

FCC TEST REPORT

For

Shenzhen Junlan Electronic Ltd

37" Bluetooth Soundbar with Optical with Wireless Subwoofer

Model No.: PSB378W, SBB-55391

Prepared For : Shenzhen Junlan Electronic Ltd
Address : No.277 PingKui Road, Shijing Community, Pingshan Street, Pingshan
New District, Shenzhen, China

Prepared By : Shenzhen Anbotech Compliance Laboratory Limited
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Date of Report : Dec. 05, 2018

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TEST REPORT

Applicant : Shenzhen Junlan Electronic Ltd
Manufacturer : Shenzhen Junlan Electronic Ltd
Product Name : 37" Bluetooth Soundbar with Optical with Wireless Subwoofer
Model No. : PSB378W, SBB-55391
Trade Mark : 
Rating(s) : Input: DC 16V, 1.5A(via adapter input: AC 100~240V, 50/60Hz ,1A)

Test Standard(s) : FCC Part15 Subpart C, Paragraph 15.249

Test Method(s) : ANSI C63.10: 2013

The device described above is tested by Shenzhen Anbotech 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 Anbotech 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 Anbotech Compliance Laboratory Limited.

Date of Test

Nov. 01~Dec. 05, 2018

Prepared by



(Engineer / Oliay Yang)

Reviewer

(Supervisor / Snowy Meng)

Approved & Authorized Signer

(Manager / Sally Zhang)

1. General Information

1.1. Client Information

Applicant	:	Shenzhen Junlan Electronic Ltd
Address	:	No.277 PingKui Road, Shijing Community, Pingshan Street, Pingshan New District, Shenzhen, China
Manufacturer	:	Shenzhen Junlan Electronic Ltd
Address	:	No.277 PingKui Road, Shijing Community, Pingshan Street, Pingshan New District, Shenzhen, China
Factory	:	Shenzhen Junlan Electronic Ltd
Address	:	No.277 PingKui Road, Shijing Community, Pingshan Street, Pingshan New District, Shenzhen, China

1.2. Description of Device (EUT)

Product Name	:	37" Bluetooth Soundbar with Optical with Wireless Subwoofer	
Model No.	:	PSB378W, SBB-55391 (Note: All samples are the same except the model name, so we prepare "PSB378W" for test only.)	
Trade Mark	:		
Test Power Supply	:	AC 240V, 60Hz for adapter/ AC 120V, 60Hz for adapter	
Test Sample No.	:	S1(Normal Sample), S2(Engineering Sample)	
Product Description	:	Operation Frequency:	910-919.5MHz
		Modulation Type:	LoRa/FSK
		Antenna Type:	Wire Antenna
		Antenna Gain(Peak):	0 dBi
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2) This report is for 915MHz module.			

1.3. Auxiliary Equipment Used During Test

Adapter	:	MODEL: JY024160150AA-UL INPUT: 100-240V 50/60Hz 1.0A Max OUTPUT: DC 16V, 1.5A
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1.4. Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	CH01
Mode 2	CH11
Mode 3	CH20
Mode 4	Keeping TX+ Charging Mode

For Conducted Emission	
Final Test Mode	Description
Mode 4	Keeping TX+ Charging Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH01
Mode 2	CH11
Mode 3	CH20
Mode 4	Keeping TX+ Charging Mode

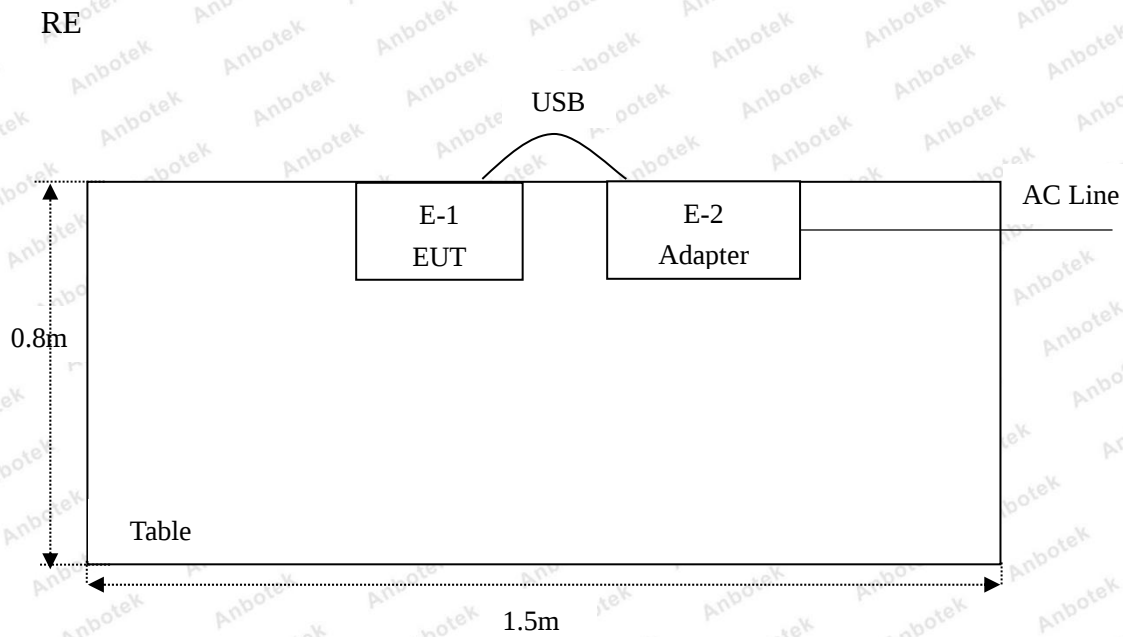
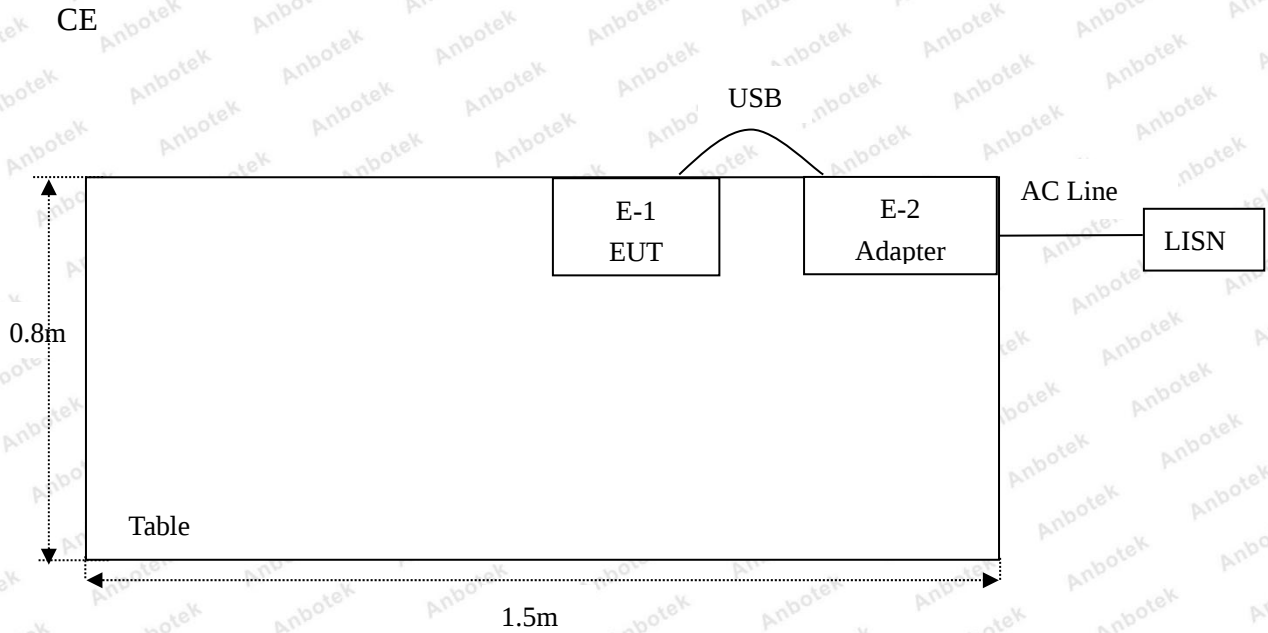
Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2)The data rate was set in 1Mbps for radiated emission due to the highest RF output power.

1.5. List of channels

Channel	freq	Channel	freq
01	910	11	915
02	910.5	12	915.5
03	911	13	916
04	911.5	14	916.5
05	912	15	917
06	912.5	16	917.5
07	913	17	918
08	913.5	18	918.5
09	914	19	919
10	914.5	20	919.5

1.6. Description of Test Setup



1.7. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Nov. 05, 2018	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESPI3	101604	Nov. 05, 2018	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 05, 2018	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	Nov. 05, 2018	1 Year
5.	MAX Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Nov. 05, 2018	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 20, 2018	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 19, 2018	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 20, 2018	1 Year
10.	Horn Antenna	A-INFO	LB-180400-K F	J211060628	Nov. 20, 2018	1 Year
11.	Pre-amplifier	SONOMA	310N	186860	Nov. 05, 2018	1 Year
12.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
13.	RF Test Control System	YIHENG	YH3000	2017430	Nov. 05, 2018	1 Year
14.	Power Sensor	DAER	RPR3006W	15I00041SN045	Nov. 05, 2018	1 Year
15.	Power Sensor	DAER	RPR3006W	15I00041SN046	Nov. 05, 2018	1 Year
16.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
17.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 05, 2018	1 Year
18.	Signal Generator	Agilent	E4421B	MY41000743	Nov. 05, 2018	1 Year
19.	DC Power Supply	IVYTECH	IV3605	1804D360510	Apr. 02, 2018	1 Year
20.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Nov. 01, 2018	1 Year

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotech Compliance Laboratory Limited, 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 No. 184111, July 31, 2017.

ISED-Registration No.: 8058A-1

Shenzhen Anbotech Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

Test Location

Shenzhen Anbotech Compliance Laboratory Limited,
1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District,
Shenzhen, Guangdong, China.518102

2. Summary of Test Results

Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.249	Spurious Emission	PASS
15.215(c)	20dB Bandwidth	PASS
15.249(c)	Band Edge	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		

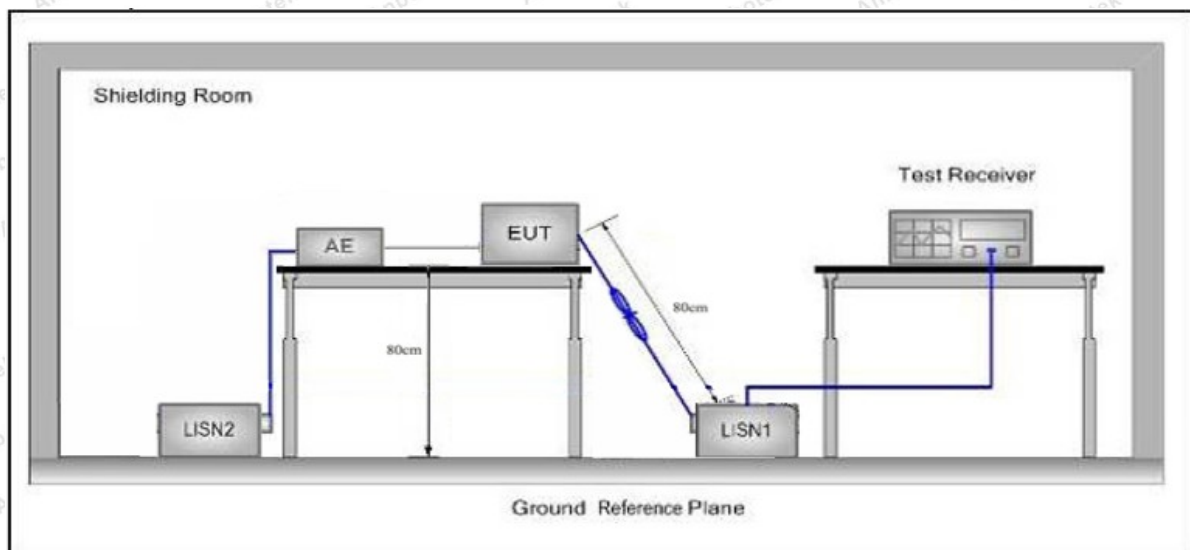
3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50

Remark: (1) *Decreasing linearly with logarithm of the frequency.
(2) The lower limit shall apply at the transition frequency.

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2013 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

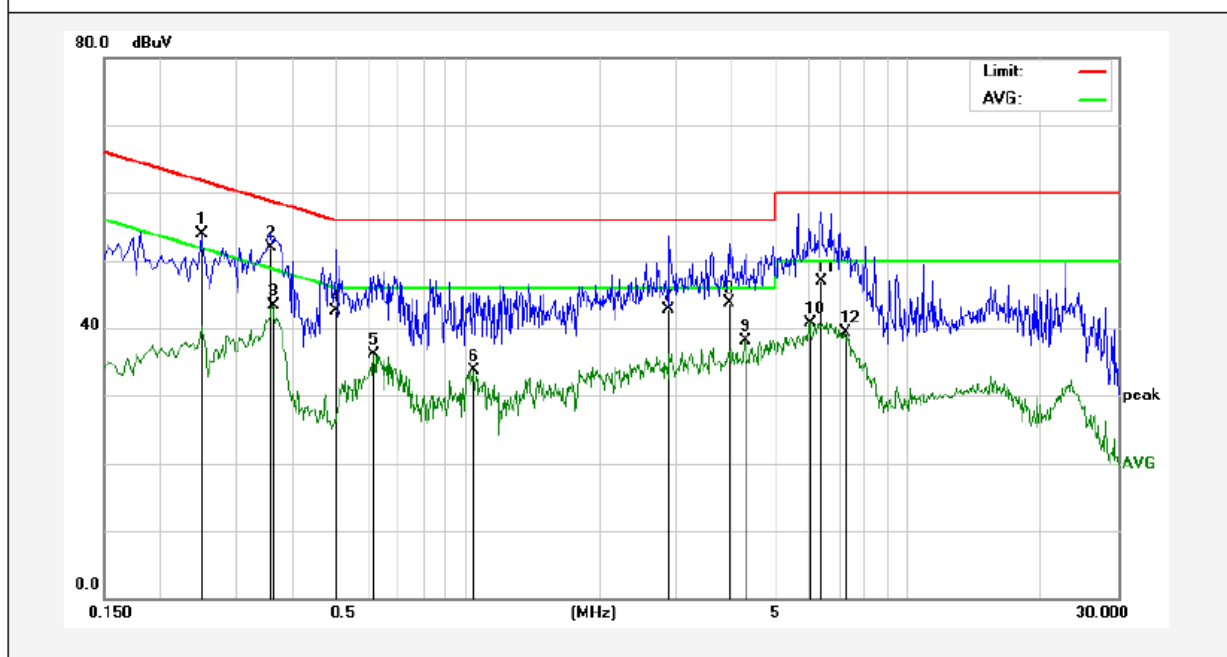
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages.

Conducted Emission Test Data

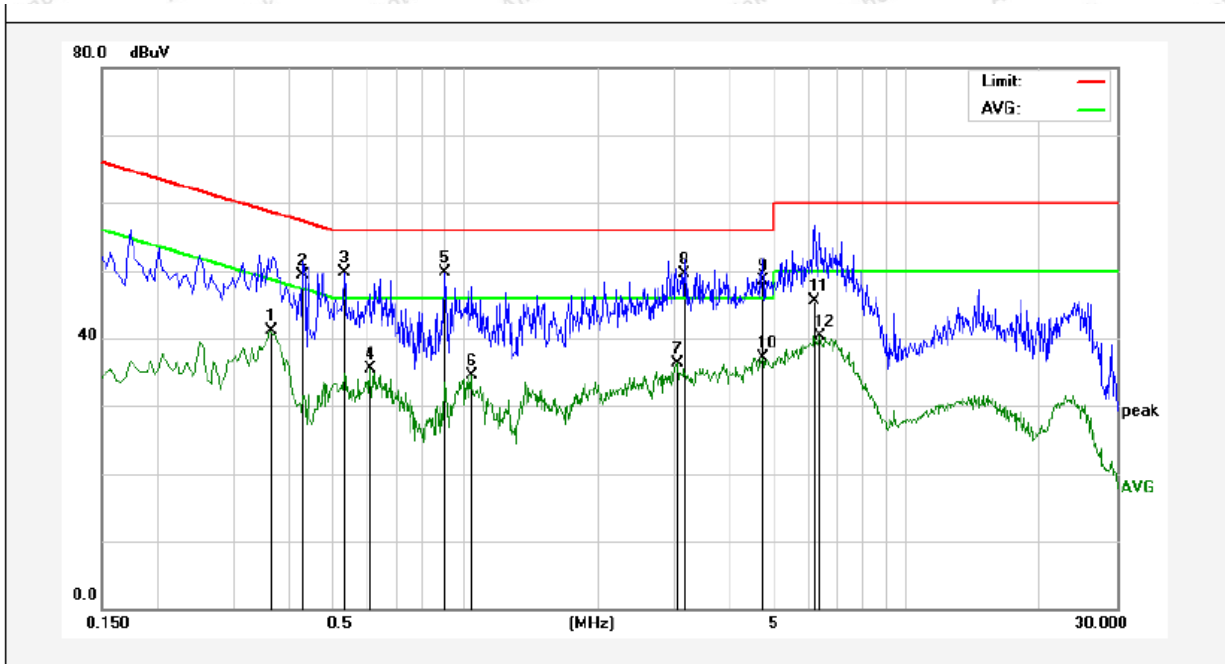
Test Site: 1# Shielded Room
Operating Condition: Keeping TX+ Charging Mode
Test Specification: AC 240V, 60Hz for adapter
Comment: Live Line
Tem.: 23.7°C Hum.: 41%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2500	34.04	19.89	53.93	61.75	-7.82	QP	
2	0.3580	32.05	19.92	51.97	58.77	-6.80	QP	
3	0.3620	23.36	19.92	43.28	48.68	-5.40	AVG	
4	0.5060	22.59	19.98	42.57	56.00	-13.43	QP	
5	0.6140	16.01	20.01	36.02	46.00	-9.98	AVG	
6	1.0339	13.62	20.12	33.74	46.00	-12.26	AVG	
7	2.8780	22.57	20.16	42.73	56.00	-13.27	QP	
8	3.9380	23.60	20.18	43.78	56.00	-12.22	QP	
9	4.2660	17.92	20.19	38.11	46.00	-7.89	AVG	
10	6.0020	20.57	20.23	40.80	50.00	-9.20	AVG	
11	6.3620	26.76	20.24	47.00	60.00	-13.00	QP	
12	7.1780	19.03	20.26	39.29	50.00	-10.71	AVG	

Conducted Emission Test Data

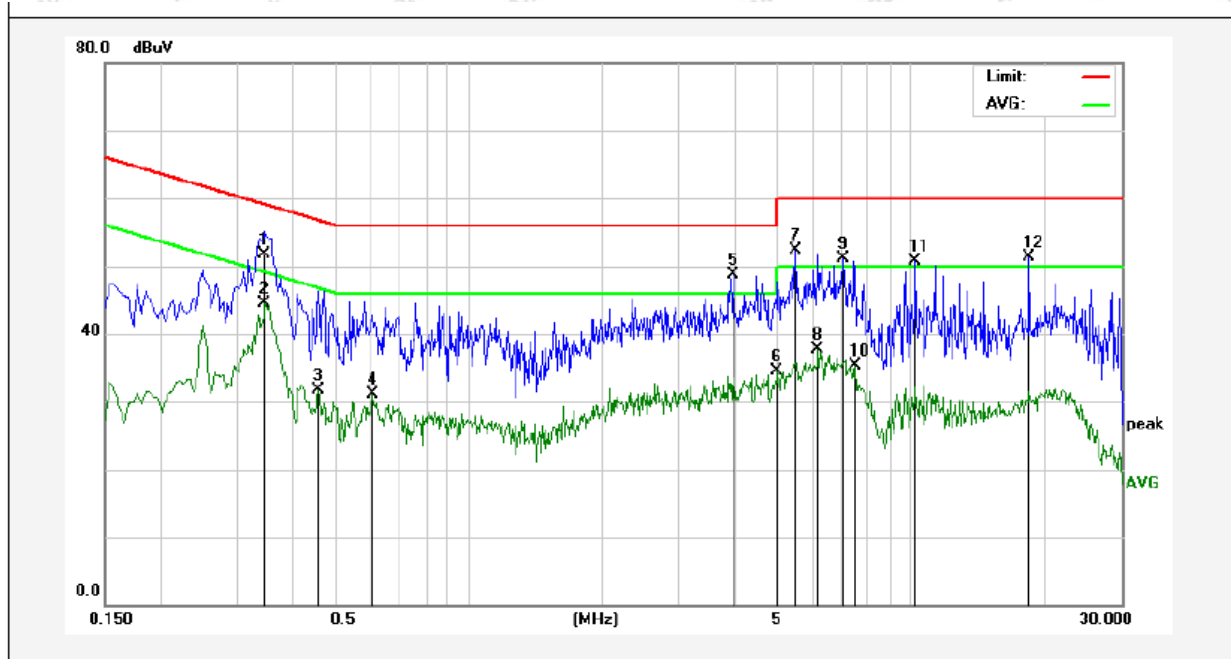
Test Site: 1# Shielded Room
Operating Condition: CH01
Operating Condition: Keeping TX+ Charging Mode
Comment: Neutral Line
Tem.: 23.7°C Hum.: 41%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.3620	21.19	19.92	41.11	48.68	-7.57	AVG	
2	0.4300	29.42	19.95	49.37	57.25	-7.88	QP	
3	0.5340	29.65	19.99	49.64	56.00	-6.36	QP	
4	0.6100	15.53	20.01	35.54	46.00	-10.46	AVG	
5	0.9020	29.60	20.09	49.69	56.00	-6.31	QP	
6	1.0339	14.36	20.12	34.48	46.00	-11.52	AVG	
7	3.0300	16.08	20.16	36.24	46.00	-9.76	AVG	
8	3.1420	29.28	20.16	49.44	56.00	-6.56	QP	
9	4.7340	28.37	20.20	48.57	56.00	-7.43	QP	
10	4.7340	16.97	20.20	37.17	46.00	-8.83	AVG	
11	6.1900	25.22	20.24	45.46	60.00	-14.54	QP	
12	6.3820	20.13	20.24	40.37	50.00	-9.63	AVG	

Conducted Emission Test Data

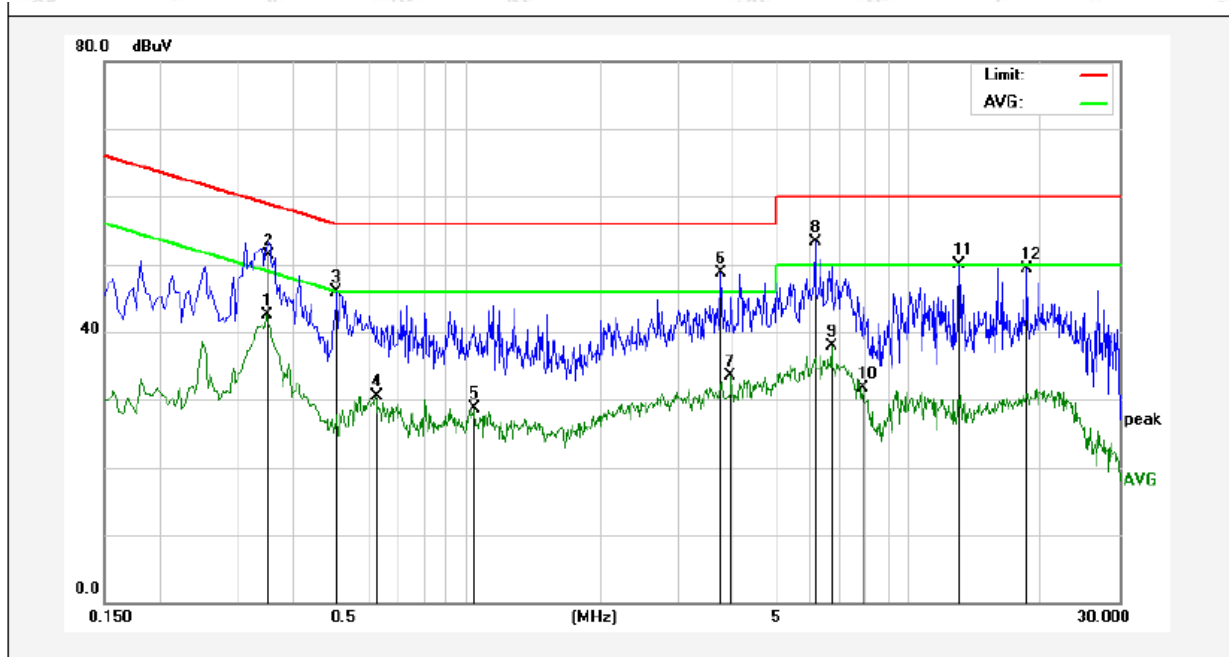
Test Site: 1# Shielded Room
Operating Condition: Keeping TX+ Charging Mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.: 23.7°C Hum.: 41%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.3460	31.83	19.91	51.74	59.06	-7.32	QP	
2	0.3460	24.67	19.91	44.58	49.06	-4.48	AVG	
3	0.4580	11.68	19.96	31.64	46.73	-15.09	AVG	
4	0.6060	11.16	20.01	31.17	46.00	-14.83	AVG	
5	3.9740	28.46	20.18	48.64	56.00	-7.36	QP	
6	4.9860	14.36	20.21	34.57	46.00	-11.43	AVG	
7	5.4820	32.12	20.22	52.34	60.00	-7.66	QP	
8	6.1740	17.38	20.24	37.62	50.00	-12.38	AVG	
9	7.0380	30.76	20.26	51.02	60.00	-8.98	QP	
10	7.4980	14.94	20.27	35.21	50.00	-14.79	AVG	
11	10.2340	30.29	20.34	50.63	60.00	-9.37	QP	
12	18.5620	30.91	20.32	51.23	60.00	-8.77	QP	

Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Keeping TX+ Charging Mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.: 23.7°C Hum.: 41%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.3500	22.63	19.91	42.54	48.96	-6.42	AVG	
2	0.3540	31.35	19.91	51.26	58.87	-7.61	QP	
3	0.5060	26.00	19.98	45.98	56.00	-10.02	QP	
4	0.6180	10.48	20.02	30.50	46.00	-15.50	AVG	
5	1.0339	8.51	20.12	28.63	46.00	-17.37	AVG	
6	3.7580	28.52	20.17	48.69	56.00	-7.31	QP	
7	3.9460	13.38	20.18	33.56	46.00	-12.44	AVG	
8	6.1500	33.01	20.24	53.25	60.00	-6.75	QP	
9	6.6900	17.58	20.25	37.83	50.00	-12.17	AVG	
10	7.8740	11.40	20.28	31.68	50.00	-18.32	AVG	
11	13.0100	29.53	20.29	49.82	60.00	-10.18	QP	
12	18.5580	28.98	20.32	49.30	60.00	-10.70	QP	

4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3
Remark: (1)The lower limit shall apply at the transition frequency. (2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.					

Test Standard	FCC Part15 C Section 15.249					
Test Limit	Fundamental frequency (MHz)	Field Strength	Limit (microvolts/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	902~928	Fundamental	50	94.0	Quasi-peak	3
		Harmonics	500	74.0	Average	3
			-	94.0	Peak	3
Remark: (1) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.						

4.2. Test Setup

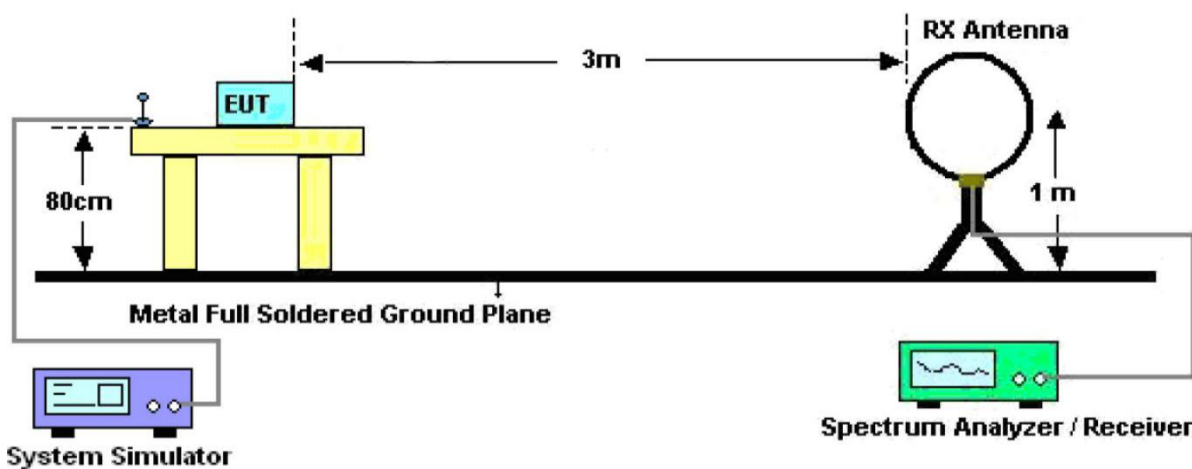


Figure 1. Below 30MHz

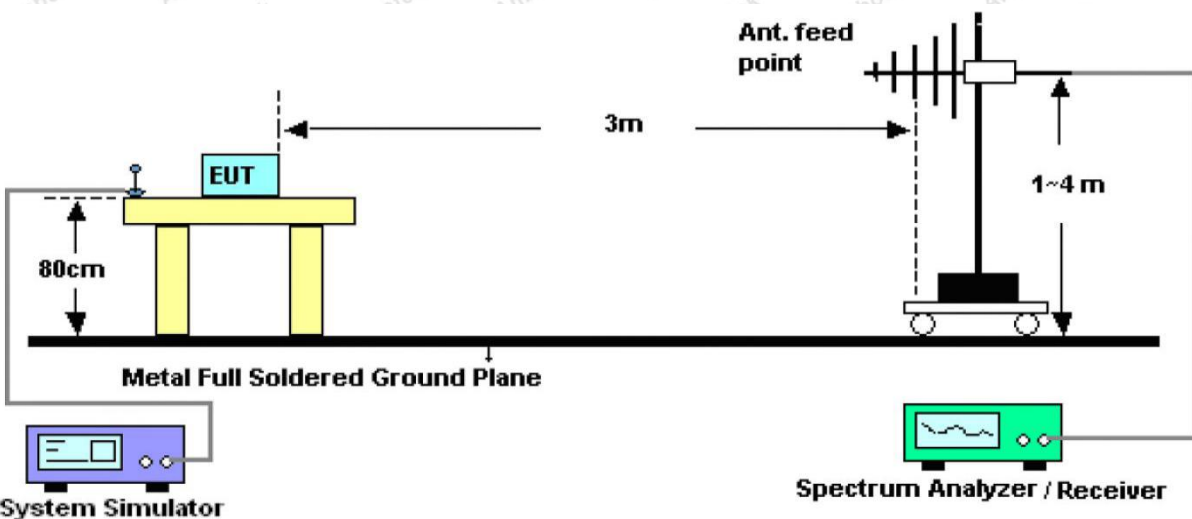


Figure 2. 30MHz to 1GHz

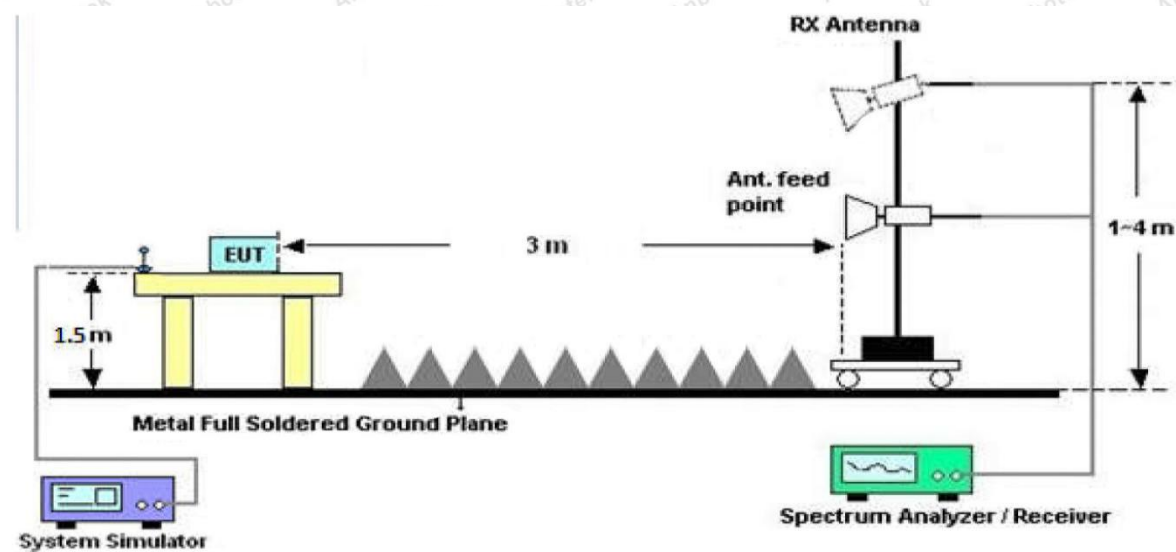


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.

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. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 120KHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz,Set the spectrum analyzer as:

RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.

RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

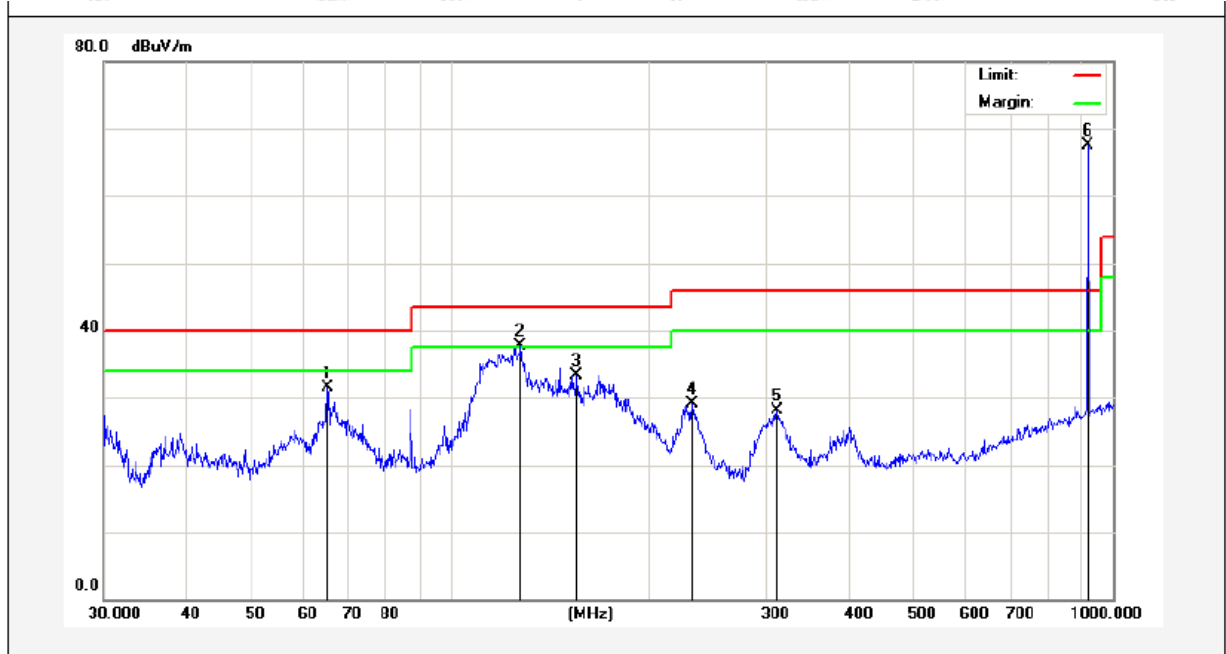
PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Test Results (30~1000MHz)

Job No.: SZAWW181101001-02 Temp.(°C)/Hum.(%RH): 24.6°C/52%RH
Standard: FCC PART 15C Power Source: AC 240V, 60Hz for adapter
Test Mode: Keeping TX+ Charging Mode Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	65.3432	51.59	-20.00	31.59	40.00	-8.41	QP	300	0	
2	127.6645	60.41	-22.62	37.79	43.50	-5.71	QP	300	63	
3	155.3644	55.45	-22.09	33.36	43.50	-10.14	QP	300	145	
4	231.7179	48.33	-19.24	29.09	46.00	-16.91	QP	300	121	
5	311.0867	45.43	-17.23	28.20	46.00	-17.80	QP	300	263	
6	915.0687	72.06	-4.52	67.54	94.00	-26.46	QP	300	360	

Job No.: SZAWW181101001-02

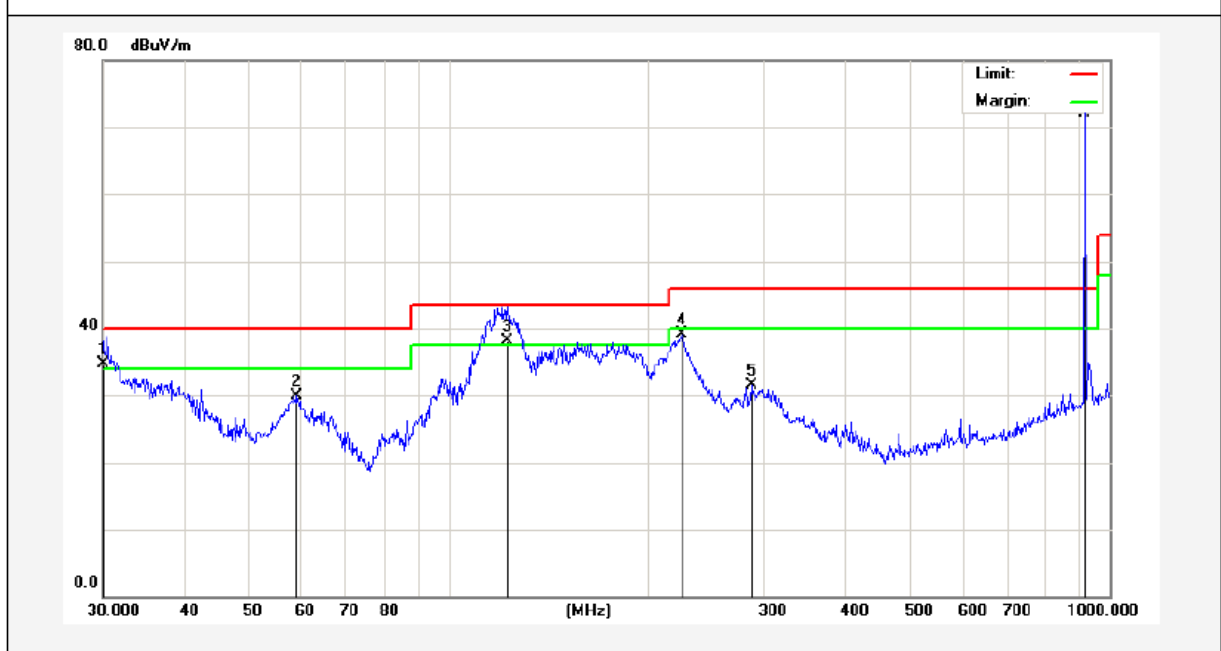
Temp.(°C)/Hum.(%RH): 24.6°C/52%RH

Standard: FCC PART 15C

Power Source: AC 240V, 60Hz for adapter

Test Mode: Keeping TX+ Charging Mode

Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	30.0200	52.15	-17.54	34.61	40.00	-5.39	QP	300	0	
2	59.0251	46.81	-16.94	29.87	40.00	-10.13	QP	300	69	
3	122.8000	54.92	-16.74	38.18	43.50	-5.32	QP	300	121	
4	225.3080	54.11	-15.09	39.02	46.00	-6.98	QP	300	212	
5	286.9823	47.32	-15.91	31.41	46.00	-14.59	QP	300	233	
6	915.0687	75.68	-3.52	72.16	94.00	-21.28	QP	300	360	

Test Results (30~1000MHz)

Job No.: SZAWW181101001-02

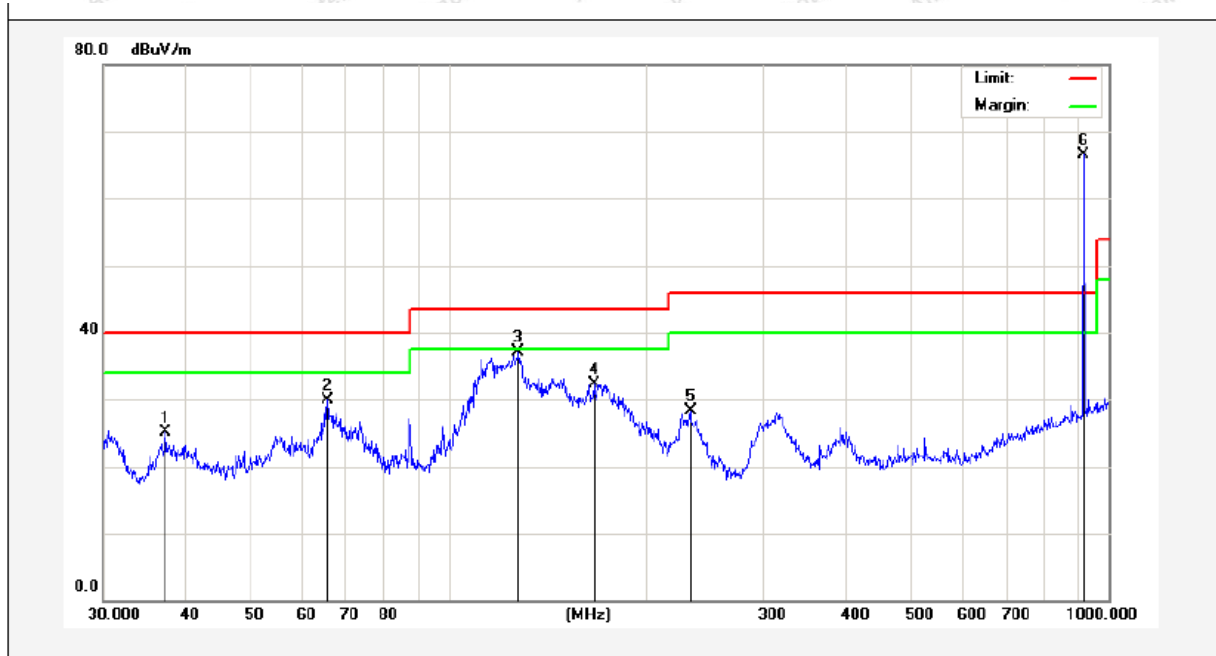
Temp.(°C)/Hum.(%RH): 24.6°C/52%RH

Standard: FCC PART 15C

Power Source: AC 120V, 60Hz for adapter

Test Mode: Keeping TX+ Charging Mode

Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	37.2855	40.92	-15.84	25.08	40.00	-14.92	QP	300	0	
2	65.5727	49.94	-20.10	29.84	40.00	-10.16	QP	300	47	
3	127.6645	59.70	-22.62	37.08	43.50	-6.42	QP	300	93	
4	166.0680	53.44	-21.07	32.37	43.50	-11.13	QP	300	124	
5	232.5318	47.51	-19.18	28.33	46.00	-17.67	QP	300	273	
6	915.0687	71.08	-4.52	66.56	94.00	-27.44	QP	300	360	

Job No.: SZAWW181101001-02

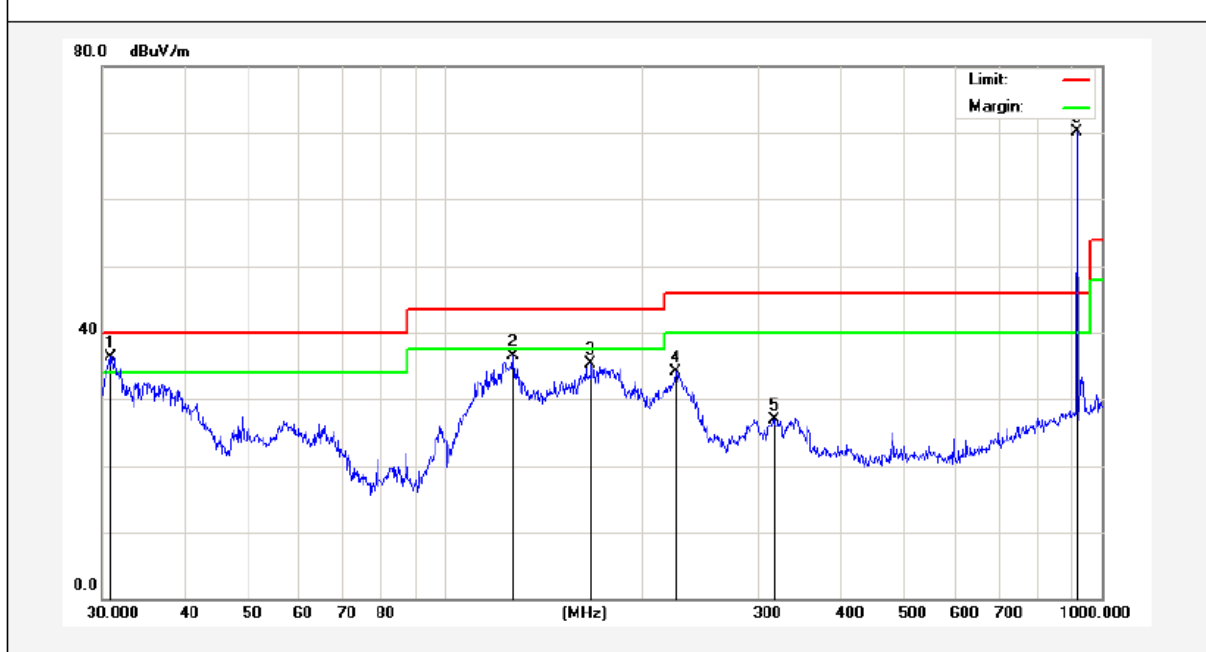
Temp.(°C)/Hum.(%RH): 24.6°C/52%RH

Standard: FCC PART 15C

Power Source: AC 120V, 60Hz for adapter

Test Mode: Keeping TX+ Charging Mode

Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	30.8535	53.65	-17.30	36.35	40.00	-3.65	QP	300	0	
2	126.7723	53.86	-17.34	36.52	43.50	-6.98	QP	300	99	
3	166.6514	52.97	-17.66	35.31	43.50	-8.19	QP	300	127	
4	224.5193	49.28	-15.13	34.15	46.00	-11.85	QP	300	234	
5	316.5890	42.12	-15.16	26.96	46.00	-19.04	QP	300	296	
6	915.0687	73.62	-3.52	70.10	94.00	-23.90	QP	300	360	

Harmonics Emissions(CH01)

Frequency	Antenna	Reading	Cable Loss	Ant Factor	Amplifier	Level	Limits	Margin	Det.
(MHz)	Pol.	(dBuV/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Mode
1820	H	48.75	7.39	28.73	26.32	58.55	74	-15.45	PK
1820	H	36.73	7.39	28.73	26.32	46.53	54	-7.47	AV
2769.6	H	42.88	8.08	29.71	27.01	53.66	74	-20.34	PK
2769.6	H	32.49	8.08	29.71	27.01	43.27	54	-10.73	AV
3640	H	--	--	--	--	--	--	--	PK
3640	H	--	--	--	--	--	--	--	AV
1820	V	46.57	7.39	28.73	26.32	56.37	74	-17.63	PK
1820	V	35.72	7.39	28.73	26.32	45.52	54	-8.48	AV
2769.6	V	43.88	8.08	29.71	27.01	54.66	74	-19.34	PK
2769.6	V	33.96	8.08	29.71	27.01	44.74	54	-9.26	AV
3640	V	--	--	--	--	--	--	--	PK
3640	V	--	--	--	--	--	--	--	AV

Harmonics Emissions(CH11)

Frequency	Antenna	Reading	Cable Loss	Ant Factor	Amplifier	Level	Limits	Margin	Det.
(MHz)	Pol.	(dBuV/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Mode
1830	H	44.56	7.39	28.73	26.32	54.36	74	-19.64	PK
1830	H	33.42	7.39	28.73	26.32	43.22	54	-10.78	AV
2769.6	H	44.91	8.08	29.71	27.01	55.69	74	-18.31	PK
2769.6	H	33.9	8.08	29.71	27.01	44.68	54	-9.32	AV
3660	H	--	--	--	--	--	--	--	PK
3660	H	--	--	--	--	--	--	--	AV
1830	V	44.93	7.39	28.73	26.32	54.73	74	-19.27	PK
1830	V	36.75	7.39	28.73	26.32	46.55	54	-7.45	AV
2769.6	V	45.11	8.08	29.71	27.01	55.89	74	-18.11	PK
2769.6	V	30.5	8.08	29.71	27.01	41.28	54	-12.72	AV
3660	V	--	--	--	--	--	--	--	PK
3660	V	--	--	--	--	--	--	--	AV

Harmonics Emissions(CH20)

Frequency	Antenna	Reading	Cable Loss	Ant Factor	Amplifier	Level	Limits	Margin	Det.
(MHz)	Pol.	(dBuV/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Mode
1839	H	45.88	7.39	28.73	26.32	55.68	74	-18.32	PK
1839	H	36.97	7.39	28.73	26.32	46.77	54	-7.23	AV
2769.6	H	44.02	8.08	29.71	27.01	54.8	74	-19.2	PK
2769.6	H	34.17	8.08	29.71	27.01	44.95	54	-9.05	AV
3678	H	--	--	--	--	--	--	--	PK
3678	H	--	--	--	--	--	--	--	AV
1839	V	50.97	7.39	28.73	26.32	60.77	74	-13.23	PK
1839	V	36.78	7.39	28.73	26.32	46.58	54	-7.42	AV
2769.6	V	46.58	8.08	29.71	27.01	57.36	74	-16.64	PK
2769.6	V	36.43	8.08	29.71	27.01	47.21	54	-6.79	AV
3678	V	--	--	--	--	--	--	--	PK
3678	V	--	--	--	--	--	--	--	AV

Remark:

1. Level = Reading + Cable Loss+Ant Factor-Amplifier
2. "--" Mark indicated Background Noise Level

Radiated Band Edge:

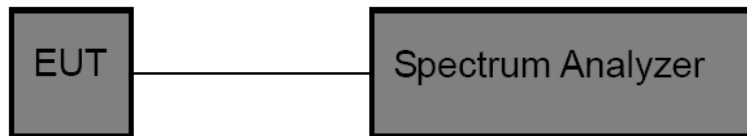
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Det.
902	39.66	22.45	4.48	31.33	35.26	46	-10.74	H	QP
928	39.47	22.59	4.54	31.35	35.25	46	-10.75	H	QP
902	41.67	22.45	4.48	31.33	37.27	46	-8.73	V	QP
928	41.12	22.59	4.54	31.35	36.90	46	-9.10	V	QP

5. 20dB Bandwidth Test

5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.249
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5.2. Test Setup



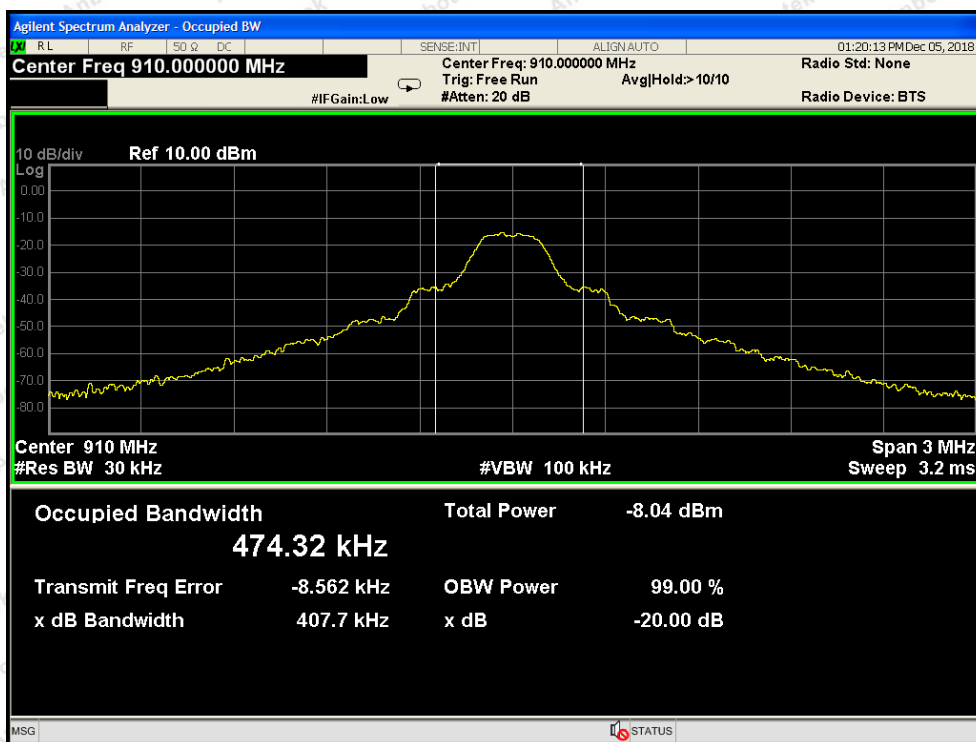
5.3. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as:
 RBW = 100kHz, VBW $\geq$ 3*RBW = 300kHz,
 Detector= peak
 Trace mode= Max hold.
 Sweep- auto couple.
4. Mark the peak frequency and -20dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

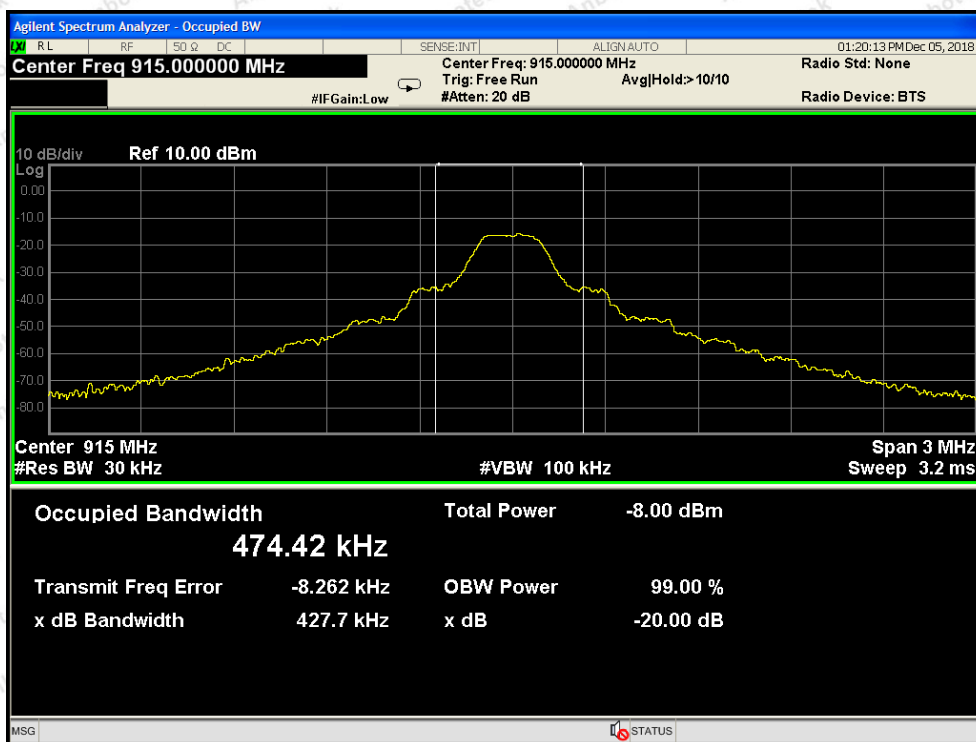
5.4. Test Data

Test Item	: 20dB Bandwidth	Test Mode	: TX Mode
Test Voltage	: AC 120V, 60Hz for adapter	Temperature	: 24°C
Test Result	: PASS	Humidity	: 55%RH

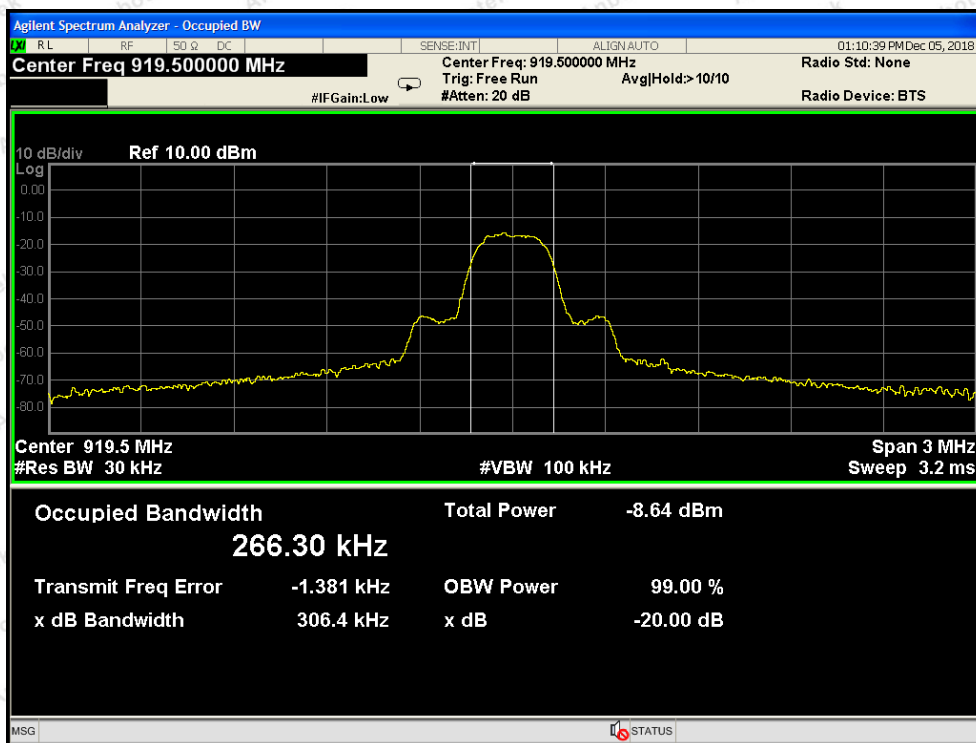
Frequency (MHz)	Bandwidth (kHz)	Result
910	407.7	PASS
915	427.7	PASS
919.5	306.4	PASS



CH01



CH11



CH20

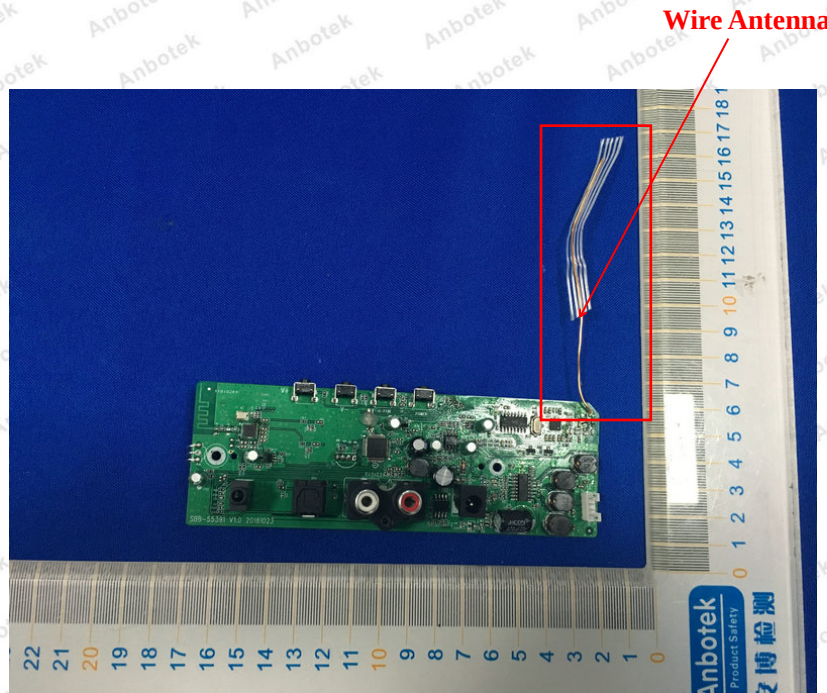
6. Antenna Requirement

6.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	1) 15.203 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, 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.

6.2. Antenna Connected Construction

The antenna is a Wire Antenna which permanently attached, and the best case gain of the antenna is 0 dBi. It complies with the standard requirement.

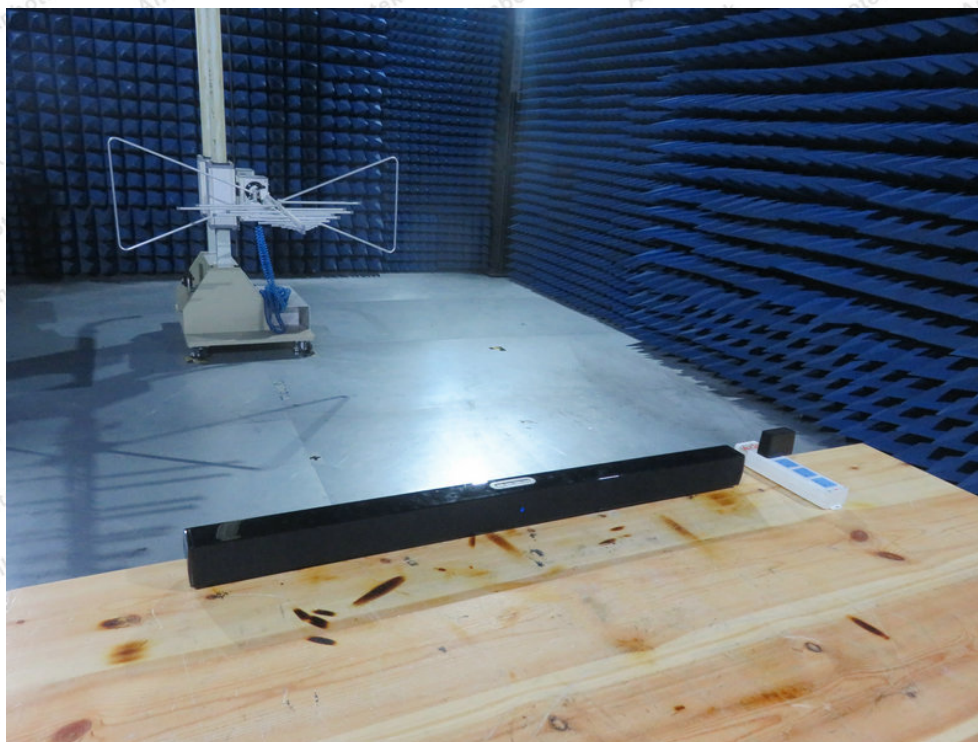


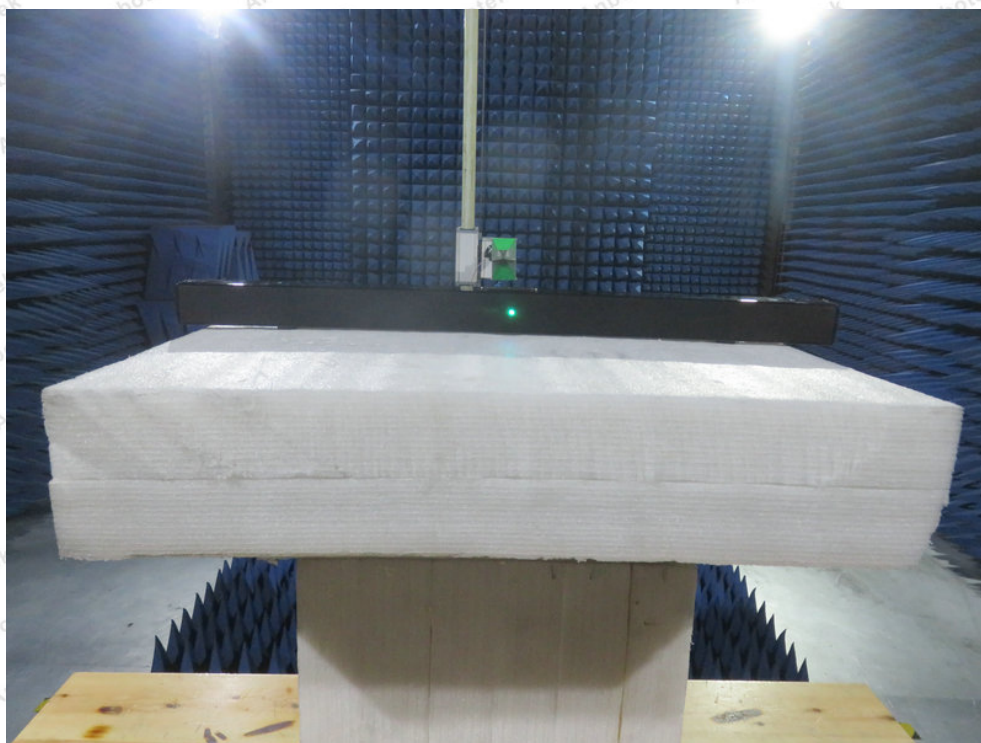
APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement



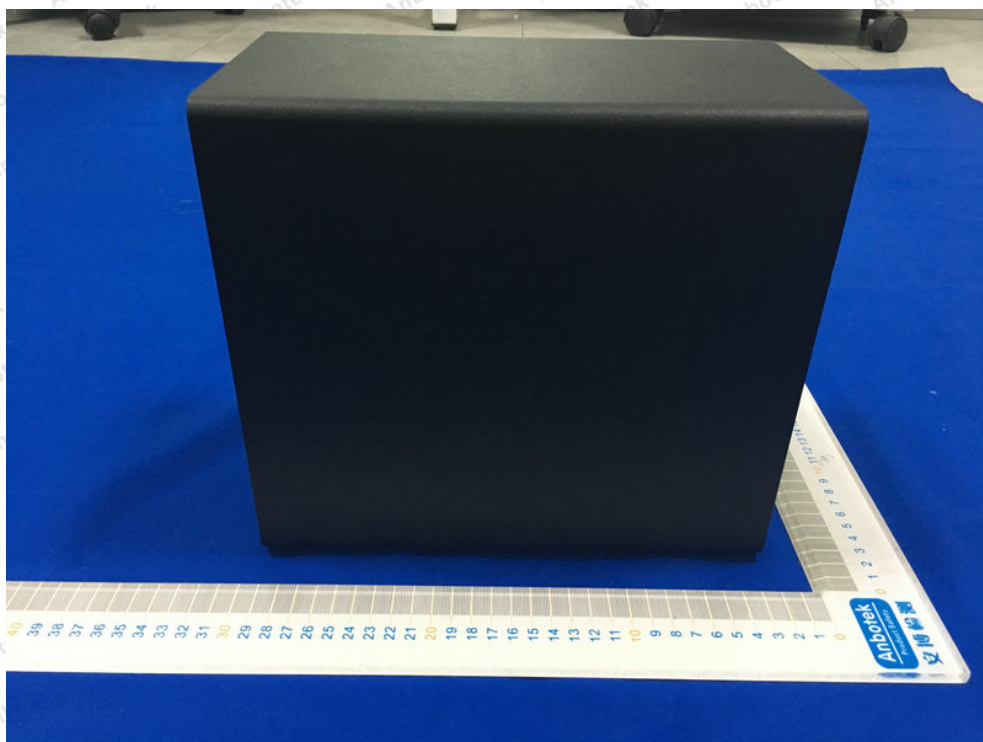
Photo of Radiation Emission Test



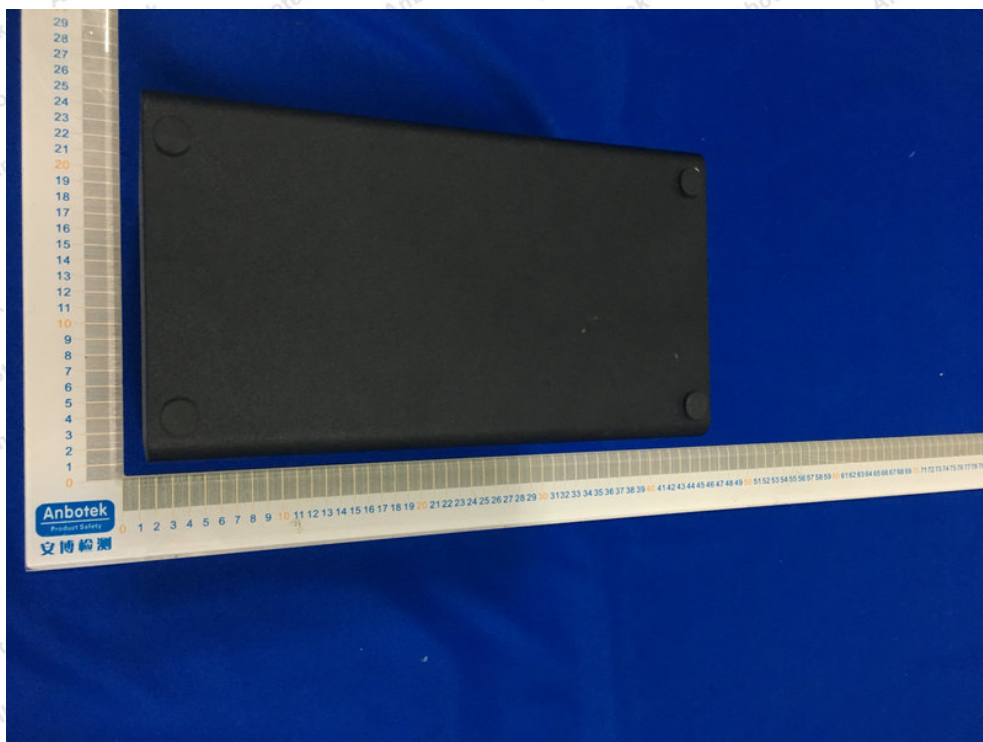
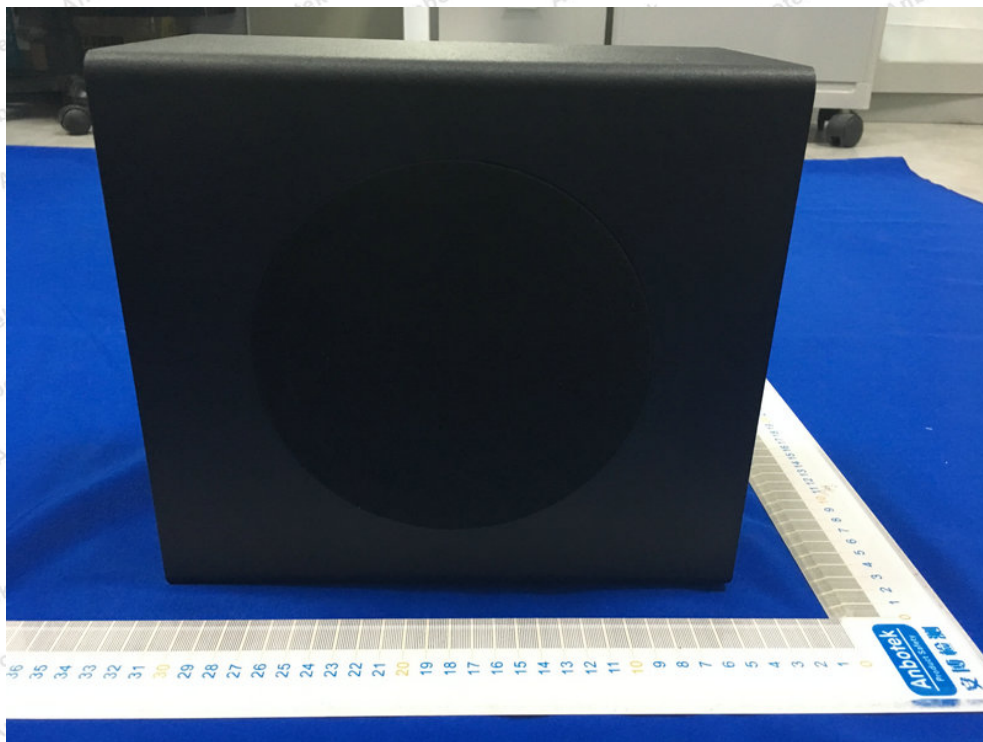


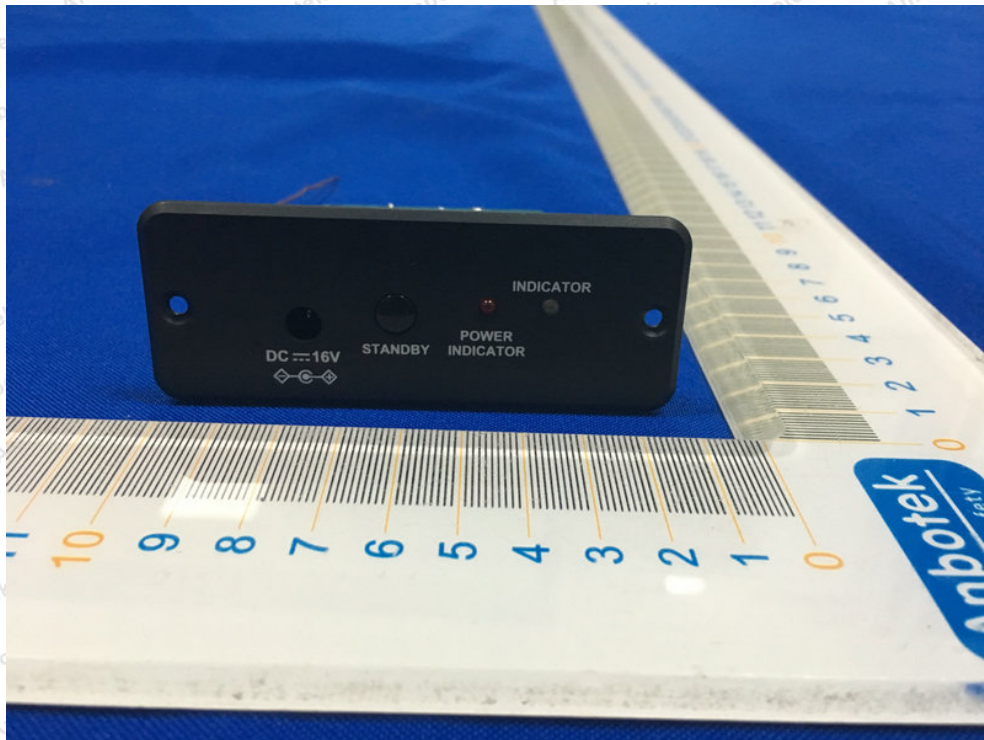
APPENDIX II -- EXTERNAL PHOTOGRAPH

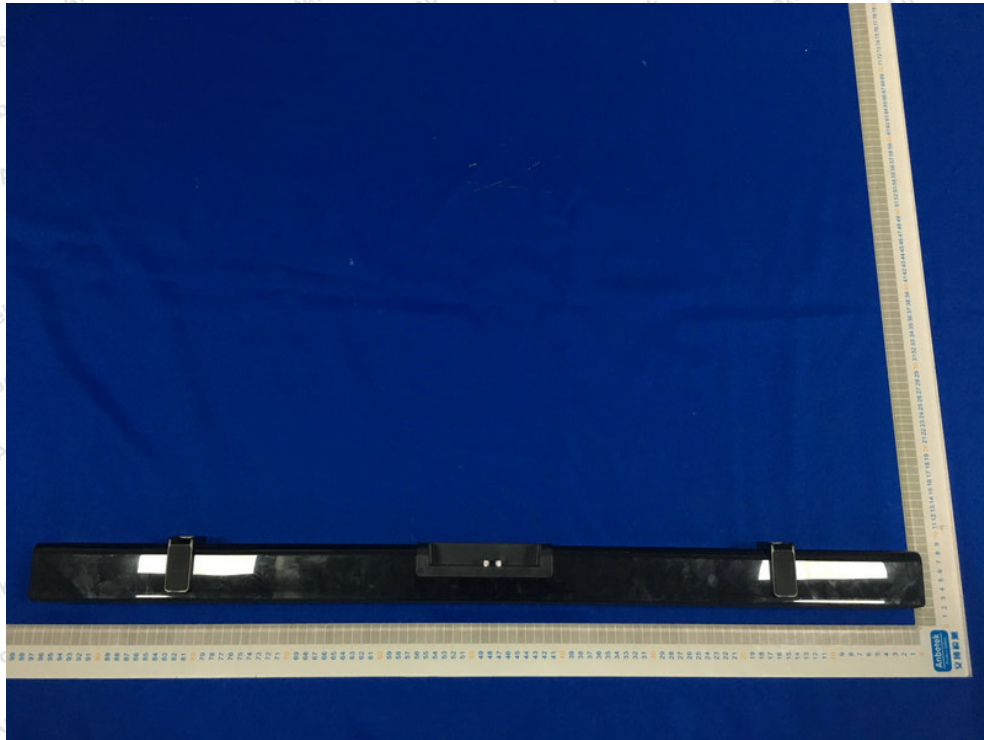


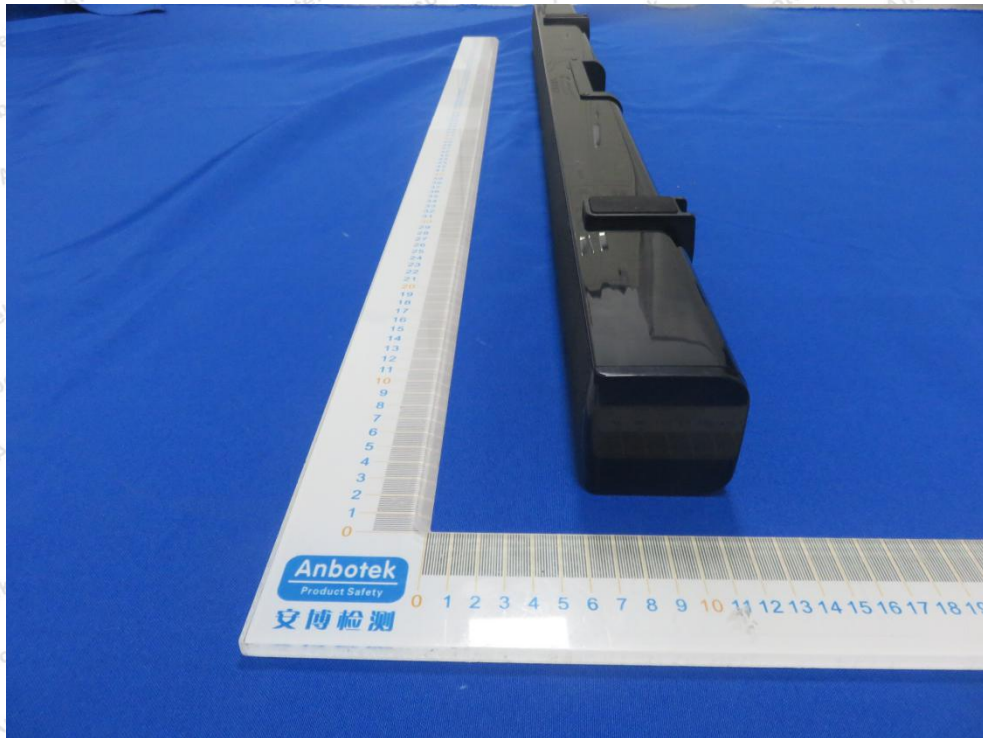


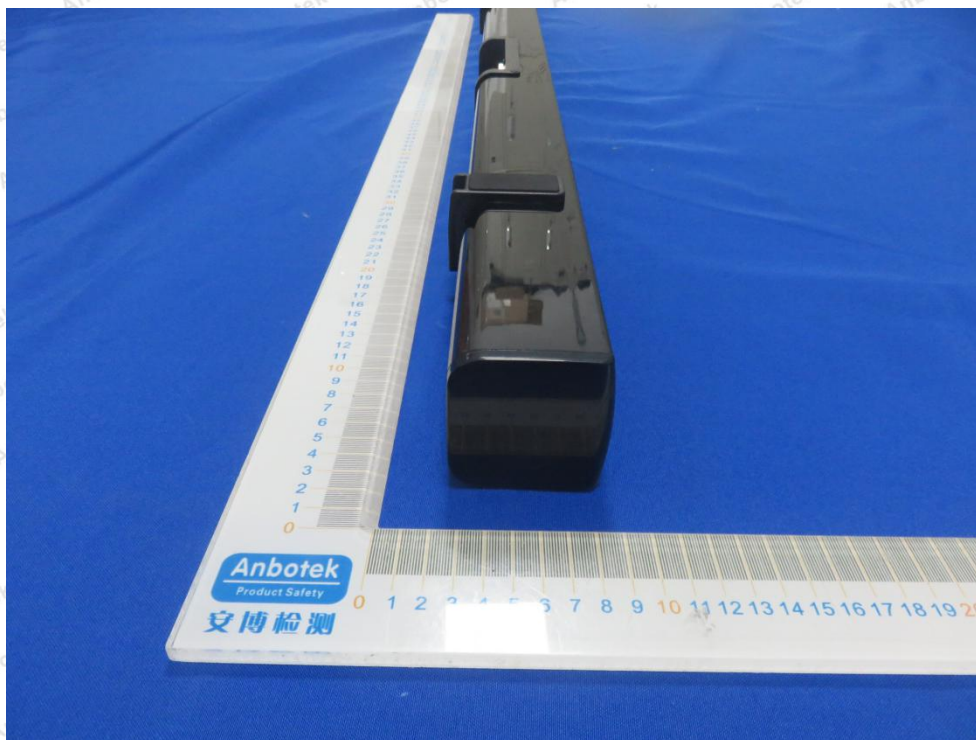




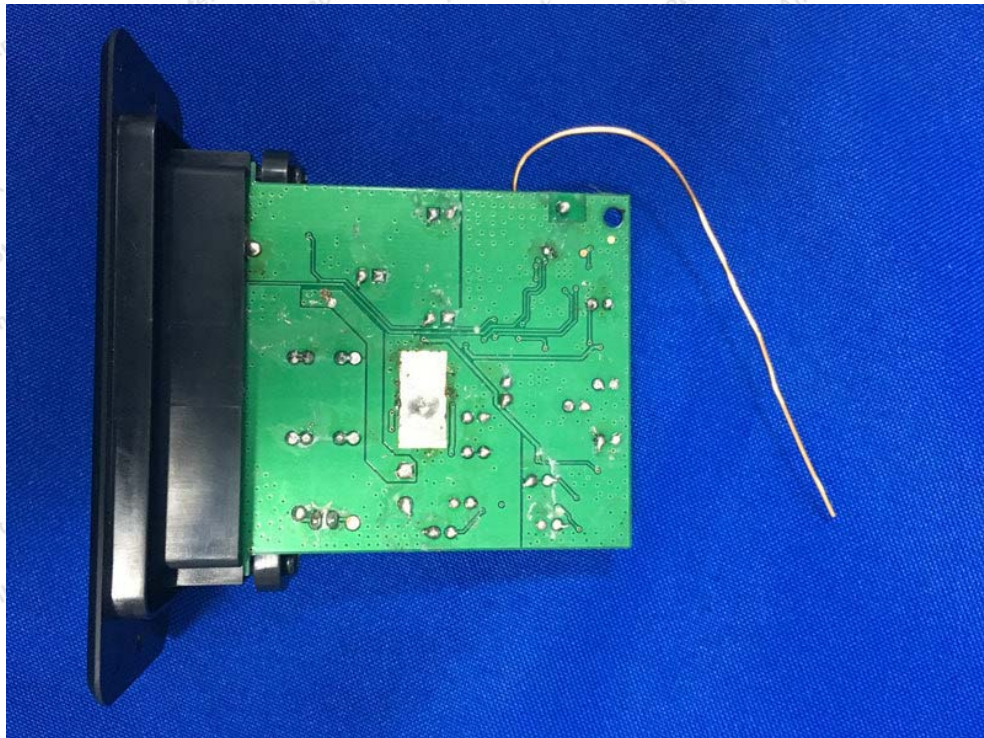


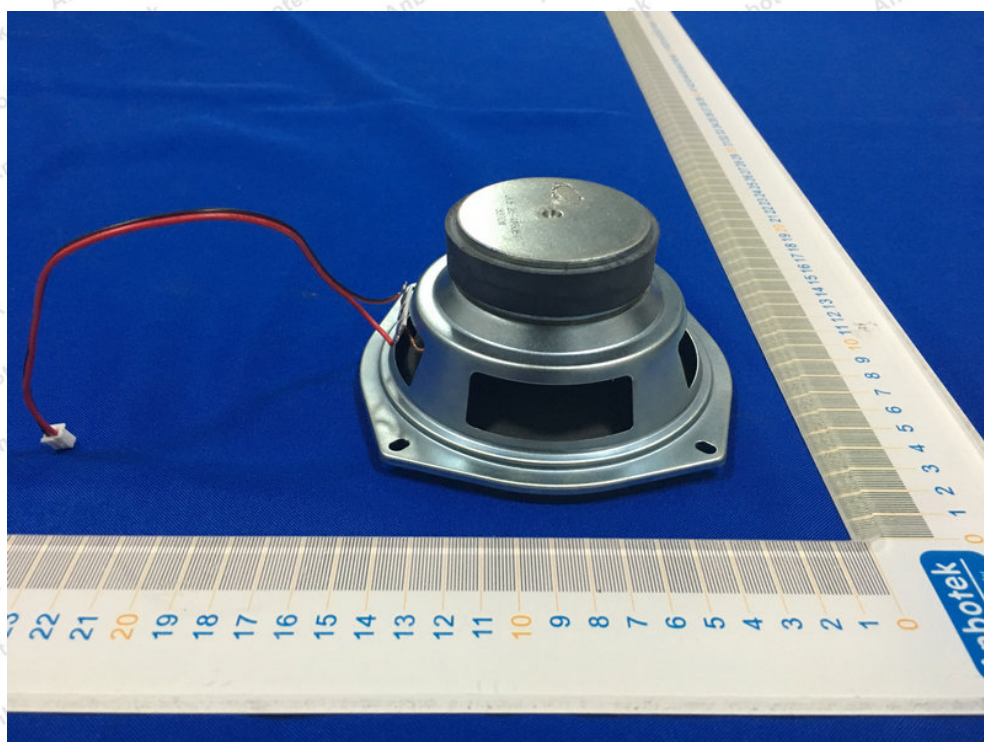
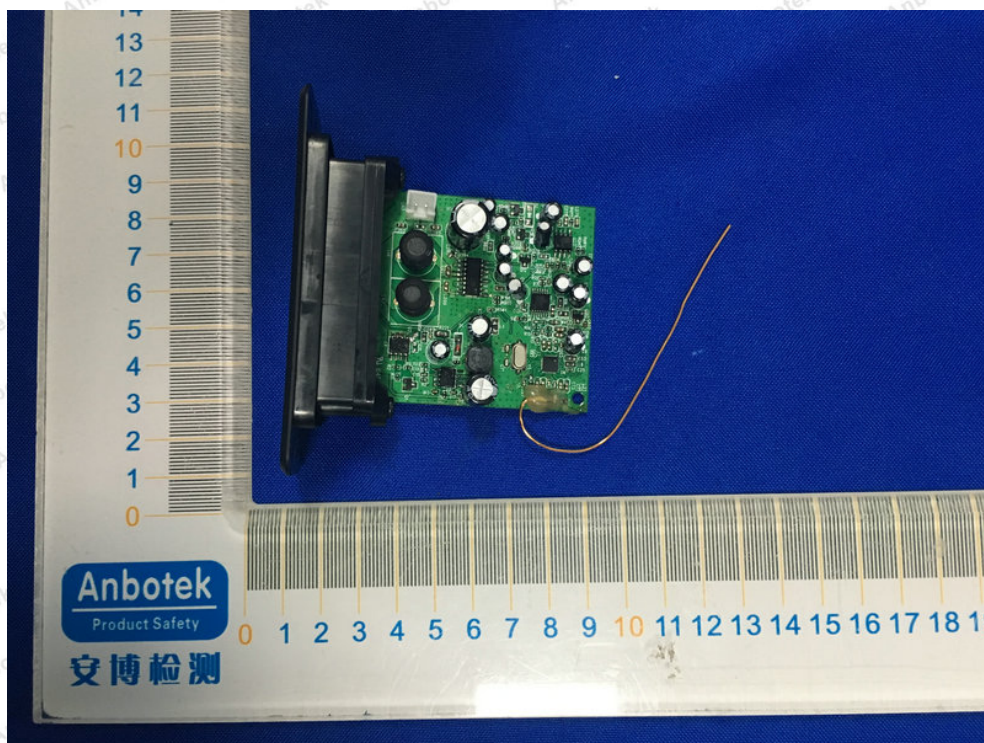


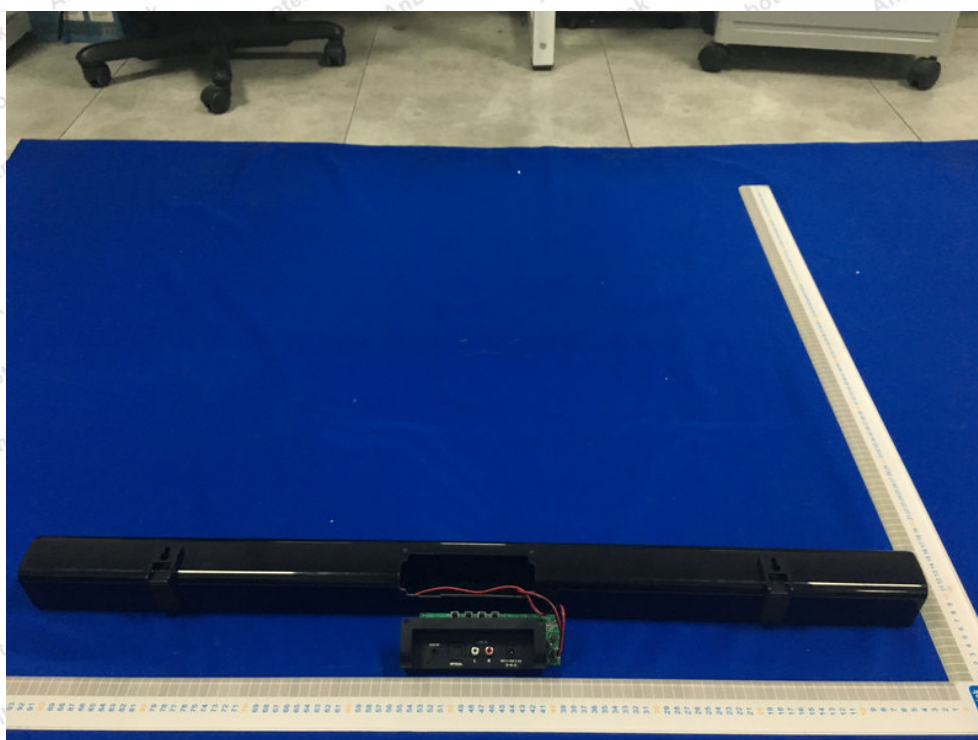
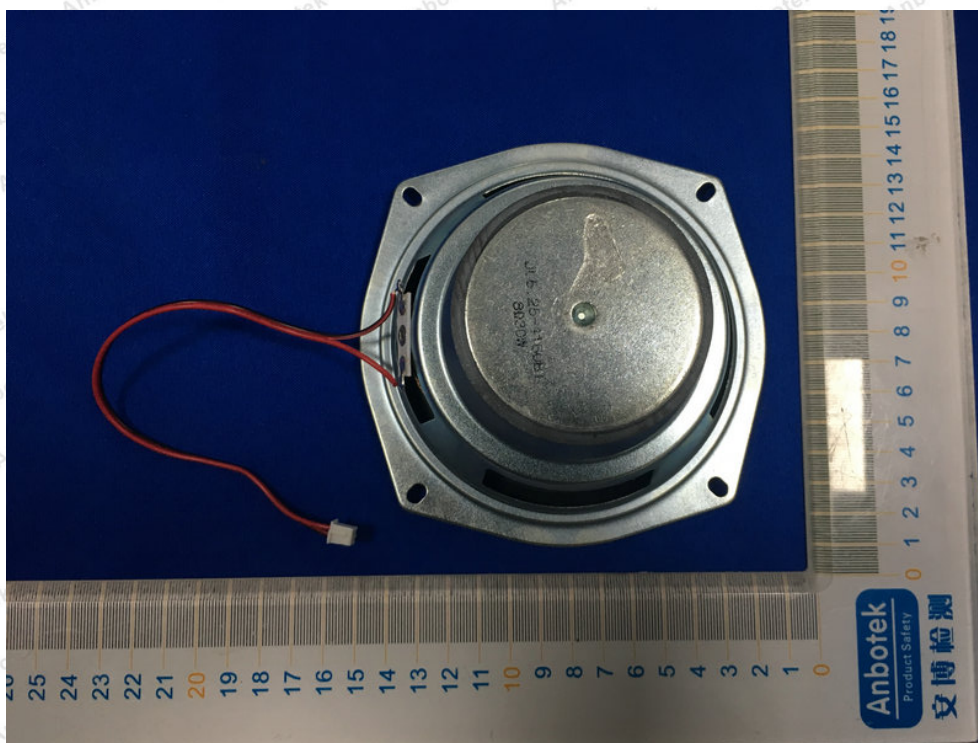


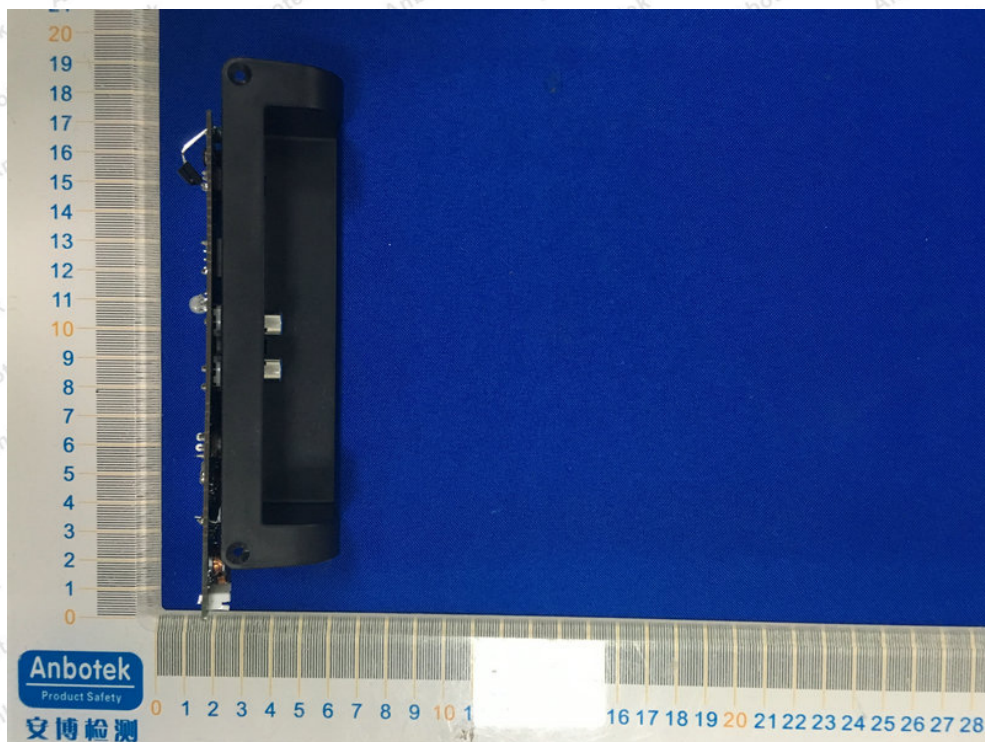


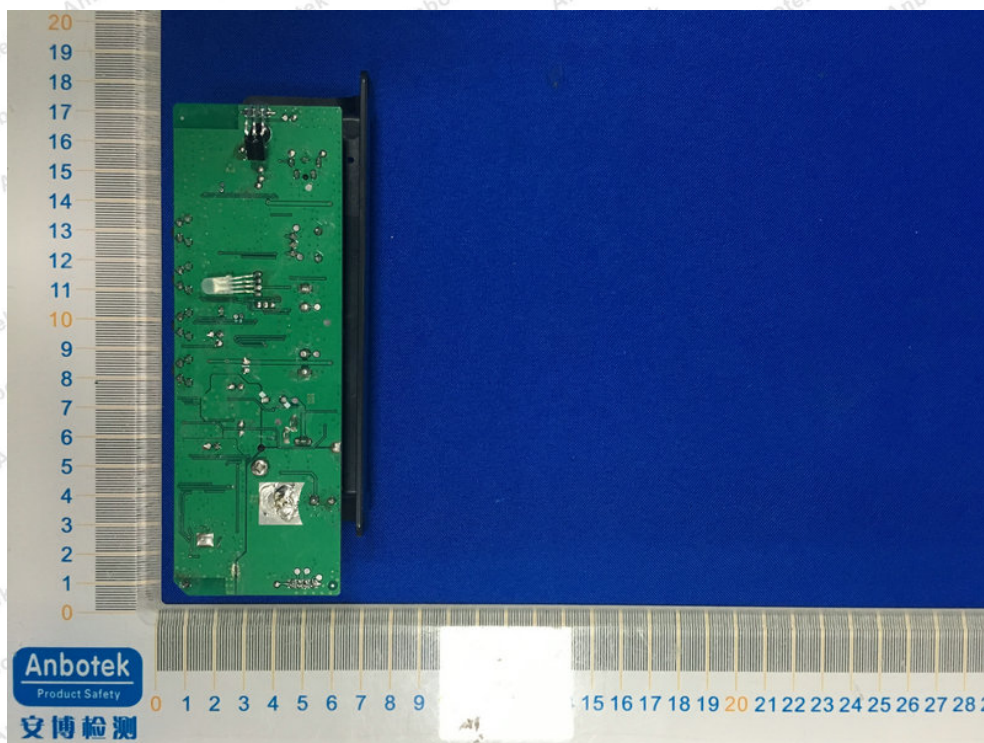
APPENDIX III -- INTERNAL PHOTOGRAPH

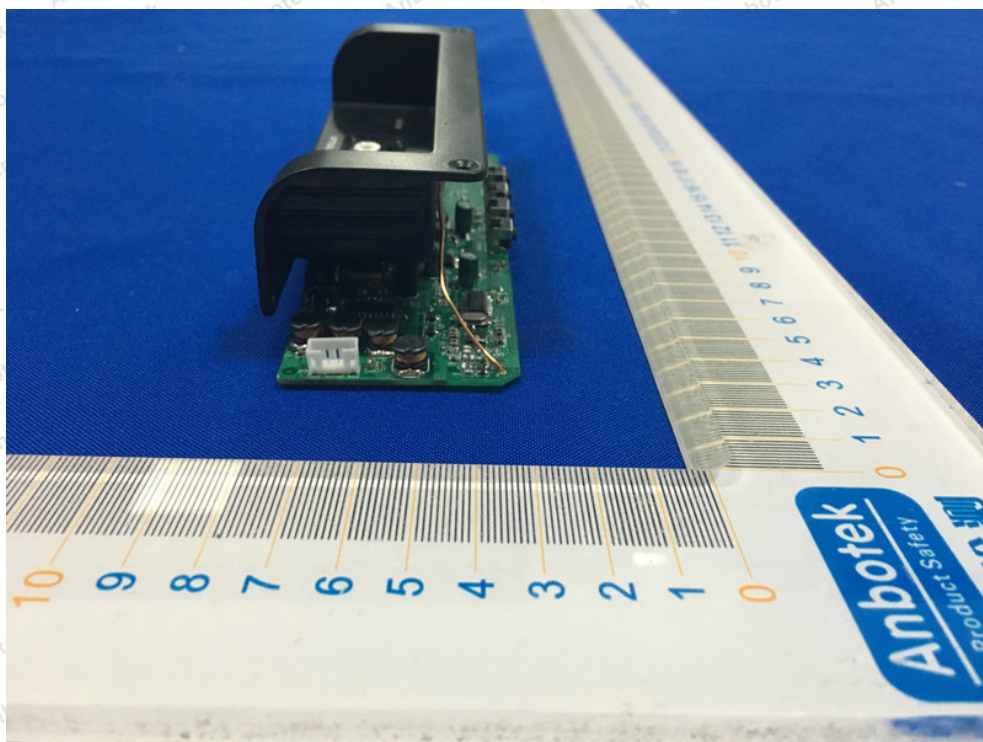
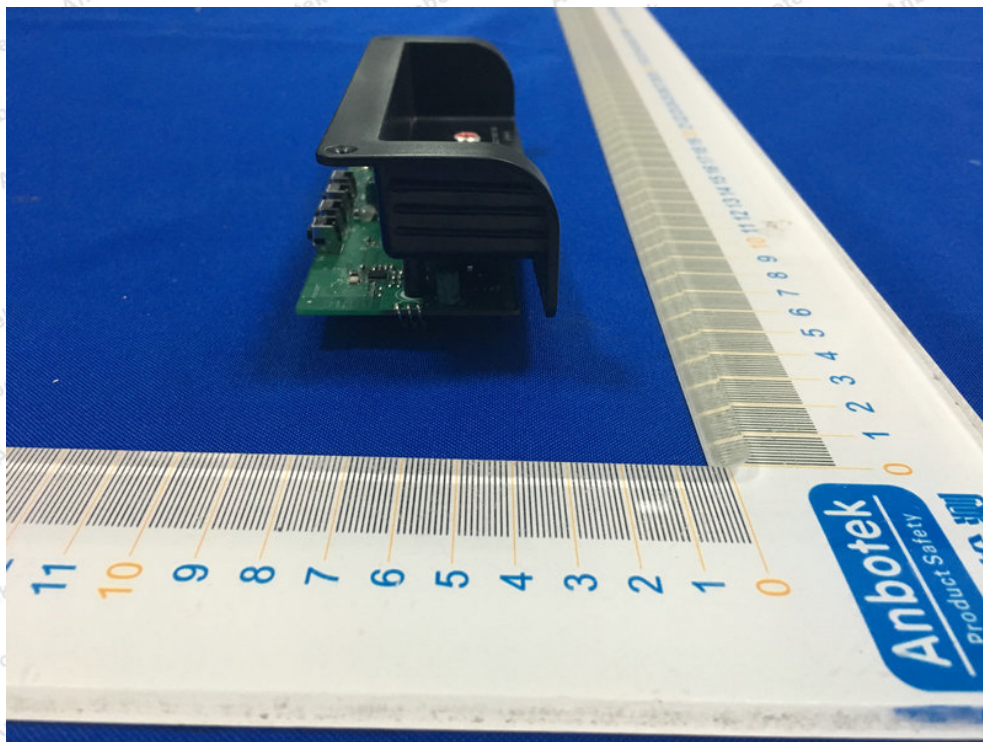


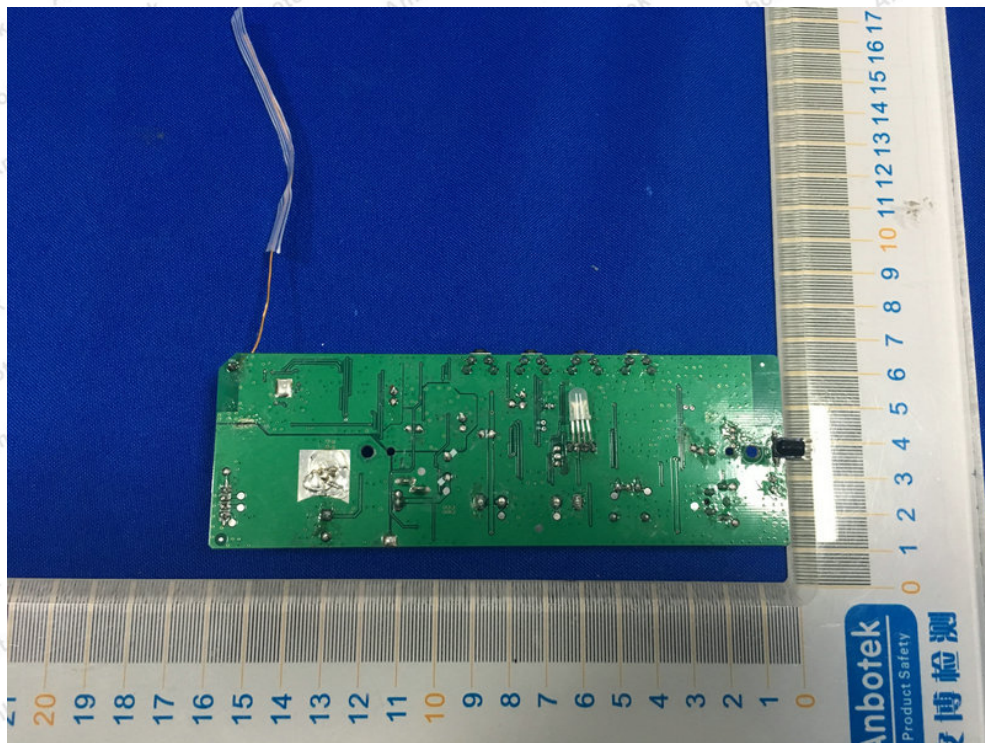
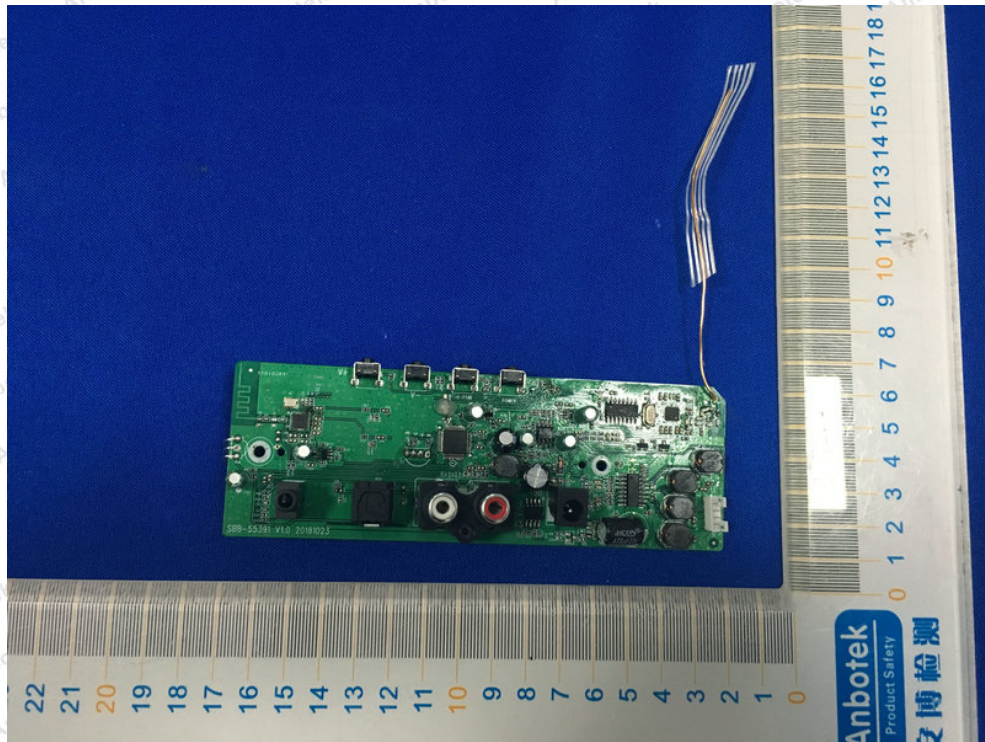


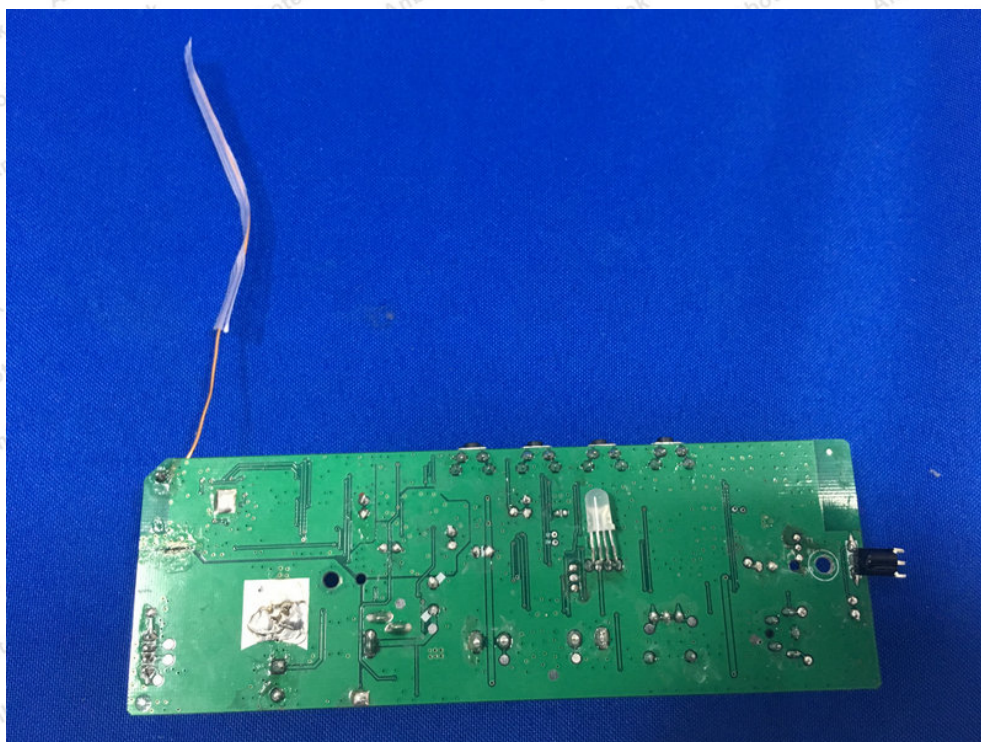
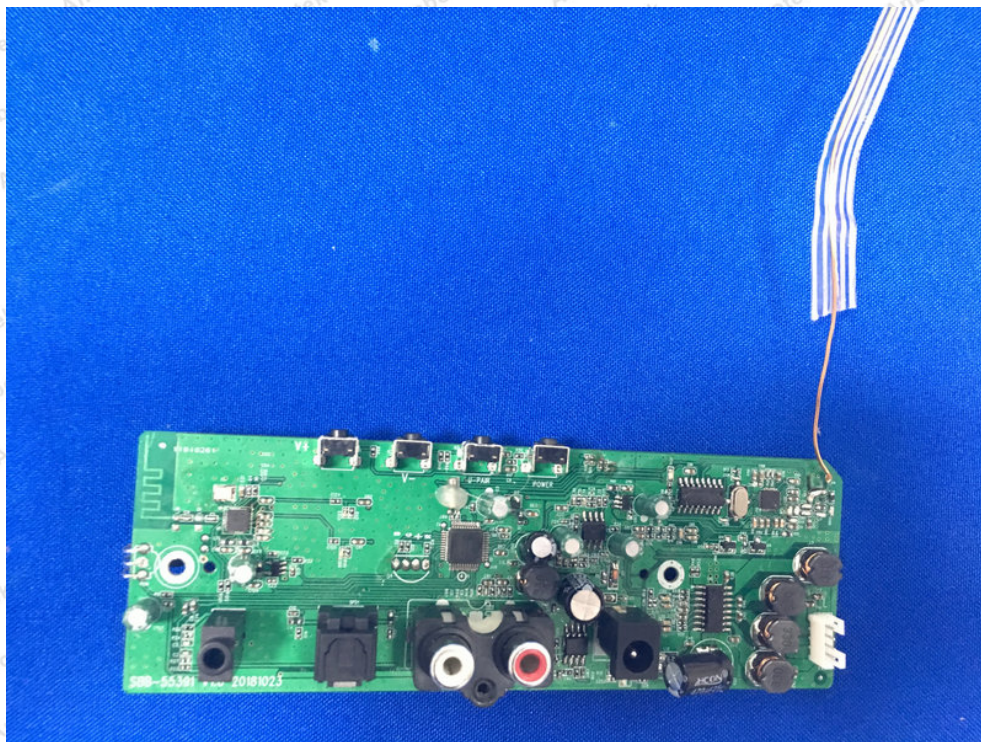












----- End of Report -----