FCC TEST REPORT
for
SHENZHEN YIRUI ELECTRONIC TECHNOLOGY CO., LTD

Remote Control
Model No.: L00-000001-00

Prepared for	:	SHENZHEN YIRUI ELECTRONIC TECHNOLOGY CO., LTD
Address	:	F4,Build B,SaiLian Industry Park,The 4th Industry Zone,Shuitian,Shiyan Town,Baoan District,Shenzhen,China

Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
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Report Number	:	R011410500E
Date of Test	:	Nov. 05~ Dec. 19, 2014
Date of Report	:	Jan. 22, 2015

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TEST REPORT

Applicant	:	SHENZHEN YIRUI ELECTRONIC TECHNOLOGY CO., LTD
Manufacturer	:	SHENZHEN YIRUI ELECTRONIC TECHNOLOGY CO., LTD
EUT	:	Remote Control
Model No.	:	L00-000001-00
Serial No.	:	N.A.
Trade Mark	:	TOUCH LIGHT
Rating	:	DC 3V Battery

Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.249 & 15.209

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.
This report applies to above tested sample only and shall not be reproduced in part without
written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Nov. 05~ Dec. 19, 2014

Prepared by : Kebo Zhang
(Tested Engineer / Kebo Zhang)

Reviewer : Amy Ding
(Project Manager / Amy Ding)

Approved & Authorized Signer : Tom Chen
(Manager / Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Remote Control
Model Number	:	L00-000001-00
Test Power Supply	:	DC 3V
Frequency	:	2480MHz
Antenna Specification	:	Printed Antenna: 0 dBi
Applicant	:	SHENZHEN YIRUI ELECTRONIC TECHNOLOGY CO., LTD
Address	:	F4,Build B,SaiLian Industry Park,The 4th Industry Zone,Shuitian,Shiyan Town,Baoan District,Shenzhen,China
Manufacturer	:	SHENZHEN YIRUI ELECTRONIC TECHNOLOGY CO., LTD
Address	:	F4,Build B,SaiLian Industry Park,The 4th Industry Zone,Shuitian,Shiyan Town,Baoan District,Shenzhen,China
Factory	:	SHENZHEN YIRUI ELECTRONIC TECHNOLOGY CO., LTD
Address	:	F4,Build B,SaiLian Industry Park,The 4th Industry Zone,Shuitian,Shiyan Town,Baoan District,Shenzhen,China
Date of receipt	:	Oct. 30, 2014
Date of Test	:	Nov. 05~ Dec. 19, 2014

1.2. Auxiliary Equipment Used during Test

BULB LIGHT : Model: 01U-BU016A-11

1.3. Description of Test Facility

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

CNAS - LAB Code: L3503
Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

FCC-Registration No.: 752021
Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed 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 752021, July 10, 2013.

IC-Registration No.: 8058A-1
Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, February 22, 2013.

Test Location
All Emissions tests were performed at
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

1.4. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.3dB
Conduction Uncertainty	:	Uc = 3.4dB

2. Test Procedure

GENERAL: This report shall NOT be reproduced except in full without the written approval of Shenzhen Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2009 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:
Freq (MHz) METER READING + ACF = FS
20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.
When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

3. Radiation Interference

3.1. Requirements (15.249, 15.209):

FIELD STRENGTH of Fundamental: @3M	FIELD STRENGTH of Harmonics	S15.209	
902-928 MHZ		30 - 88 MHz	40 dBuV/m
2.4-2.4835 GHz		88 - 216 MHz	43.5
94 dBμV/m @3m	54 dBμV/m @3m	216 - 960 MHz	46
		ABOVE 960 MHz	54dBuV/m

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

3.2. Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz. The EUT is tested in 9*6*6 Chamber.
The test results are listed in Section 4.3.

Test Equipment

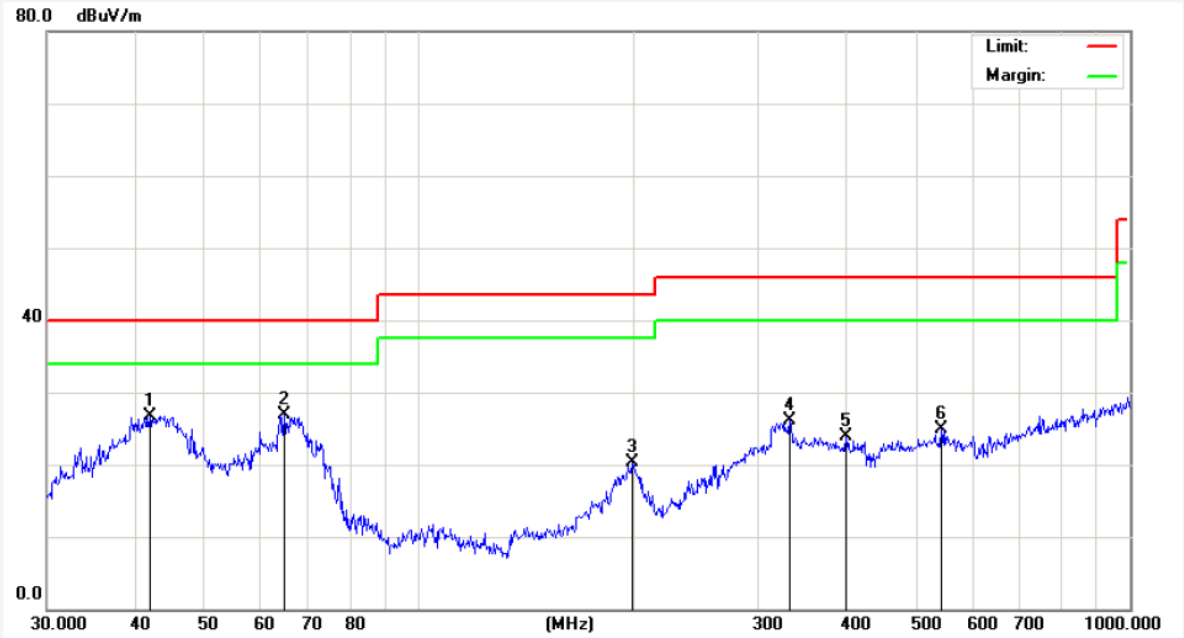
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Aug. 08, 2014	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Aug. 08, 2014	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 22, 2014	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 04, 2014	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 24, 2014	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Aug. 08, 2014	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

3.3. Test Results

PASS.
Please refer the following pages.
Data:

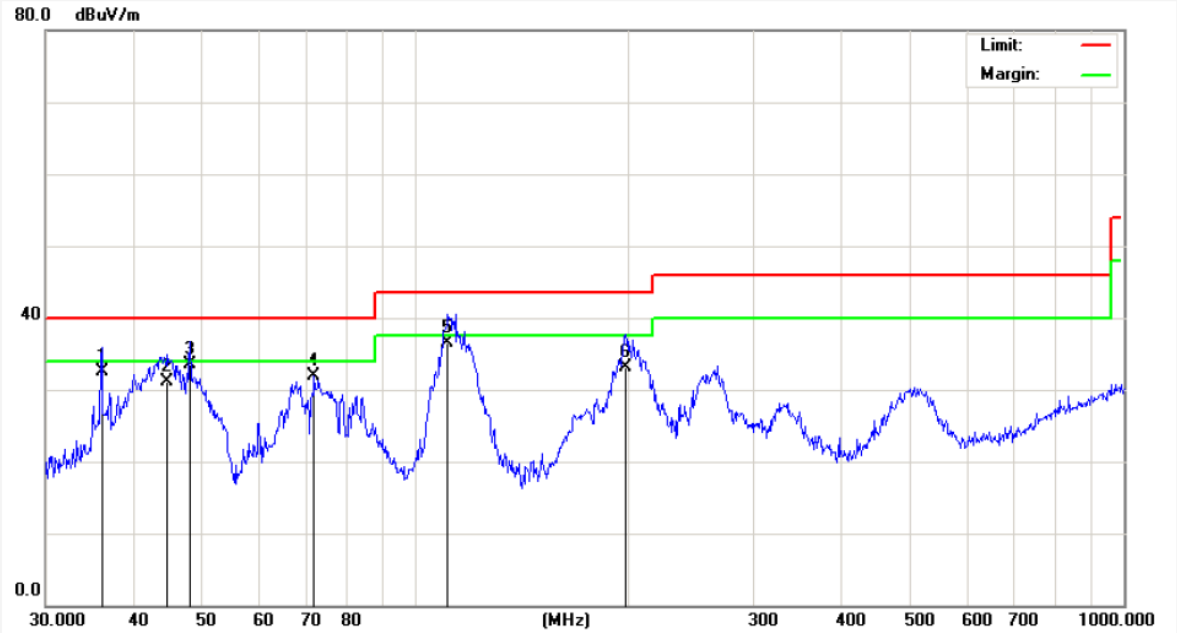
Below 1GHz:

Job No.:	**011410500E**	**Polarziation:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Mode:	**ON**	**Distance:**	**3m**
Note:	**30-1000MHz**		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	41.8596	37.75	-11.09	26.66	40.00	-13.34	peak			
2	64.6594	44.25	-17.33	26.92	40.00	-13.08	peak			
3	199.2855	41.11	-20.87	20.24	43.50	-23.26	peak			
4	332.5187	40.79	-14.66	26.13	46.00	-19.87	peak			
5	399.0300	36.76	-12.88	23.88	46.00	-22.12	peak			
6	543.2740	35.94	-11.07	24.87	46.00	-21.13	peak			

Job No.:	**011410500E**	**Polarziation:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Mode:	**ON**	**Distance:**	**3m**
Note:	**30-1000MHz**		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	36.0007	46.08	-13.50	32.58	40.00	-7.42	QP	100	360	
2	44.5868	43.19	-12.17	31.02	40.00	-8.98	QP	100	0	
3	47.9940	47.14	-13.67	33.47	40.00	-6.53	QP	100	360	
4	71.8319	51.89	-19.98	31.91	40.00	-8.09	peak			
5	111.1971	52.21	-15.70	36.51	43.50	-6.99	QP	100	0	
6	197.8928	49.02	-15.88	33.14	43.50	-10.36	QP	100	360	

Above 1 GHz:

Horizontal

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2480.000	2.20	31.65	36.00	90.31	88.16	114.0	-25.84	Peak
2480.000	2.20	31.65	36.00	80.47	78.32	94.0	-15.68	AV
4960.410	2.58	35.06	34.79	44.82	47.67	74.0	-26.33	Peak
4960.410	2.58	35.06	34.79	36.68	39.53	54.0	-14.47	AV
7440.750	3.02	36.19	34.90	47.65	51.96	74.0	-22.04	Peak
7440.750	3.02	36.20	35.20	37.53	41.55	54.0	-12.45	AV
9920.000	---	---	---	---	---	---	---	---
12400.00	---	---	---	---	---	---	---	---
14880.00	---	---	---	---	---	---	---	---
17360.00	---	---	---	---	---	---	---	---

Vertical

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2480.000	2.20	31.65	36.00	92.64	90.49	114.0	-23.51	Peak
2480.000	2.20	31.65	36.00	81.69	79.54	94.0	-14.46	AV
4960.410	2.58	35.06	34.79	45.78	48.63	74.0	-25.37	Peak
4960.410	2.58	35.06	34.79	37.21	40.06	54.0	-13.94	AV
7440.750	3.02	36.19	34.90	49.76	54.07	74.0	-19.93	Peak
7440.750	3.02	36.20	35.20	39.57	43.59	54.0	-10.41	AV
9920.000	---	---	---	---	---	---	---	---
12400.00	---	---	---	---	---	---	---	---
14880.00	---	---	---	---	---	---	---	---
17360.00	---	---	---	---	---	---	---	---

NOTE: " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured. The results of different modulations are the same.

4. Bandedge

4.1. Requirements (15.249):

The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

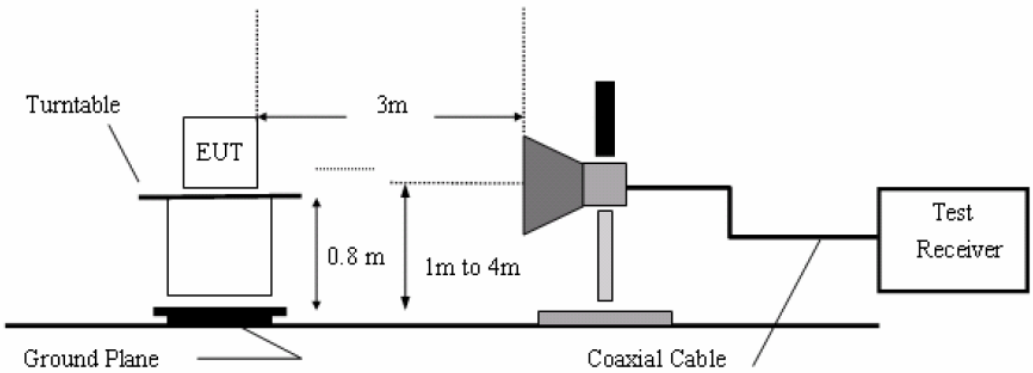
4.2. Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Aug. 08, 2014	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Aug. 08, 2014	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 22, 2014	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 04, 2014	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 24, 2014	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Aug. 08, 2014	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

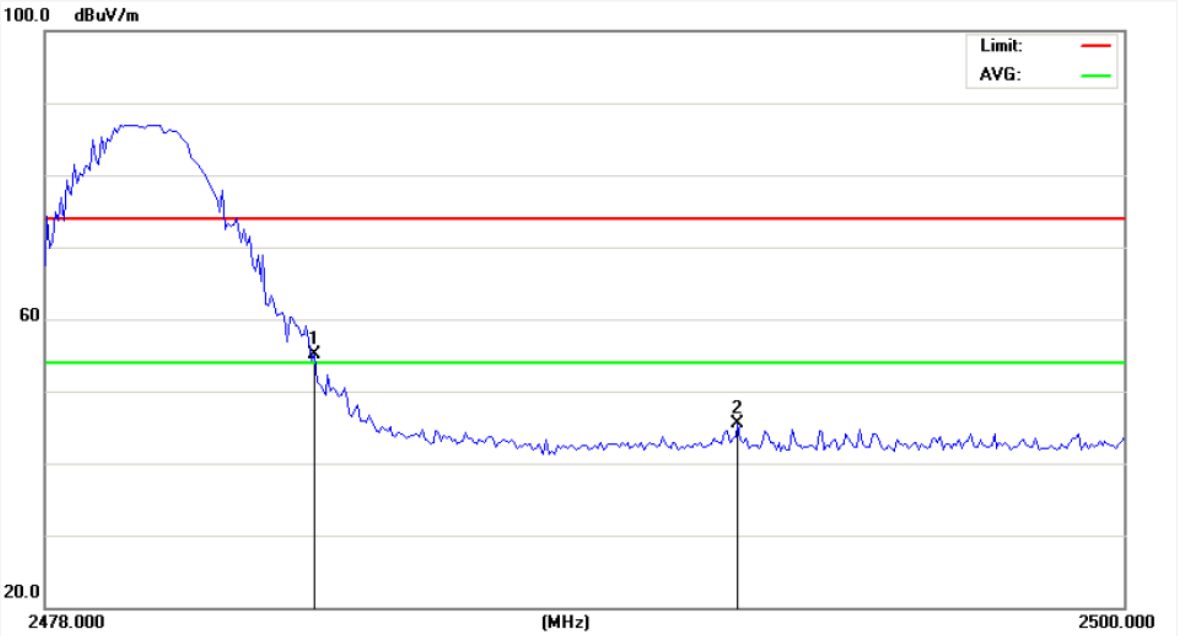
4.3. Test Configuration:



4.4. Test Results

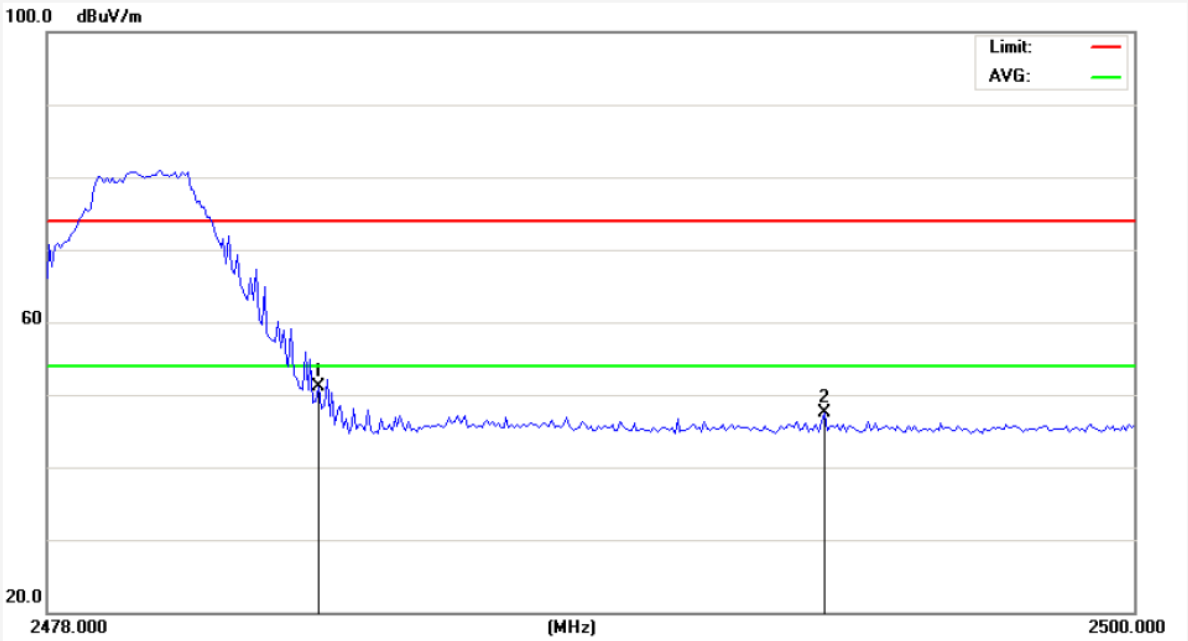
Pass.
Please refer the following plot.

Job No.:	**011410500E**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**PEAK**	**Distance:**	**3m**



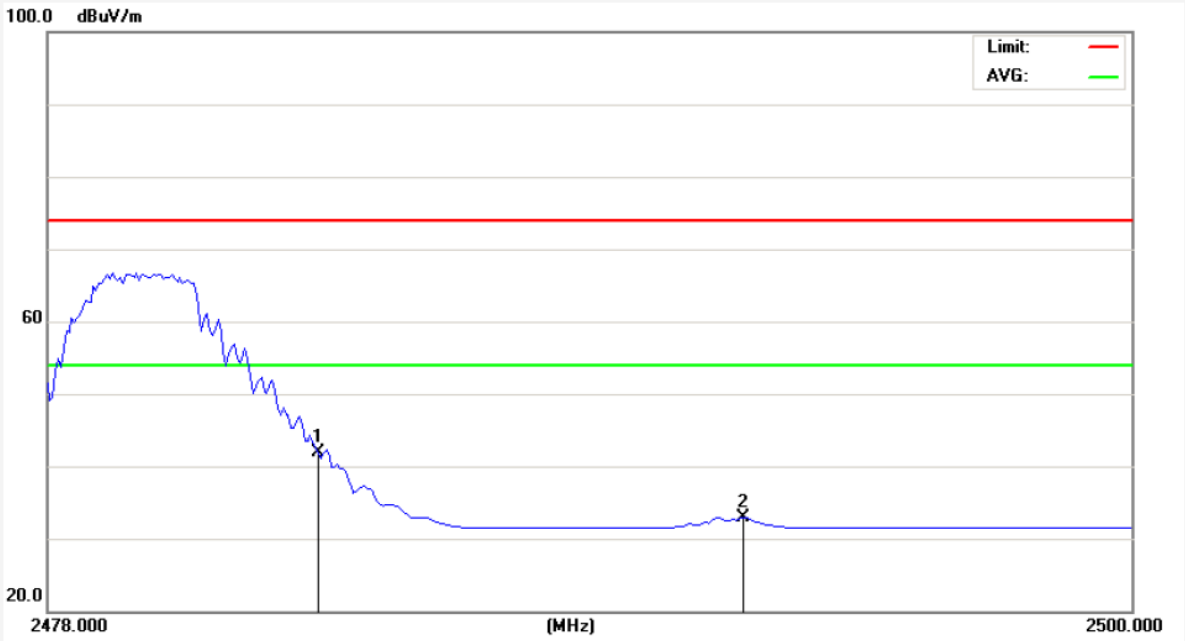
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	57.38	-2.31	55.07	74.00	-18.93	peak			
2	2492.135	47.74	-2.29	45.45	74.00	-28.55	peak			

Job No.:	**011410500E**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**PEAK**	**Distance:**	**3m**



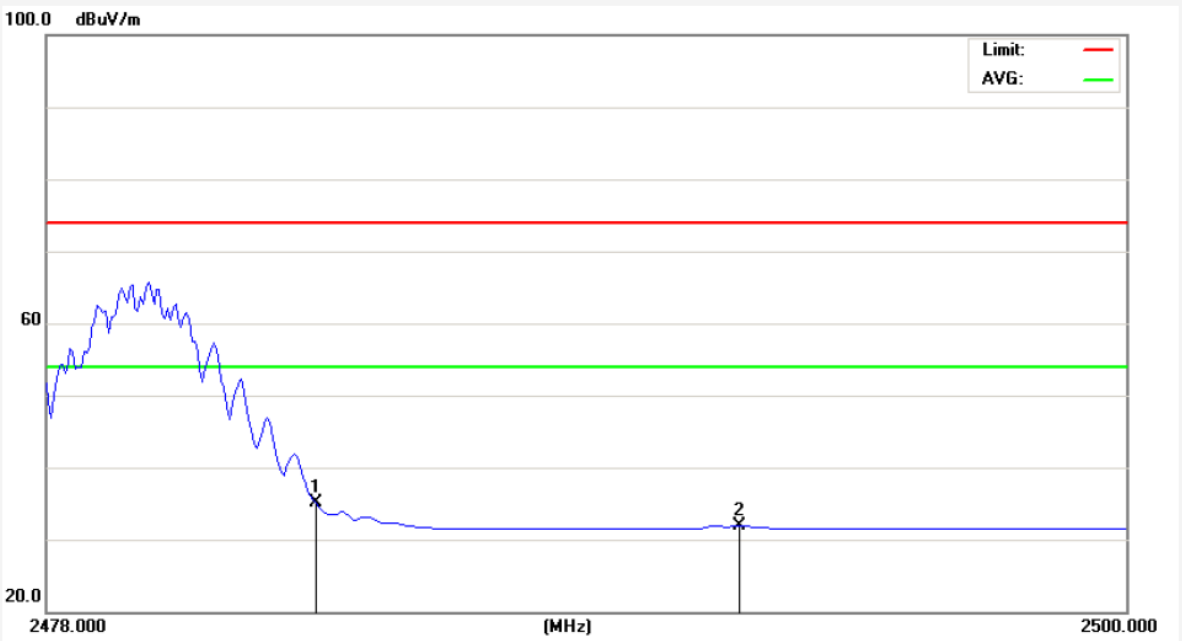
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	53.32	-2.31	51.01	74.00	-22.99	peak			
2	2493.730	49.78	-2.28	47.50	74.00	-26.50	peak			

Job No.:	**011410500E**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**AV**	**Distance:**	**3m**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	44.30	-2.31	41.99	54.00	-12.01	AVG			
2	2492.135	35.26	-2.29	32.97	54.00	-21.03	AVG			

Job No.:	**011410500E**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**AV**	**Distance:**	**3m**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	37.32	-2.31	35.01	54.00	-18.99	AVG			
2	2492.135	34.24	-2.29	31.95	54.00	-22.05	AVG			

5. Occupied Bandwidth

5.1. Requirements :

According to 15.215 (c), 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. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

5.2. Test SET-UP

EUT —— Spectrum analyzer

5.3 Test Equipment

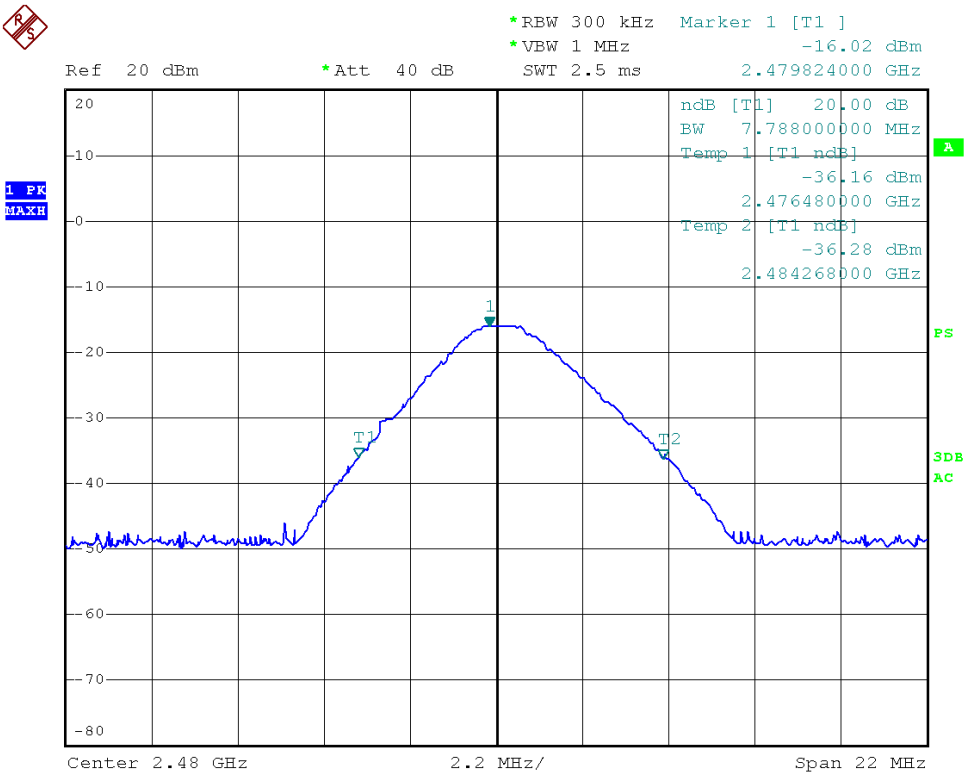
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Aug. 08, 2014	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Aug. 08, 2014	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 22, 2014	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 04, 2014	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 24, 2014	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Aug. 08, 2014	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

5.4. Test Results

Pass.

Please refer the following plot.

20dB Down:


*RBW 300 kHz
*VBW 1 MHz
SWT 2.5 ms
Marker 1 [T1]
-16.02 dBm
2.479824000 GHz
Ref 20 dBm
*Att 40 dB
ndB [T1] 20.00 dB
BW 7.788000000 MHz
Temp 1 [T1 ndB]
-36.16 dBm
2.476480000 GHz
Temp 2 [T1 ndB]
-36.28 dBm
2.484268000 GHz
1 PK
MAXH
A
PS
3DB
AC
T1
T2
Center 2.48 GHz
2.2 MHz/
Span 22 MHz

6. ANTENNA APPLICATION

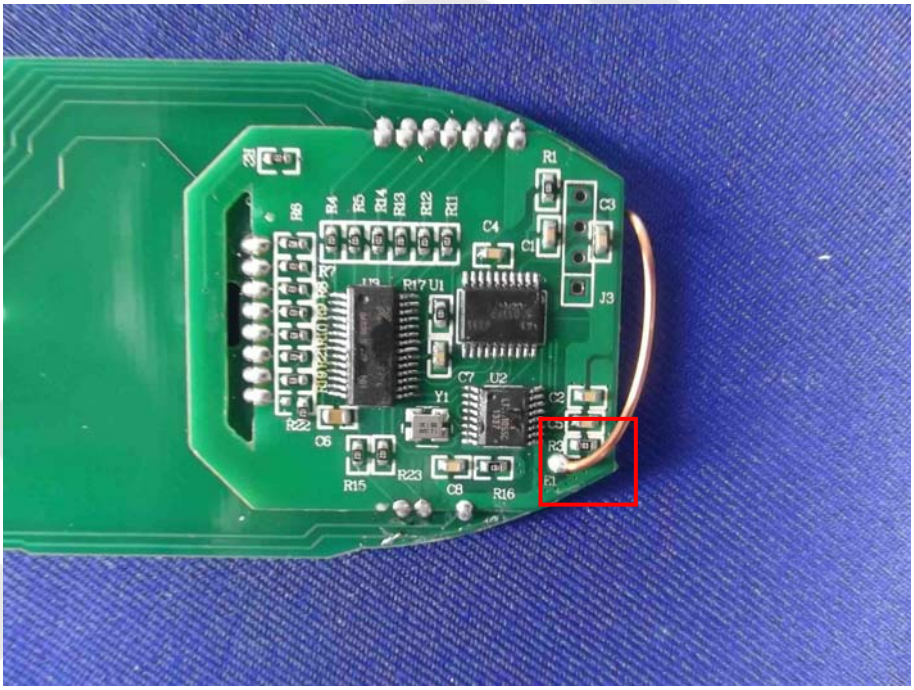
6.1. Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203.

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

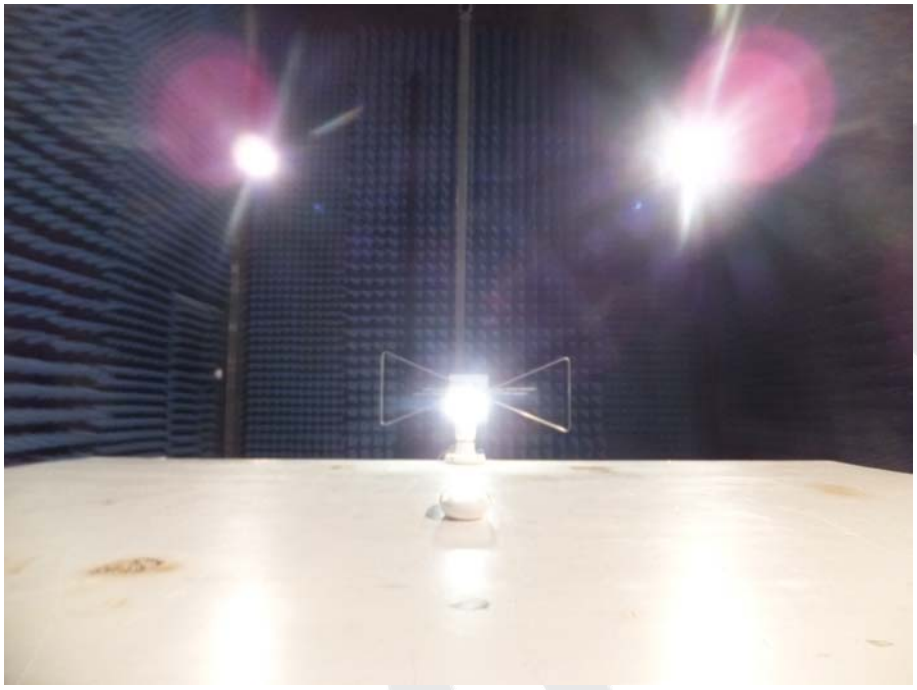
6.2. Result

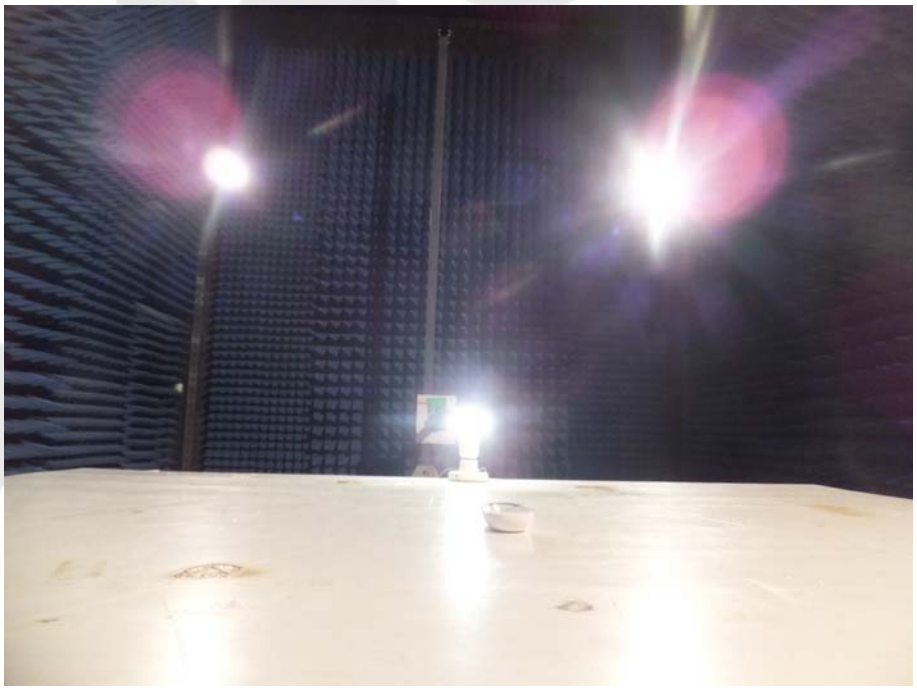
The EUT's antenna used a PCB antenna which is permanently attached, The antenna's gain is 0dBi and meets the requirement.



7. PHOTOGRAPH

7.1. Photo of Radiation Emission Test





APPENDIX I (EXTERNAL PHOTOS)

Figure 1
The EUT-Top View

Figure 2
The EUT-Bottom View

Figure 3
The EUT-Front View

Figure 4
The EUT-Back View

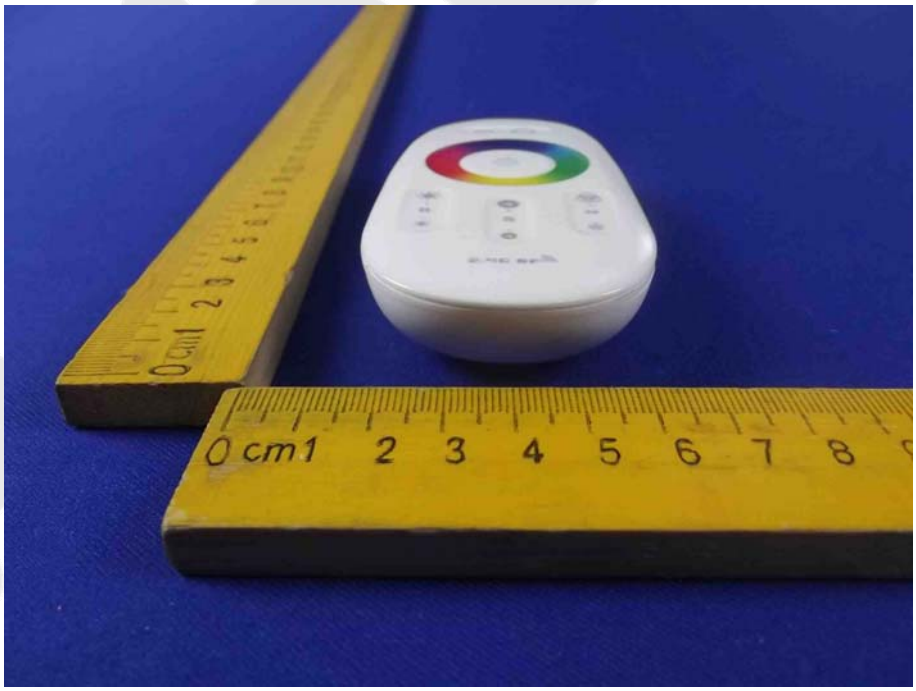


Figure 5
The EUT-Right View

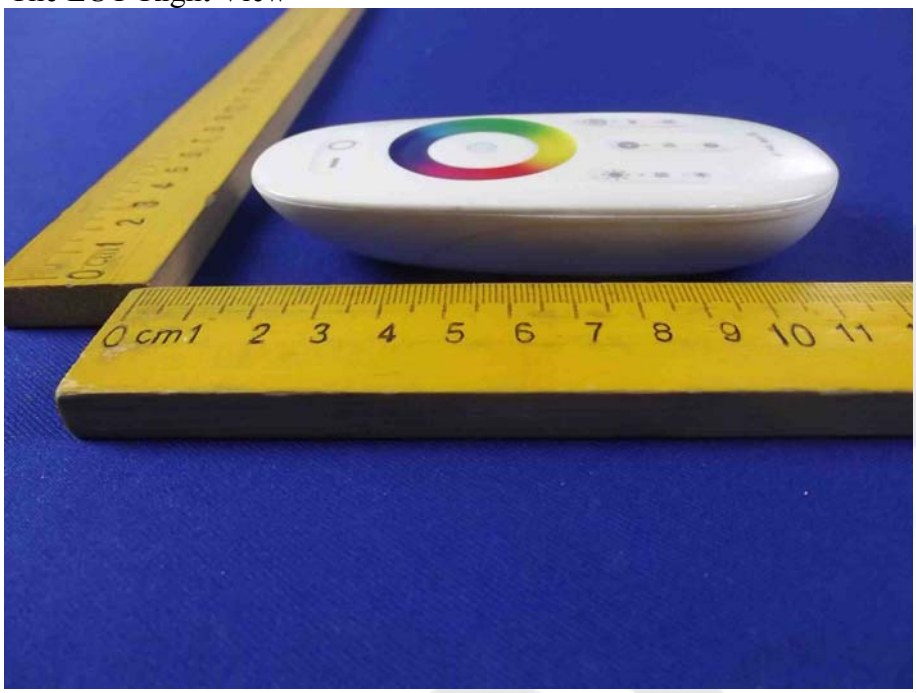
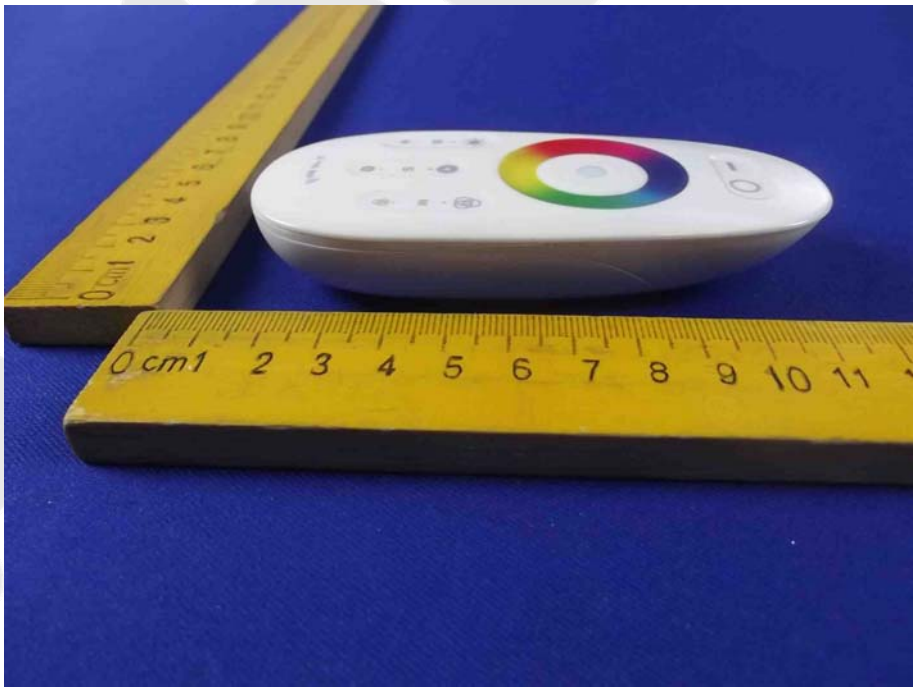


Figure 6
The EUT-Left View



APPENDIX Ⅱ(INTERNAL PHOTOS)

Figure 7
The EUT-Inside View

Figure 8
PCB of the EUT-Front View

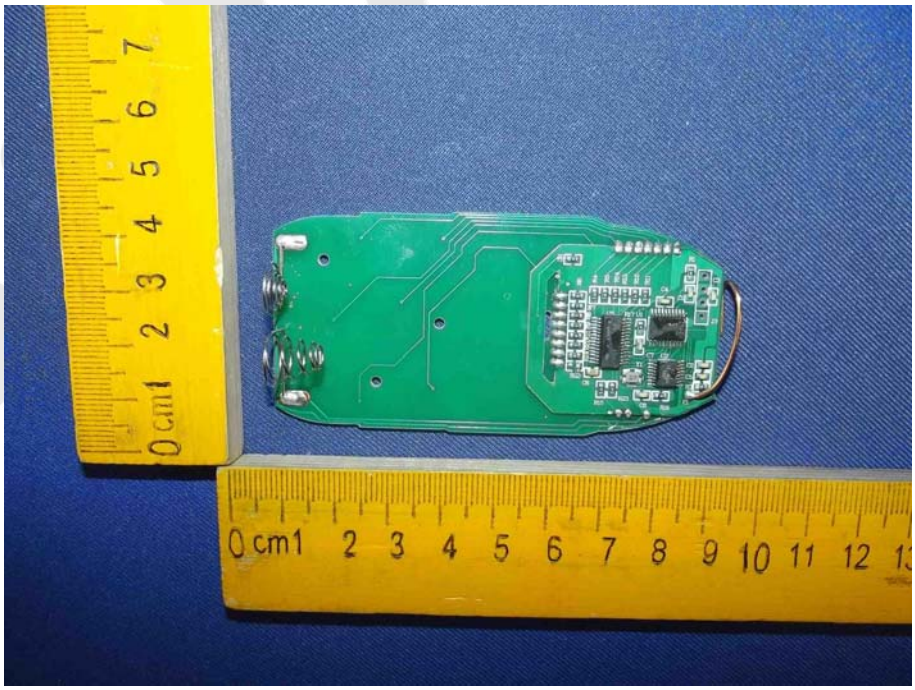


Figure 9
PCB of the EUT-Back View

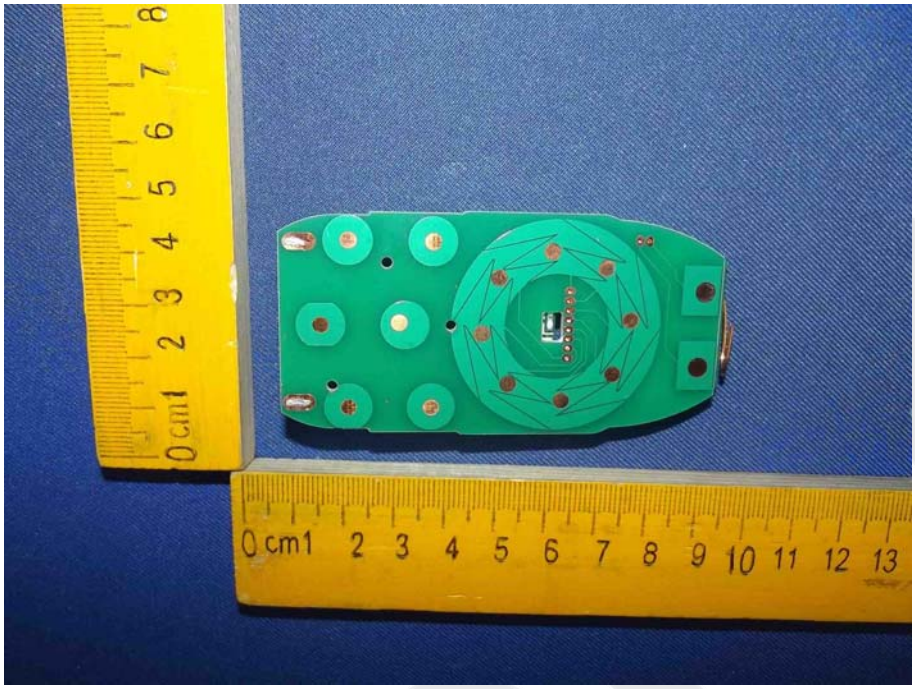
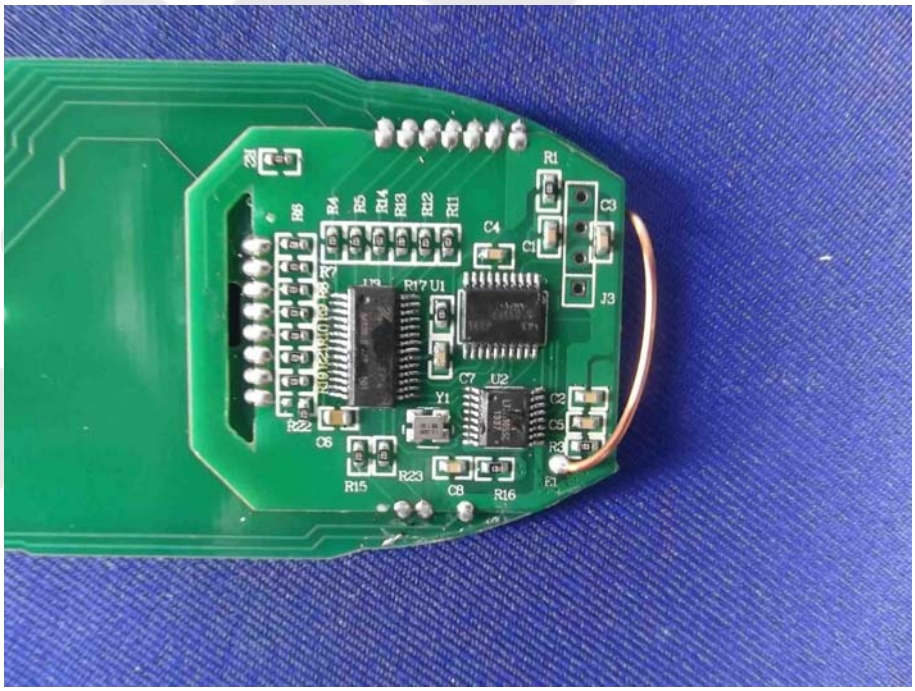



Figure 10
PCB of the EUT-Module View