TEST REPORT

FCC ID	: QCVR0620301
Applicant	: Budderfly LLC
Address	: 2 Trap Falls Road, Suite 507 Shelton, CT 06484 USA
Manufacturer	: CME Electronics Technology Co., LTD
Address	: Suite B, 18th Floor, Jingwangem No. 303, Qinglv Road South, Gongbei, Zhuhai 519020, Guangdong province,China

Equipment Under Test (EUT) :

Product Name	: Budderfly Power Strip
Model No.	: R0620301
Rules	: FCC CFR47 Part 15 Section 15.249: 2012

Date of Test	: August 09~11, 2013
Date of Issue	: Sep. 02, 2013

Test Result	**: PASS***

Remark:
* The sample described above has been tested to be in compliance with the requirements of the rules listed above.
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.
The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

PERPARED BY:
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Compiled by: Approved by:

Maikou Zhang / Project Engineer

Philo Zhong / Manager

2 Test Summary

Test Items	Test Requirement	Result
Restricted Band	15.205	PASS
20dB Bandwidth	15:215(c)	PASS
Conducted Emissions	15.207	PASS
Radiated Emission	15.205(a) 15.209 15.249(a)	PASS
Antenna Requirement	15.203	PASS

3 Contents

4 General Information

4.1 General Description of E.U.T.

Product Name	: Budderfly Power Strip
Model No.	: R0620301
Type of Modulation	: FSK
Frequency Range	: 915MHz
Oscillator	:Crystal 32.768KHz and 22.1184MHz for MB,10MHz for RF Module
Antenna installation	: Integrated Antenna

4.2 Details of E.U.T.

Technical Data	: AC 120V, 60Hz, 1800W
Adapter	: N/A

4.3 Test Facility

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

- **FCC – Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, May 26, 2011.

- **IC – Registration No.:7760A**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, July 12, 2012.

4.4 Test Location

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

4.5 General condition

Ambient Condition: 25.5 ℃ 58 %RH

4.5.1 Environmental condition of test site

For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

The follow condition is applicable

Test Voltage	Input voltage
Rated voltage-15%	AC 102V
normal	AC 120V
Rated voltage+15%	AC 138V

The follow condition is not applicable.

Test voltage	Test Voltage
Rated voltage	New Battery

4.5.2 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Test mode	Lower channel	Middle channel	Upper channel
Transmitting	#####MHz	915MHz	#####MHz
Receiving	#####MHz	#####MHz	#####MHz

5 Equipment Used during Test

5.1 Equipments List

Conducted Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	100947	Aug. 13,2012	Aug. 12,2013
2.	LISN	R&S	ENV216	101215	Aug. 13,2012	Aug. 12,2013
3.	Cable	Top	TYPE16(3.5M)	-	Aug. 13,2012	Aug. 12,2013
3m Semi-anechoic Chamber for Radiation Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer	Agilent	E7405A	MY45114943	Aug. 13,2012	Aug. 12,2013
2.	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Aug. 13,2012	Aug. 12,2013
3.	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr. 20,2013	Apr. 19,2014
4.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr. 20,2013	Apr. 19,2014
5.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	399	Aug. 13,2012	Aug. 12,2013
6.	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr.07,2013	Apr.06,2014
7.	Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-148	Aug. 13,2012	Aug. 12,2013
8.	Cable	Top	EWO2014-7	-	Apr. 20,2013	Apr. 19,2014
9.	Cable	Top	TYPE16(13M)	-	Aug. 13,2012	Aug. 12,2013

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 4.74 dB (Horn antenna 1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

6 Conducted Emission Test

Test Requirement:	**FCC Part15 Paragraph 15.207**
Test Method:	**ANSI C63.4: 2003**
Frequency Range:	**150kHz to 30MHz**
Class:	**Class B**
Detector:	**Peak for pre-scan (9kHz Resolution Bandwidth)**
	Quasi-Peak & Average if maximised peak within 6dB of Average

Limit

6.1 E.U.T. Test Condition

Operating Environment:

Temperature:	25.5 °C
Humidity:	51 % RH
Atmospheric Pressure:	1011 mbar

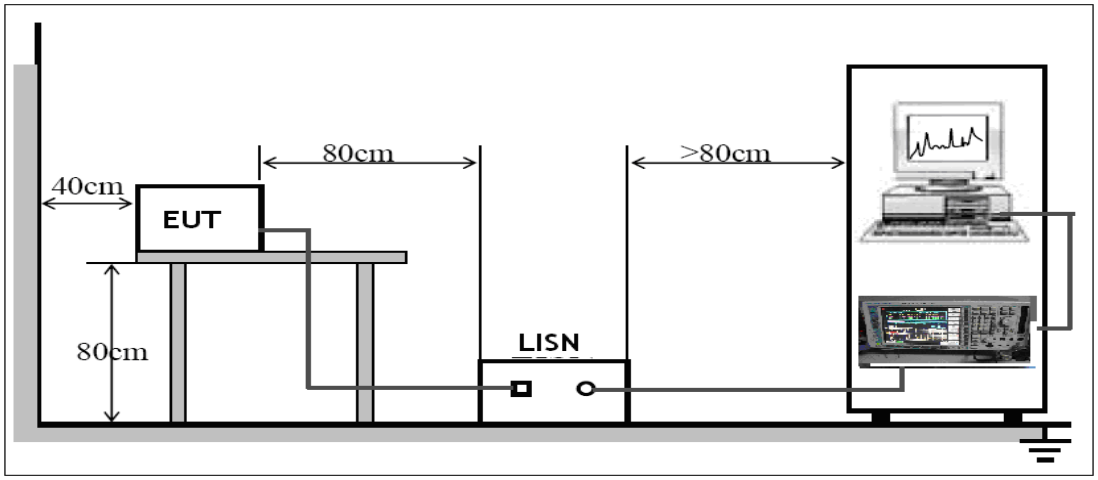
EUT Operation :

The pre-test was performance in continuous transmitting and normal working mode. The worst data were shown as follow.

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003.



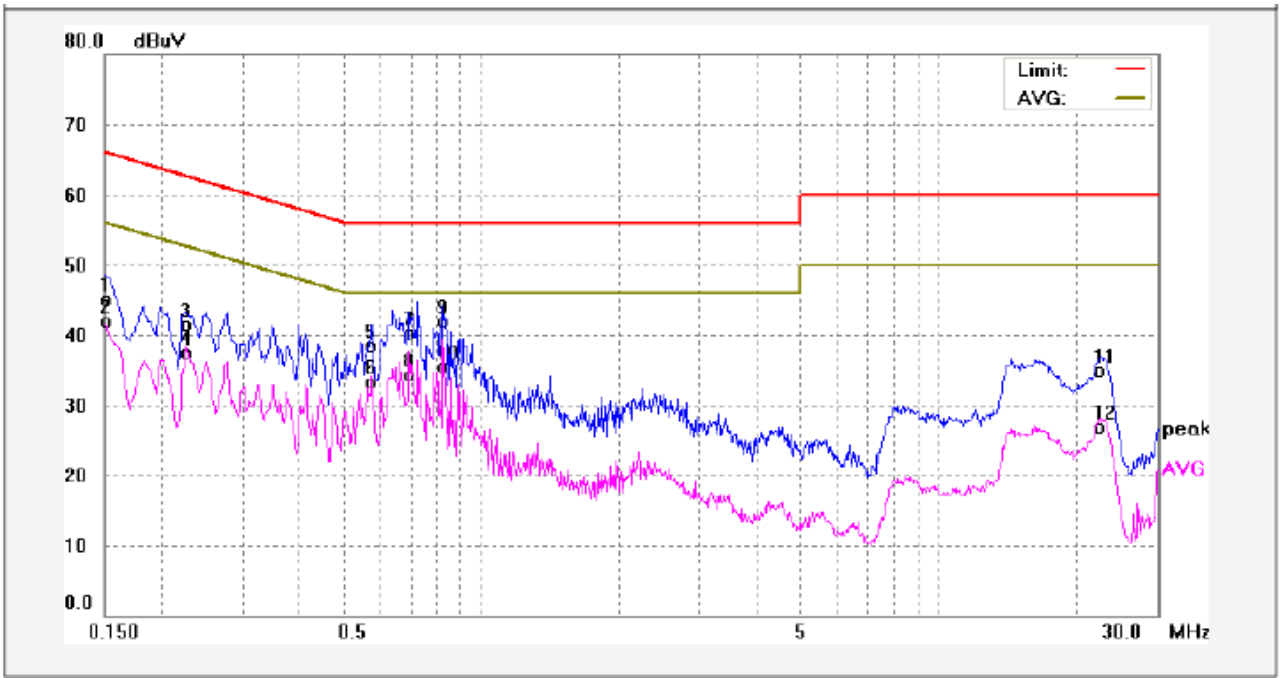
The EUT was placed on the test table in shielding room

6.3 Conducted Emission Test Result

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.

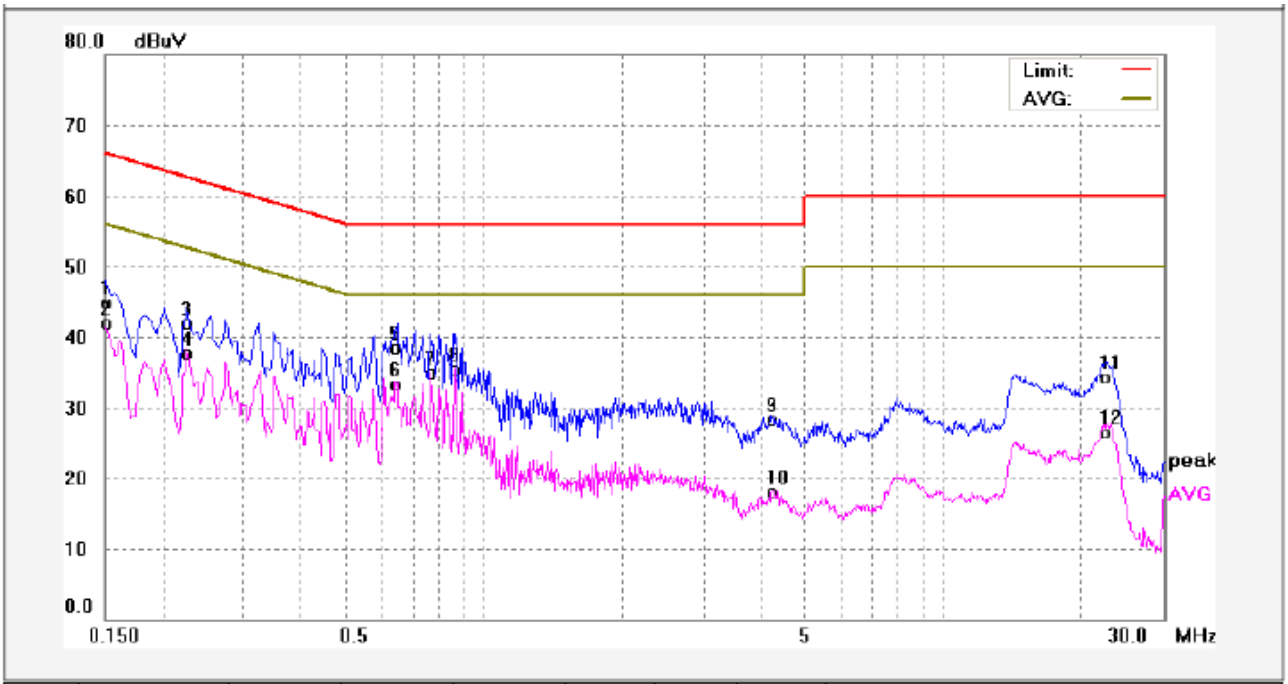
Test Mode: continuous transmitting mode

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	35.29	9.80	45.09	65.99	-20.90	QP	
2	0.1500	32.05	9.80	41.85	55.99	-14.14	AVG	
3	0.2260	31.61	9.85	41.46	62.59	-21.13	QP	
4	0.2260	27.59	9.85	37.44	52.59	-15.15	AVG	
5	0.5740	28.65	9.94	38.59	56.00	-17.41	QP	
6	0.5740	23.45	9.94	33.39	46.00	-12.61	AVG	
7	0.6940	30.44	9.95	40.39	56.00	-15.61	QP	
8	0.6940	24.40	9.95	34.35	46.00	-11.65	AVG	
9	0.8220	31.99	9.97	41.96	56.00	-14.04	QP	
10	0.8220	25.56	9.97	35.53	46.00	-10.47	AVG	
11	22.4780	23.56	11.40	34.96	60.00	-25.04	QP	
12	22.4780	15.46	11.40	26.86	50.00	-23.14	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	35.19	9.80	44.99	65.99	-21.00	QP	
2	0.1500	32.02	9.80	41.82	55.99	-14.17	AVG	
3	0.2260	32.02	9.85	41.87	62.59	-20.72	QP	
4	0.2260	27.91	9.85	37.76	52.59	-14.83	AVG	
5	0.6500	28.60	9.94	38.54	56.00	-17.46	QP	
6	0.6500	23.31	9.94	33.25	46.00	-12.75	AVG	
7	0.7660	24.96	9.96	34.92	46.00	-11.08	AVG	
8	0.8620	25.56	9.98	35.54	46.00	-10.46	AVG	
9	4.2619	18.16	10.08	28.24	56.00	-27.76	QP	
10	4.2619	8.07	10.08	18.15	46.00	-27.85	AVG	
11	22.3500	22.93	11.39	34.32	60.00	-25.68	QP	
12	22.3500	15.05	11.39	26.44	50.00	-23.56	AVG	

7 Radiation Emission Test

Test Requirement: **FCC Part15 Paragraph 15.249**

Test Method: **ANSI 63.4: 2003.**

Measurement Distance: **3m**

Detector: **Peak for pre-scan (120kHz resolution bandwidth)**

Quasi-Peak if maximised peak within 6dB of limit

Test Result: **PASS**

15.247(a)Limit:

Fundamental frequency	Field strength of fundamental		Field strength of harmonics	
	mV/m	dBuV/m	uV/m	dBuV/m
902-928 MHz	50	94	500	54
2400-2483.5 MHz	50	94	500	54
5725-5875 MHz	50	94	500	54
24.0-24.25 GHz	250	108	2500	68

15.209 Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

Note: RF Voltage(dBuV)=20 $\log_{10}$ RF Voltage(uV)

7.1 EUT Operation:

Operating Environment:

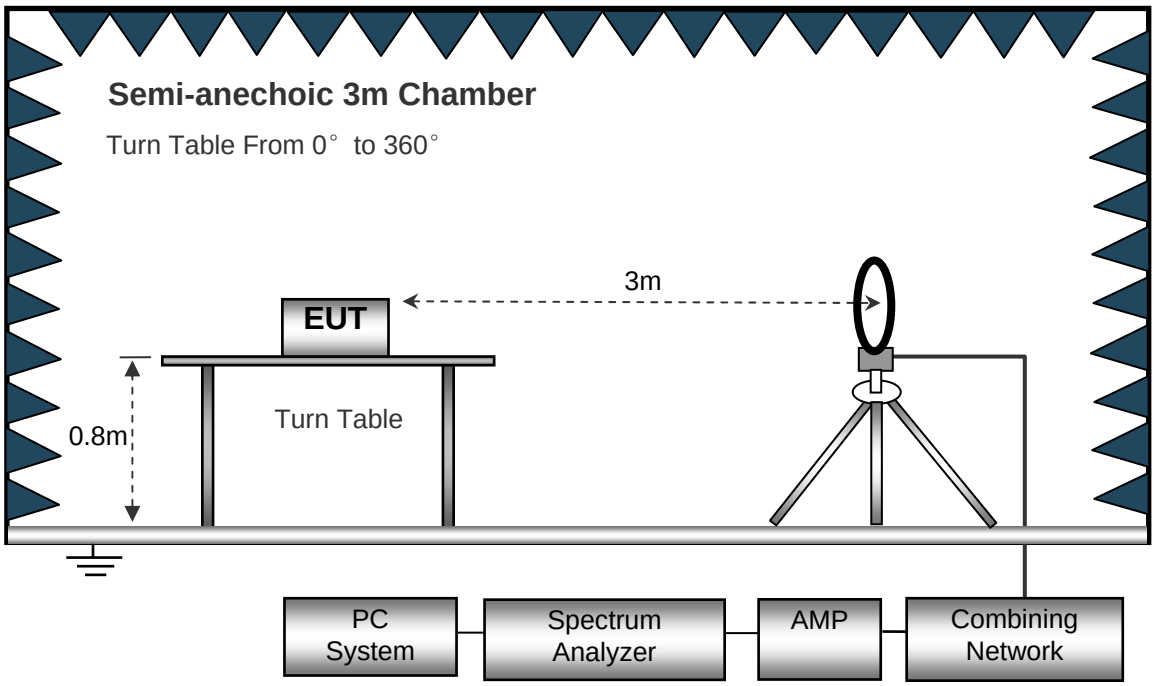
Temperature: **25.5 °C**
Humidity: **51 % RH**
Atmospheric Pressure: **1010 mbar**

Operation Mode:

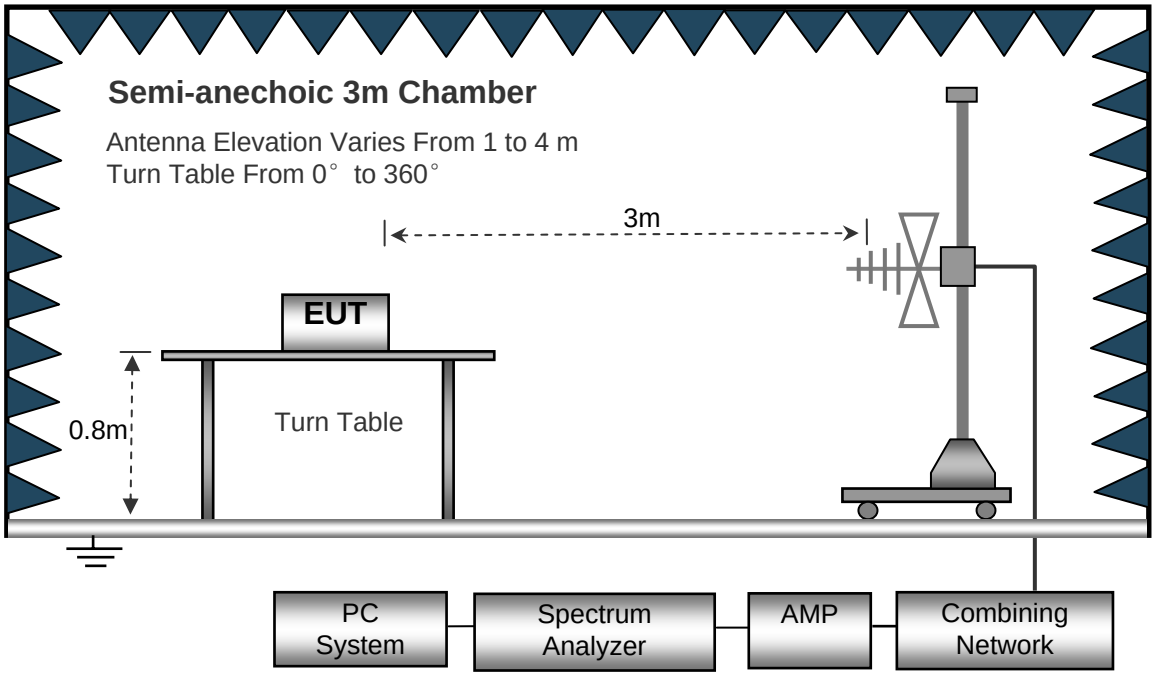
The EUT was tested in continuous transmitting and normal working mode. The worst data were shown as follow.

7.2 Test Setup

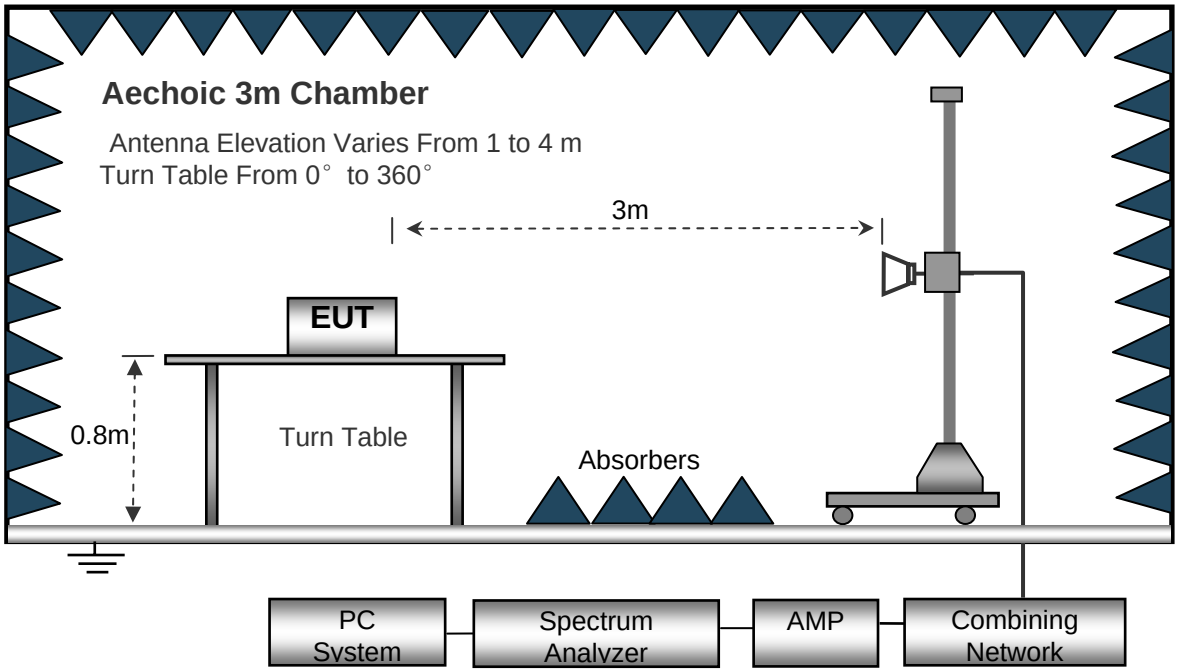
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4: 2003.
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

According to FCC Part15 Rules, the system was tested from 9kHz to 10GHz.

Below 30MHz

Sweep Speed .....Auto
IF Bandwidth .....10 KHz
Video Bandwidth 10KHz
Resolution Bandwidth.....10 KHz

30MHz ~ 1GHz

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

Sweep Speed .....Auto
IF Bandwidth .....120 KHz
Video Bandwidth 3MHz
Quasi-Peak Adapter Bandwidth .....120 KHz
Quasi-Peak Adapter Mode .....Normal
Resolution Bandwidth.....1MHz

7.4 Test Procedure

1.This is a handhold device,The radiation emission should be tested under 3-axes(X,Y,Z) position(X denotes lying on the table,Y denotes side stand and Z denotes vertical stand),After pre-test,It was found that the worse radiation emission was get at the X position.
So the data shown was the X position only.

2. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.

3. All data was recorded in the peak and average detection mode.

4. The EUT was under working mode during the final qualification test and the configuration was used to represent the worst case results.

7.5 Corrected Amplitude & Margin Calculation

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

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

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

Margin = Corr. Ampl. – Class B Limit

7.6 Radiated Emissions Test Result

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

Example:

Freq(MHz) Meter Reading +ACF=FS

33 20dBuV+10.36dB=30.36dBuV/m @3m

7.7 Radiated Emission Data

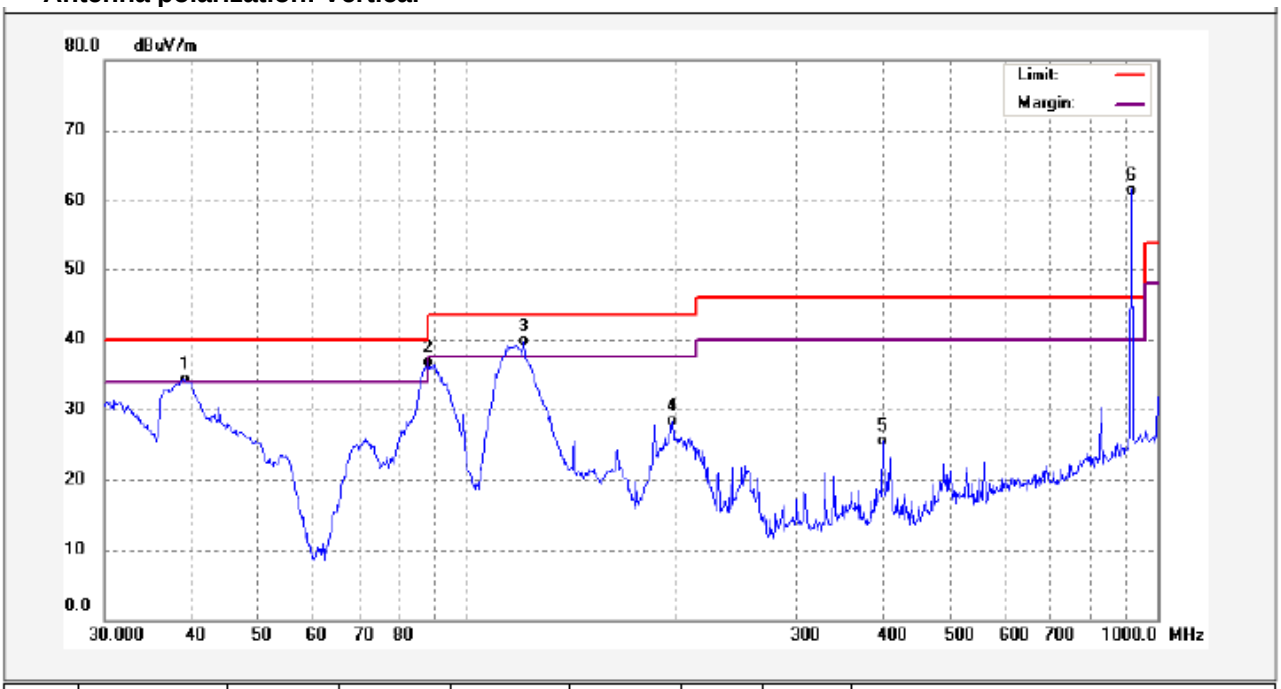
Test Frequency :Below 30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency: 30MHz ~ 1000MHz

Test Mode: Continuous transmitting

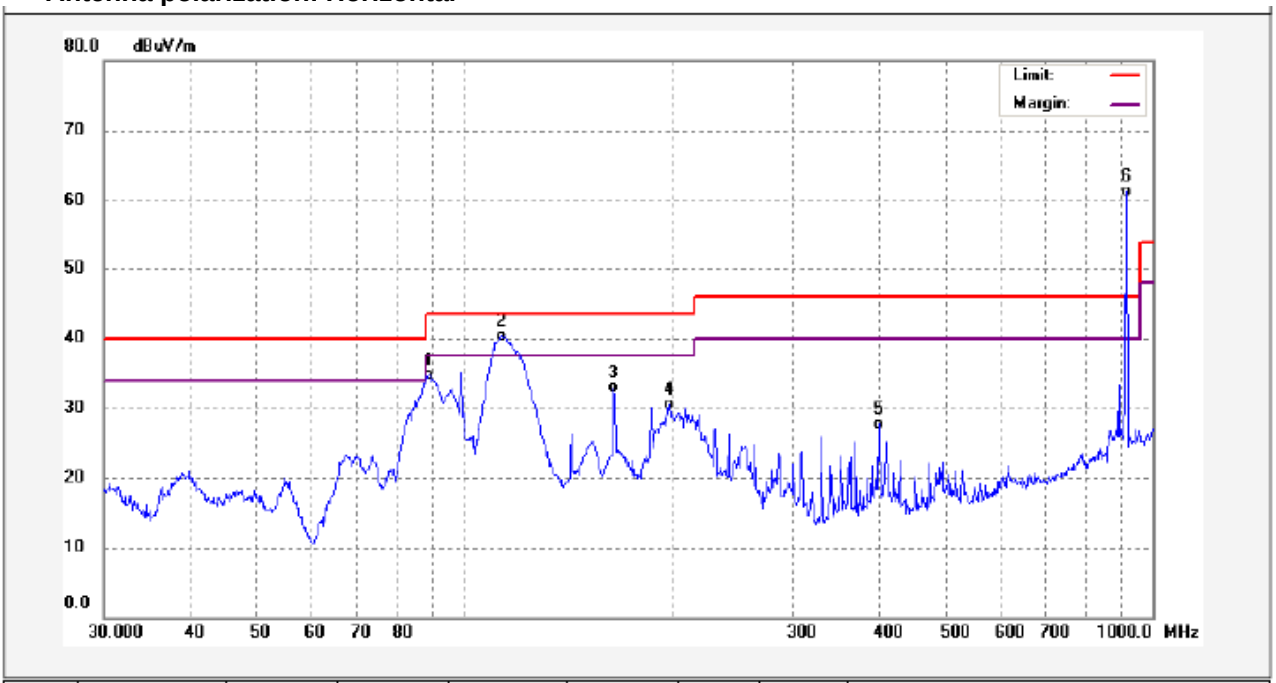
Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	39.2991	53.40	-19.18	34.22	40.00	-5.78	QP	
2	88.0329	61.57	-24.89	36.68	43.50	-6.82	QP	
3	121.1231	64.05	-24.39	39.66	43.50	-3.84	QP	
4	198.5880	50.12	-21.86	28.26	43.50	-15.24	QP	
5	400.4319	42.18	-16.75	25.43	46.00	-20.57	QP	
6	916.0687	66.87	-5.27	61.60	46.00	15.60	QP	

Remark:the marker 6 is the fundamental

Antenna polarization: Horizontal



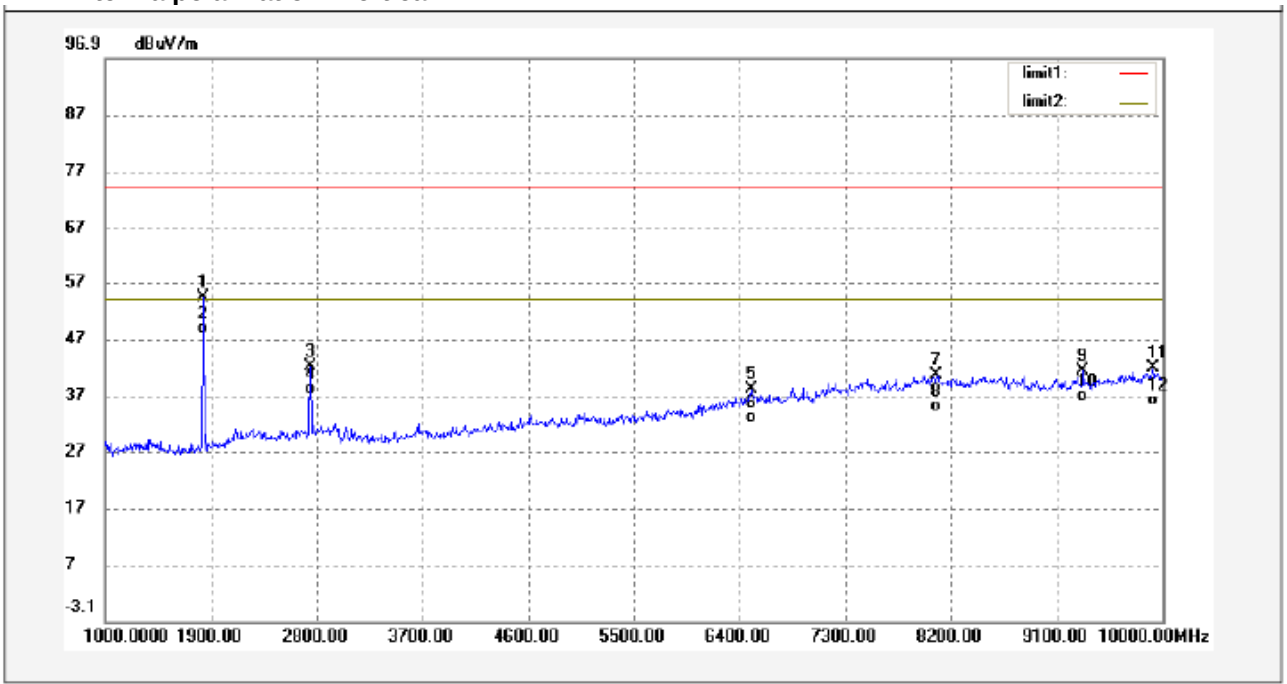
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	88.9639	59.35	-24.59	34.76	43.50	-8.74	QP	
2	113.3163	63.43	-23.14	40.29	43.50	-3.21	QP	
3	164.9075	57.43	-24.61	32.82	43.50	-10.68	QP	
4	198.5880	52.39	-21.86	30.53	43.50	-12.97	QP	
5	400.4319	44.51	-16.75	27.76	46.00	-18.24	QP	
6	916.0687	66.66	-5.27	61.39	46.00	15.39	QP	

Remark:the marker 6 is the fundamental

Test Frequency: 1GHz ~ 10GHz

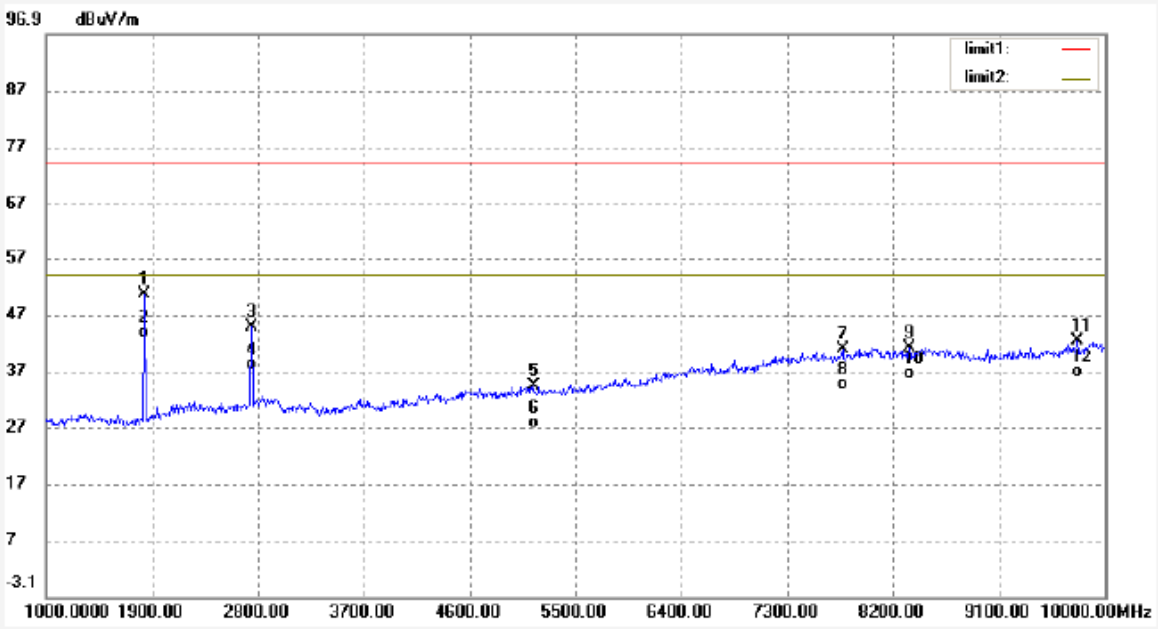
Test Mode:Continuous transmitting

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1837.000	71.69	-17.48	54.21	74.00	-19.79	peak	
2	1837.000	65.21	-17.48	47.73	54.00	-6.27	AVG	
3	2746.000	57.06	-14.95	42.11	74.00	-31.89	peak	
4	2746.000	52.01	-14.95	37.06	54.00	-16.94	AVG	
5	6499.000	46.36	-8.35	38.01	74.00	-35.99	peak	
6	6499.000	40.26	-8.35	31.91	54.00	-22.09	AVG	
7	8074.000	46.65	-6.11	40.54	74.00	-33.46	peak	
8	8074.000	40.24	-6.11	34.13	54.00	-19.87	AVG	
9	9325.000	47.13	-5.82	41.31	74.00	-32.69	peak	
10	9325.000	41.57	-5.82	35.75	54.00	-18.25	AVG	
11	9919.000	46.86	-5.14	41.72	74.00	-32.28	peak	
12	9919.000	40.21	-5.14	35.07	54.00	-18.93	AVG	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1837.000	67.94	-17.48	50.46	74.00	-23.54	peak	
2	1837.000	60.24	-17.48	42.76	54.00	-11.24	AVG	
3	2746.000	59.85	-14.95	44.90	74.00	-29.10	peak	
4	2746.000	52.01	-14.95	37.06	54.00	-16.94	AVG	
5	5140.000	45.76	-11.48	34.28	74.00	-39.72	peak	
6	5140.000	38.21	-11.48	26.73	54.00	-27.27	AVG	
7	7768.000	47.46	-6.74	40.72	74.00	-33.28	peak	
8	7768.000	40.24	-6.74	33.50	54.00	-20.50	AVG	
9	8335.000	48.16	-7.02	41.14	74.00	-32.86	peak	
10	8335.000	42.65	-7.02	35.63	54.00	-18.37	AVG	
11	9766.000	47.53	-5.30	42.23	74.00	-31.77	peak	
12	9766.000	41.02	-5.30	35.72	54.00	-18.28	AVG	

8 20dB Bandwidth

Test Requirement: **FCC Part15.215(c)**

Test Method: **ANSI C63.4: 2003**

Test mode: **Transmitting**

Test Result: **PASS**

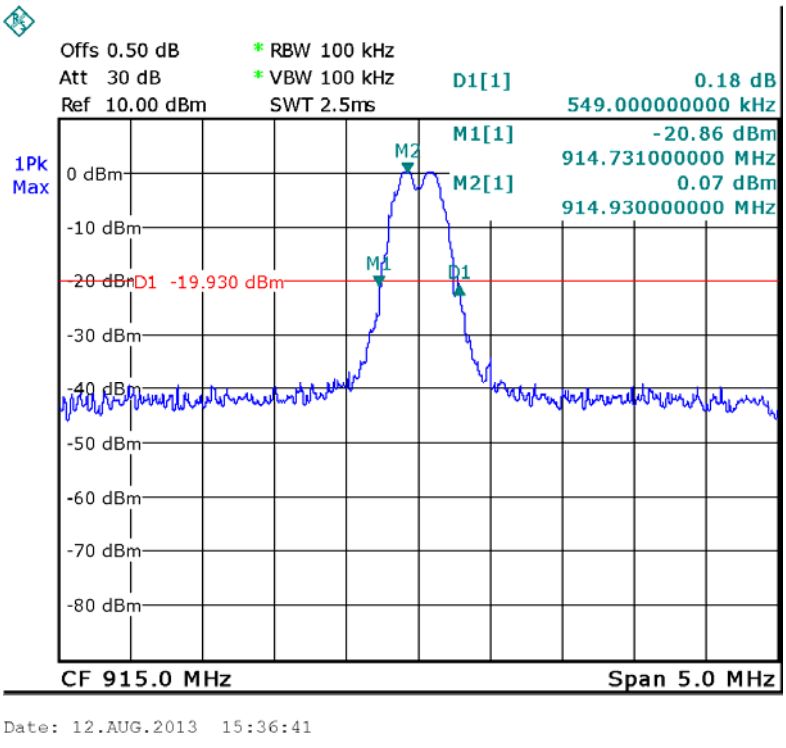
8.1 Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.

2. The bandwidth of the fundamental frequency was measure by spectrum analyser with 100KHz RBW and 300KHz VBW.

8.2 Test Result

Please refer the graph as below:



9 Restricted band

Test Requirement: **FCC Part15 Paragraph 15.205**

Test Method: **ANSI C63.4:2003**

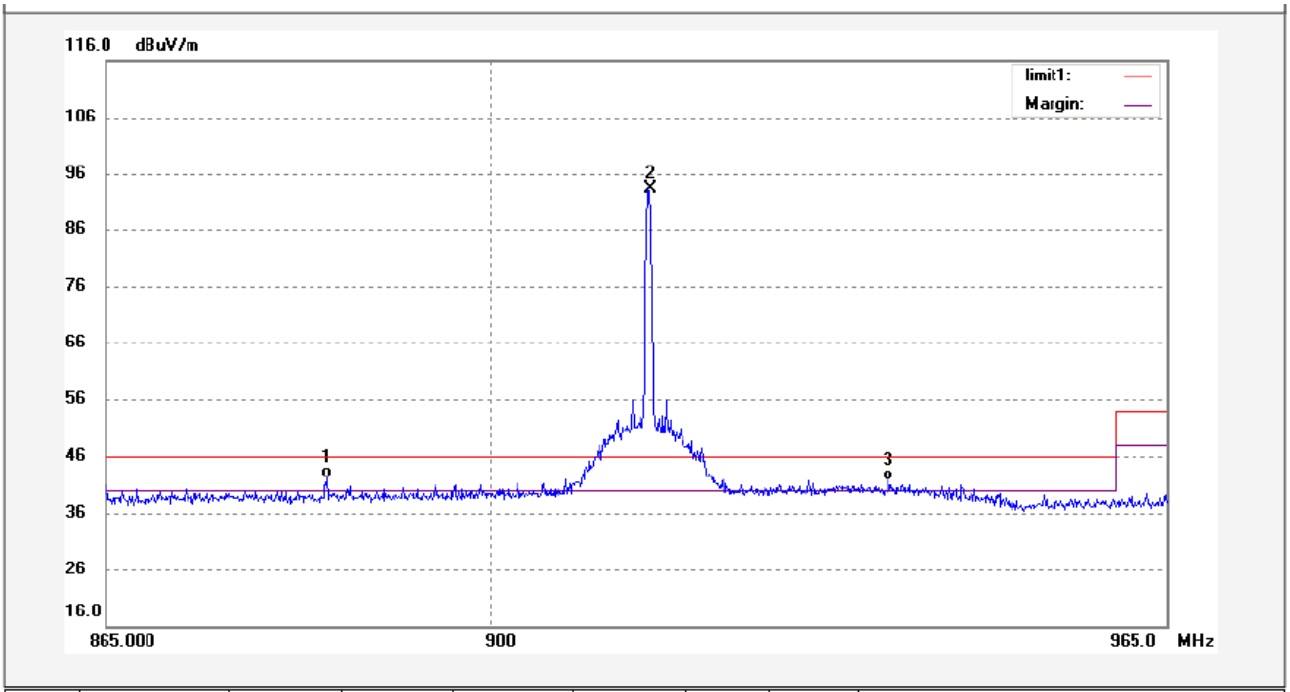
Test Result: **PASS**

9.1 Requiments:

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

9.2 Test Result

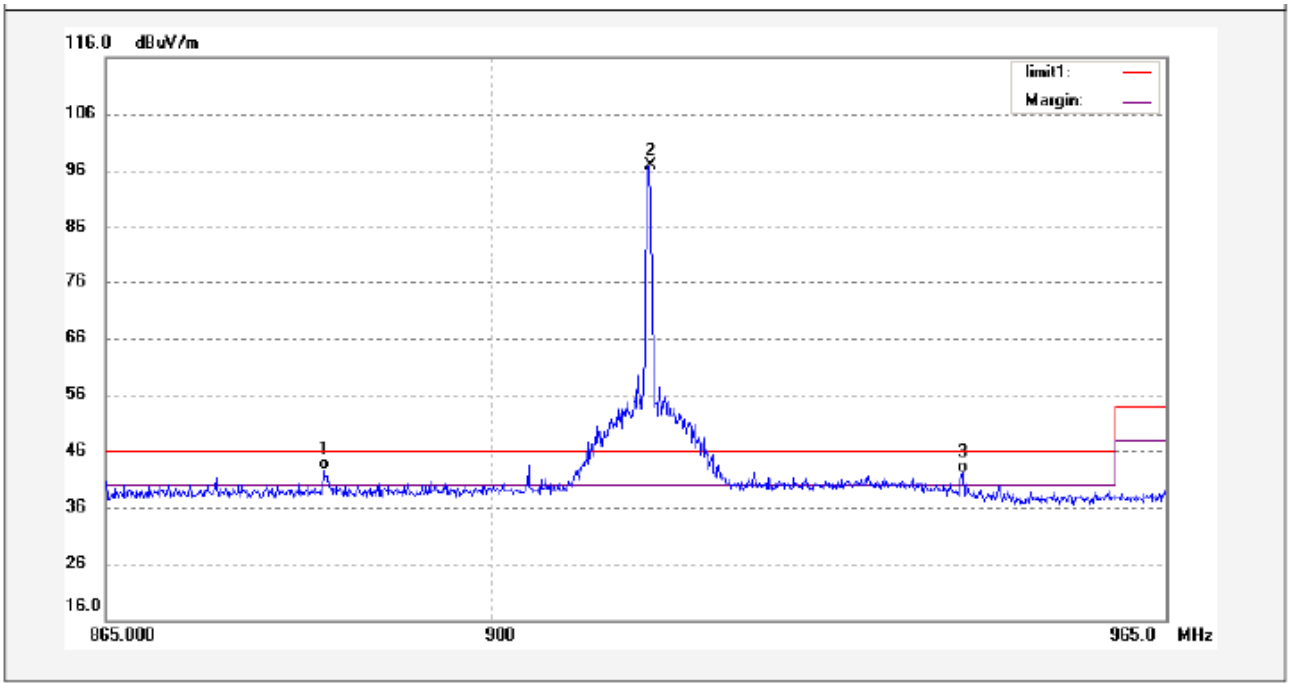
Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	884.9489	12.12	29.99	42.11	46.00	-3.89	QP	
2	915.0000	62.34	30.98	93.32	46.00	47.32	peak	
3	937.7823	10.37	31.38	41.75	46.00	-4.25	QP	

Remark:the marker 2 is the fundamental

Antenna Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	884.6580	12.57	29.98	42.55	46.00	-3.45	QP	
2	915.0000	65.78	30.98	96.76	46.00	50.76	peak	
3	945.0058	12.17	30.07	42.24	46.00	-3.76	QP	

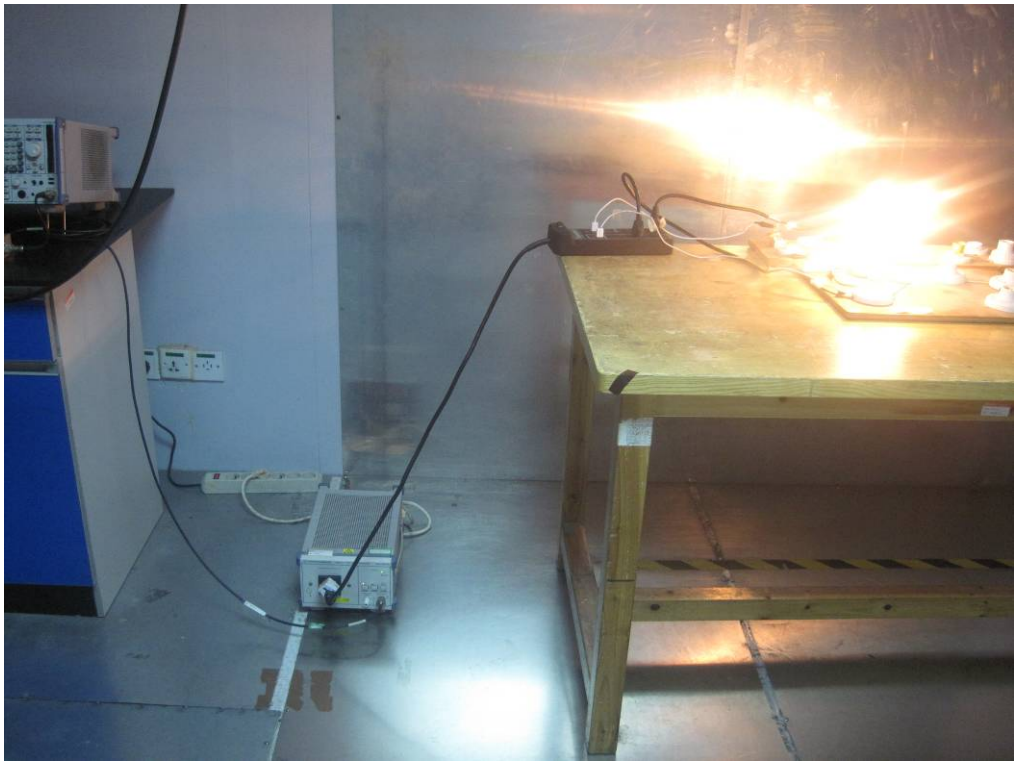
Remark:the marker 2 is the fundamental

10 Antenna Requirement

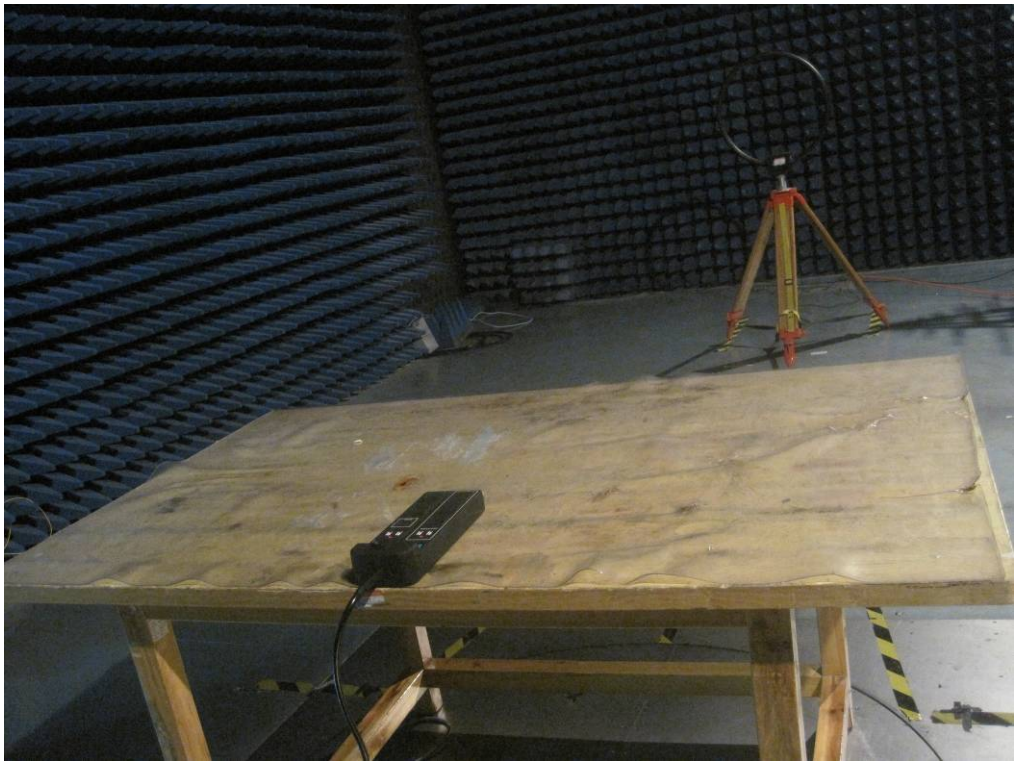
According to the FCC Part 15 Paragraph 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. This product has a integrated antenna, fulfil the requirement of this section.

11 Photographs of Testing

11.1 Conducted Emissions Test View



11.2 Radiation Emission From 30MHz-1GHz

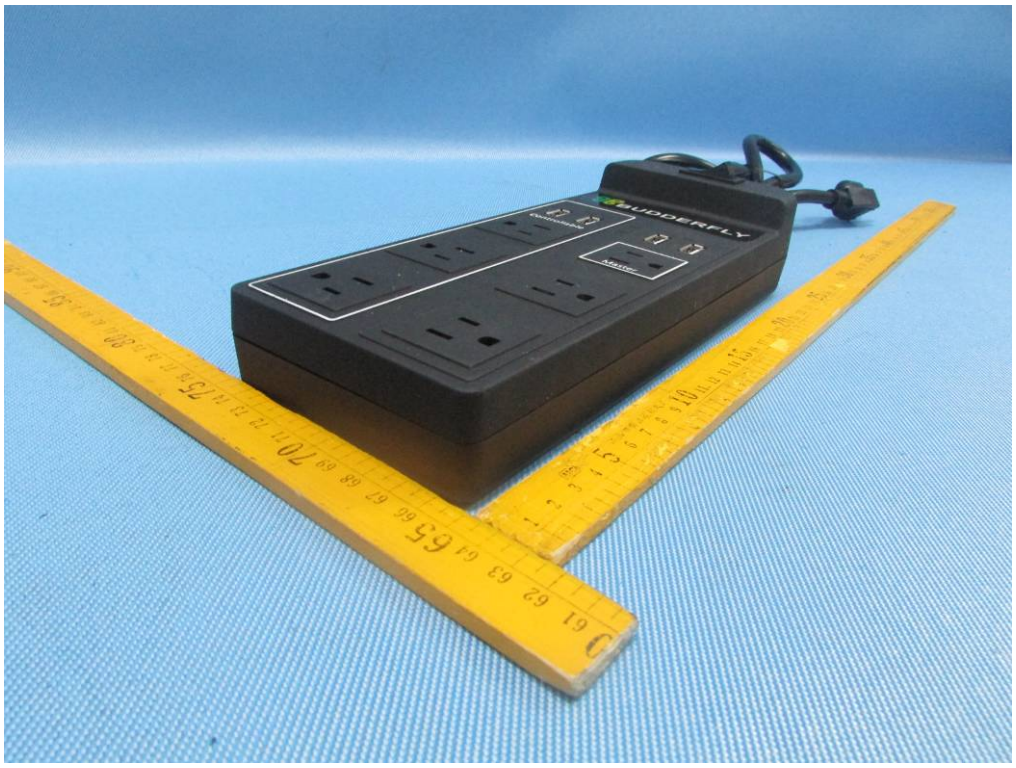


11.3 Radiation Emission From 30MHz-1GHz

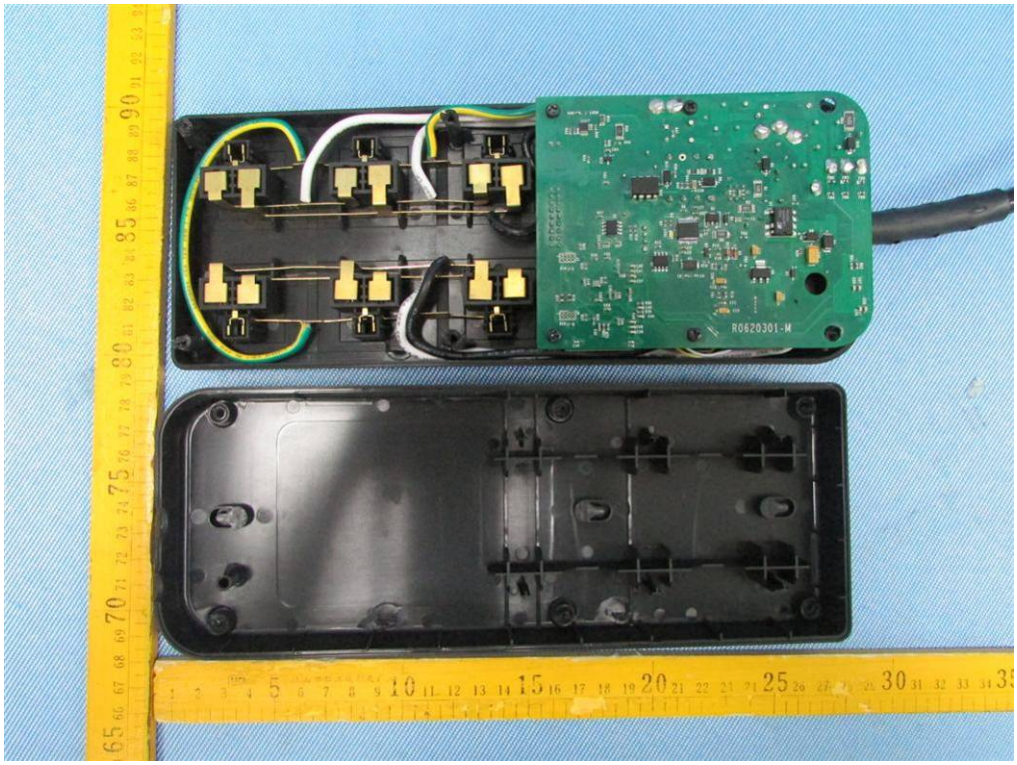
11.4 Radiation Emission Above 1GHz

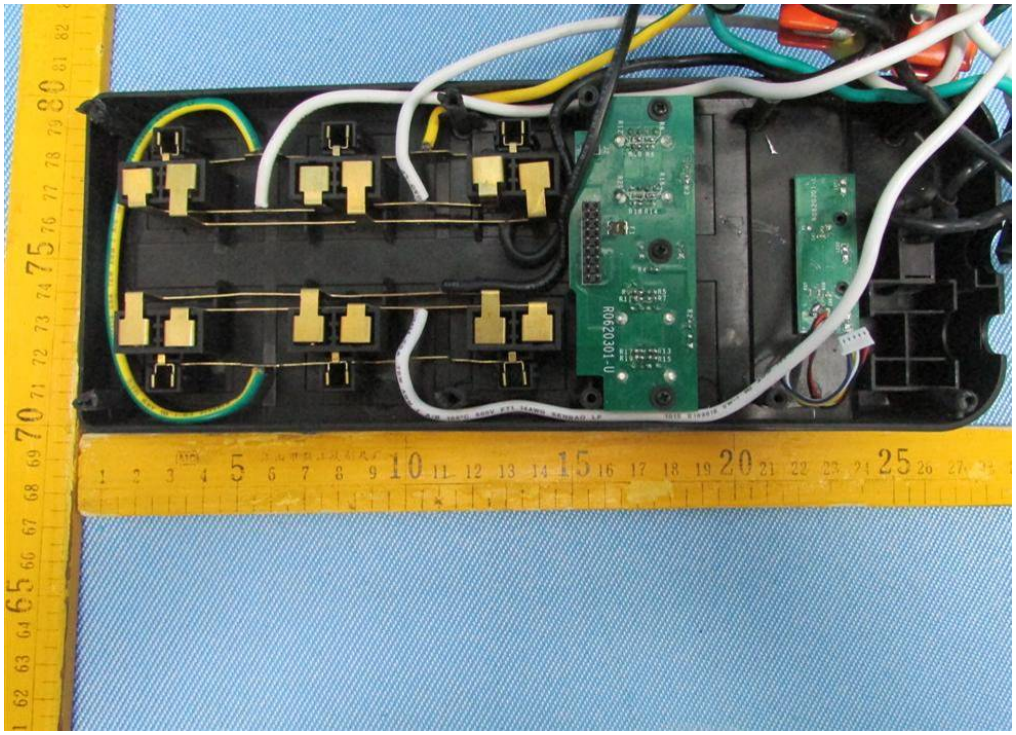
12 Photographs - Constructional Details

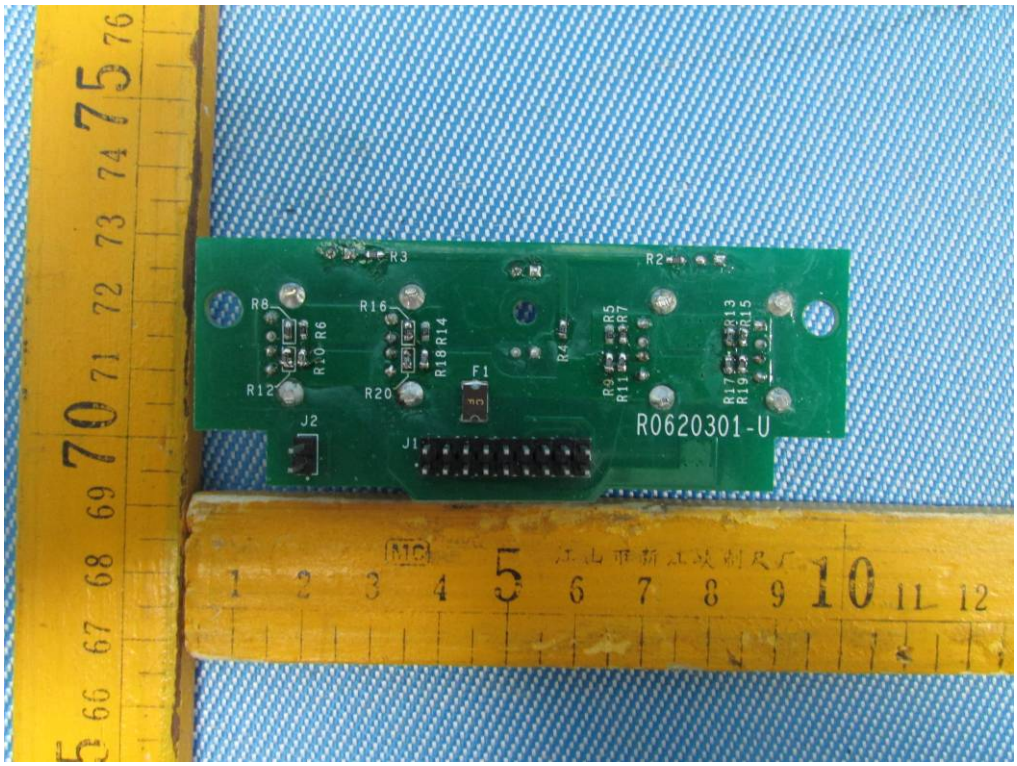
12.1 EUT - Appearance View

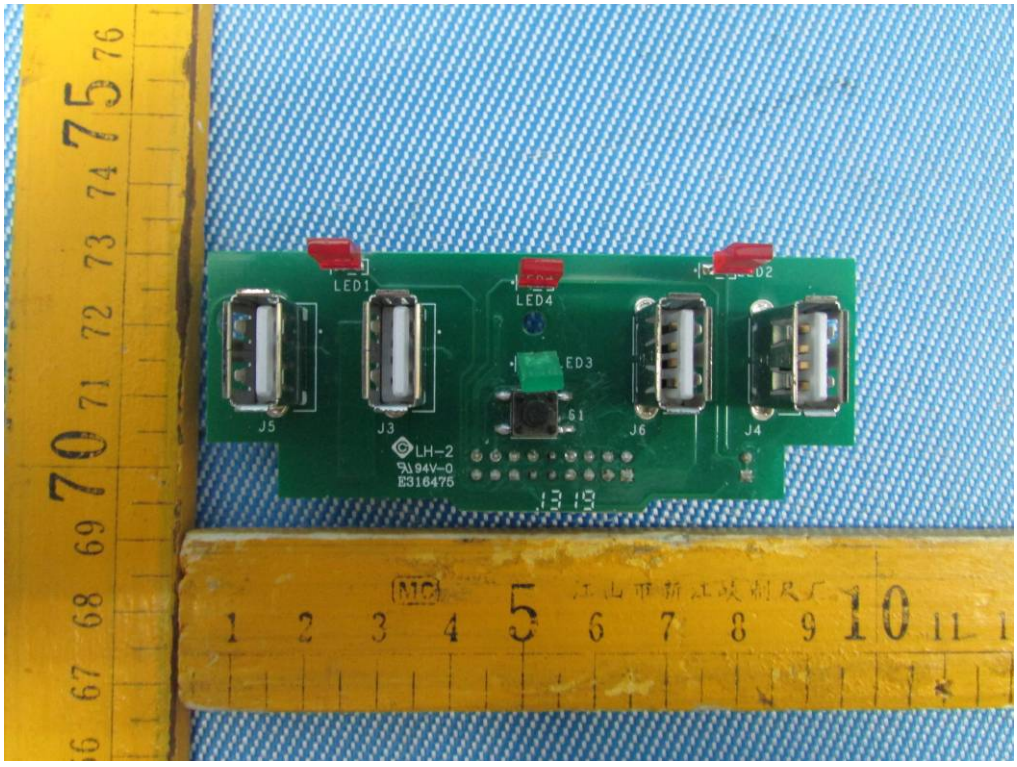

BUDDERFLY

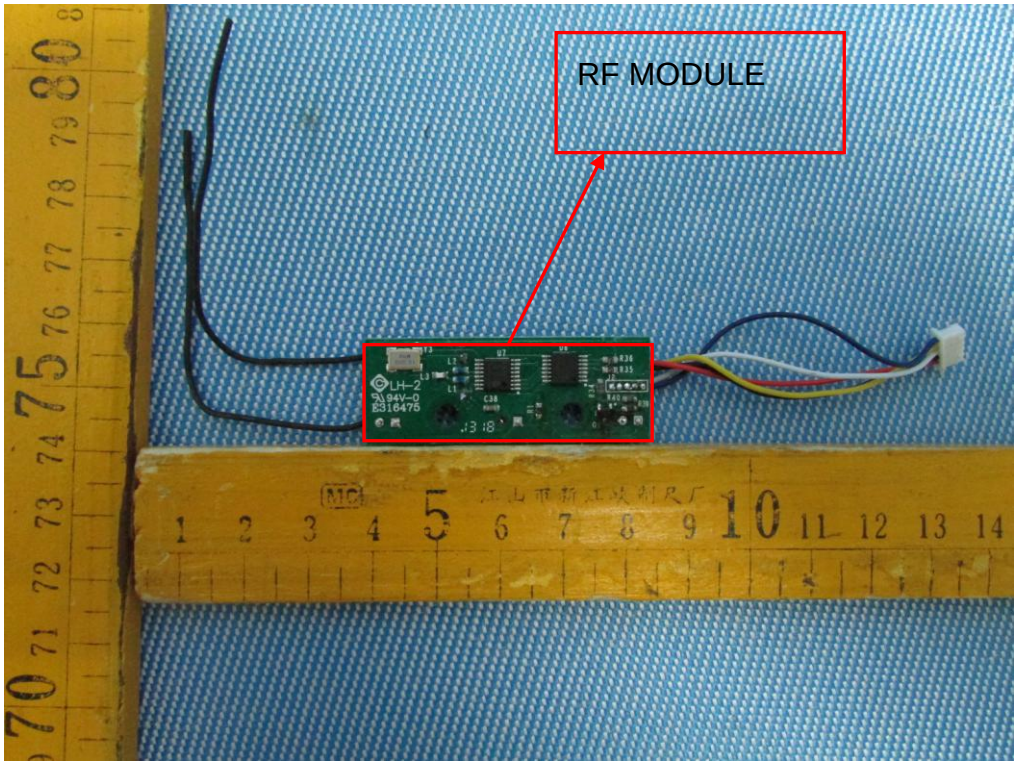
12.2 EUT - Open View

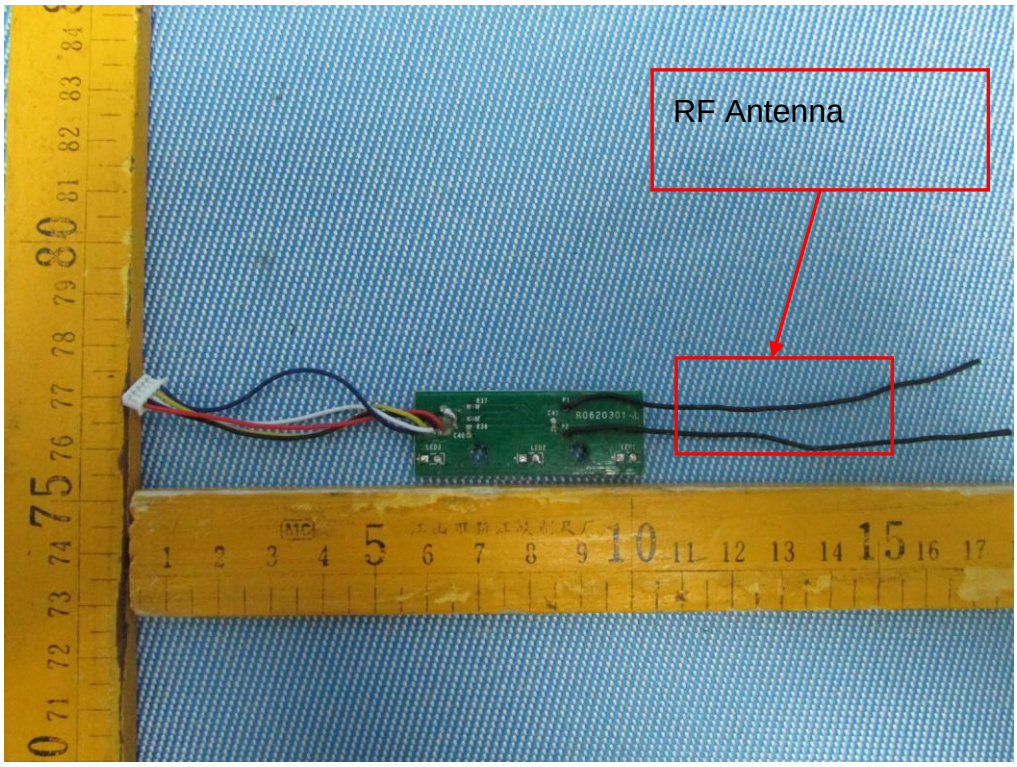


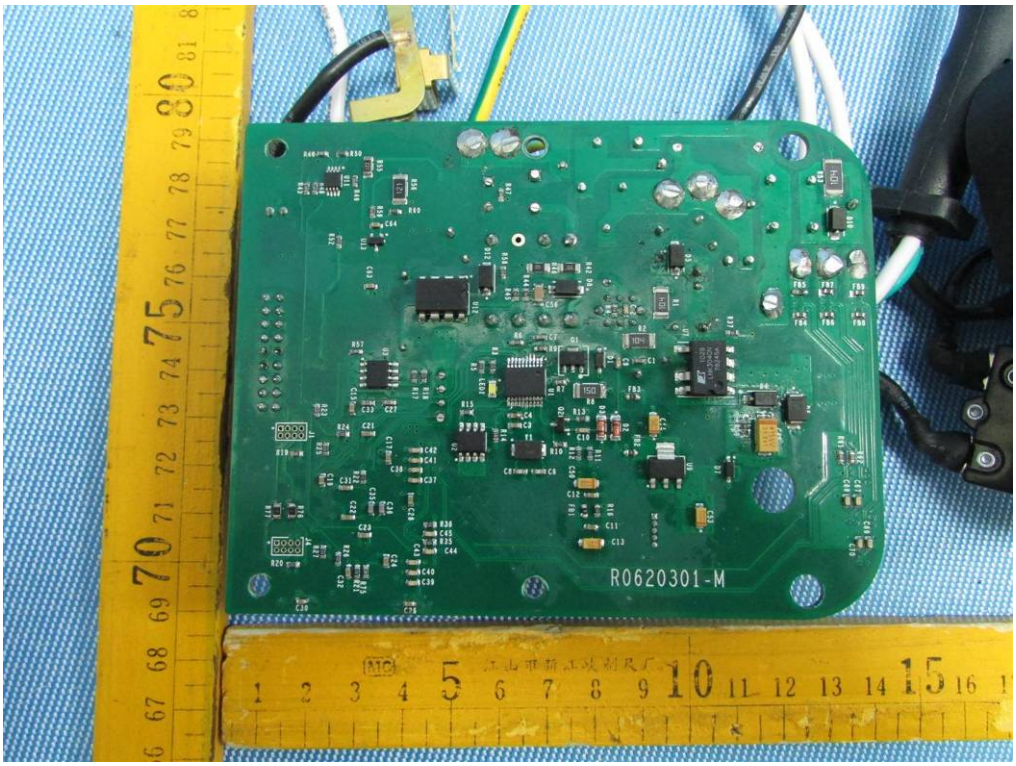


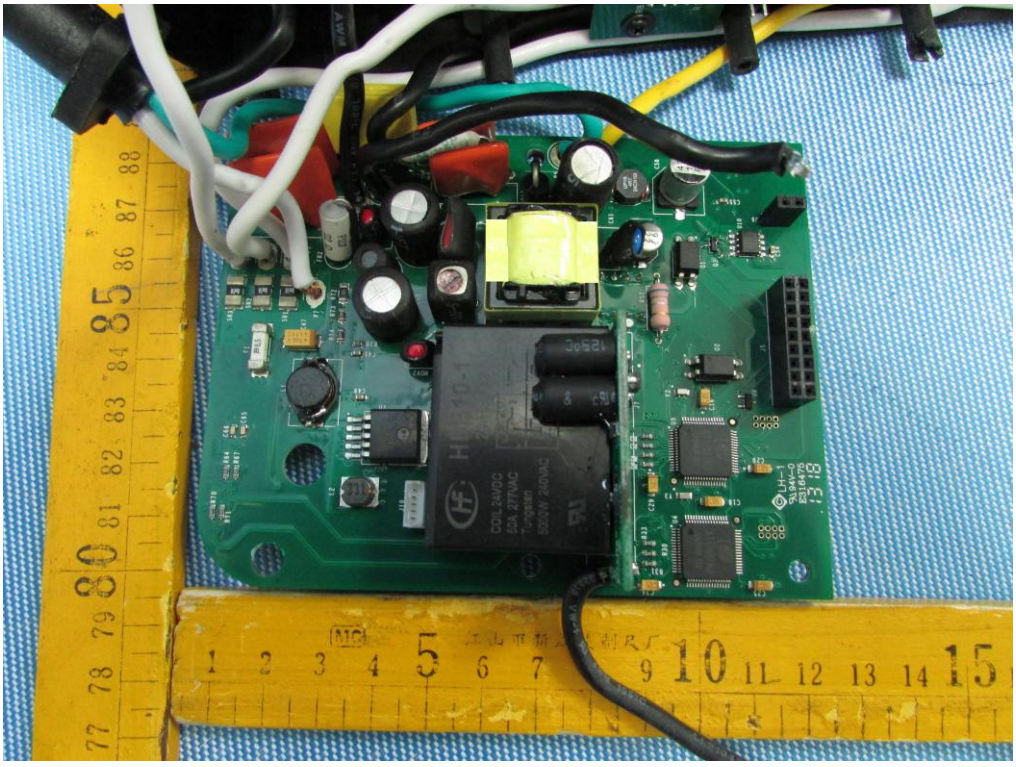

R0620301-U

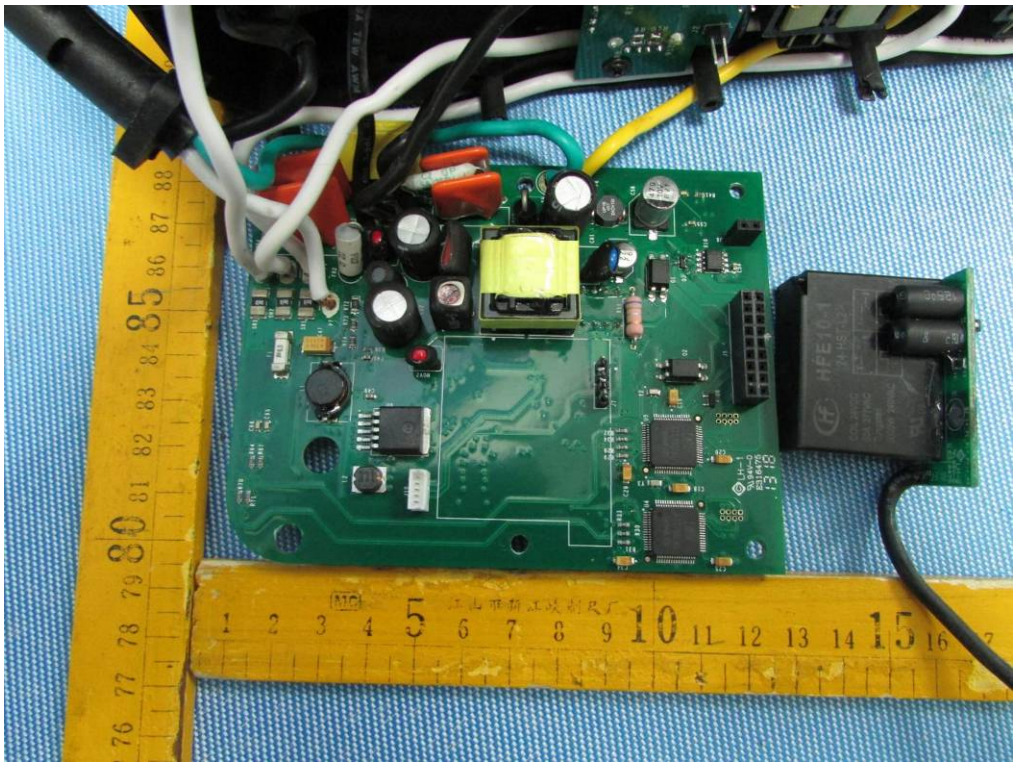

LED1
LED4
J5
J3
J6
J4
LH-2
94V-0
E316475

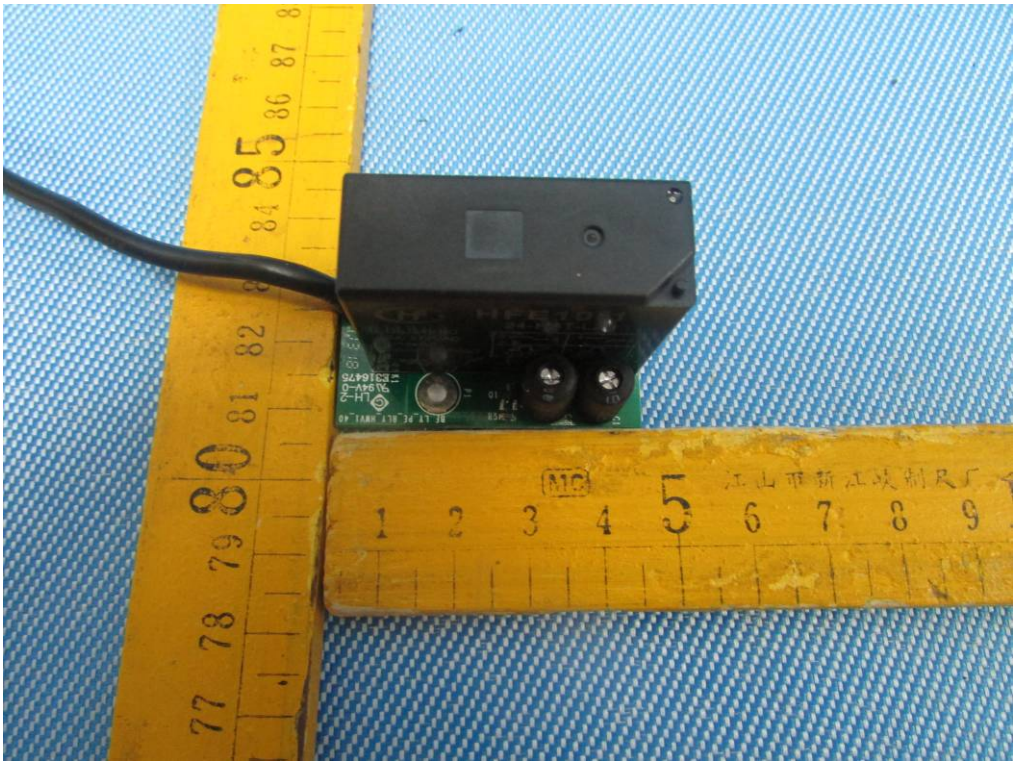

RF MODULE

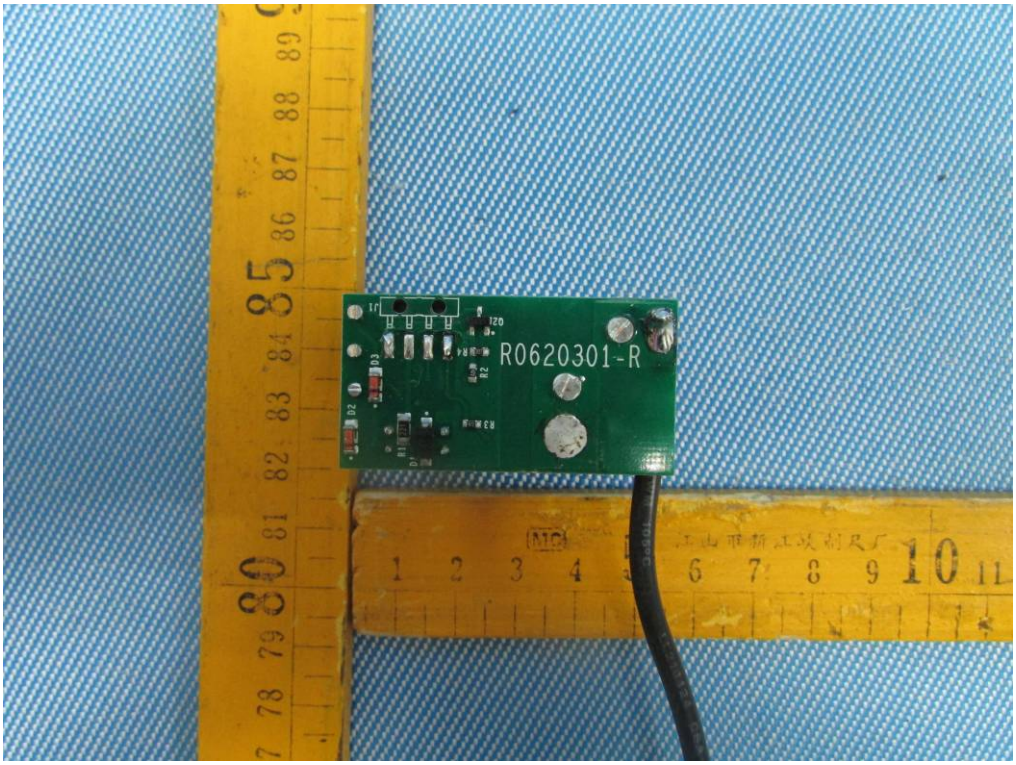

RF Antenna


R0620301-M









==END==