard:	**FCC Class B Conduction(QP)**	**Temp.(C)/Hum.(%):**	**22(C)/48%**
Test item:	**Conduction test**	**Test By:**	**Vincant.Peng**
Line:	**L2**	**Test Voltage:**	**AC 120V/60Hz**
Model:	**PAE-200**		

Description:



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.4304	18.53	8.32	19.80	38.33	28.12	57.24	47.24	-18.91	-19.12	Pass
2*	0.4844	14.72	7.66	19.84	34.56	27.50	56.26	46.26	-21.70	-18.76	Pass
3	0.7692	12.63	4.12	19.83	32.46	23.95	56.00	46.00	-23.54	-22.05	Pass
4	1.1498	10.62	3.06	19.84	30.46	22.90	56.00	46.00	-25.54	-23.10	Pass
5	1.5052	11.27	3.16	19.90	31.17	23.06	56.00	46.00	-24.83	-22.94	Pass
6	2.2780	10.51	2.04	20.00	30.51	22.04	56.00	46.00	-25.49	-23.96	Pass

5.9 Radiated Emission

5.9.1 Definition

According to FCC section 15.247(d), radiated emission outside the frequency band attenuation below the general limits specified in § 15.209(a) is not required. 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 § 15.205(c)).

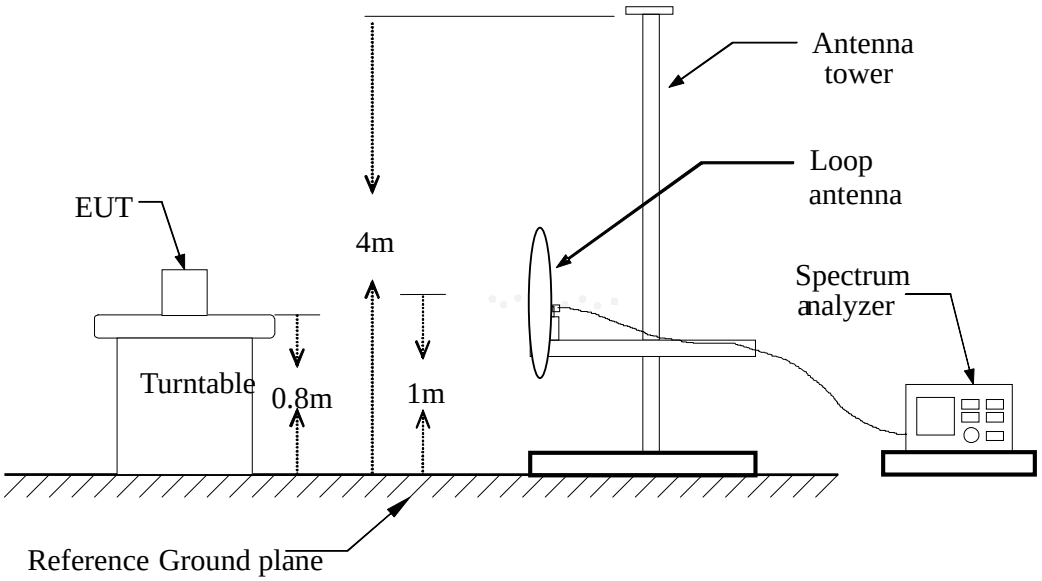
According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

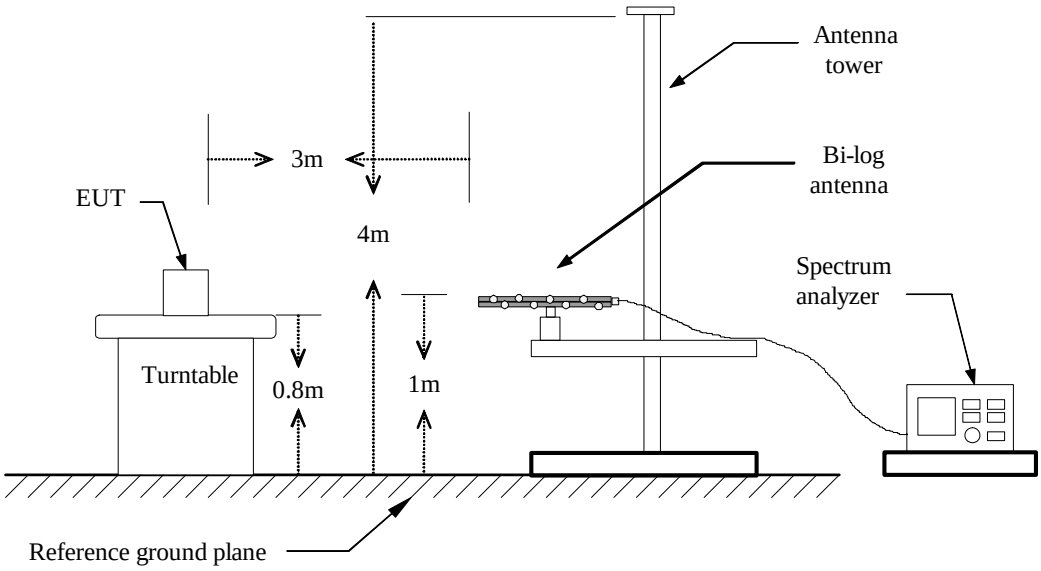
As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

5.9.2 Test Description

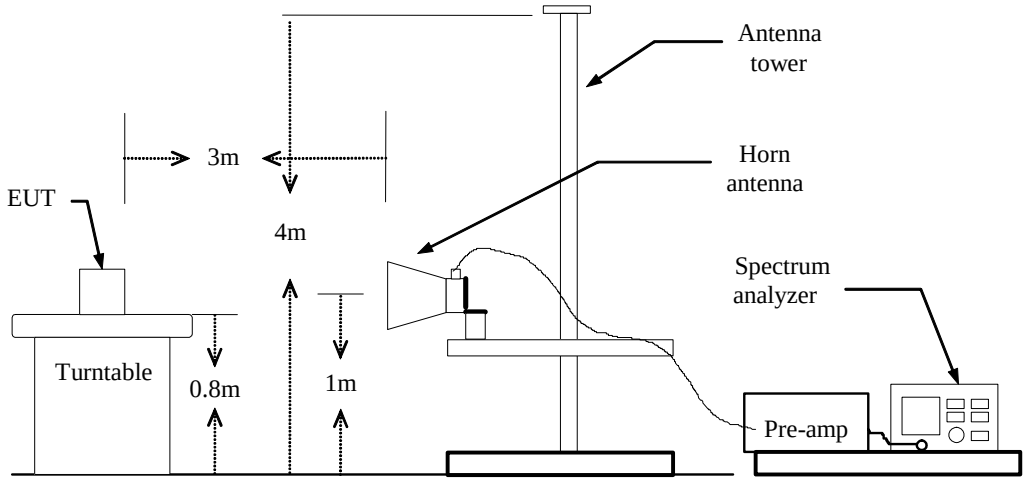
A. Test Setup:



Blow 1GHz:



Above 1GHz:



B. Test procedures

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 varied from 1m to 4m to find out the highest 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. Set the spectrum analyzer in the following setting as:

   Below 1GHz: RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

   Above 1GHz : (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

5.9.3 Test Result

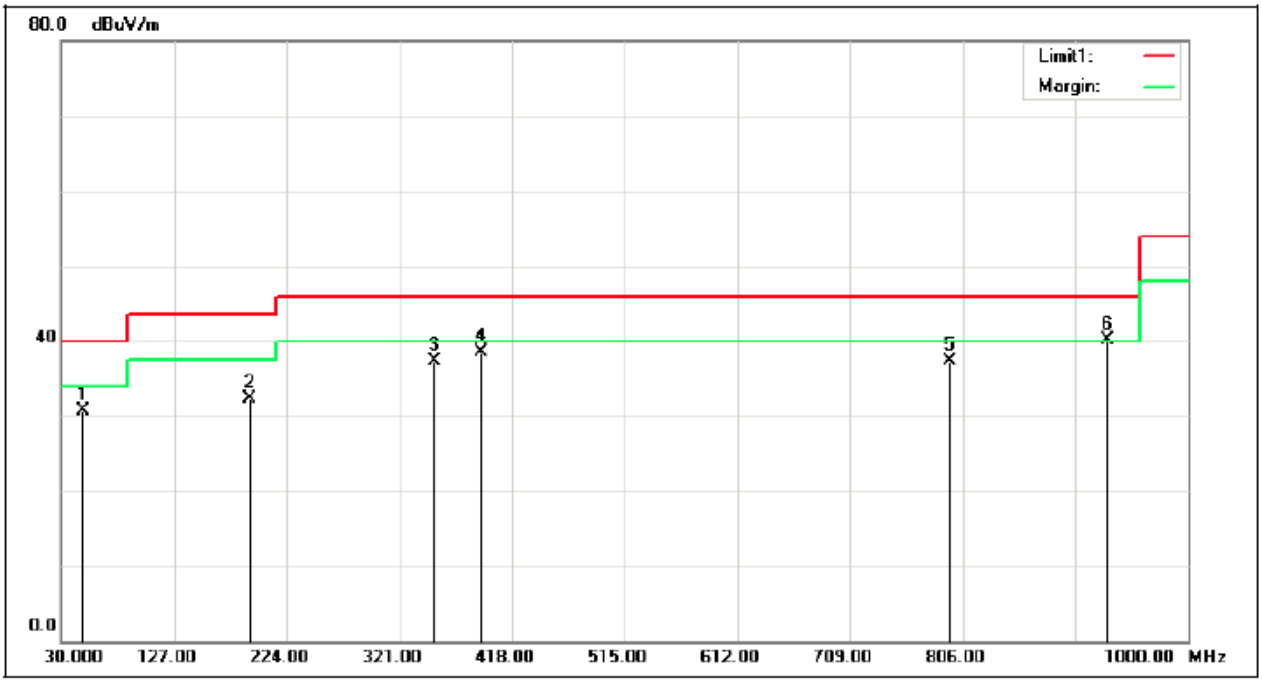
Form 9KHz to 30MHz:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

Form 30 MHz to 1GHz:

Low Channel:

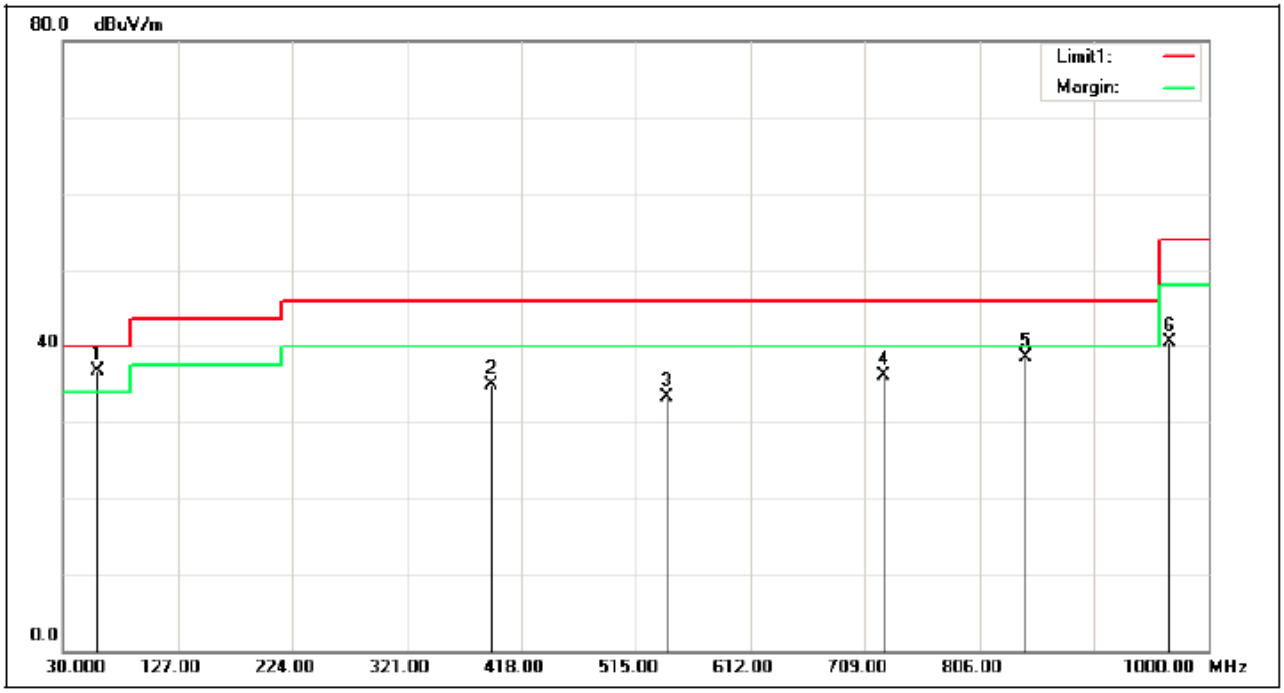
Standard:	FCC Class B 3M Radiation	Ant.Polar.:	Horizontal
Test item:	Radiation Test	Test Distance:	3m
Temp.(C)/Hum.(%RH):	25(C)/40%RH	Power:	AC 120V/60Hz
Company:	Honeybee	Date:2014-4-15	Time:13:28:32
Model:	PEA-200	Test By:	Michael.Gao
Description:			



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	48.4300	20.89	9.73	30.62	40.00	-9.38	100	268	peak
2	191.9900	19.51	12.80	32.31	43.50	-11.19	100	253	peak
3	351.0700	20.58	16.68	37.26	46.00	-8.74	100	150	peak
4	391.8100	20.56	17.92	38.48	46.00	-7.52	100	0	peak
5	794.3600	13.71	23.66	37.37	46.00	-8.63	100	86	peak
6	930.1600	14.76	25.35	40.11	46.00	-5.89	100	14	peak

Standard:	**FCC Class B 3M Radiation**	**Ant.Polar.:**	**Vertical**
Test item:	**Radiation Test**	**Test Distance:**	**3m**
Temp.(C)/Hum.(%RH):	**25(C)/40%RH Pow**	**er:**	**AC 120V/60Hz**
Company:	**honeybee**	**Date:2014-4-15**	**Time:13:26:18**
Model: PEA-	**200**	**Test By:**	**Michael.Gao**

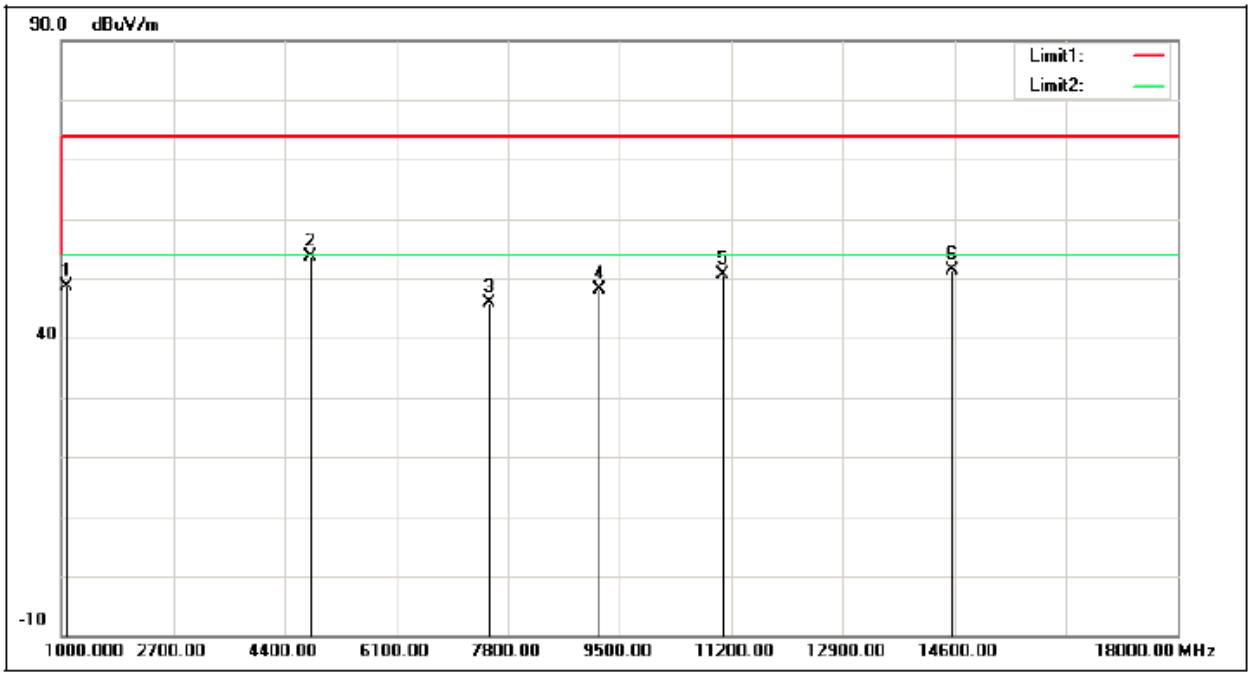
Description:



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	59.1000	28.65	8.03	36.68	40.00	-3.32	100	36	peak
2	392.7800	16.97	17.96	34.93	46.00	-11.07	100	352	peak
3	541.1900	12.33	21.05	33.38	46.00	-12.62	100	198	peak
4	725.4900	13.25	22.79	36.04	46.00	-9.96	100	319	peak
5	845.7700	13.30	25.25	38.55	46.00	-7.45	100	100	peak
6	967.0200	14.12	26.38	40.50	54.00	-13.50	100	274	peak

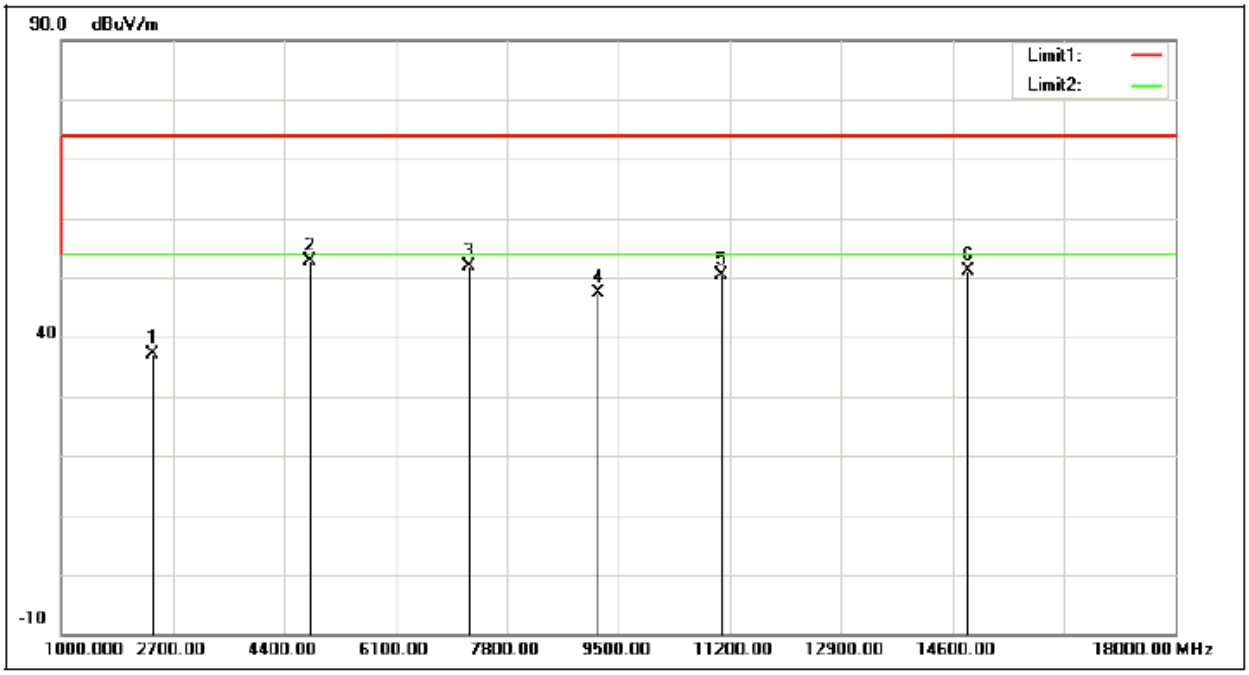
Above 1 GHz

Operation Mode:	CH Low	**Test Date:**	2014-04-15
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Hor.



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1081.731	24.06	24.66	48.72	74.00	-25.28	100	297	peak
2	4786.859	61.70	-8.07	53.63	74.00	-20.37	100	312	peak
3	7511.218	46.12	-0.26	45.86	74.00	-28.14	100	155	peak
4	9200.320	45.22	2.79	48.01	74.00	-25.99	100	98	peak
5	11080.128	43.49	7.21	50.70	74.00	-23.30	100	219	peak
6	14567.308	42.18	9.23	51.41	74.00	-22.59	100	220	peak

Operation Mode:	CH Low	**Test Date:**	2014-04-15
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver.

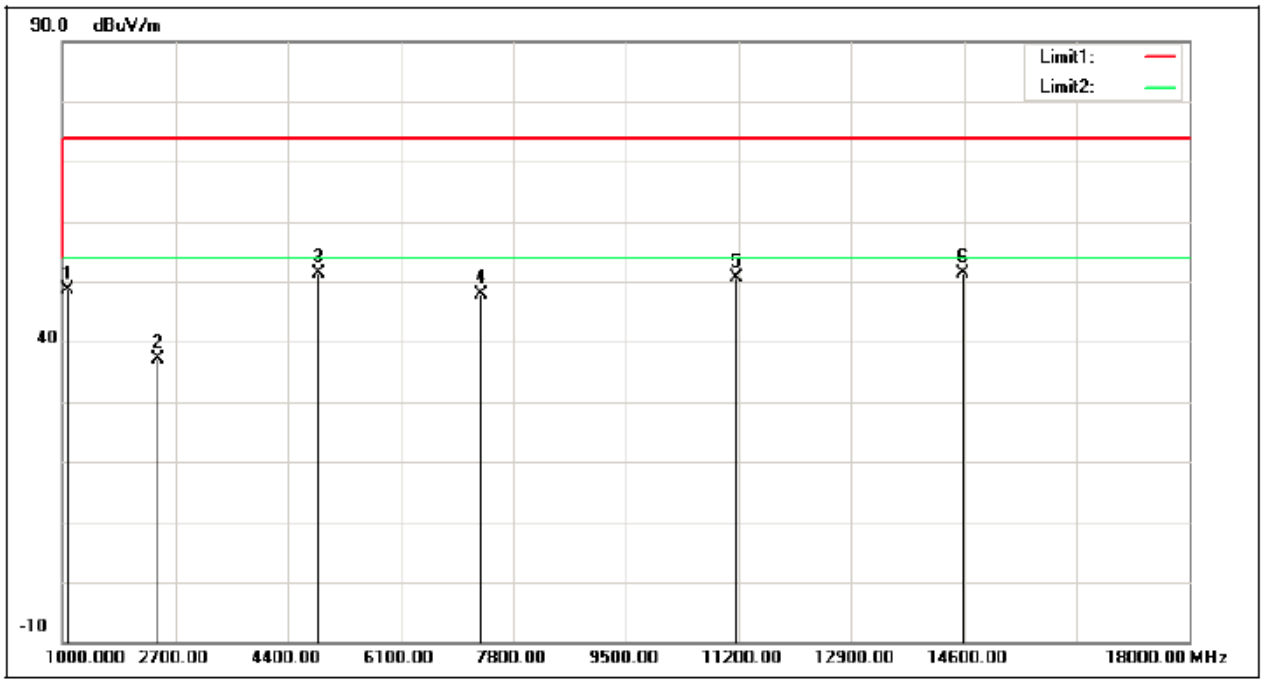


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	51.30	-14.28	37.02	74.00	-36.98	100	90	peak
2	4786.859	61.02	-8.07	52.95	54.00	-1.05	100	177	AV
3	7211.538	52.43	-0.59	51.84	74.00	-22.16	100	223	peak
4	9200.320	44.70	2.79	47.49	74.00	-26.51	100	167	peak
5	11080.128	43.28	7.21	50.49	74.00	-23.51	100	100	peak
6	14839.744	42.29	8.76	51.05	74.00	-22.95	100	336	peak

Notes:

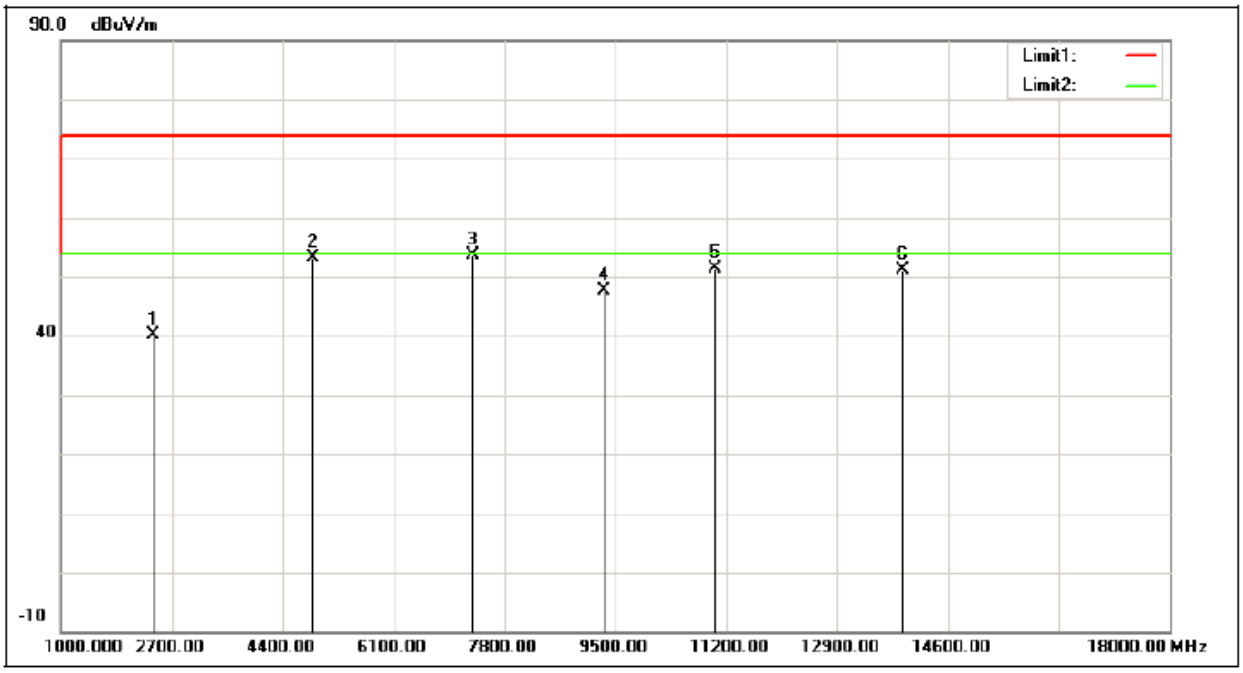
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	CH Mid	**Test Date:**	2014-04-15
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Hor.



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1081.731	23.90	24.66	48.56	74.00	-25.44	100	301	peak
2	2443.910	50.98	-13.95	37.03	74.00	-36.97	100	85	peak
3	4868.590	59.08	-7.72	51.36	74.00	-22.64	100	283	peak
4	7320.513	48.74	-0.83	47.91	74.00	-26.09	100	124	peak
5	11161.859	43.62	7.06	50.68	74.00	-23.32	100	134	peak
6	14594.551	41.88	9.56	51.44	74.00	-22.56	100	64	peak

Operation Mode:	CH Mid	**Test Date:**	2014-04-15
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver.

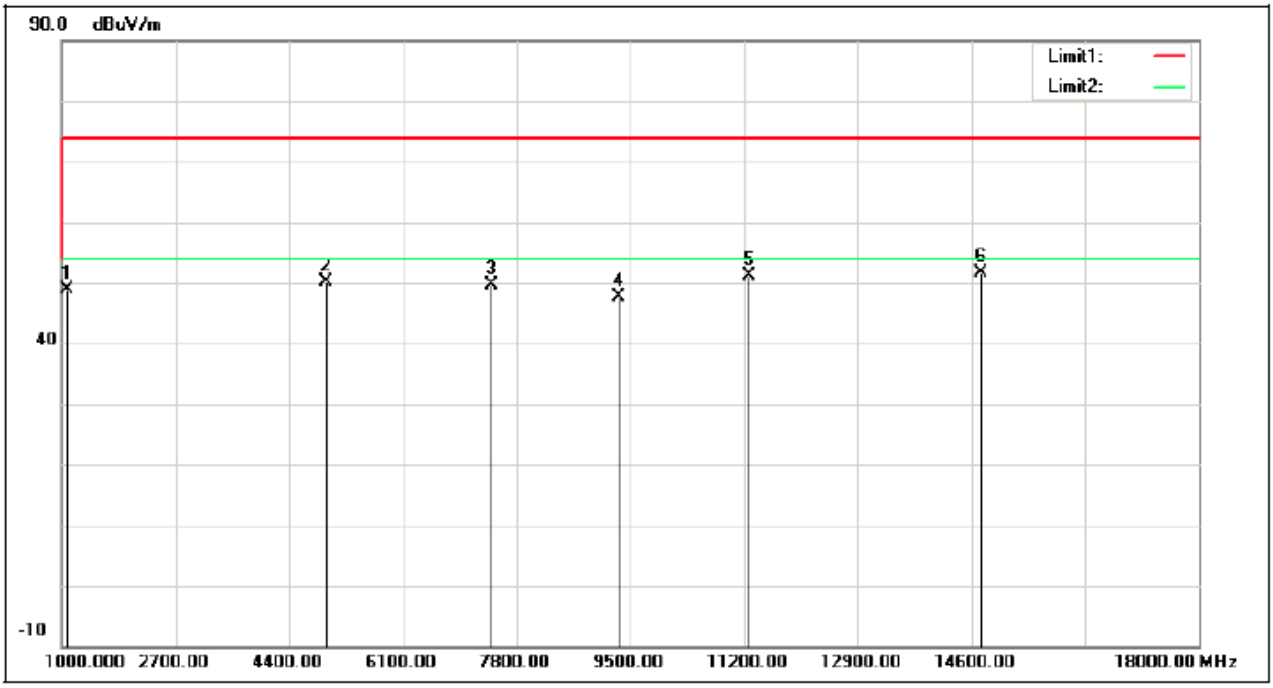


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2416.667	54.33	-14.16	40.17	74.00	-33.83	100	87	peak
2	4868.590	60.82	-7.72	53.10	54.00	-0.90	100	173	AV
3	7320.513	54.41	-0.83	53.58	74.00	-20.42	100	98	peak
4	9336.539	44.99	2.59	47.58	74.00	-26.42	100	0	peak
5	11025.641	44.95	6.45	51.40	74.00	-22.60	100	319	peak
6	13913.461	43.31	7.81	51.12	74.00	-22.88	100	318	peak

Notes:

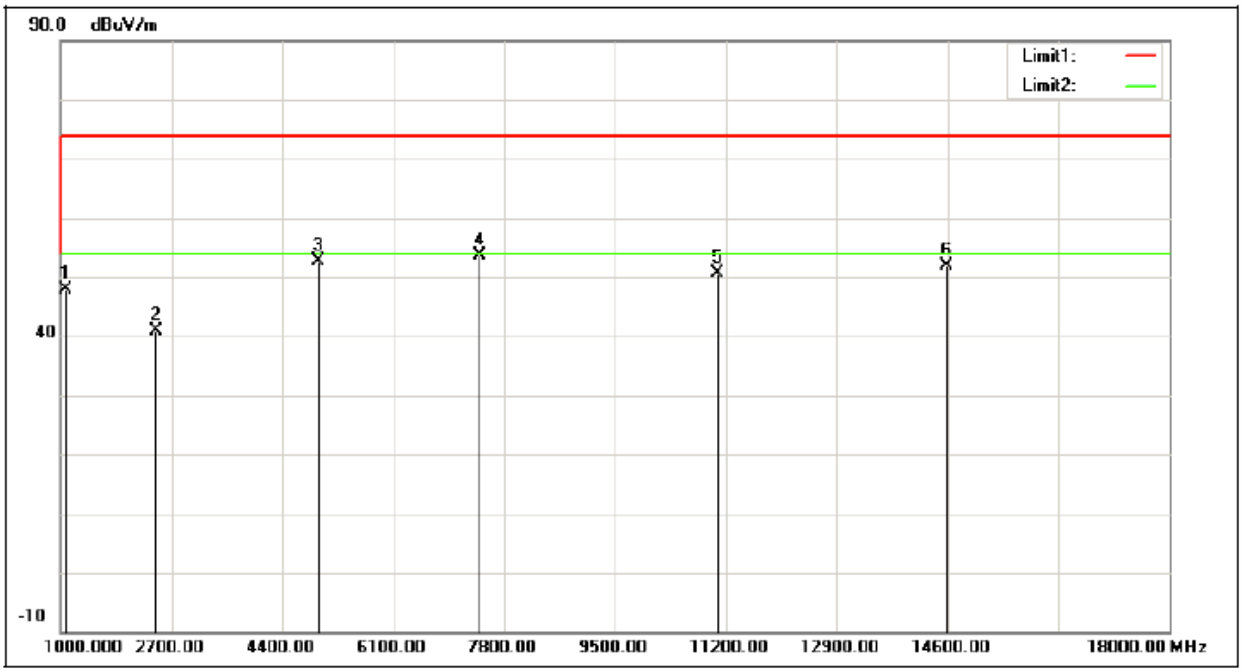
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	CH High	**Test Date:**	2014-04-15
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Hor.



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1081.731	24.27	24.66	48.93	74.00	-25.07	100	295	peak
2	4950.320	57.81	-7.58	50.23	74.00	-23.77	100	295	peak
3	7429.487	50.18	-0.55	49.63	74.00	-24.37	100	216	peak
4	9336.539	45.04	2.59	47.63	74.00	-26.37	100	12	peak
5	11270.833	44.57	6.57	51.14	74.00	-22.86	100	96	peak
6	14758.013	42.73	8.83	51.56	74.00	-22.44	100	0	peak

Operation Mode:	CH High	**Test Date:**	2014-04-15
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1081.731	23.21	24.66	47.87	74.00	-26.13	100	159	peak
2	2471.154	54.55	-13.75	40.80	74.00	-33.20	100	88	peak
3	4950.320	60.06	-7.58	52.48	54.00	-1.52	100	170	AV
4	7429.487	54.17	-0.55	53.62	74.00	-20.38	100	151	peak
5	11080.128	43.45	7.21	50.66	74.00	-23.34	100	205	peak
6	14594.551	42.26	9.56	51.82	74.00	-22.18	100	302	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

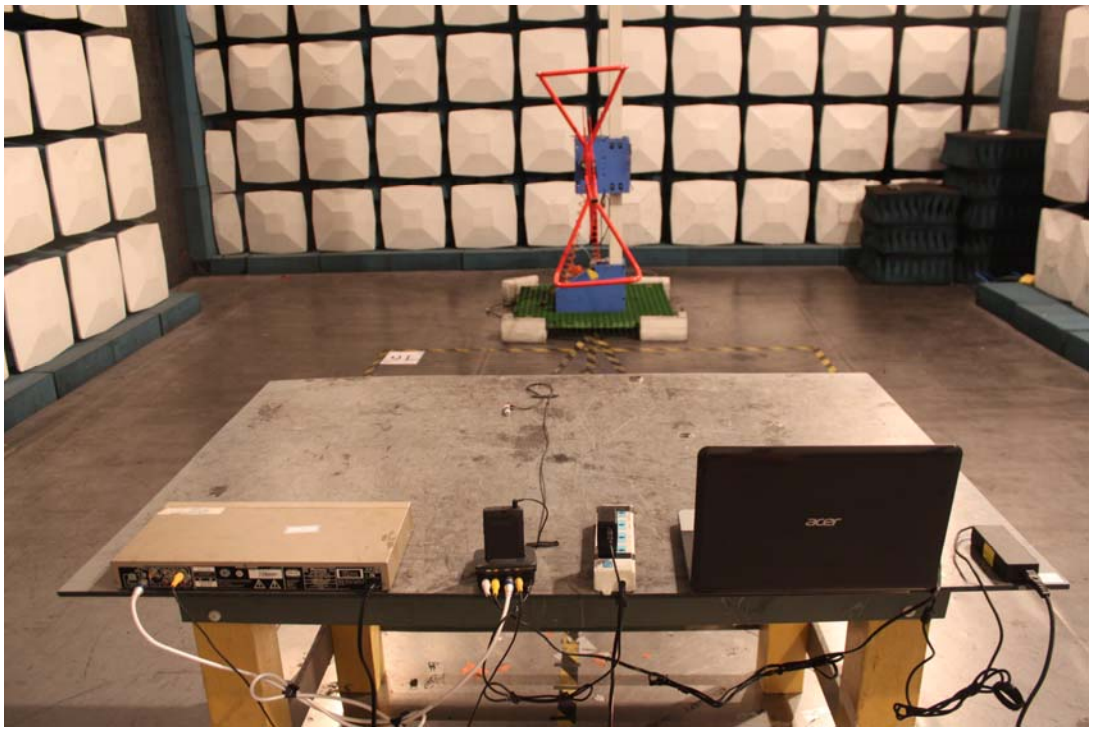
Form 18 GHz to 25GHz:

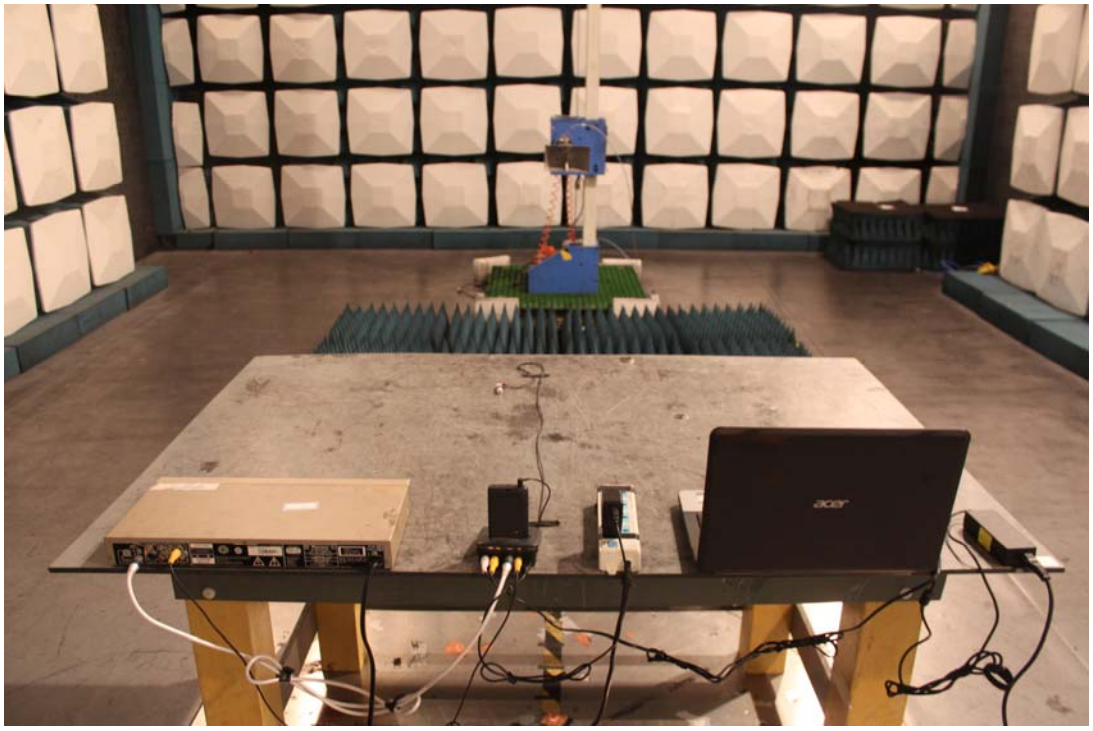
The low frequency, which started from 18GHz to 25GHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

APPENDIX 1

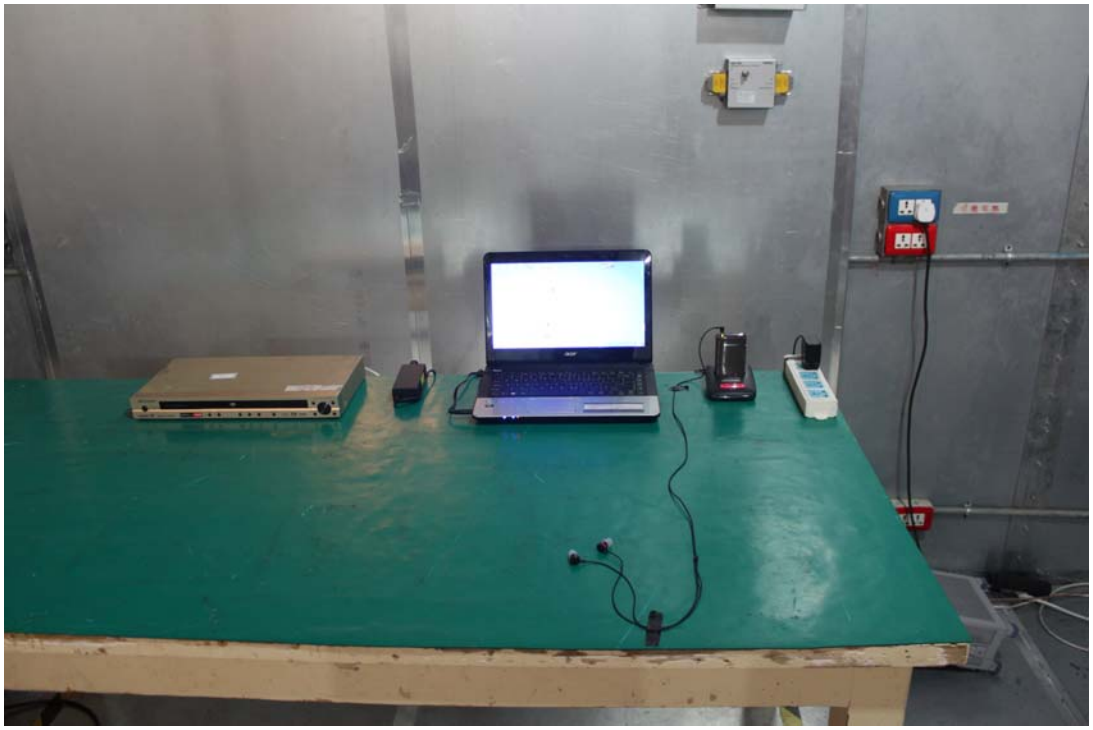
PHOTOGRAPHS OF TEST SETUP

RE TEST SETUP





CE TEST SETUP



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