

RF TEST REPORT

Applicant: Elec-Tech International Co., Ltd.

Address of Applicant: No.1 Jinfeng Road, Tangjiawan Town, Xiangzhou Dist, Zhuhai City, Guangdong Province, China

Manufacturer: ETI Solid State Lighting (Zhuhai) Ltd

Address of Manufacturer: No.1, Zhongzhu Road South, Science & Technology Innovation Coast, High Tech District, Zhuhai City, Guangdong Prov., China

Equipment Under Test (EUT)

Product Name: LED ceiling lamp

FCC ID Model No.: 540747## (where “##=00-99” denotes color temperature)

IC Model No.: 54074741, 54074742, 54074743, 54074744

Trade Mark: ETI, Commercial Electric, Hampton Bay

FCC ID: XZH-5407472018

IC: 20122-5407472018

Test standards: FCC CFR Title 47 Part 15 Subpart C Section 15.245
RSS-210 Issue 9: August 2016

Test Method ANSI C63.10: 2013
RSS-Gen Issue 5: April 2018

Date of sample receipt: September 25, 2018

Date of Test: September 26, 2018-October 09, 2018

Date of report issued: October 10, 2018

Test Result : PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Robinson Lo

Laboratory Manager

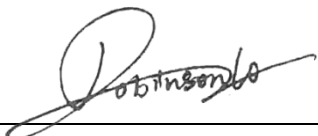
This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	October 10, 2018	Original

Prepared By: Bill. Yuan **Date:** October 10, 2018

Project Engineer

Check By:  **Date:** October 10, 2018

Reviewer

3 Contents

	Page
1 COVER PAGE.....	1
2 VERSION.....	2
3 CONTENTS.....	3
4 TEST SUMMARY.....	4
4.1 MEASUREMENT UNCERTAINTY.....	4
5 GENERAL INFORMATION.....	5
5.1 GENERAL DESCRIPTION OF EUT.....	5
5.2 TEST MODE.....	6
5.3 DESCRIPTION OF SUPPORT UNITS.....	6
5.4 TEST FACILITY.....	6
5.5 TEST LOCATION.....	6
6 TEST INSTRUMENTS LIST.....	7
7 TEST RESULTS AND MEASUREMENT DATA.....	9
7.1 ANTENNA REQUIREMENT.....	9
7.2 CONDUCTED EMISSIONS.....	10
7.3 RADIATED EMISSION METHOD.....	13
7.3.1 <i>Field Strength of The Fundamental Signal</i>	16
7.3.2 <i>Spurious emissions</i>	17
7.3.3 <i>Bandedge emissions</i>	20
7.4 20dB & 99% OCCUPY BANDWIDTH.....	21
8 TEST SETUP PHOTO.....	22
9 EUT CONSTRUCTIONAL DETAILS.....	24

4 Test Summary

Test Item	Standard	Result
Antenna requirement	FCC Part 15: 15.203 RSS-Gen 6.8	Pass
AC Power Line Conducted Emission	FCC Part 15: 15.207 RSS-Gen Section 8.8	Pass
Radiated Emissions	FCC Part 15: 15.209 FCC Part 15: 15.245 RSS-210 Section Annex F RSS-Gen Section 8.9&8.10 ANSI C63.10: 2013	Pass
20dB & 99%Occupied Bandwidth	FCC Part 15: 15.215 RSS-Gen Section 6.7 ANSI C63.10: 2013	Pass

Note:

Pass: The EUT complies with the essential requirements in the standard.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

5 General Information

5.1 General Description of EUT

Product Name:	LED ceiling lamp
FCC ID Model No.:	540747## (where “##=00-99” denotes color temperature)
IC Model No.:	54074741, 54074742, 54074743, 54074744
Test Model No:	54074741
<i>Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are color and model name for commercial purpose.</i>	
Test sample(s) ID:	GTS201809000133-1
Sample(s) Status:	Engineer sample
Operation Frequency:	5790MHz
Channel numbers:	1
Modulation type:	GFSK
Antenna Type:	PCB Antenna
Antenna gain:	2.58dBi(declare by applicant)
Power supply:	AC 120V 60Hz 15W

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
<i>Remark: During the test, the dutycycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i>	

Per-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	X	Y	Z
Field Strength(dBuV/m)	69.45	70.91	68.23

5.3 Description of Support Units

None.

5.4 Test Facility

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

- **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen 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 files. Registration 381383, January 08, 2018.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2018	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 27 2018	June. 26 2019
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 27 2018	June. 26 2019
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June. 27 2018	June. 26 2019
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 27 2018	June. 26 2019
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 27 2018	June. 26 2019
9	Coaxial Cable	GTS	N/A	GTS211	June. 27 2018	June. 26 2019
10	Coaxial cable	GTS	N/A	GTS210	June. 27 2018	June. 26 2019
11	Coaxial Cable	GTS	N/A	GTS212	June. 27 2018	June. 26 2019
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 27 2018	June. 26 2019
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June. 27 2018	June. 26 2019
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 27 2018	June. 26 2019
15	Band filter	Amindeon	82346	GTS219	June. 27 2018	June. 26 2019
16	Power Meter	Anritsu	ML2495A	GTS540	June. 27 2018	June. 26 2019
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 27 2018	June. 26 2019
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS588	June. 27 2018	June. 26 2019
19	Splitter	Agilent	11636B	GTS237	June. 27 2018	June. 26 2019
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 27 2018	June. 26 2019

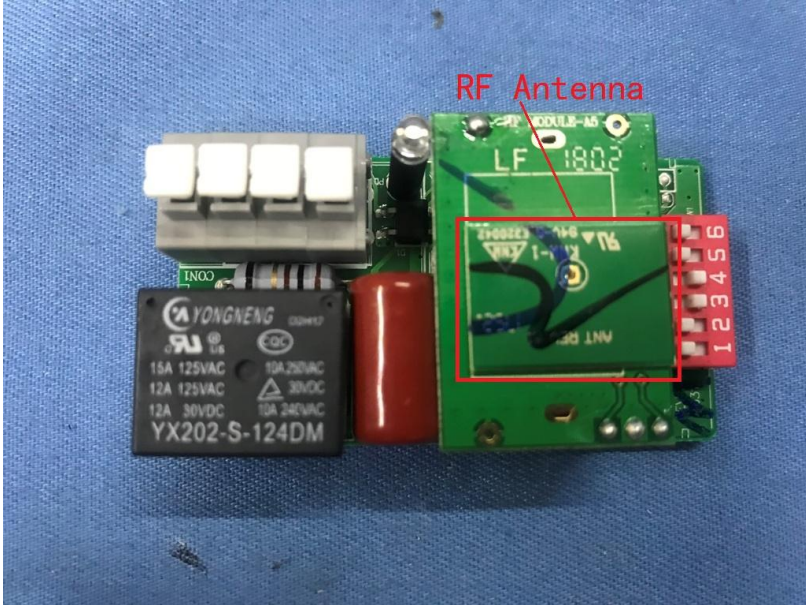
Conducted:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 27 2018	June. 26 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 27 2018	June. 26 2019
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 27 2018	June. 26 2019
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 27 2018	June. 26 2019
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 27 2018	June. 26 2019
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 27 2018	June. 26 2019
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 27 2018	June. 26 2019
8	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 27 2018	June. 26 2019
9	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 27 2018	June. 26 2019

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.16 2014	May.15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 27 2018	June. 26 2019
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 27 2018	June. 26 2019
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 27 2018	June. 26 2019
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 27 2018	June. 26 2019
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 27 2018	June. 26 2019

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	June 27 2018	June 26 2019

7 Test results and Measurement Data

7.1 Antenna requirement

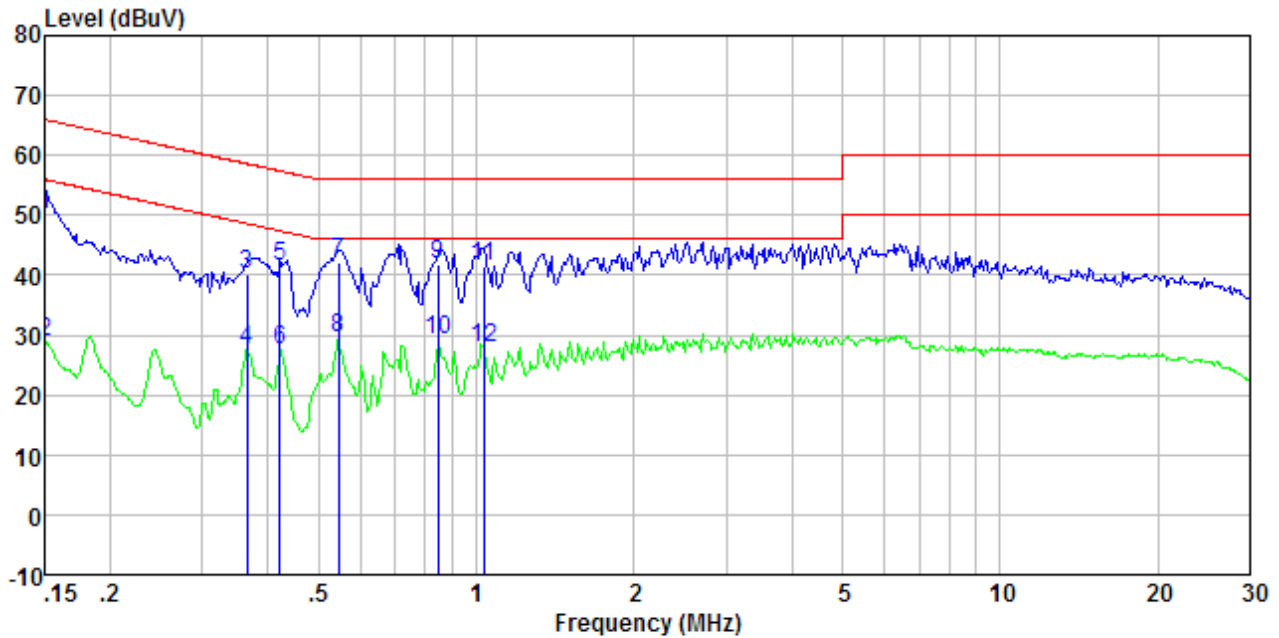
Standard requirement:	FCC Part15 C Section 15.203 RSS-Gen 6.8
FCC requirement:	
<p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p>	
IC requirement:	
<p>A transmitter can only be sold or operated with antennas with which it was approved.</p> <p>When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device' s antenna shall be stated, based on measurement or on data from the antenna manufacturer. For transmitters of RF output power of 10 milliwatts or less, only the portion of the antenna gain that is in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power to demonstrate compliance with the radiated power limits specified in the applicable standard. For transmitters of output power greater than 10 milliwatts, the total antenna gain shall be added to the measured RF output power to demonstrate compliance to the specified radiated power limits.</p>	
EUT Antenna:	
<p><i>The antenna is PCB antenna, the best case gain of the antenna is 2.58dBi</i></p>	
	

7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207 RSS-Gen Section 8.8														
Test Method:	ANSI C63.10:2013														
Test Frequency Range:	150KHz to 30MHz														
Class / Severity:	Class B														
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto														
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table> <p>* Decreases with the logarithm of the frequency.</p>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test setup:	<p>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>														
Test procedure:	<ol style="list-style-type: none"> 1. The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. 														
Test Instruments:	Refer to section 6.0 for details														
Test mode:	Refer to section 5.2 for details														
Test voltage:	AC120V 60Hz														
Test results:	Pass														

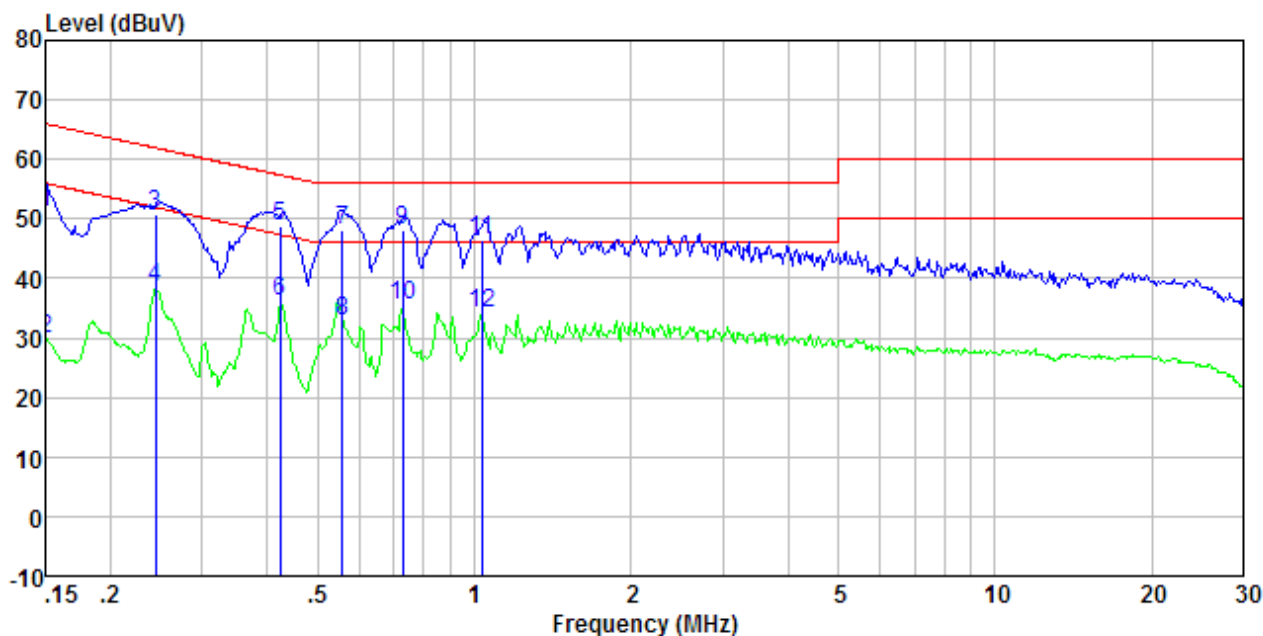
Measurement data

Mode:	Transmitting mode	Test by:	Bill
Temp./Hum.(%RH):	26°C/56%RH	Probe:	Line



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.15	49.72	0.40	0.07	50.19	66.00	-15.81	QP
0.15	28.54	0.40	0.07	29.01	56.00	-26.99	Average
0.37	39.57	0.37	0.10	40.04	58.61	-18.57	QP
0.37	27.03	0.37	0.10	27.50	48.61	-21.11	Average
0.42	41.06	0.34	0.11	41.51	57.42	-15.91	QP
0.42	27.23	0.34	0.11	27.68	47.42	-19.74	Average
0.55	41.70	0.30	0.12	42.12	56.00	-13.88	QP
0.55	28.97	0.30	0.12	29.39	46.00	-16.61	Average
0.84	41.29	0.23	0.14	41.66	56.00	-14.34	QP
0.84	28.77	0.23	0.14	29.14	46.00	-16.86	Average
1.03	41.29	0.20	0.15	41.64	56.00	-14.36	QP
1.03	27.46	0.20	0.15	27.81	46.00	-18.19	Average

Mode:	Transmitting mode	Test by:	Bill
Temp./Hum.(%H):	26°C/56%RH	Probe:	Neutral



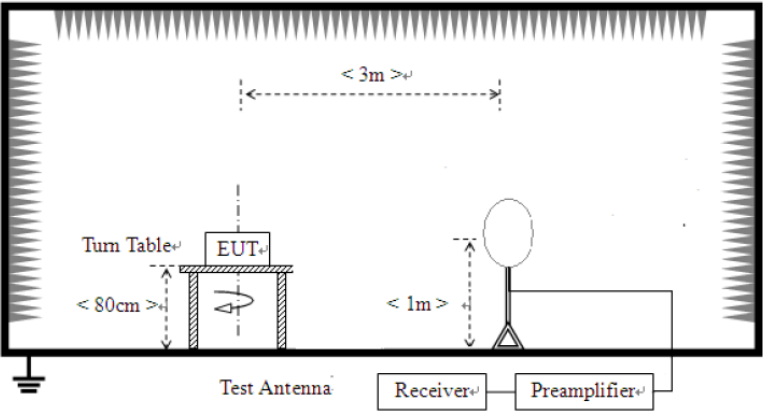
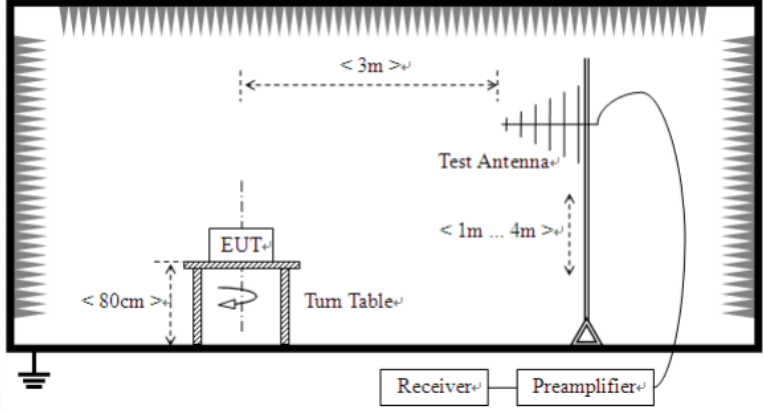
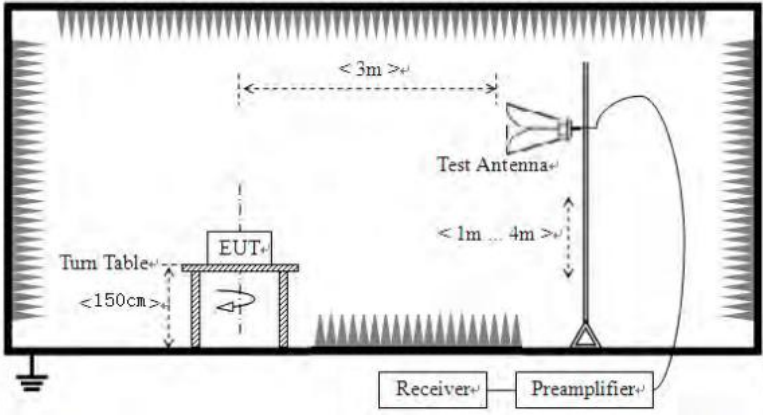
Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.15	50.61	0.40	0.07	51.08	66.00	-14.92	QP
0.15	29.34	0.40	0.07	29.81	56.00	-26.19	Average
0.24	50.18	0.40	0.11	50.69	61.95	-11.26	QP
0.24	37.99	0.40	0.11	38.50	51.95	-13.45	Average
0.42	48.41	0.34	0.11	48.86	57.37	-8.51	QP
0.42	35.70	0.34	0.11	36.15	47.37	-11.22	Average
0.56	47.72	0.30	0.12	48.14	56.00	-7.86	QP
0.56	32.55	0.30	0.12	32.97	46.00	-13.03	Average
0.73	47.90	0.25	0.13	48.28	56.00	-7.72	QP
0.73	35.14	0.25	0.13	35.52	46.00	-10.48	Average
1.03	46.22	0.20	0.15	46.57	56.00	-9.43	QP
1.03	33.68	0.20	0.15	34.03	46.00	-11.97	Average

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

7.3 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.205/15.209/15.245 RSS-210 Annex F				
Test Method:	ANSI C63.10:2013 RSS-Gen Clause 8.9&8.10				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz-150kHz	Quasi-peak	200Hz	300Hz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	10kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Peak		1MHz	10Hz	Average Value	
Limit: (Field strength of the fundamental signal)	Frequency range (MHz)		Field Strength of Fundamental (uV/m)		Field Strength of harmonics (uV/m)
	902-928		500		1.6
	2435-2465		500		1.6
	5785-5815		500		1.6
	10500-10550		2500		25.0
	24075-24175		2500		25.0
Limit: (Spurious Emissions)	Frequency		Limit (uV/m)		Remark
	0.009MHz-0.490MHz		2400/F(kHz) @300m		Quasi-peak Value
	0.490MHz-1.705MHz		24000/F(kHz) @30m		Quasi-peak Value
	1.705MHz-30.0MHz		30 @30m		Quasi-peak Value
	30MHz-88MHz		100 @3m		Quasi-peak Value
	88MHz-216MHz		150 @3m		Quasi-peak Value
	216MHz-960MHz		200 @3m		Quasi-peak Value
	960MHz-1GHz		500 @3m		Quasi-peak Value
Above 1GHz		500 @3m		Average Value	
		5000 @3m		Peak Value	
Limit: (Restricted frequency band)	MHz	MHz	MHz	GHz	
	0.090-0.110	16.42-16.423	399.9-410	4.5-5.15	
	10.495-0.505	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	2690-2900	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					

<p>Test setup:</p>	<p>For radiated emissions from 9kHz to 30MHz</p>  <p>For radiated emissions from 30MHz to 1GHz</p>  <p>For radiated emissions above 1GHz</p> 
<p>Test Procedure:</p>	<ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

	<ol style="list-style-type: none">3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test voltage:	AC120V 60Hz
Test results:	Pass

Measurement data:**7.3.1 Field Strength of The Fundamental Signal****Peak value:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5790.00	63.27	32.24	9.93	36.67	68.77	114.00	-45.23	Vertical
5790.00	65.41	32.24	9.93	36.67	70.91	114.00	-43.09	Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
5790.00	55.73	32.24	9.93	36.67	61.23	94.00	-32.77	Vertical
5790.00	57.63	32.24	9.93	36.67	63.13	94.00	-30.87	Horizontal

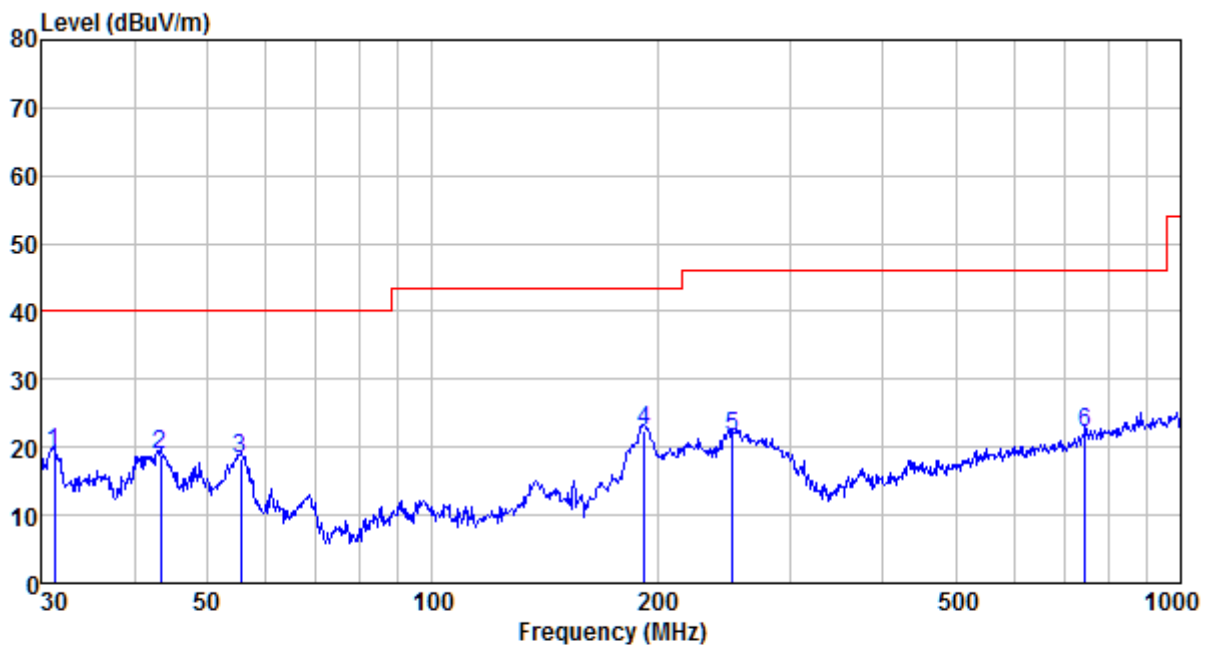
7.3.2 Spurious emissions

■ Below 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.

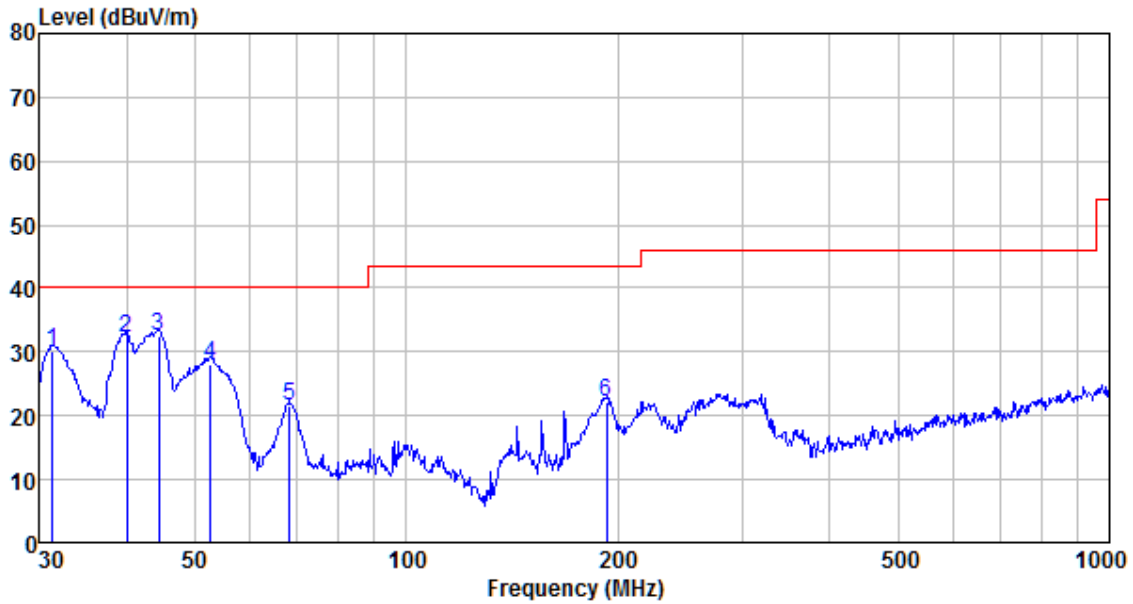
■ Below 1GHz

Mode:	Transmitting mode	Test by:	Bill
Temp./Hum.(%RH):	26°C/56%RH	Polarization:	Horizontal



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
31.289	42.53	11.30	0.57	35.10	19.30	40.00	-20.70	QP
43.353	41.70	12.27	0.70	35.85	18.82	40.00	-21.18	QP
55.415	42.00	11.67	0.82	36.26	18.23	40.00	-21.77	QP
191.745	48.12	9.70	1.80	37.29	22.33	43.50	-21.17	QP
252.063	44.98	11.95	2.14	37.38	21.69	46.00	-24.31	QP
744.866	35.04	20.48	4.26	37.63	22.15	46.00	-23.85	QP

Mode:	Transmitting mode	Test by:	Bill
Temp./Hum.(%RH):	26°C/56%RH	Polarziation:	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
31.399	53.23	11.30	0.57	35.11	29.99	40.00	-10.01	QP
39.994	54.81	12.30	0.66	35.66	32.11	40.00	-7.89	QP
44.431	55.35	12.25	0.71	35.91	32.40	40.00	-7.60	QP
52.575	51.69	11.93	0.79	36.22	28.19	40.00	-11.81	QP
68.151	49.53	7.40	0.93	36.42	21.44	40.00	-18.56	QP
192.419	47.65	9.87	1.80	37.30	22.02	43.50	-21.48	QP

■ Above 1GHz

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4655.00	31.44	30.96	8.47	37.67	33.20	74.00	-40.80	Vertical
7239.00	29.84	36.25	11.68	35.62	42.15	74.00	-31.85	Vertical
9262.00	28.27	37.66	13.86	34.69	45.10	74.00	-28.90	Vertical
11580.00	30.95	39.28	14.99	36.29	48.93	74.00	-25.07	Vertical
17370.00	31.98	41.78	18.98	36.26	56.48	74.00	-17.52	Vertical
4655.00	31.87	30.96	8.47	37.67	33.63	74.00	-40.37	Horizontal
7239.00	30.12	36.25	11.68	35.62	42.43	74.00	-31.57	Horizontal
9262.00	29.11	37.66	13.86	34.69	45.94	74.00	-28.06	Horizontal
11580.00	30.41	39.28	14.99	36.29	48.39	74.00	-25.61	Horizontal
17370.00	31.74	41.78	18.98	36.26	56.24	74.00	-17.76	Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4655.00	27.18	30.96	8.47	37.67	28.94	54.00	-25.06	Vertical
7239.00	26.93	36.25	11.68	35.62	39.24	54.00	-14.76	Vertical
9262.00	24.82	37.66	13.86	34.69	41.65	54.00	-12.35	Vertical
11580.00	26.71	39.28	14.99	36.29	44.69	54.00	-9.31	Vertical
17370.00	25.39	41.78	18.98	36.26	49.89	54.00	-4.11	Vertical
4655.00	26.95	30.96	8.47	37.67	28.71	54.00	-25.29	Horizontal
7239.00	26.05	36.25	11.68	35.62	38.36	54.00	-15.64	Horizontal
9262.00	25.49	37.66	13.86	34.69	42.32	54.00	-11.68	Horizontal
11580.00	26.37	39.28	14.99	36.29	44.35	54.00	-9.65	Horizontal
17370.00	25.20	41.78	18.98	36.26	49.70	54.00	-4.30	Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

7.3.3 Bandedge emissions

Test frequency:	5790MHz
-----------------	---------

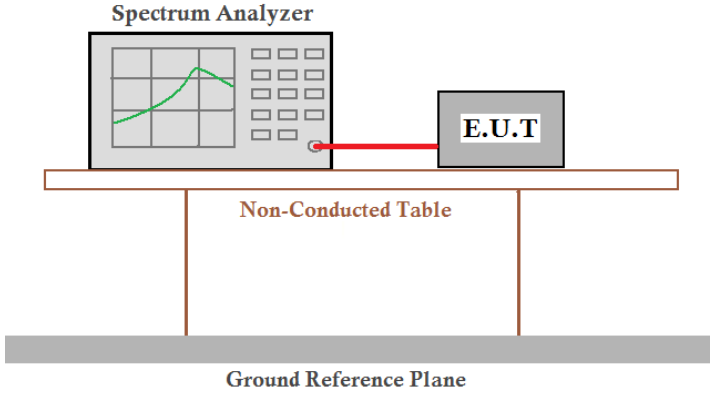
Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	29.26	31.56	8.99	37.58	32.23	74.00	-41.77	Horizontal
5350.00	30.08	31.64	9.29	37.29	33.72	74.00	-40.28	Horizontal
5785.00	29.15	32.21	9.90	36.69	34.57	74.00	-39.43	Horizontal
5815.00	27.82	32.27	9.95	36.64	33.40	74.00	-40.60	Horizontal
7154.00	27.55	36.07	11.63	35.65	39.60	74.00	-34.40	Horizontal
5150.00	30.18	31.56	8.99	37.58	33.15	74.00	-40.85	Vertical
5350.00	30.25	31.64	9.29	37.29	33.89	74.00	-40.11	Vertical
5785.00	30.76	32.21	9.90	36.69	36.18	74.00	-37.82	Vertical
5815.00	27.42	32.27	9.95	36.64	33.00	74.00	-41.00	Vertical
7154.00	26.91	36.07	11.63	35.65	38.96	74.00	-35.04	Vertical

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor*
2. *All of the restriction bands were tested, and only the data of worst case was exhibited.*

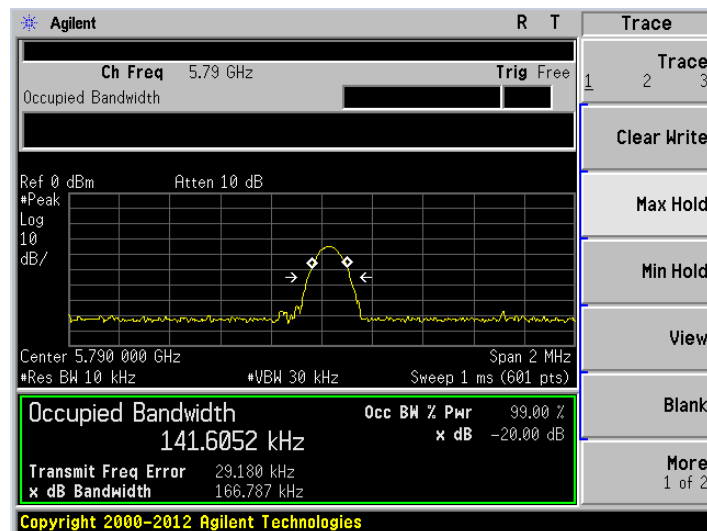
7.4 20dB & 99% Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.245&15.215 RSS-Gen Section 6.7
Test Method:	ANSI C63.10:2013
Limit:	Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an Equipment Under Test (E.U.T.). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

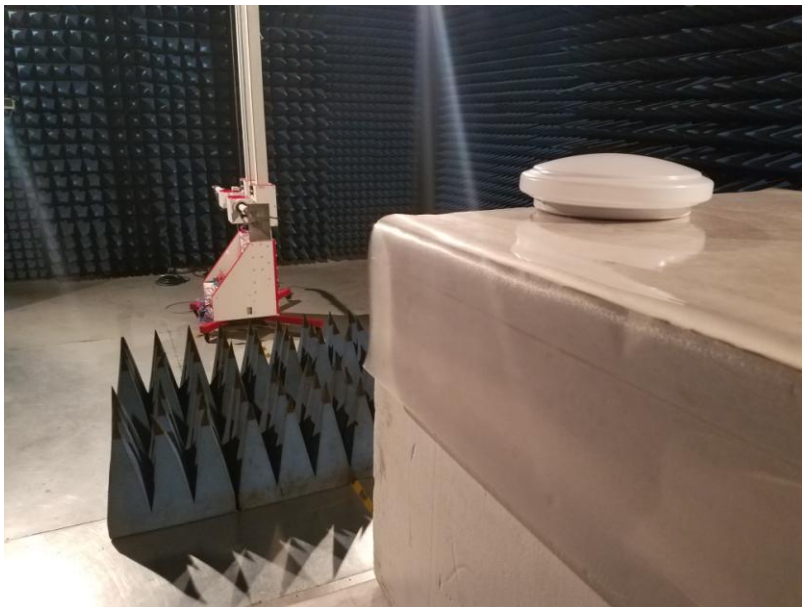
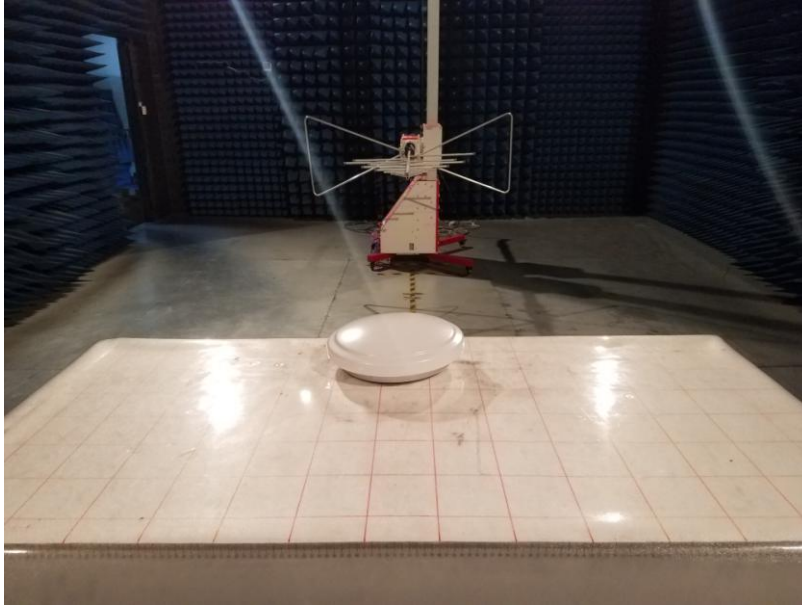
Test frequency (MHz)	20dB bandwidth (MHz)	99% bandwidth (MHz)	Result
5790	0.167	0.142	Pass

Test plot as follows:



8 Test Setup Photo

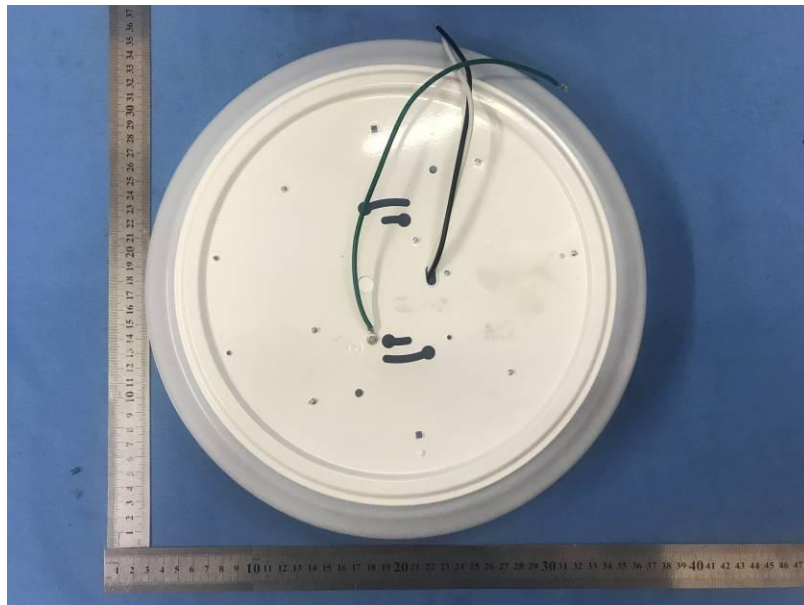
Radiated Emission

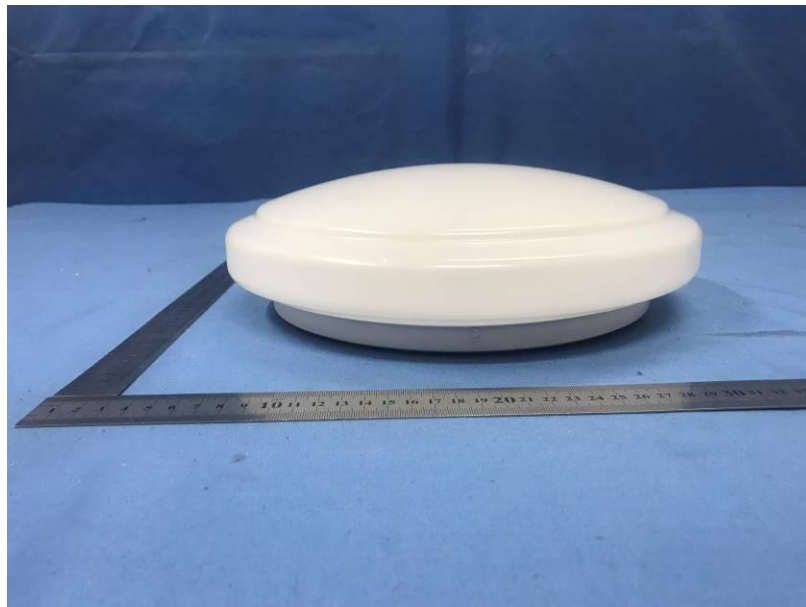
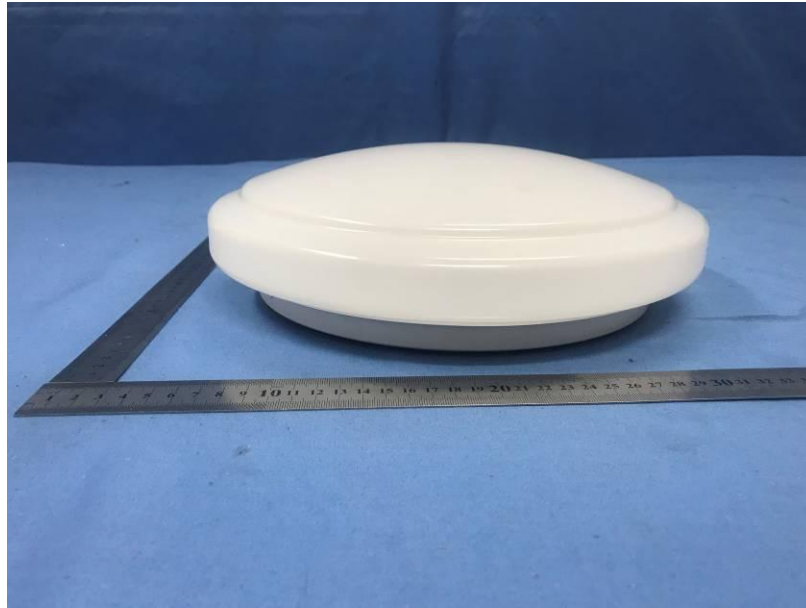


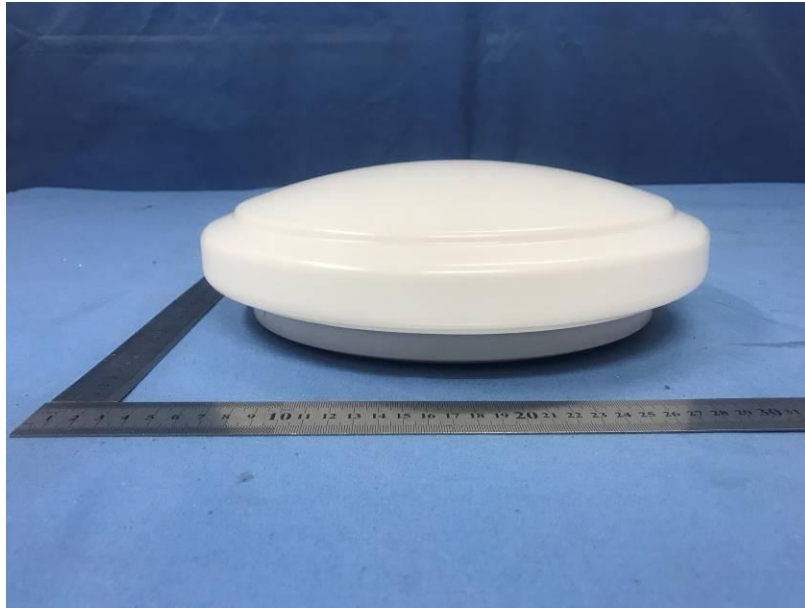
Conducted Emission



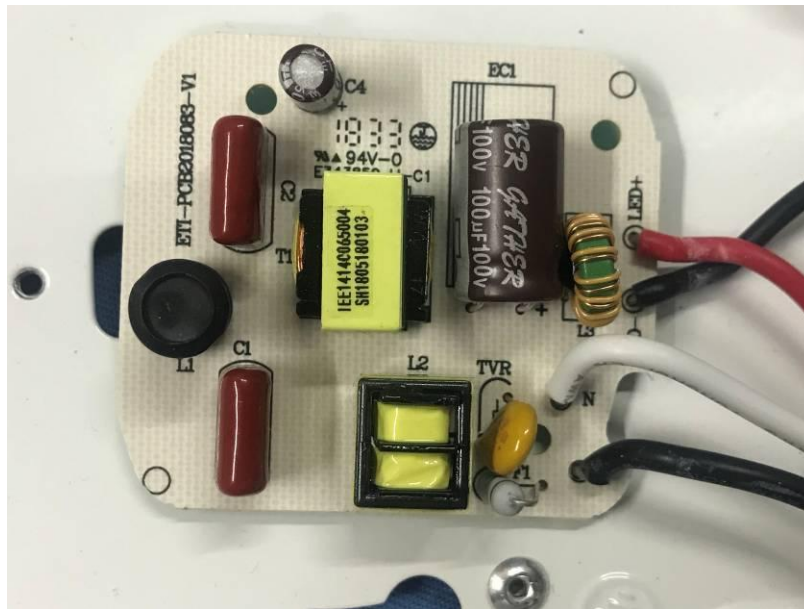
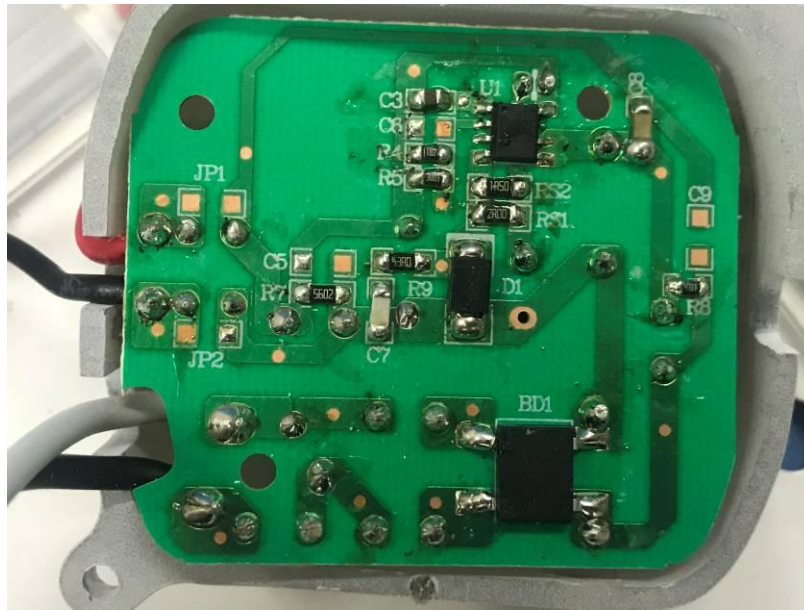
9 EUT Constructional Details

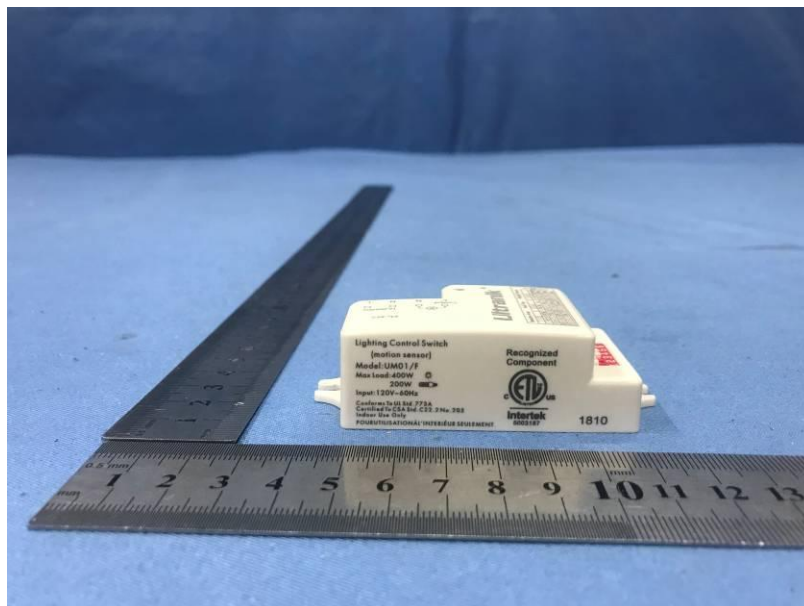
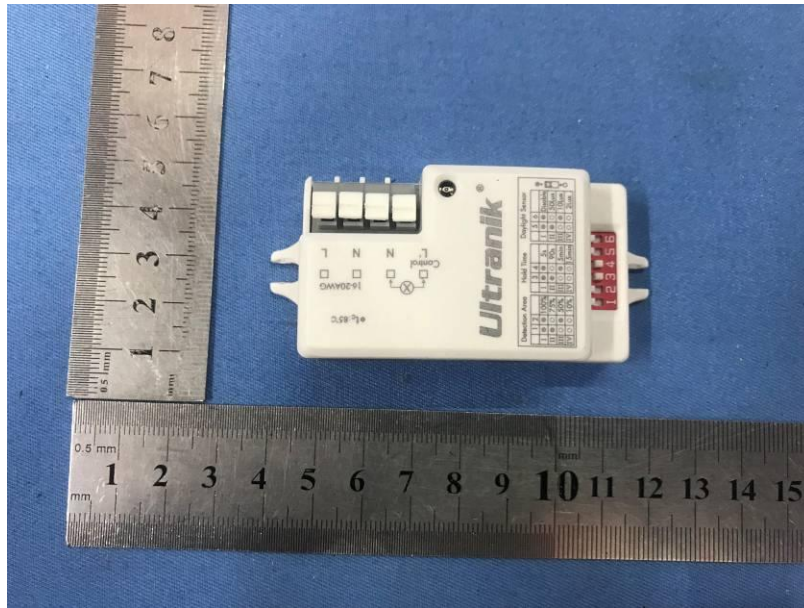


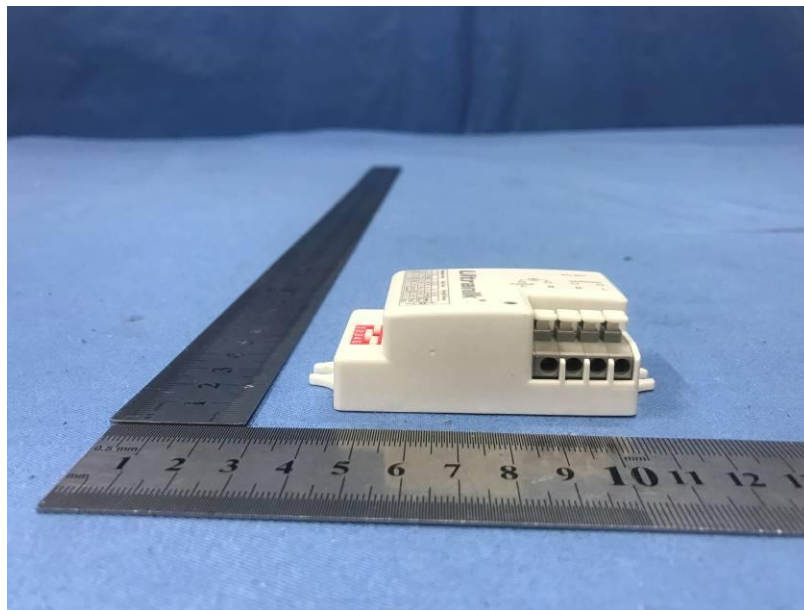
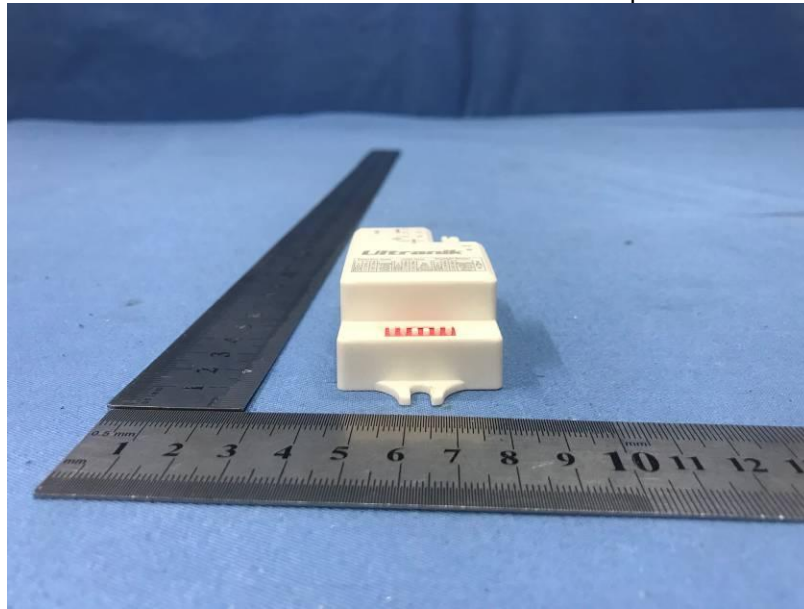


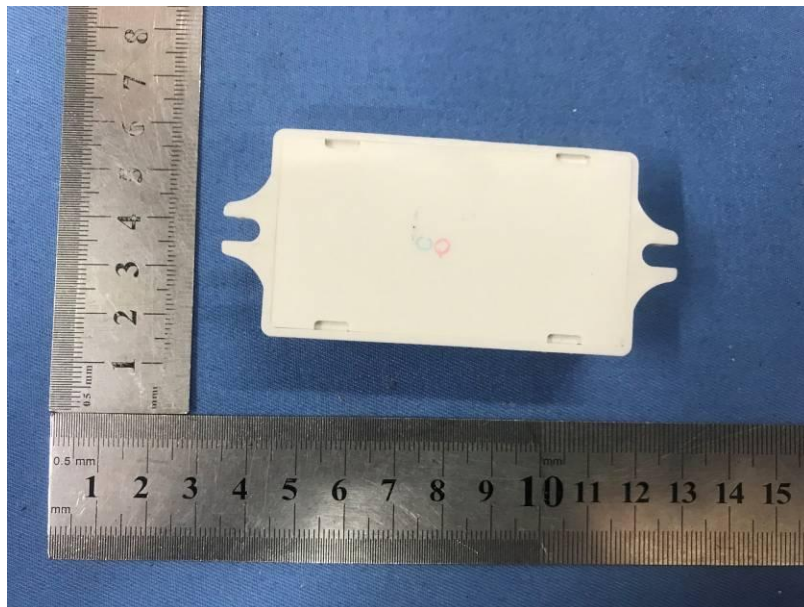
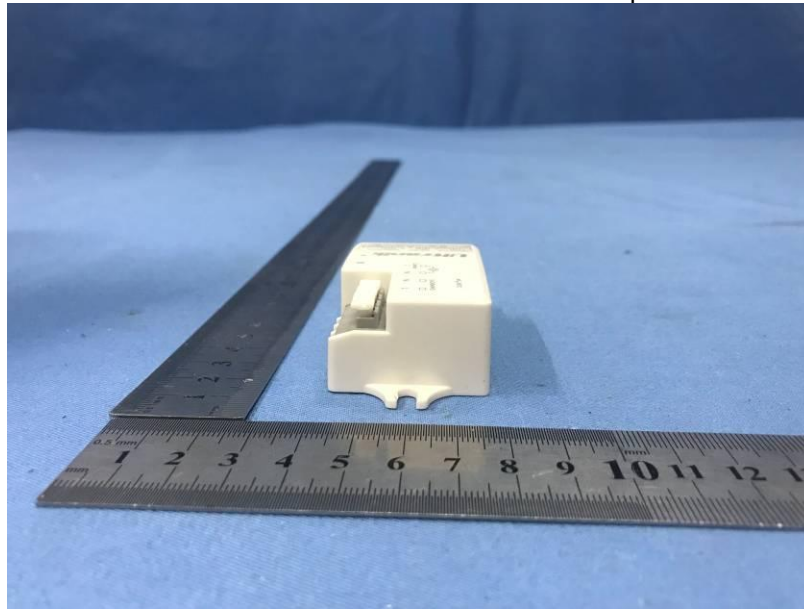


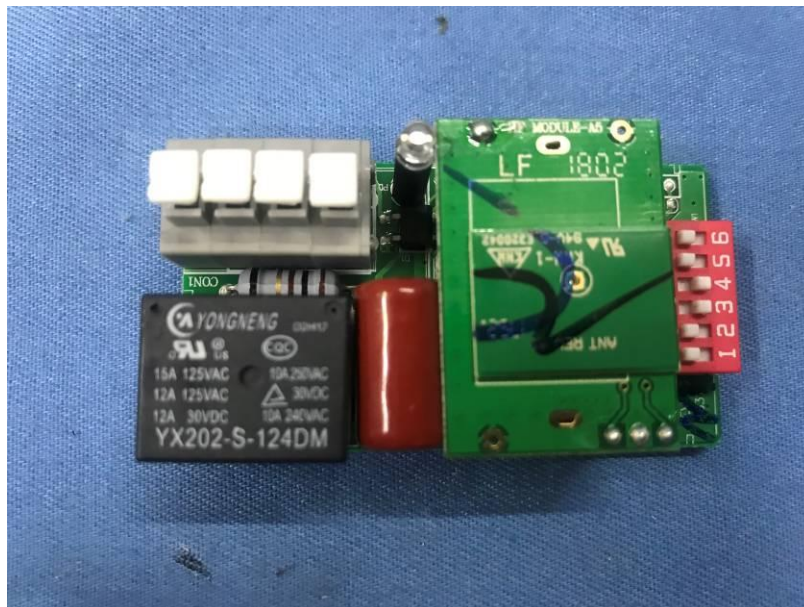
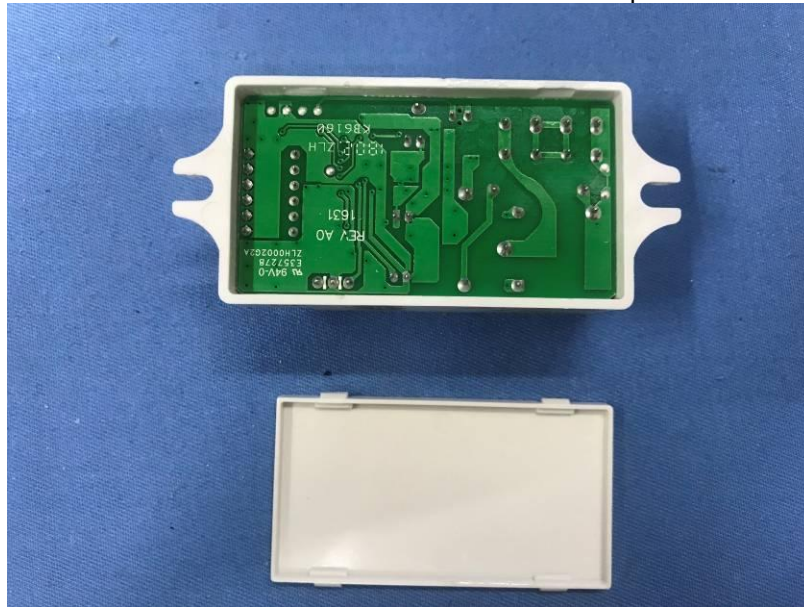


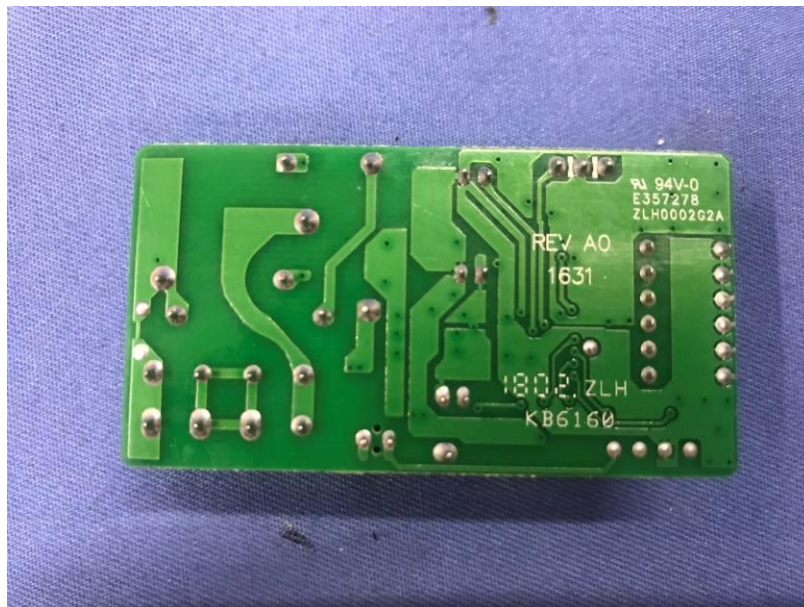
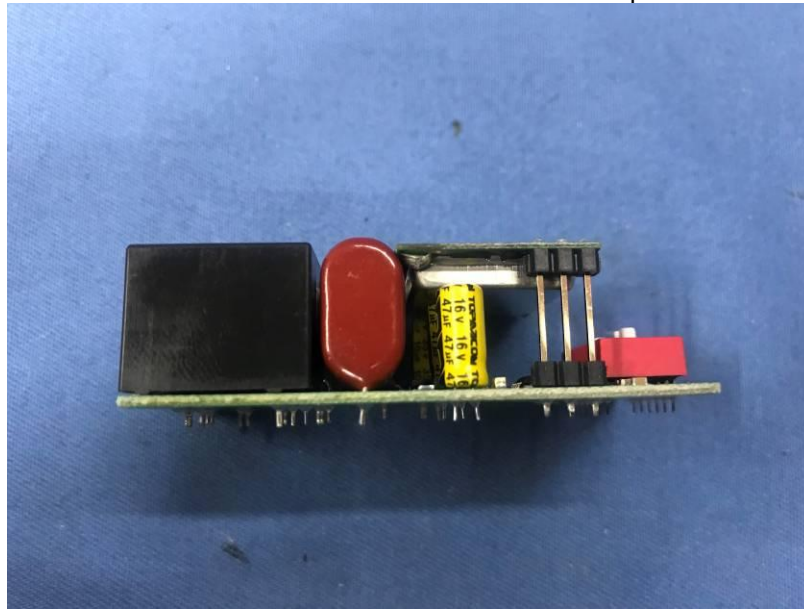




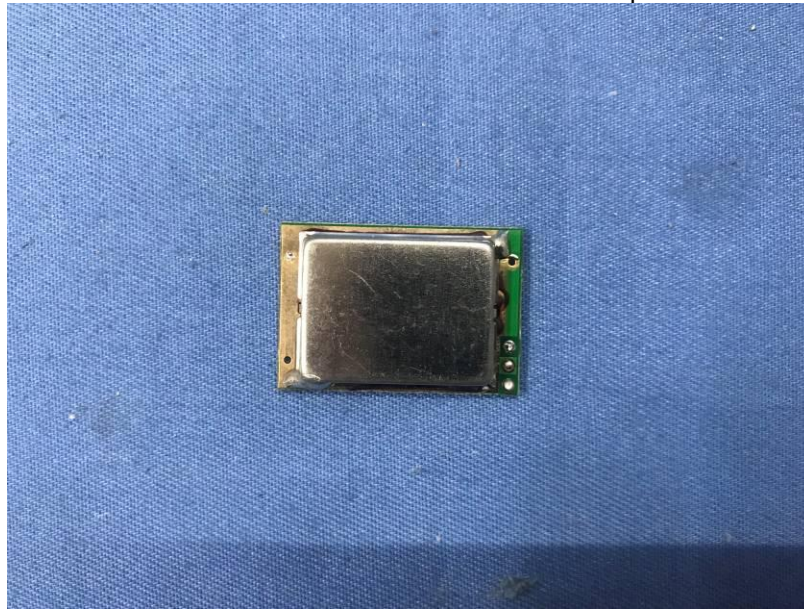


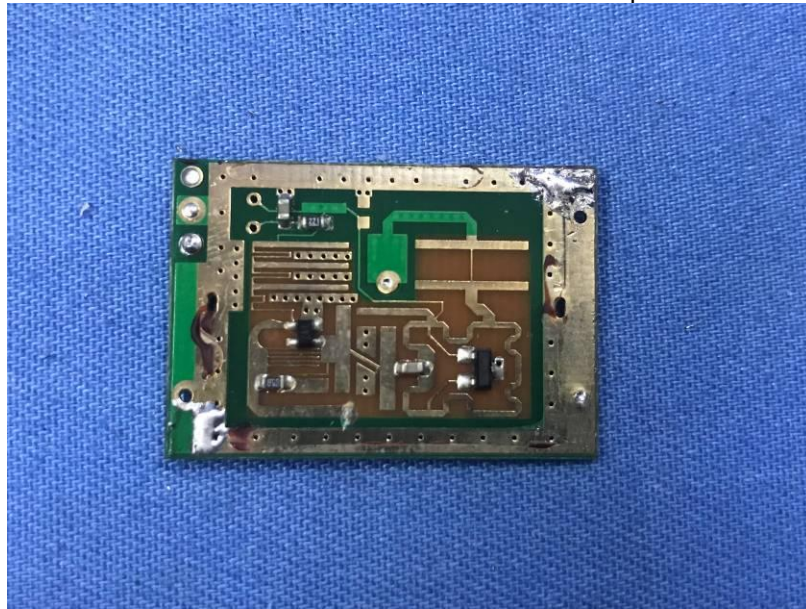












-----End-----