TEST REPORT

Reference No.	:	WTS18S05112656W
FCC ID.....	:	2AKSEUWS-102
Applicant	:	Smart iBlue Technology Limited
Address	:	Unit 12,10/F.,Hong Man Industrial Centre,2 Hong Man Street,Chai Wan,Hong Kong
Manufacturer	:	Jinhui Electirc Co.,Ltd.
Address	:	11Chang Yuan Er Lu,Lu Dong District,523000 Humen,Dong Guan County,PEOPLE'S REPUBLIC OF CHINA
Product Name	:	Smart Wall Socket
Model No.	:	UWS-102
Standards.....	:	FCC CFR47 Part 15 C Section 15.247:2017
Date of Receipt sample.....	:	2018-06-21
Date of Test.....	:	2018-06-21 to2018-06-27
Date of Issue	:	2018-06-28
Test Result	:	**Pass**

Remarks:
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.

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2 Contents

Page

1 COVER PAGE 1
2 CONTENTS 2
3 REPORT REVISION HISTORY 4
4 GENERAL INFORMATION 5
4.1 GENERAL DESCRIPTION OF E.U.T 5
4.2 DETAILS OF E.U.T. 5
4.3 CHANNEL LIST 6
4.4 TEST MODE 7
5 EQUIPMENT USED DURING TEST 8
5.1 EQUIPMENTS LIST 8
5.2 MEASUREMENT UNCERTAINTY 9
5.3 TEST EQUIPMENT CALIBRATION 10
6 TEST SUMMARY 11
7 CONDUCTED EMISSION 12
7.1 E.U.T. OPERATION 12
7.2 EUT SETUP 12
7.3 MEASUREMENT DESCRIPTION 12
7.4 CONDUCTED EMISSION TEST RESULT 13
8 RADIATED EMISSIONS 15
8.1 EUT OPERATION 15
8.2 TEST SETUP 16
8.3 SPECTRUM ANALYZER SETUP 17
8.4 TEST PROCEDURE 18
8.5 CORRECTED AMPLITUDE & MARGIN CALCULATION 18
8.6 SUMMARY OF TEST RESULTS 19
9 BAND EDGE MEASUREMENT 22
9.1 TEST PRODUCE 22
9.2 TEST RESULT 23
10 BANDWIDTH MEASUREMENT 24
10.1 TEST PROCEDURE: 24
10.2 TEST RESULT: 24
11 MAXIMUM PEAK OUTPUT POWER 27
11.1 TEST PROCEDURE: 27
11.2 TEST RESULT: 27
12 POWER SPECTRAL DENSITY 29
12.1 TEST PROCEDURE: 29
12.2 TEST RESULT: 29
13 ANTENNA REQUIREMENT 31
14 RF EXPOSURE 32
14.1 REQUIREMENTS 32
14.2 THE PROCEDURES / LIMIT 32
14.3 MPE CALCULATION METHOD 33
15 PHOTOGRAPHS – TEST SETUP PHOTOS 34
15.1 RADIATED EMISSION 34
15.2 CONDUCTED EMISSION 36

16 PHOTOGRAPHS – CONSTRUCTIONAL DETAILS 37
16.1 APPEARANCE VIEW 37
16.2 INTERNAL VIEW.....40

3 Report Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS18S05112656W	2018-06-21	2018-06-21 to 2018-06-27	2018-06-28	Original	-	Valid

4 General Information

4.1 General Description of E.U.T

Product Name:	Smart Wall Socket
Model No.:	UWS-102
Model Difference:	N/A
Operation Frequency:	2402-2480MHz
Antenna Gain:	2dBi
Type of modulation:	GFSK
Antenna installation:	Wire antenna

4.2 Details of E.U.T.

Rating(s):	Input: AC 125V 60Hz 15A Max

4.3 Channel List

BLE:

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	1	2404	2	2406	3	2408
4	2410	5	2412	6	2414	7	2416
8	2418	9	2420	10	2422	11	2424
12	2426	13	2428	14	2430	15	2432
16	2434	17	2436	18	2438	19	2440
20	2442	21	2444	22	2446	23	2448
24	2450	25	2452	26	2454	27	2456
28	2458	29	2460	30	2462	31	2464
32	2466	33	2468	34	2470	35	2472
36	2474	37	2476	38	2478	39	2480

4.4 Test Mode

Table 1 Tests Carried Out Under FCC part 15.247

Test Items	Mode	Data Rate	Channel	TX/RX
Maximum Peak Output Power	BLE	1 Mbps	0/19/39	TX
Power Spectral Density	BLE	1 Mbps	0/19/39	TX
Frequency Range	BLE	1 Mbps	0/19/39	TX
Transmitter Spurious Emissions	BLE	1 Mbps	0/19/39	TX

Note :Parameters set by test software during channel & power tests, the software provided by the customer was used to set the operating channels as well as the output power level. The RF output power set is the power expected by the manufacturer and is going to be fixed on the firmware of the final product.

5 Equipment Used during Test

5.1 Equipments List

Conducted Emissions at Mains Terminals Disturbance Voltage (Conducted Emission)(843 Shielding room)						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMI Test Receiver	R&S	ESCI	100947	2017.09.11	2018.09.10
2	LISN	R&S	ENV216	100115	2017.09.11	2018.09.10
3	Cable	Top	TYPE16(3.5M)	-	2017.09.11	2018.09.10
Conducted Emissions at Mains Terminals Disturbance Voltage (Conducted Emission)						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMI Test Receiver	R&S	ESCI	101155	2017.09.11	2018.09.10
2	LISN	SCHWARZBECK	NSLK 8128	8128-259	2017.09.11	2018.09.10
3	Limiter	CYBERTEK	EM5010	261115-001-0024	2017.09.11	2018.09.10
4	Cable	**Laplace**	RF300	-	2017.07.19	2018.07.18
Radiated electromagnetic disturbance(9kHz to 30MHz)						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMI Test Receiver	R&S	ESCI	101155	2017.09.11	2018.09.10
2	LARGE LOOP ANTENNA	Laplace	RF300	9057	2017.07.19	2018.07.18
3	Cable	**Laplace**	RF300	-	2017.07.19	2018.07.18
3m Semi-anechoic Chamber for Radiation						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP	100091	2018.04.20	2019.04.19
2	Amplifier	Agilent	8447D	2944A10178	2018.01.10	2019.01.09
3	Active Loop Antenna	Com-Power Corp.	AL-130R	10160007	2018.04.17	2019.04.16
4	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2018.05.18	2019.05.17
5	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2017.10.14	2018.10.15
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2018.05.18	2019.05.17
7	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2018.05.18	2019.05.17
8	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2018.04.07	2019.04.06

9	Coaxial Cable (above 1GHz)	Top	1GHz-18GHz	EW02014-7	2018.04.07	2019.04.06
10	Universal Radio Communication Tester	R&S	CMU 200	112461	2018.04.20	2019.04.19
11	Universal Radio Communication Tester	R&S	CMW 500	127818	2018.04.20	2019.04.19
12	Signal Generater	R&S	SMP22	100102	2017.09.12	2018.09.11
3m Semi-anechoic Chamber for Radiation(TDK)						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2018.04.20	2019.04.19
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2018.04.19	2019.04.18
3	Amplifier	ANRITSU	MH648A	M43381	2018.04.20	2019.04.19
4	Cable	HUBER+SUHNER	CBL2	525178	2018.04.20	2019.04.19
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	2017-09-14	2018-09-13
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	2017-09-12	2018-09-11
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	2017-09-12	2018-09-11

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 (30M~1000MHz)
	± 5.47 dB (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 GUANG ZHOU GRG METROLOGY & TEST CO., LTD. address is No.163, Pingyun Rd. West of Huangpu Ave,Tianhe District, Guangzhou, Guang dong, China.

6 Test Summary

Test Items	Test Requirement	Result
Radiated Emissions	15.247 15.205(a) 15.209(a)	C
Conducted Emissions	15.207(a)	C
Bandwidth	15.247(a)(2)	C
Maximum Peak Output Power	15.247(b)(3),(4)	C
Power Spectral Density	15.247(e)	C
Band Edge	15.247(d)	C
Antenna Requirement	15.203	C
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	C
Note: C=Compliance; NC=Not Compliance; NT=Not Tested; N/A=Not Applicable.		

7 Conducted Emission

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.10:2013,ANSI C63.4:2014
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class/Severity:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz
	56 dBμV between 0.5MHz & 5MHz
	60 dBμV between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)

7.1 E.U.T. Operation

Operating Environment **:**

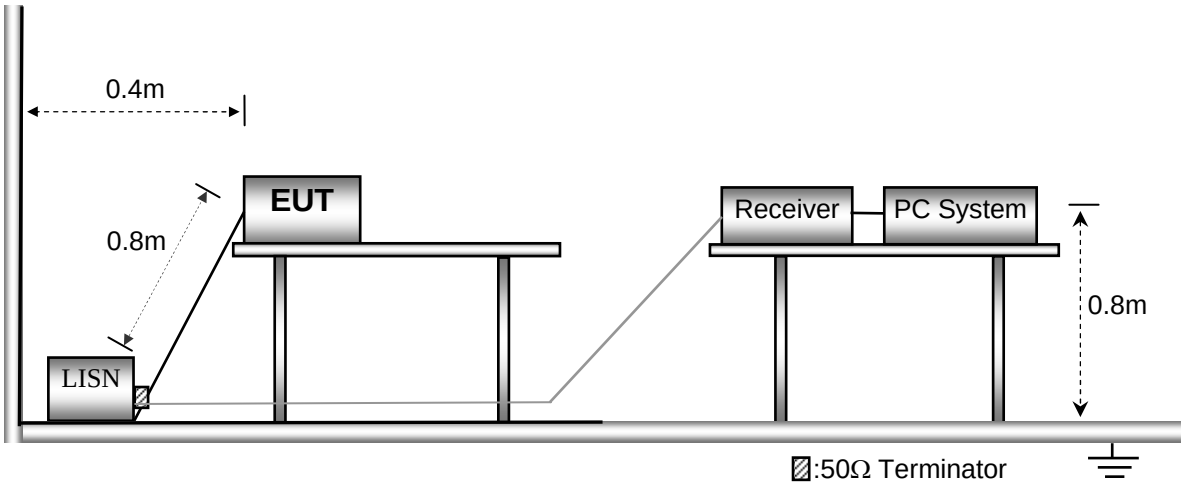
Temperature:	21.5 °C
Humidity:	51.9 % RH
Atmospheric Pressure:	101.2kPa

EUT Operation **:**

The test was performed in Transmitting mode, the test data were shown in the report.

7.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10.



7.3 Measurement Description

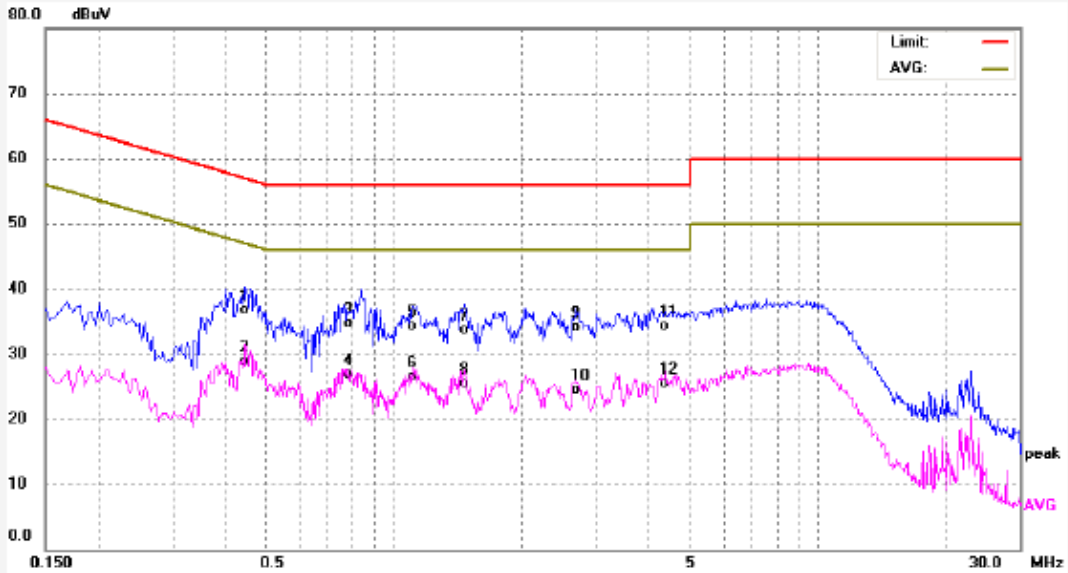
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

7.4 Conducted Emission Test Result

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

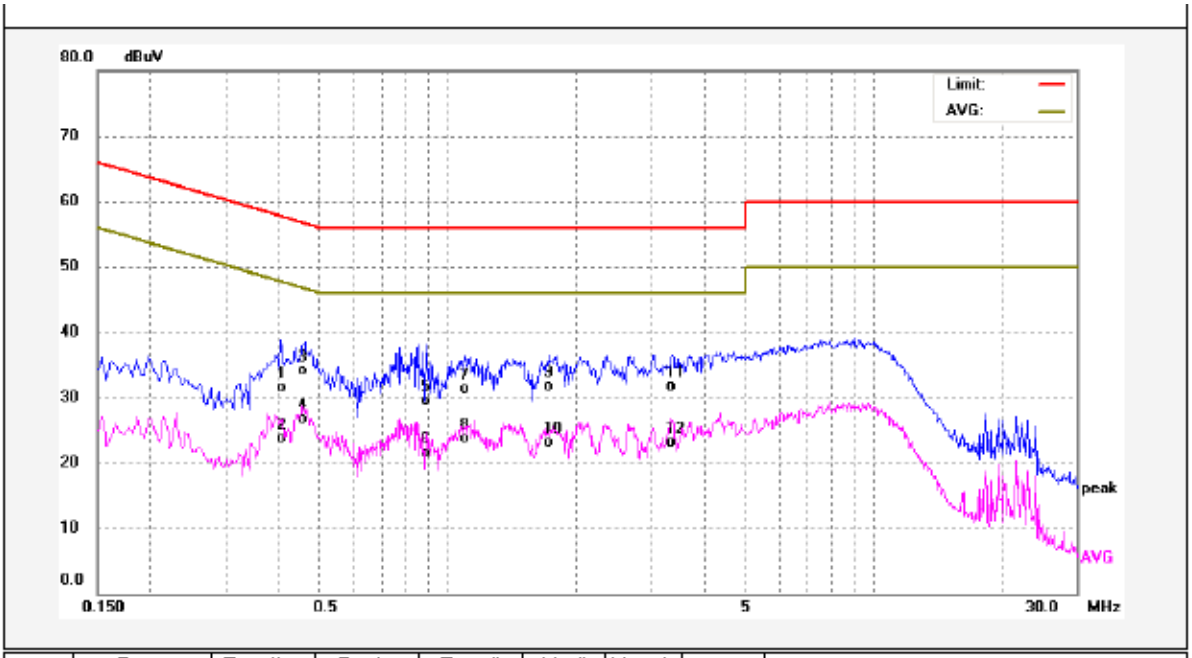
Only the worst case (WIFI transmitting mode) test data were record in the report.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4460	26.72	10.05	36.77	56.95	-20.18	QP	
2	0.4460	18.80	10.05	28.85	46.95	-18.10	AVG	
3	0.7820	24.63	10.12	34.75	56.00	-21.25	QP	
4	0.7820	16.84	10.12	26.96	46.00	-19.04	AVG	
5	1.1019	24.05	10.26	34.31	56.00	-21.69	QP	
6	1.1019	16.22	10.26	26.48	46.00	-19.52	AVG	
7	1.4660	23.49	10.18	33.67	56.00	-22.33	QP	
8	1.4660	15.26	10.18	25.44	46.00	-20.56	AVG	
9	2.6940	23.82	10.23	34.05	56.00	-21.95	QP	
10	2.6940	14.36	10.23	24.59	46.00	-21.41	AVG	
11	4.3659	24.06	10.26	34.32	56.00	-21.68	QP	
12	4.3659	15.21	10.26	25.47	46.00	-20.53	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4060	21.51	10.03	31.54	57.73	-26.19	QP	
2	0.4060	13.64	10.03	23.67	47.73	-24.06	AVG	
3	0.4620	24.09	10.06	34.15	56.66	-22.51	QP	
4	0.4620	16.55	10.06	26.61	46.66	-20.05	AVG	
5	0.8860	19.43	10.04	29.47	56.00	-26.53	QP	
6	0.8860	11.37	10.04	21.41	46.00	-24.59	AVG	
7	1.0980	20.99	10.25	31.24	56.00	-24.76	QP	
8	1.0980	13.52	10.25	23.77	46.00	-22.23	AVG	
9	1.7340	21.50	10.17	31.67	56.00	-24.33	QP	
10	1.7340	12.88	10.17	23.05	46.00	-22.95	AVG	
11	3.3740	21.49	10.25	31.74	56.00	-24.26	QP	
12	3.3740	12.90	10.25	23.15	46.00	-22.85	AVG	

8 Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method: ANSI C63.10:2013,ANSI C63.4:2014

Test Result: PASS

Measurement Distance: 3m

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	$20\log^{(500)}$

8.1 EUT Operation

Operating Environment **:**

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

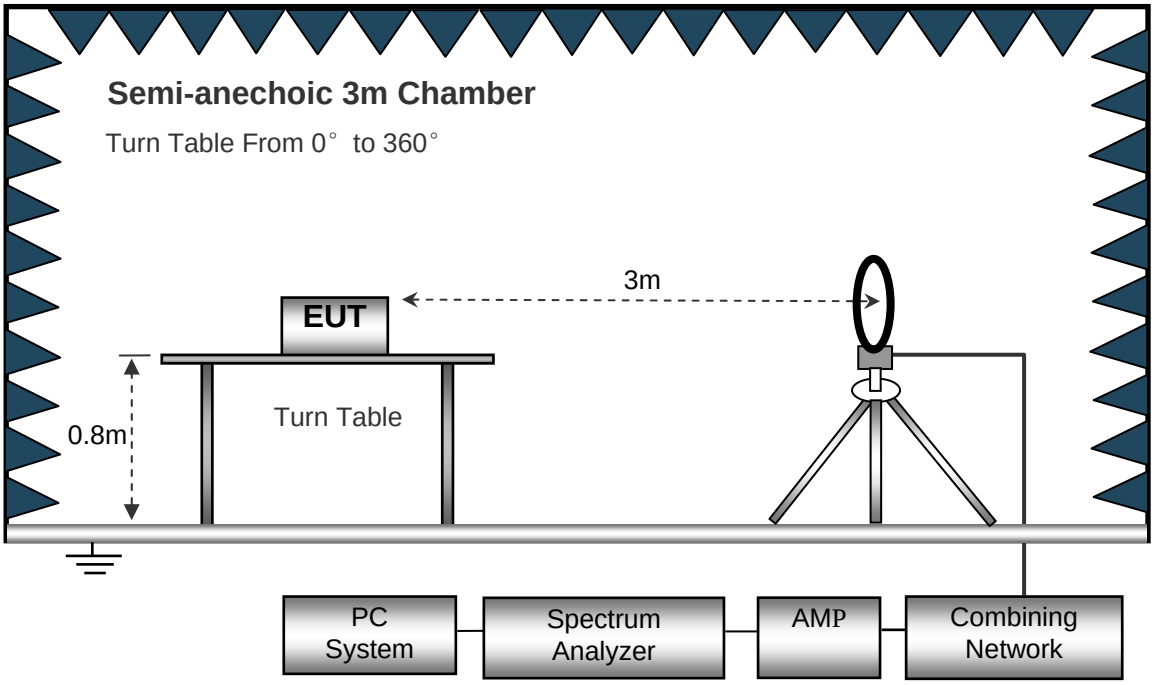
EUT Operation **:**

The test was performed in transmitting mode, the test data were shown in the report.

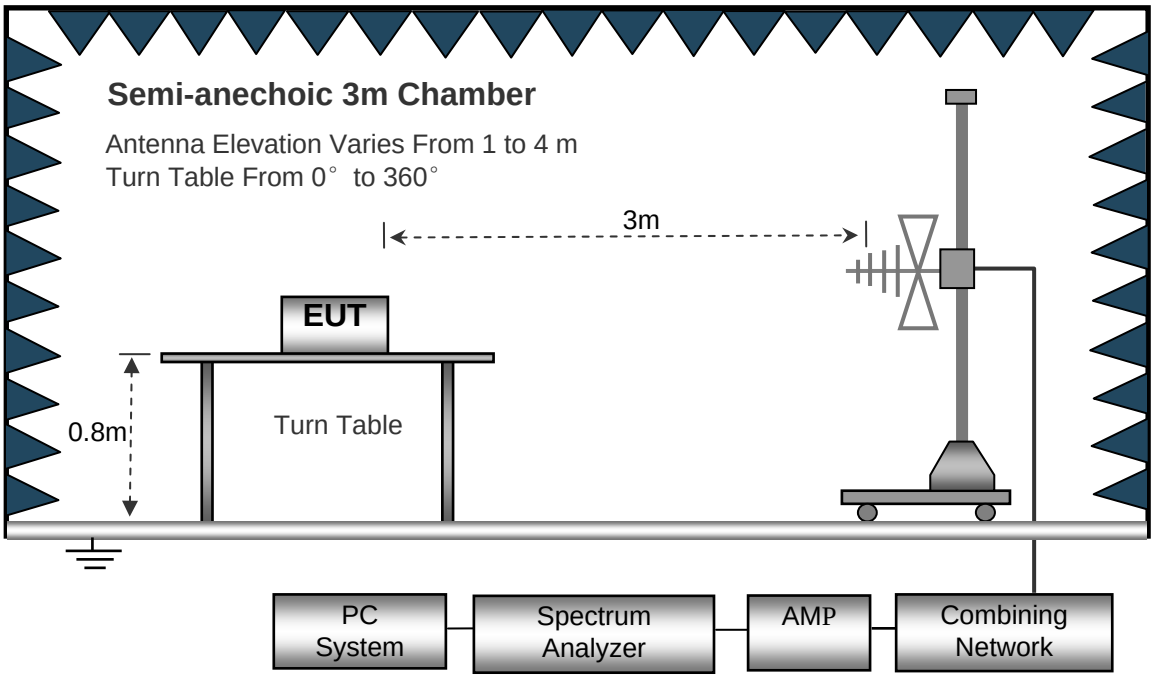
8.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10.

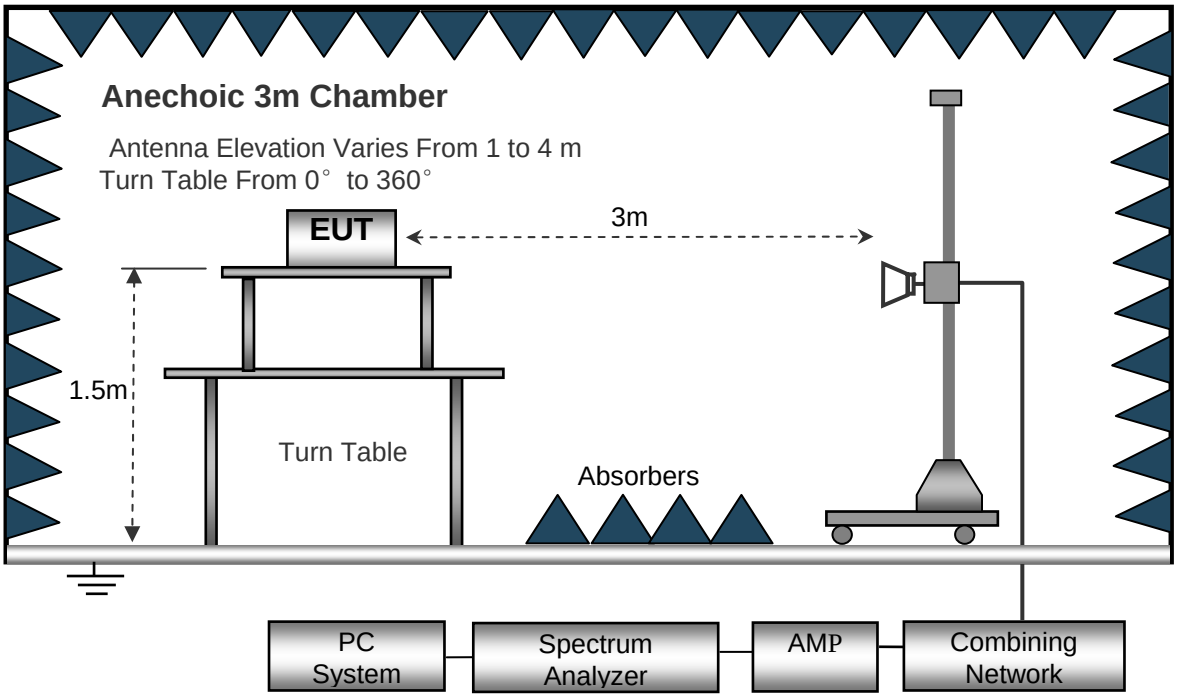
The test setup for emission measurement below 30MHz.



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



The test setup for emission measurement above 1 GHz.



8.3 Spectrum Analyzer Setup

Below 30MHz

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

30MHz ~ 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 100kHz
Video Bandwidth..... 300kHz

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 3MHz
Detector ..... Ave.
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 10Hz

8.4 Test Procedure

1. The EUT is placed on a turntable. For below 1GHz, the EUT is 0.8m above ground plane; For above1GHz, the EUT is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in X axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used druing radiated emissions above 1GHz measurement.

8.5 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 -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Limit

8.6 Summary of Test Results

Test Frequency : 12MHz ~ 30MHz

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

Test Frequency : 30MHz ~ 18GHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	Limit	Margin
				Height	Polar				
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
GFSK Low Channel 2402MHz									
486.16	13.63	PK	139	1.1	H	21.09	34.72	45.00	-10.28
486.16	13.37	PK	257	1.3	V	21.09	34.46	45.00	-10.54
4804	45.27	PK	242	1.4	V	-1.06	44.21	74.00	-29.79
4804	43.17	Ave	242	1.4	V	-1.06	42.11	54.00	-11.89
7206	44.62	PK	346	1.1	V	1.33	45.95	74.00	-28.05
7206	43.85	Ave	346	1.1	V	1.33	45.18	54.00	-8.82

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	Limit	Margin
				Height	Polar				
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
GFSK Middle Channel 2440MHz									
486.16	13.29	PK	5	1.4	H	21.09	34.38	45.00	-10.62
486.16	12.60	PK	288	1.5	V	21.09	33.69	45.00	-11.31
4880	45.33	PK	270	1.3	V	-0.62	44.71	74.00	-29.29
4880	44.11	Ave	270	1.3	V	-0.62	43.49	54.00	-10.51
7320	44.04	PK	353	1.3	V	2.21	46.25	74.00	-27.75
7320	42.87	Ave	353	1.3	V	2.21	45.08	54.00	-8.92

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	Limit	Margin
				Height	Polar				
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
GFSK High Channel 2480MHz									
486.16	14.16	PK	81	1.9	H	21.09	35.25	45.00	-9.75
486.16	13.15	PK	242	1.8	V	21.09	34.24	45.00	-10.76
4960	44.74	PK	324	1.6	V	-0.24	44.5	74.00	-29.50
4960	42.85	Ave	324	1.6	V	-0.24	42.61	54.00	-11.39
7440	43.04	PK	256	1.6	V	2.84	45.88	74.00	-28.12
7440	42.31	Ave	256	1.6	V	2.84	45.15	54.00	-8.85

Test Frequency: 18GHz~25GHz

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

9 Band Edge Measurement

Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	558074 D01 DTS Meas Guidance V04
Test Limit:	Regulation 15.247 (d),In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. 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)).
Test Mode:	Transmitting

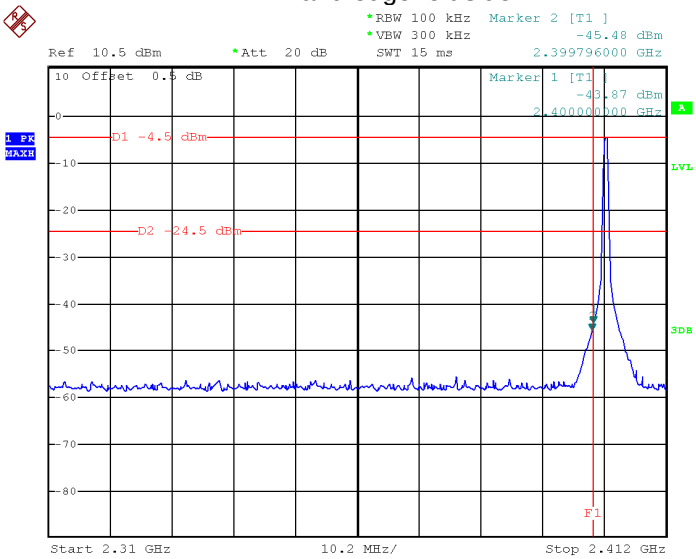
9.1 Test Produce

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

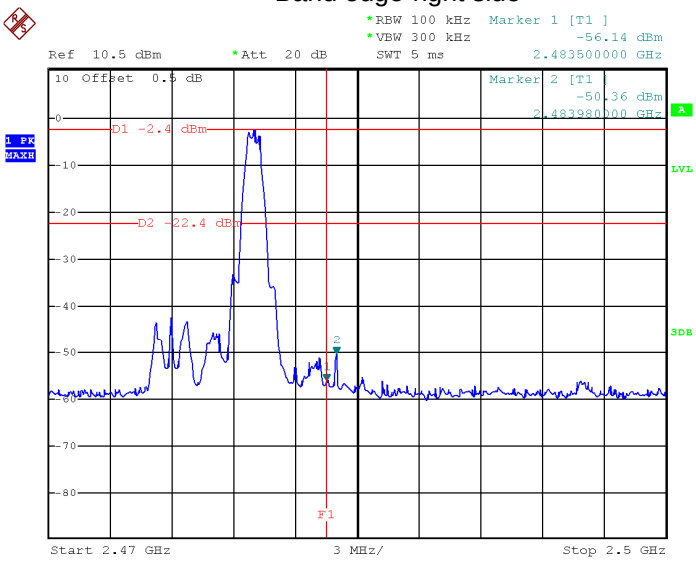
9.2 Test Result

Test result plots shown as follows:

Band edge-left side



Band edge-right side



10 Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance V04

10.1 Test Procedure:

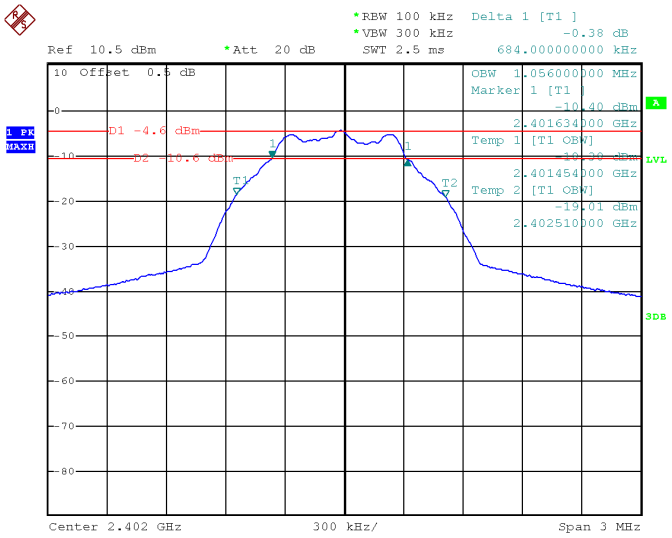
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

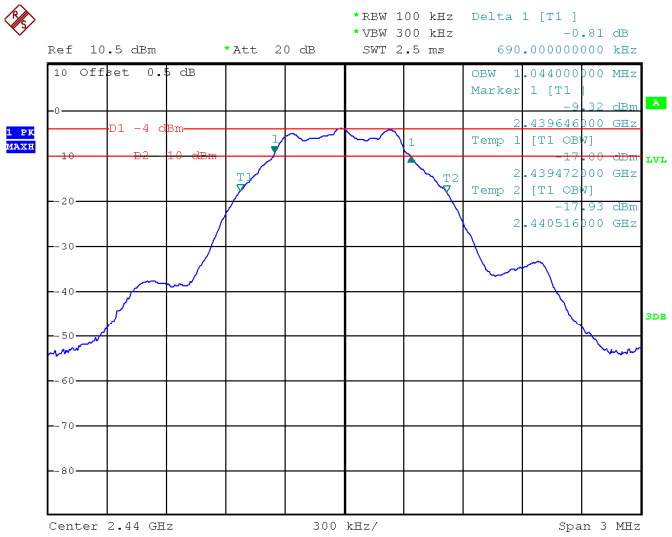
10.2 Test Result:

Operation mode	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low channel	0.684	1.056
Middle channel	0.690	1.044
High channel	0.774	1.044

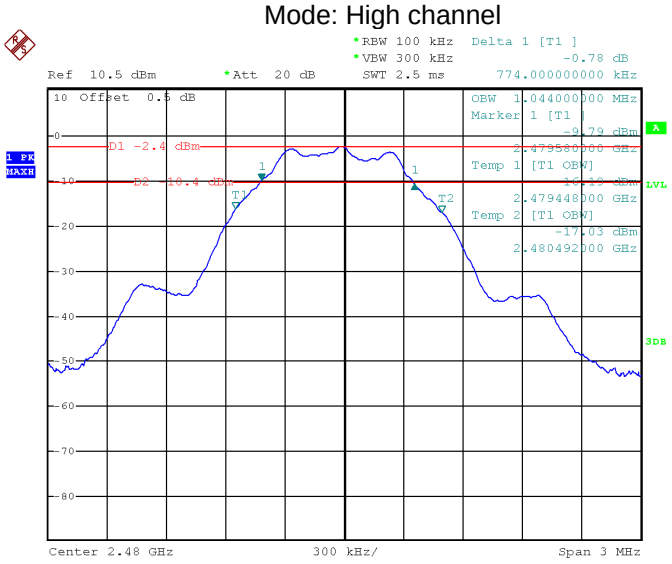
Mode: Low channel



Mode: Middle channel



Mode: High channel



11 Maximum Peak Output Power

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance V04

11.1 Test Procedure:

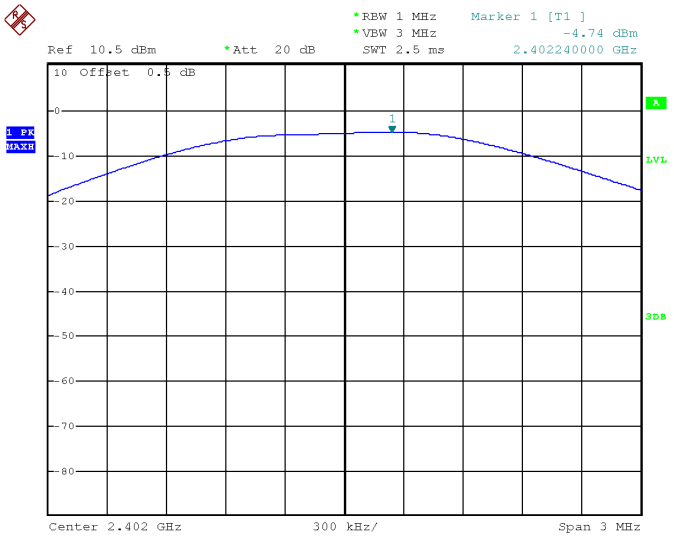
558074 D01 DTS Meas Guidance V04

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1 MHz. VBW = 3 MHz. Sweep = auto; Detector Function = Peak, Set the span to fully encompass the DTS bandwidth.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

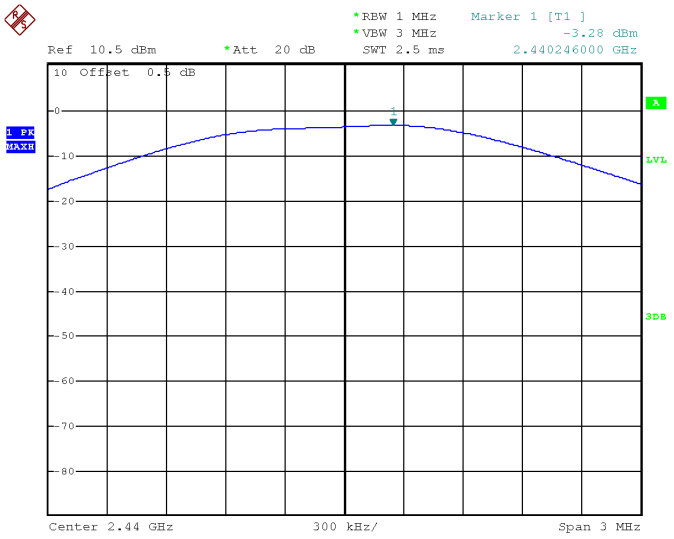
11.2 Test Result:

Maximum Peak Output Power (dBm)		
Low channel	Middle channel	High channel
-4.74	-3.28	-1.86
Limit: 1W/30dBm		

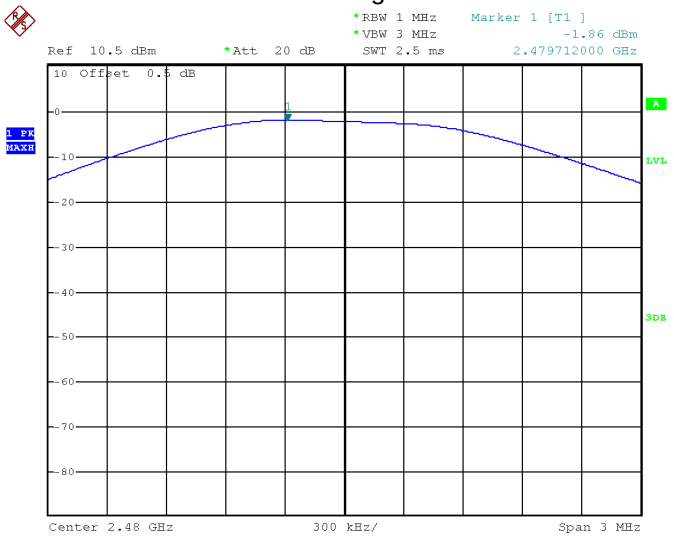
Mode: Low channel



Mode: Middle channel



Mode: High channel



12 Power Spectral density

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance V04

12.1 Test Procedure:

558074 D01 DTS Meas Guidance V04

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

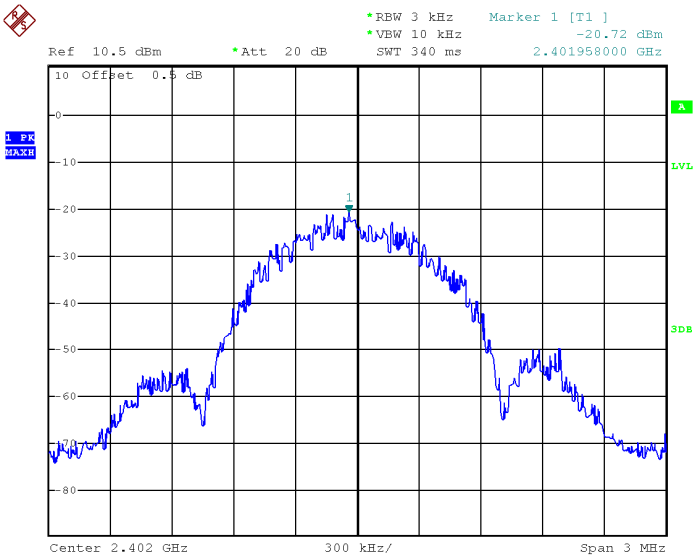
2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.

3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

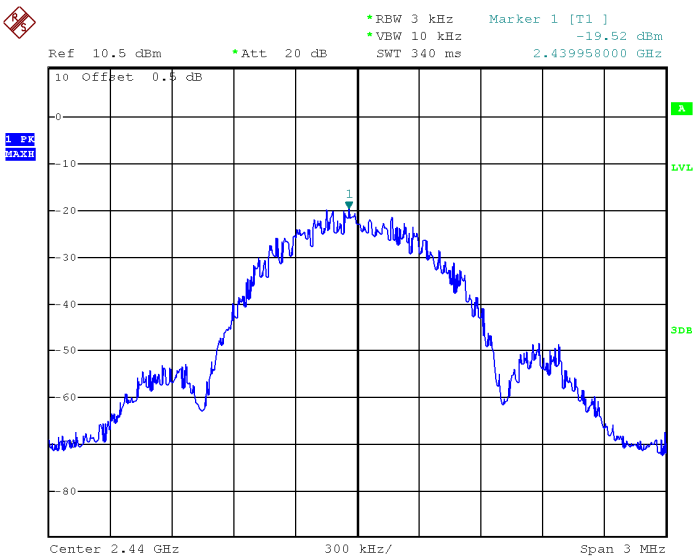
12.2 Test Result:

Power Spectral Density(dBm)		
Low channel	Middle channel	High channel
-20.72	-19.52	-18.19
Limit: 8dBm per 3kHz		

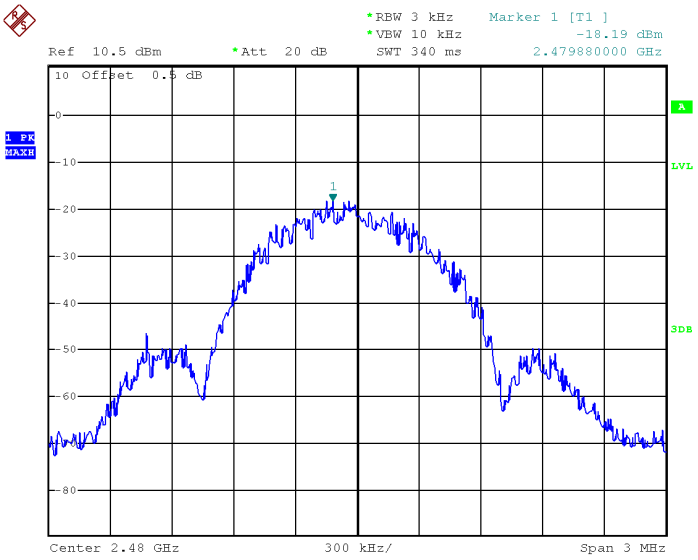
Test mode: Low channel



Test mode: Middle channel



Test mode: High channel



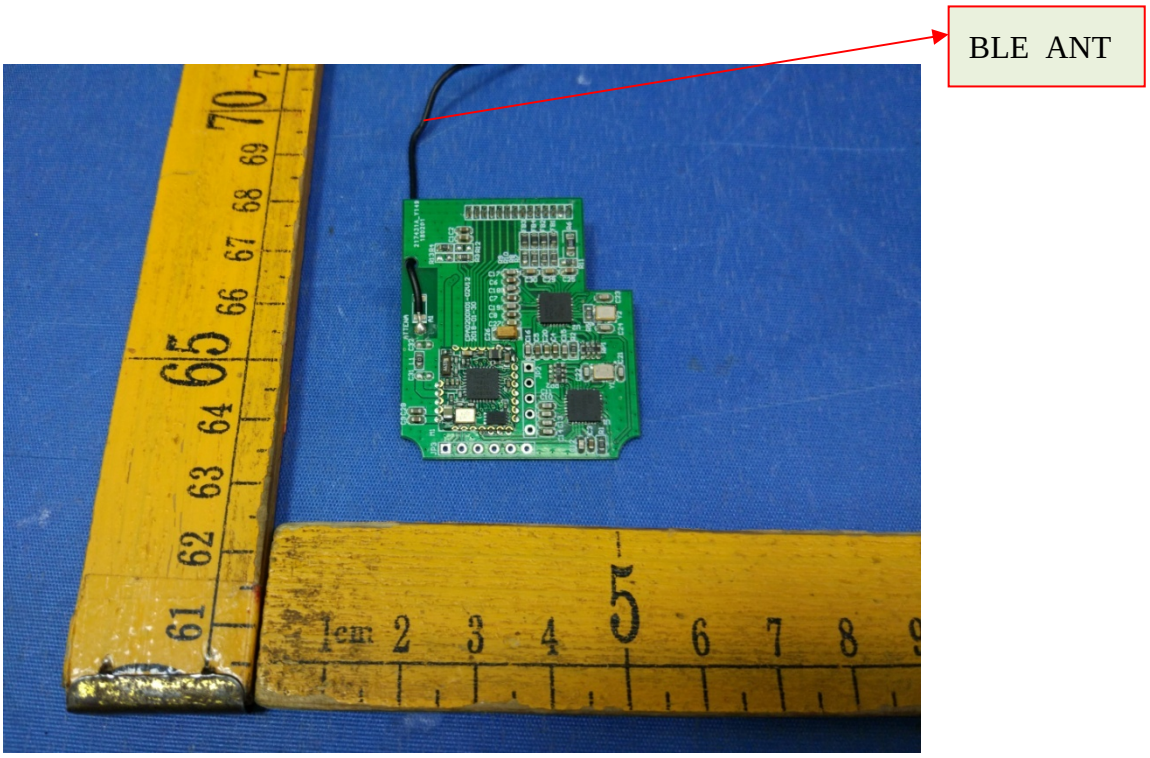
13 Antenna Requirement

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.

For intentional device, according to FCC 47 CFR 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.

Result:

The EUT has a Wire antenna, meets the requirements of FCC 15.203.



14 RF Exposure

Test Requirement: FCC Part 1.1307

Evaluation Method: FCC Part 2.1091

14.1 Requirements

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

14.2 The procedures / limit

(A) Limits for Occupational / Controlled Exposure

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

(B) Limits for General Population / Uncontrolled Exposure

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

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

14.3 MPE Calculation Method

E (V/m) $= \frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) $= \frac{E^2}{377}$

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

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

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

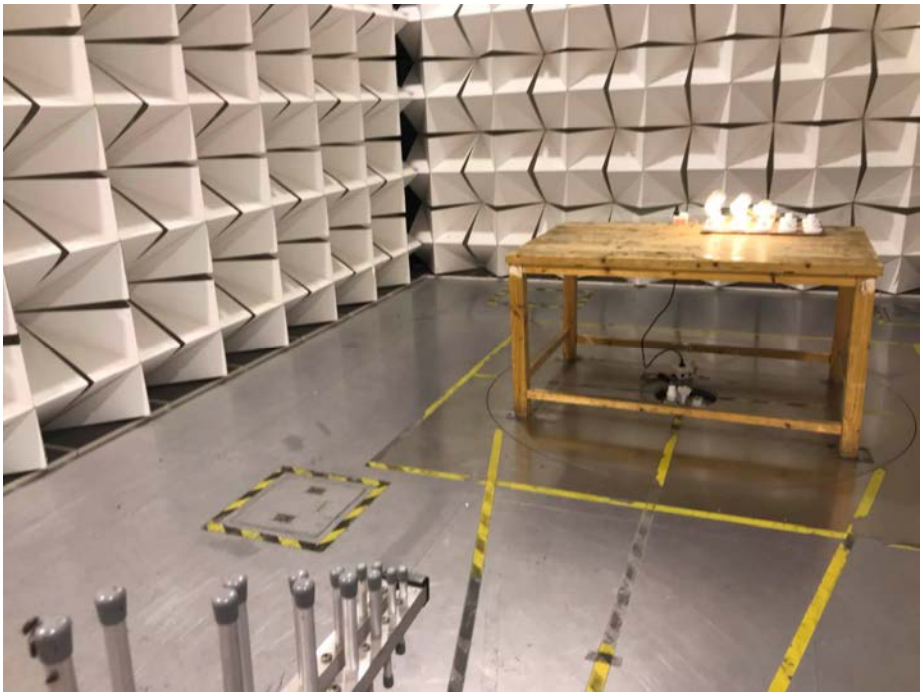
Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)
2.00	1.585	-1.86	0.65	0.000205	1

15 Photographs – Test Setup Photos

15.1 Radiated Emission

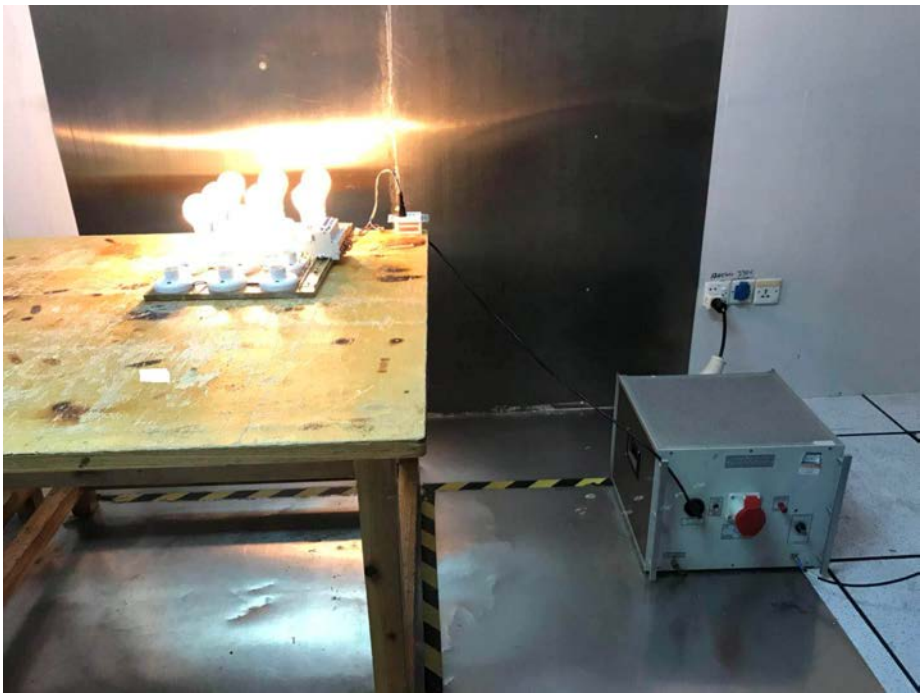
Test frequency Below 30MHz

Test frequency from 30MHz to 1GHz



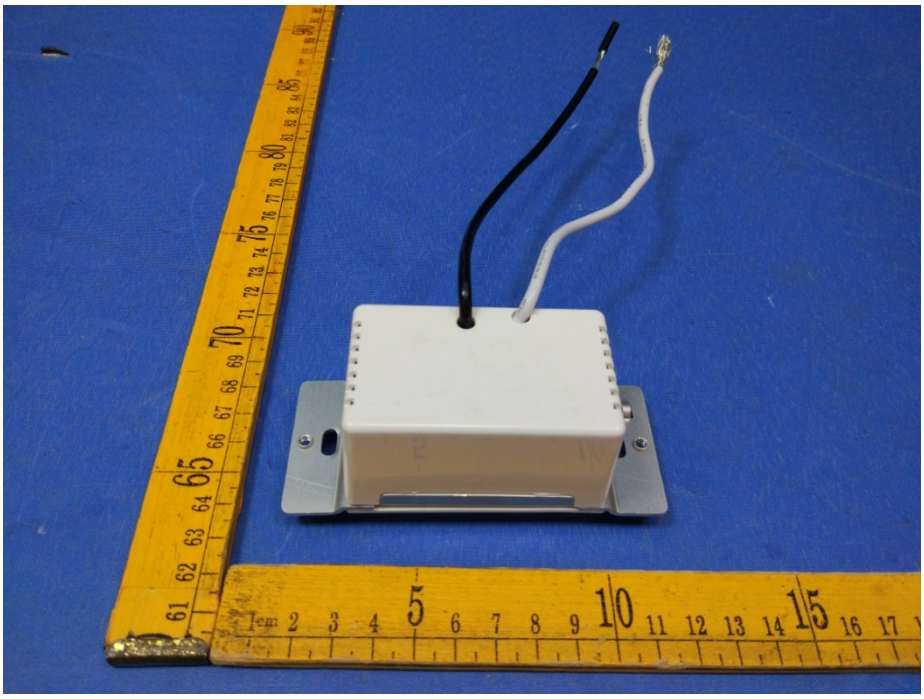
Test frequency above 1GHz

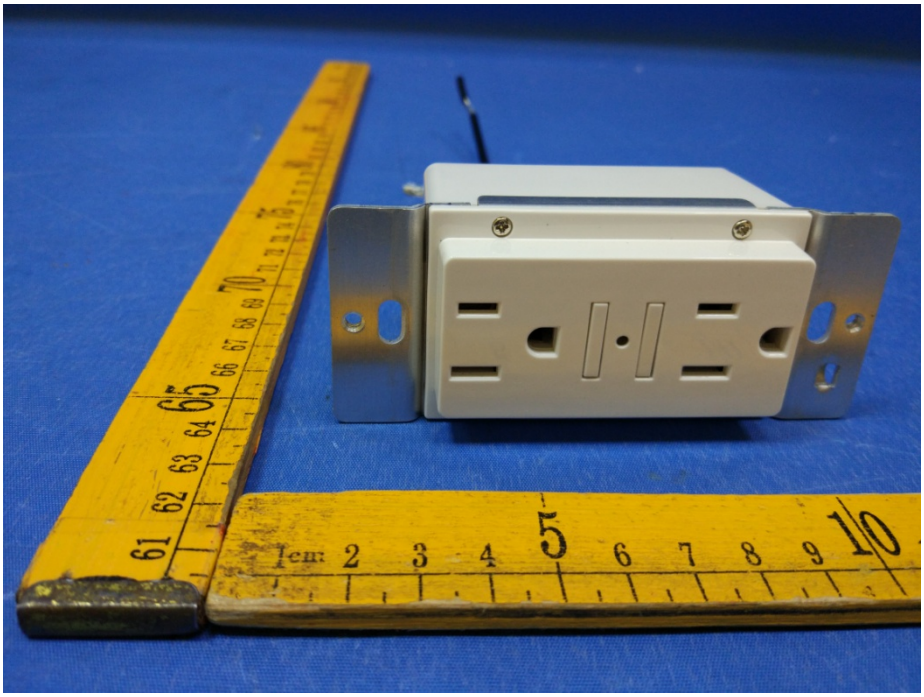
15.2 Conducted Emission

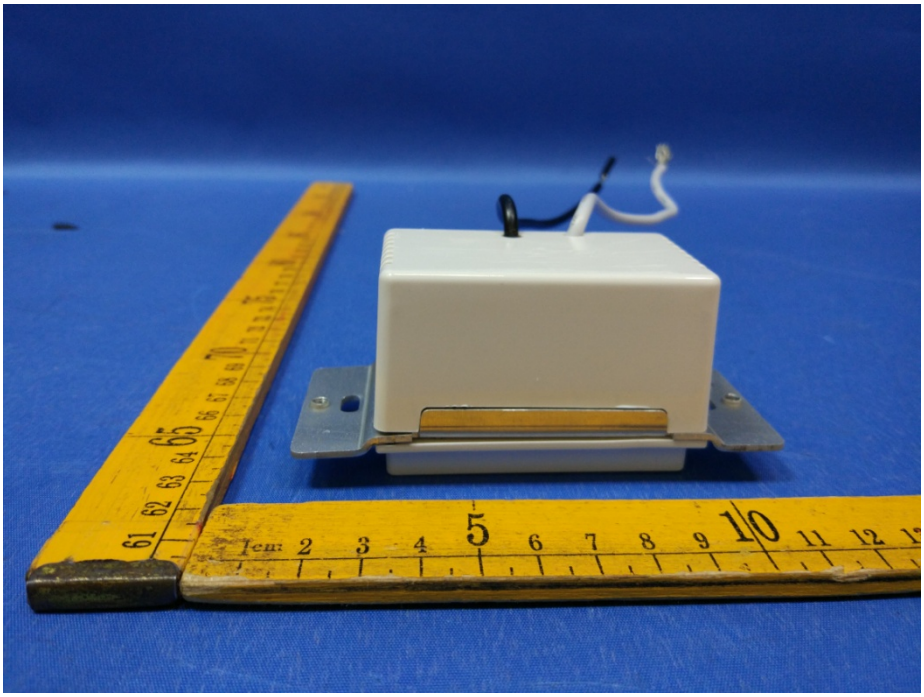


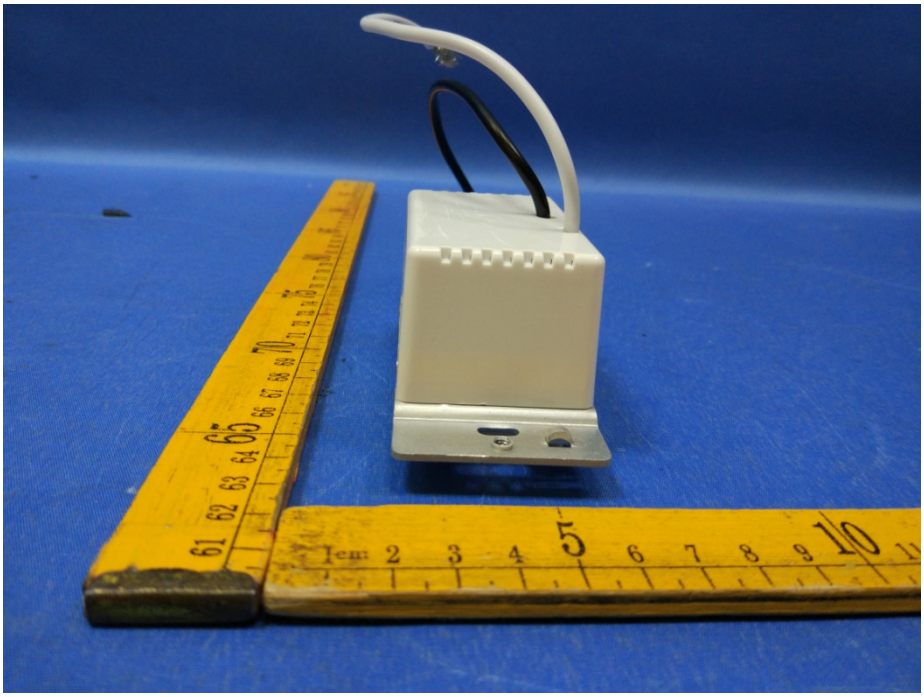
16 Photographs – Constructional Details

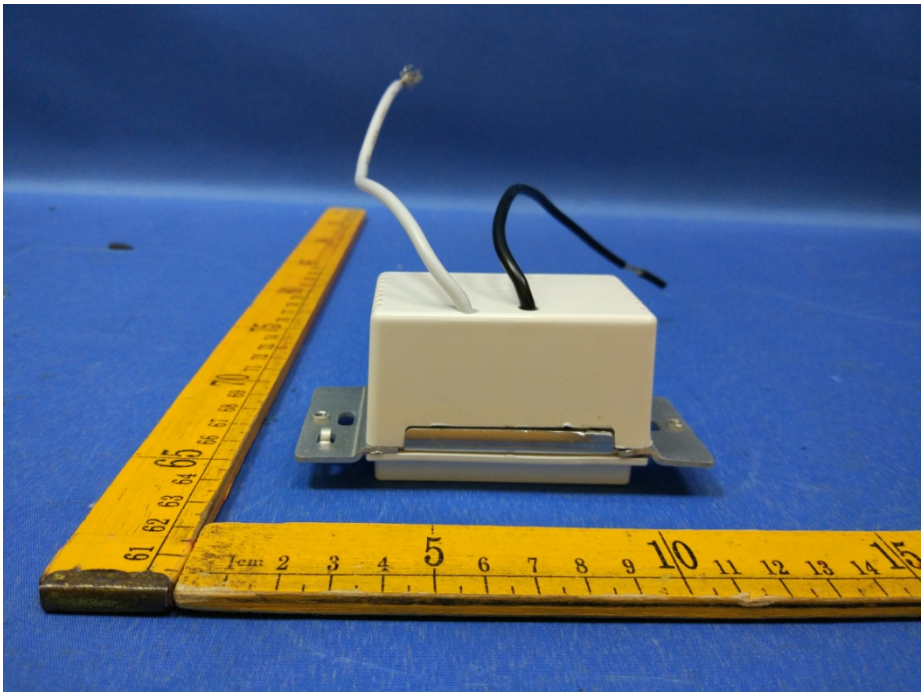
16.1 Appearance View

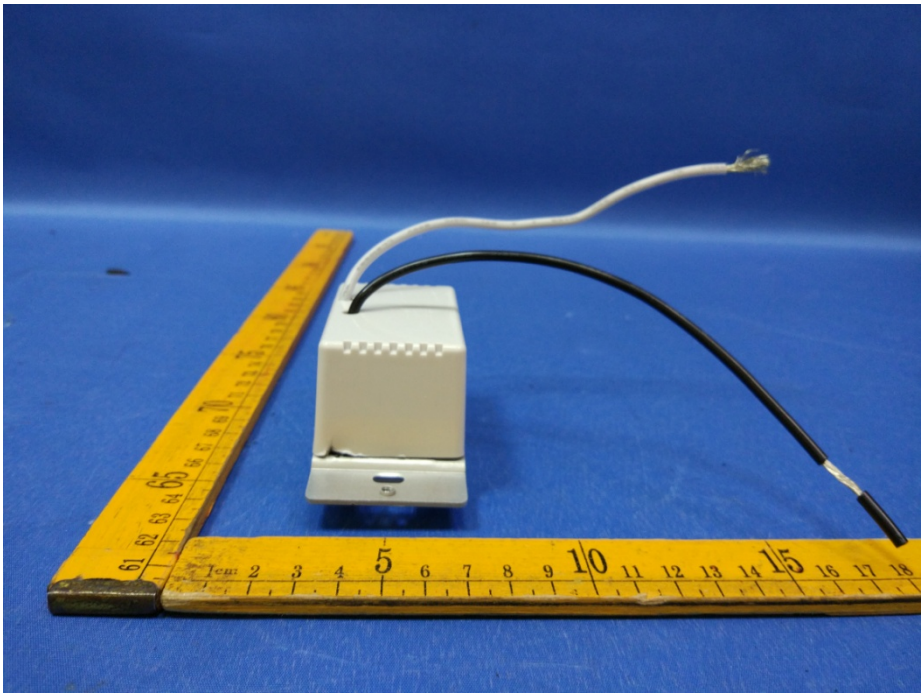




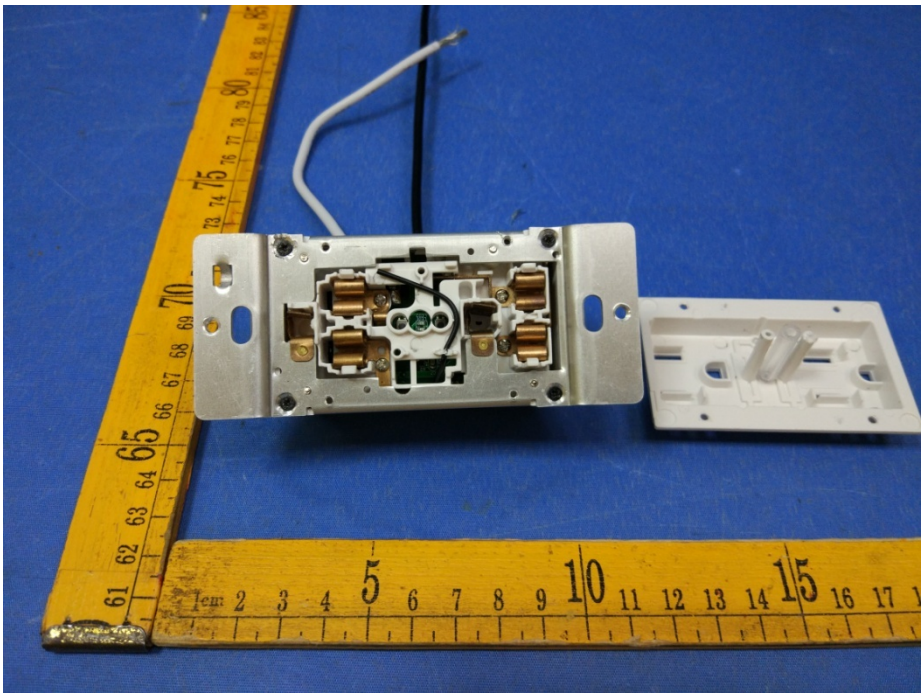


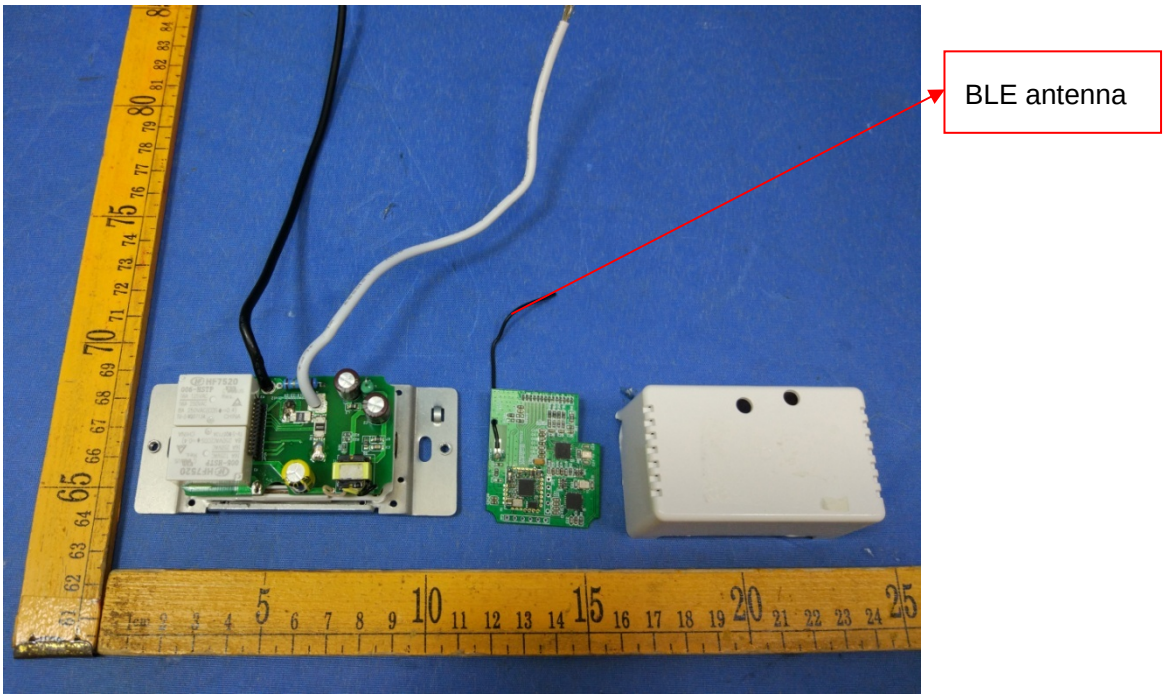


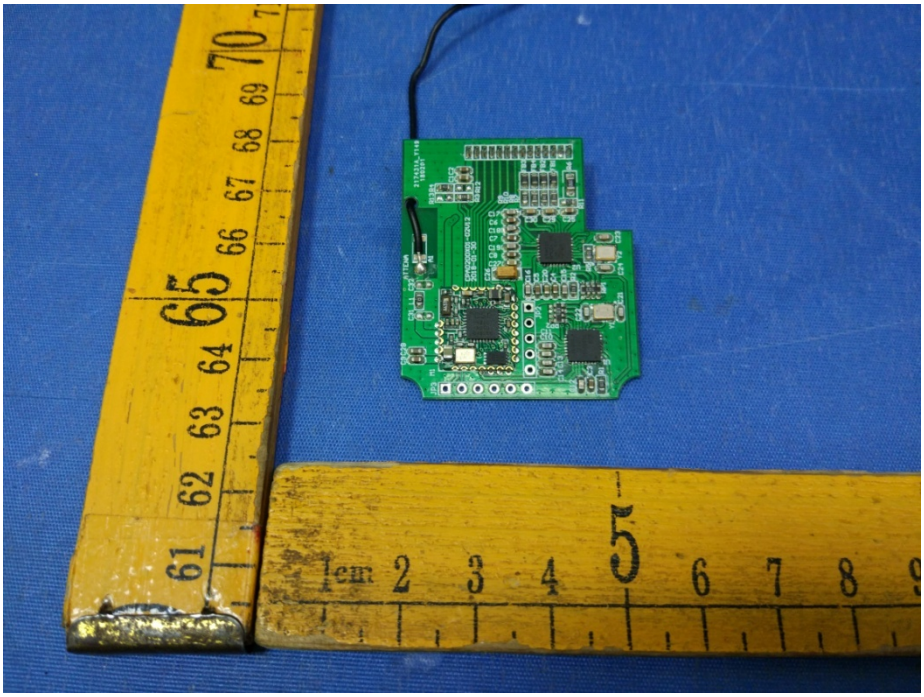


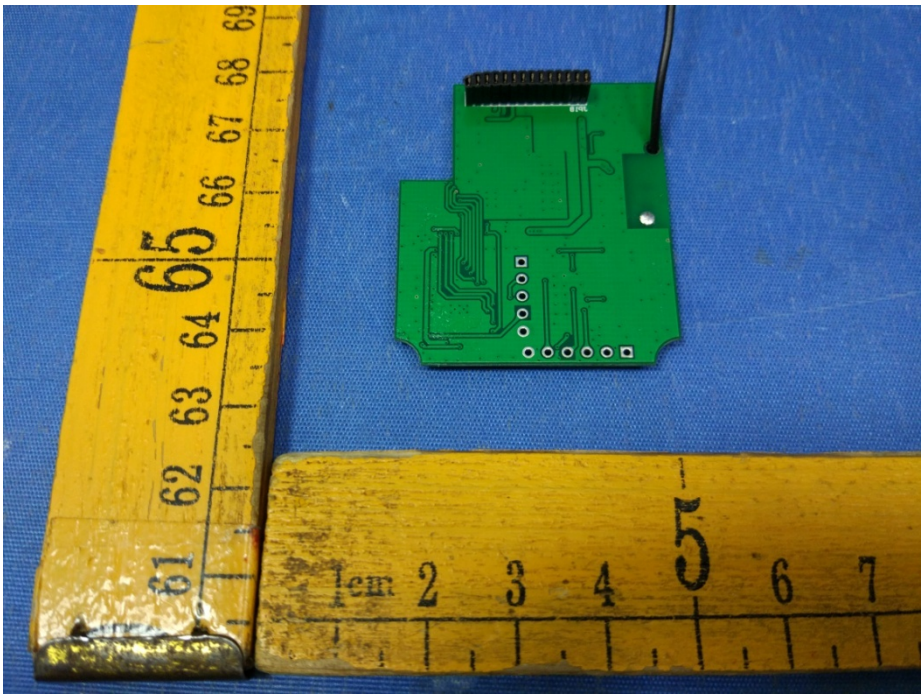


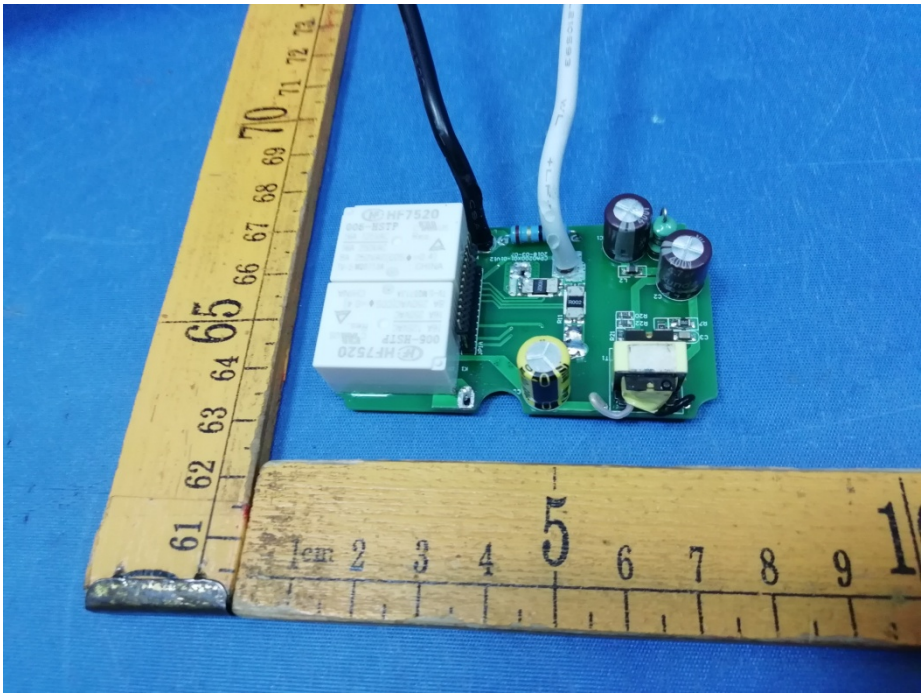
16.2 Internal View

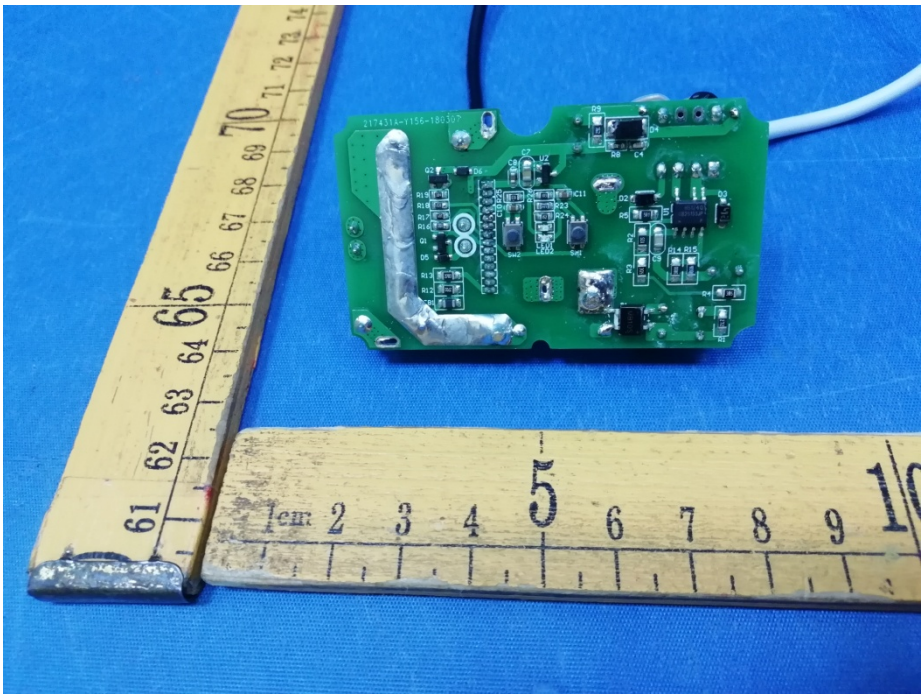


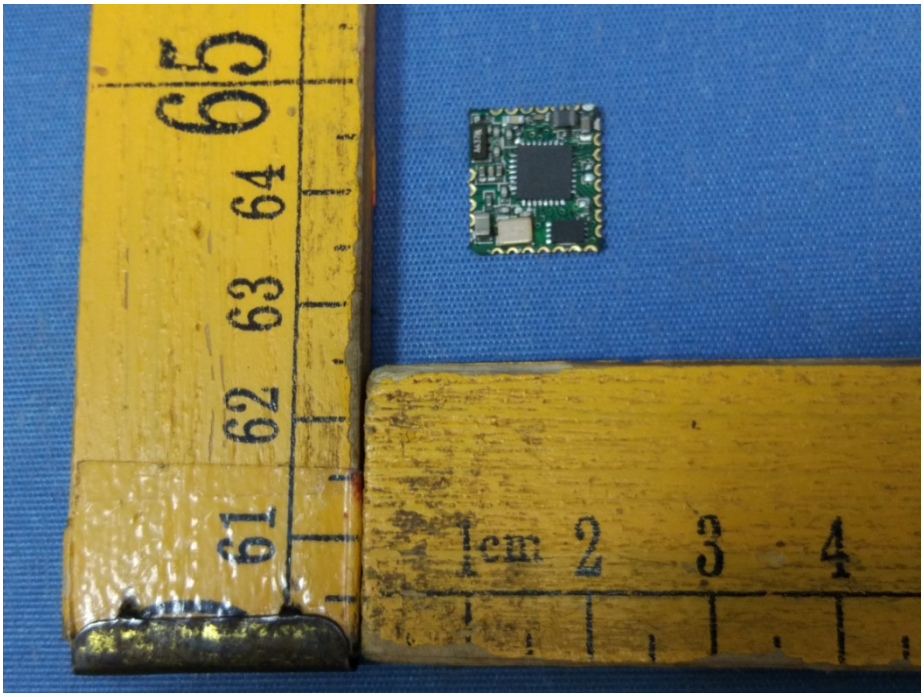


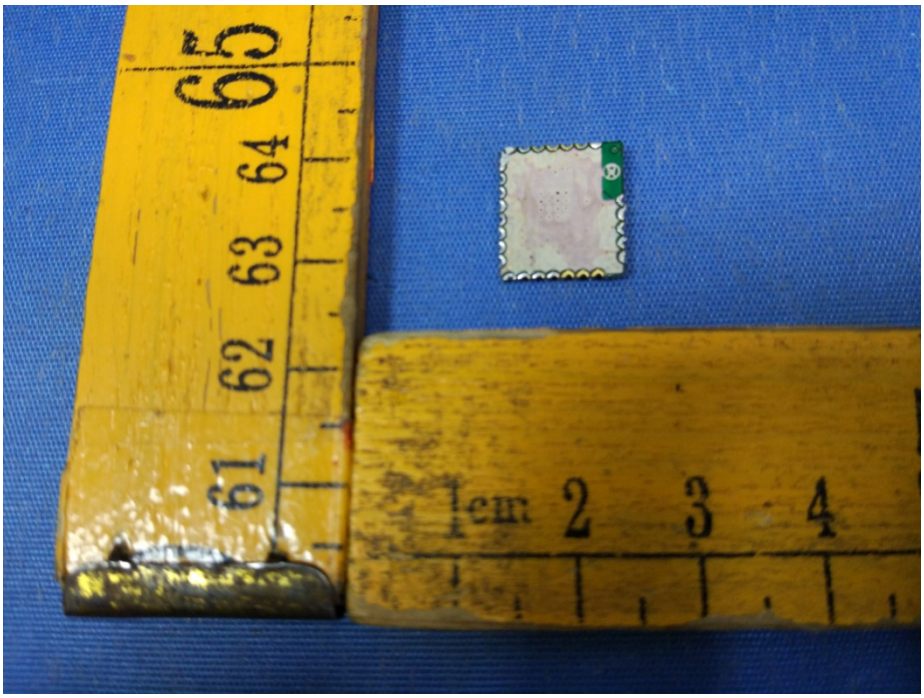





HF7520
006-HSTF
1cm 2 3 4 5 6 7 8 9


1cm 2 3 4 5 6 7 8 9


65
64
63
62
61
1cm 2 3 4


65
64
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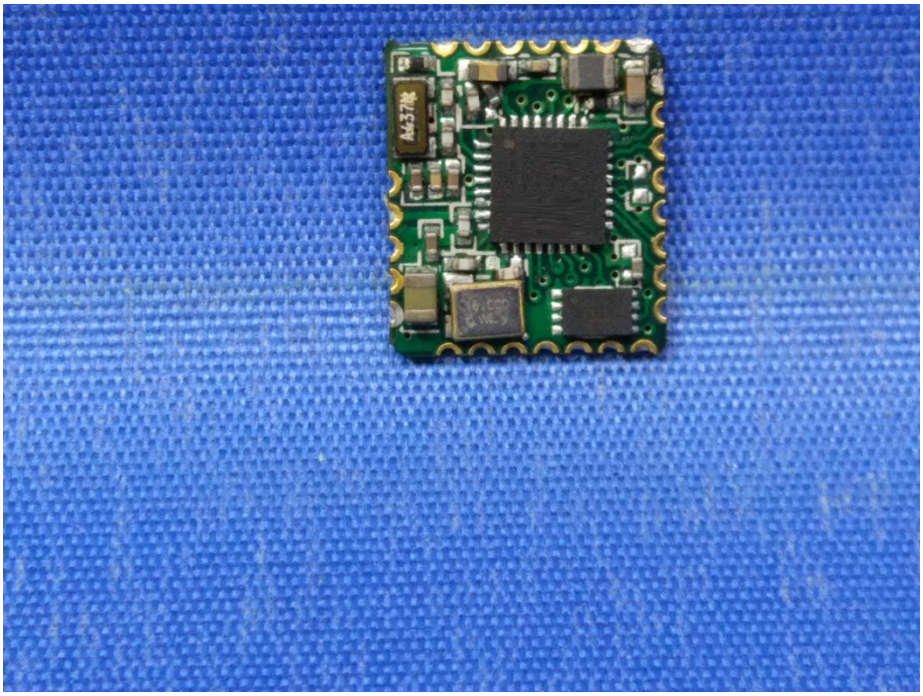
1cm 2 3 4



======End of Report======