

FCC Test Report

For

BICOM INC.

Wireless Speaker

Model No.: SIMEON SPREK R

Prepared For : BICOM INC.
Address : #2F, 7, Yanghyeon-ro 405beon-gil, Jungwon-gu, Seongnam-si,
Gyeonggi-do, South Korea

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
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Date of Receipt : Nov. 22, 2018
Date of Test : Nov. 22~Dec. 21, 2018
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TEST REPORT

Applicant : BICOM INC.
Manufacturer : BICOM INC.
Product Name : Wireless Speaker
Model No. : SIMEON SPREK R
Trade Mark : N.A.
Rating(s) : Input: DC 5V , 2A(with DC 3.7V, 650mAh Battery inside)

Test Standard(s) : FCC Rules and Regulations Part 15 Subpart B: 2018

Test Method(s) : ANSI C63.4-2014

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements.

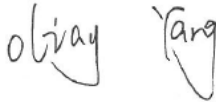
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Date of Test

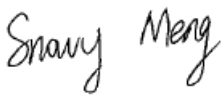
Nov. 22~Dec. 21, 2018

Prepared By

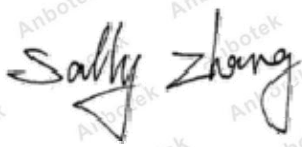



(Engineer / Oliay Yang)

Reviewer


(Supervisor / Snowy Meng)

Approved & Authorized Signer


(Manager / Sally Zhang)

1. General Information

1.1. Client Information

Applicant	:	BICOM INC.
Address	:	#2F, 7, Yanghyeon-ro 405beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, South Korea
Manufacturer	:	BICOM INC.
Address	:	#2F, 7, Yanghyeon-ro 405beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, South Korea
Factory	:	BICOM INC.
Address	:	#2F, 7, Yanghyeon-ro 405beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, South Korea

1.2. Description of Device (EUT)

Product Name	:	Wireless Speaker
Model No.	:	SIMEON SPREK R
Trade Mark	:	N.A.
Test Power Supply	:	AC 120V, 60Hz for adapter
Test Sample No.	:	S1(Normal Sample), S2(Engineering Sample)
Product Description	:	Adapter: N/A

Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

1.3. Auxiliary Equipment Used During Test

Adapter	:	Manufacturer: Samsung M/N: ETA-U90CBC S/N: RT6FB17ZS/B-E Input: 100-240V~ 50-60Hz, 0.35A Output: DC 5V, 2A
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1.4. Description of Test Mode

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	Charge Mode

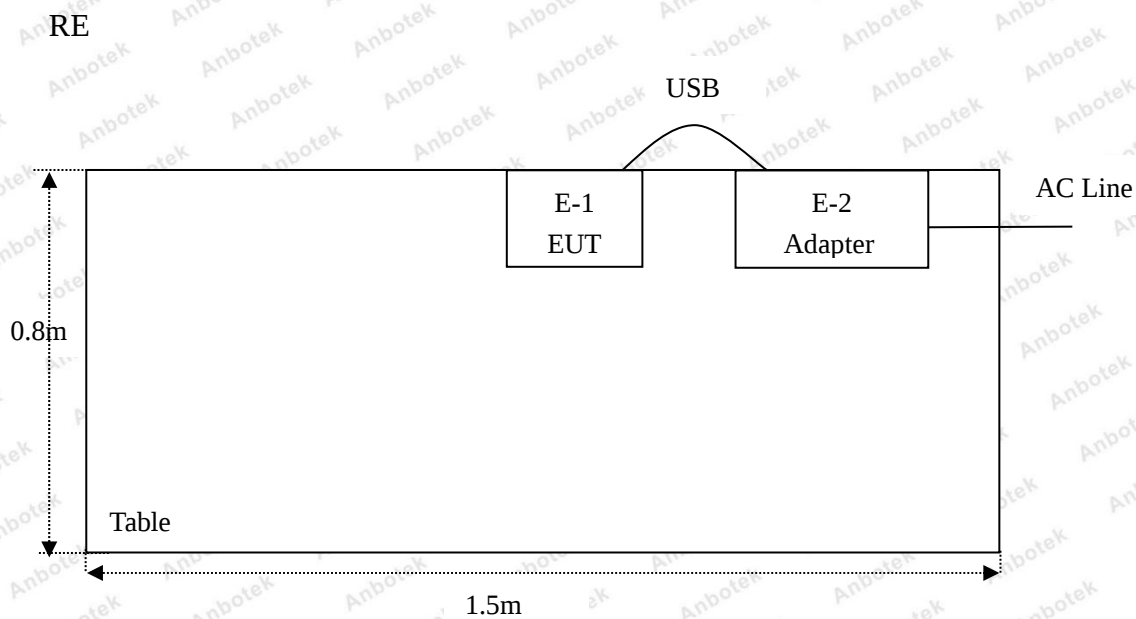
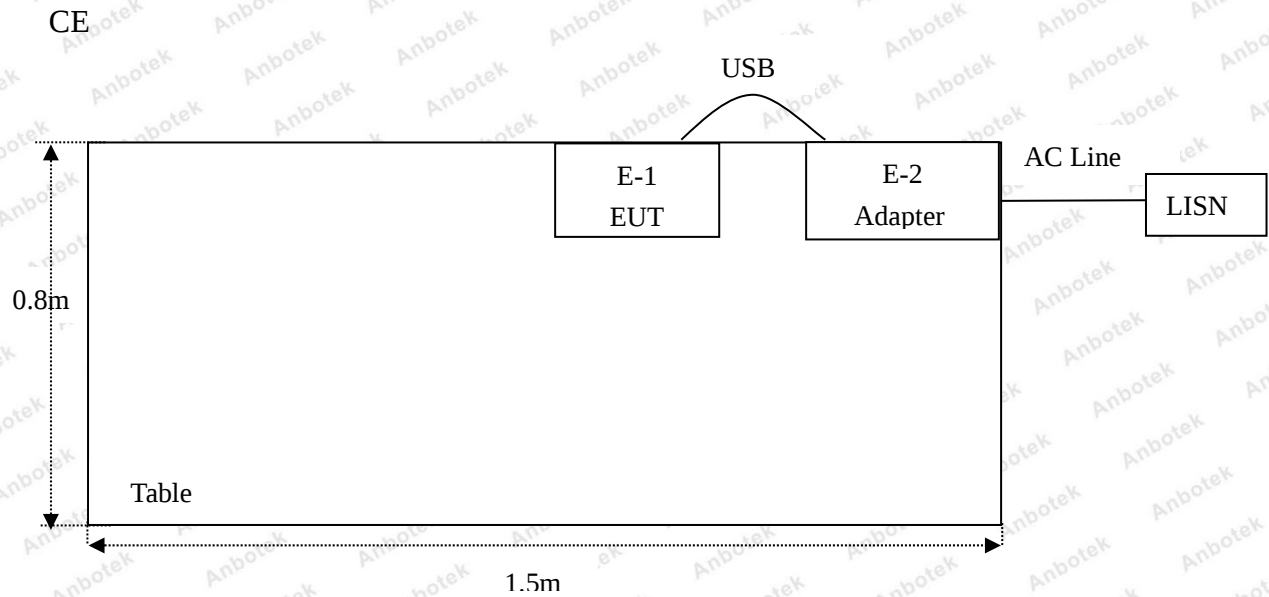
For Conducted Emission	
Final Test Mode	Description
Mode 1	Charge Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	Charge 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. Description Of Test Setup



1.5. Test Equipment List

Conducted Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Nov. 26, 2018	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Nov. 05, 2018	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 05, 2018	1 Year
4.	Software Name EZ-EMC	Ferrari Technology	ANB-03A	N/A	N/A	N/A

Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Nov. 05, 2018	1 Year
2.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 19, 2018	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Nov. 05, 2018	1 Year
4.	Software Name EZ-EMC	Ferrari Technology	ANB-03A	N/A	N/A	N/A

1.6. 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

Test Items	Test Mode	Status
Power Line Conducted Emission Test (150KHz To 30MHz)	Mode 1	P
Radiated Emission Test (30MHz To 1000MHz)	Mode 1	P
P) Indicates that the through the test. N) Don't test.		

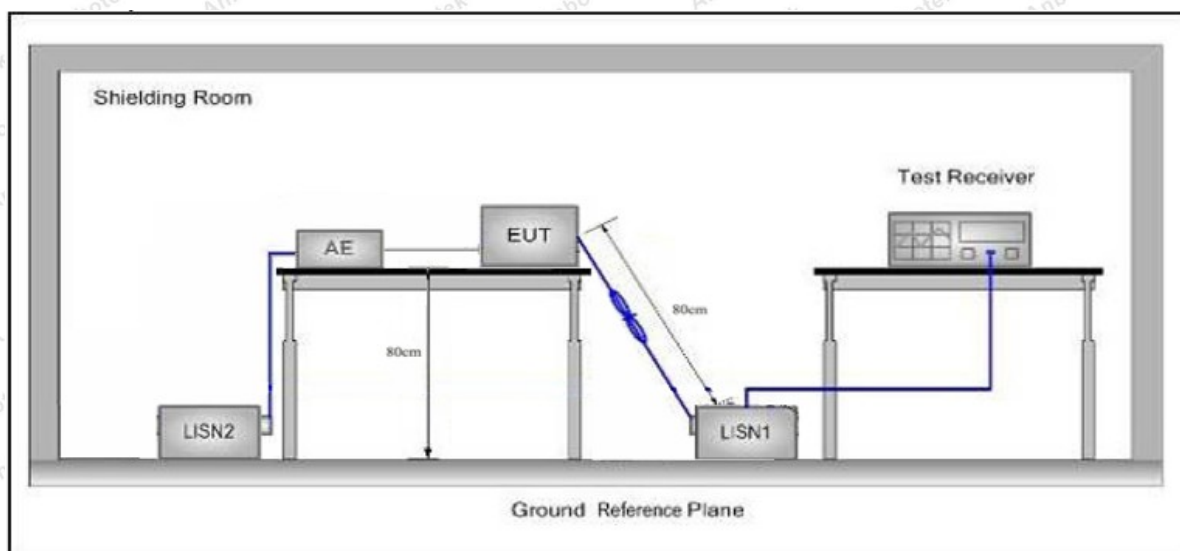
3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part 15 Subpart B		
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 C63.4-2014 on Conducted Emission Measurement.

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

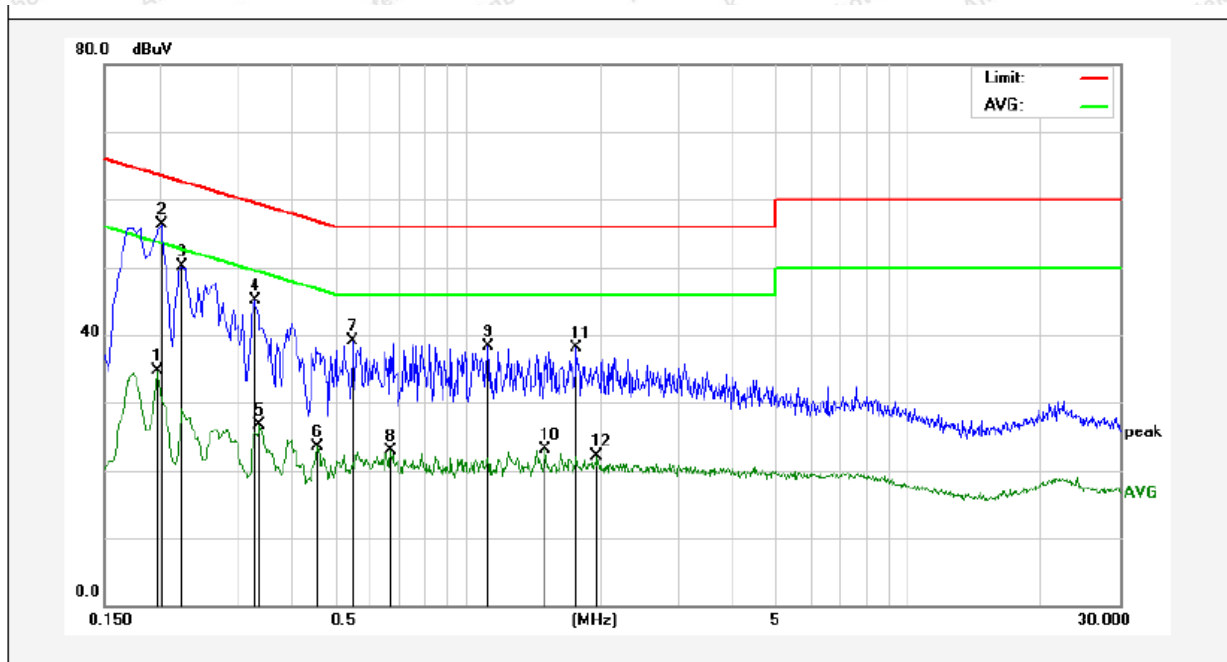
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages.

Conducted Emission Test Data

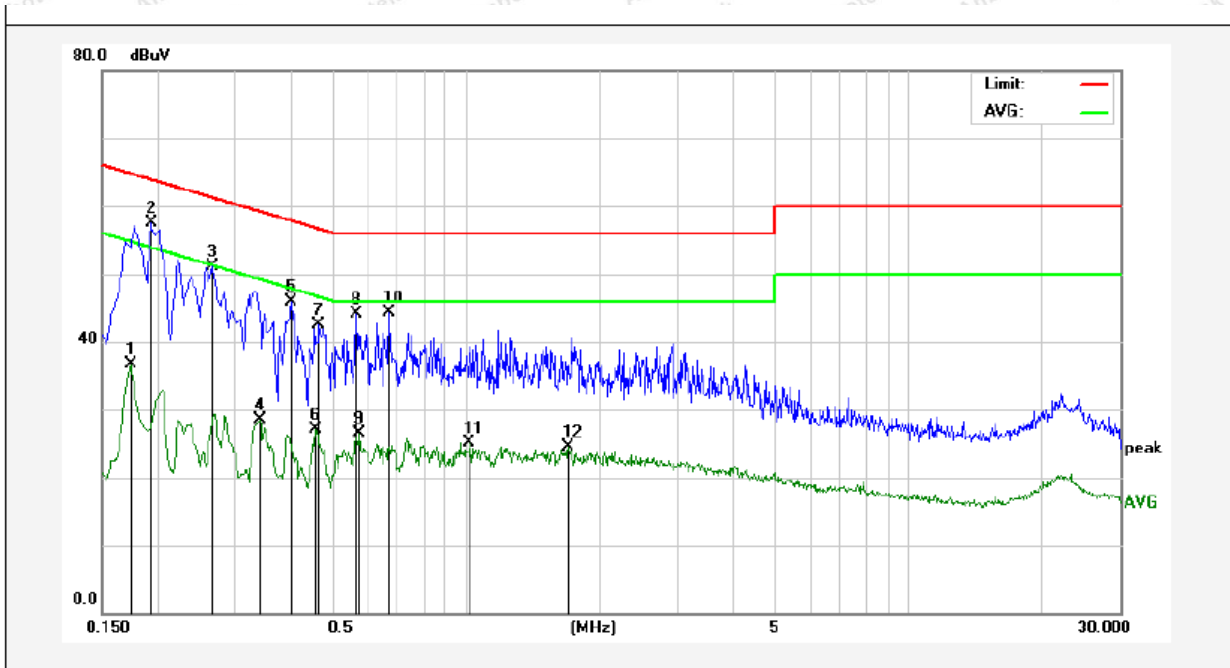
Test Site: 1# Shielded Room
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.: 23.4°C Hum.: 56%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1980	14.82	19.90	34.72	53.69	-18.97	AVG	
2	0.2020	36.37	19.90	56.27	63.52	-7.25	QP	
3	0.2260	30.15	19.89	50.04	62.59	-12.55	QP	
4	0.3300	25.11	19.90	45.01	59.45	-14.44	QP	
5	0.3379	6.76	19.91	26.67	49.25	-22.58	AVG	
6	0.4580	3.51	19.96	23.47	46.73	-23.26	AVG	
7	0.5500	19.20	19.99	39.19	56.00	-16.81	QP	
8	0.6700	2.78	20.03	22.81	46.00	-23.19	AVG	
9	1.1140	18.13	20.12	38.25	56.00	-17.75	QP	
10	1.5020	2.92	20.13	23.05	46.00	-22.95	AVG	
11	1.7700	18.05	20.14	38.19	56.00	-17.81	QP	
12	1.9620	2.03	20.14	22.17	46.00	-23.83	AVG	

Conducted Emission Test Data

Test Site: 1# Shielded Room
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.: 23.4°C Hum.: 56%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1740	16.85	19.90	36.75	54.76	-18.01	AVG	
2	0.1940	37.52	19.90	57.42	63.86	-6.44	QP	
3	0.2660	31.16	19.89	51.05	61.24	-10.19	QP	
4	0.3420	8.57	19.91	28.48	49.15	-20.67	AVG	
5	0.4020	26.02	19.94	45.96	57.81	-11.85	QP	
6	0.4580	7.12	19.96	27.08	46.73	-19.65	AVG	
7	0.4660	22.56	19.96	42.52	56.58	-14.06	QP	
8	0.5660	24.11	20.00	44.11	56.00	-11.89	QP	
9	0.5740	6.59	20.00	26.59	46.00	-19.41	AVG	
10	0.6700	24.32	20.03	44.35	56.00	-11.65	QP	
11	1.0180	4.95	20.12	25.07	46.00	-20.93	AVG	
12	1.7060	4.44	20.13	24.57	46.00	-21.43	AVG	

4. Radiated Emission Test

4.1. Test Standard and Limit

Test Standard	FCC Part 15 Subpart B				
	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
Test Limit	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

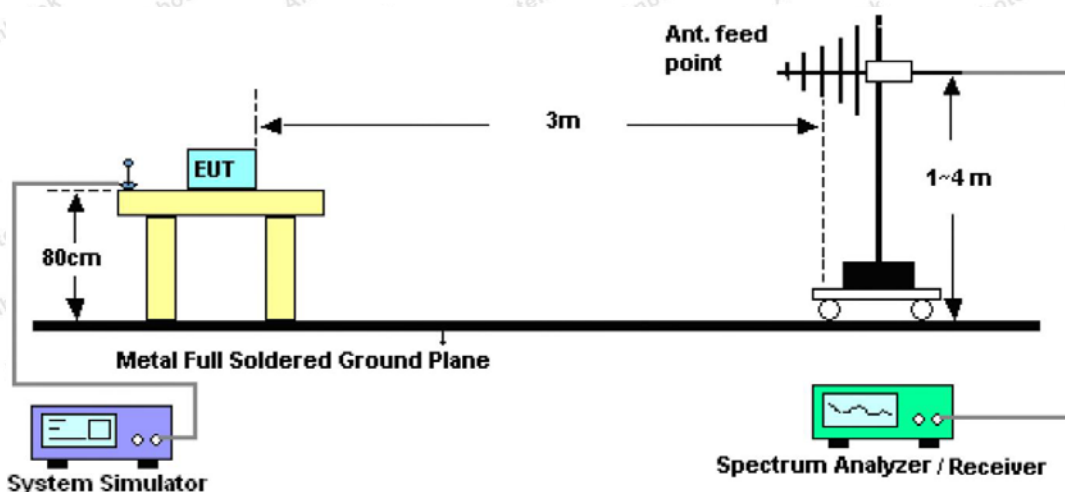
Remark:

(1) Emission level (dB) μ V = 20 log Emission level μ V/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.2. Test Setup



4.3. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.

The frequency range from 30MHz to 1000MHz is checked.

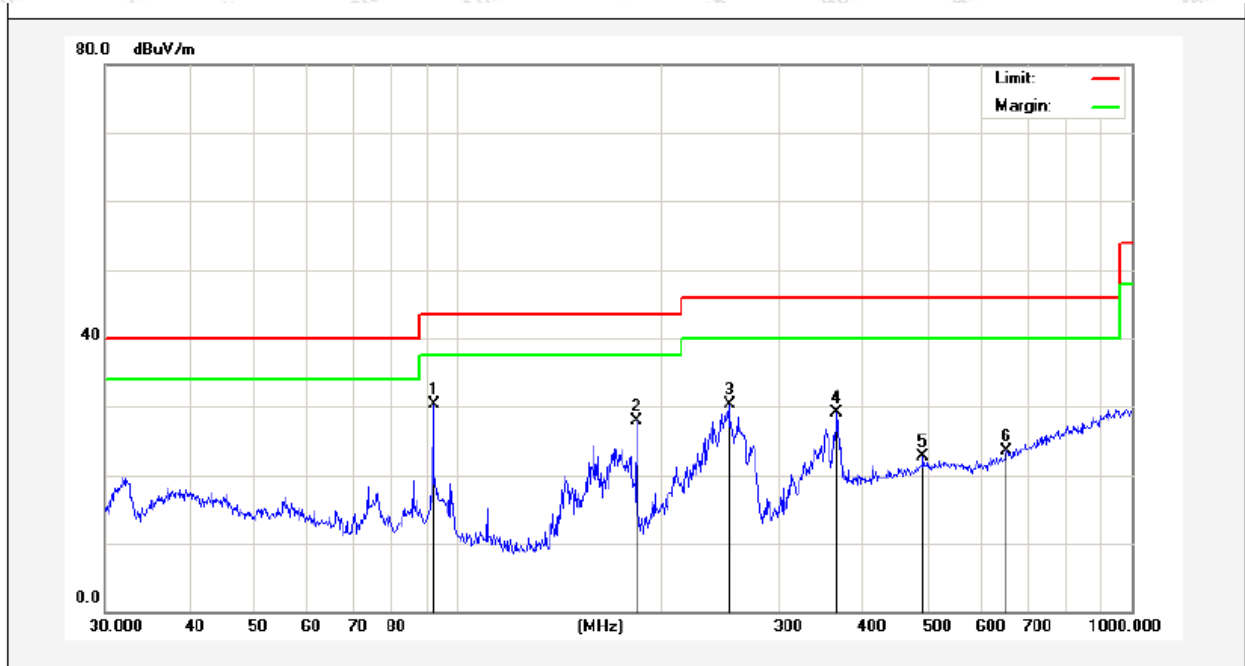
4.4. Test Data

Please to see the following pages.

The EUT was tested on (Mode 1, Mode 2) modes, only the worst data of (Mode 1) are attached in the following pages.

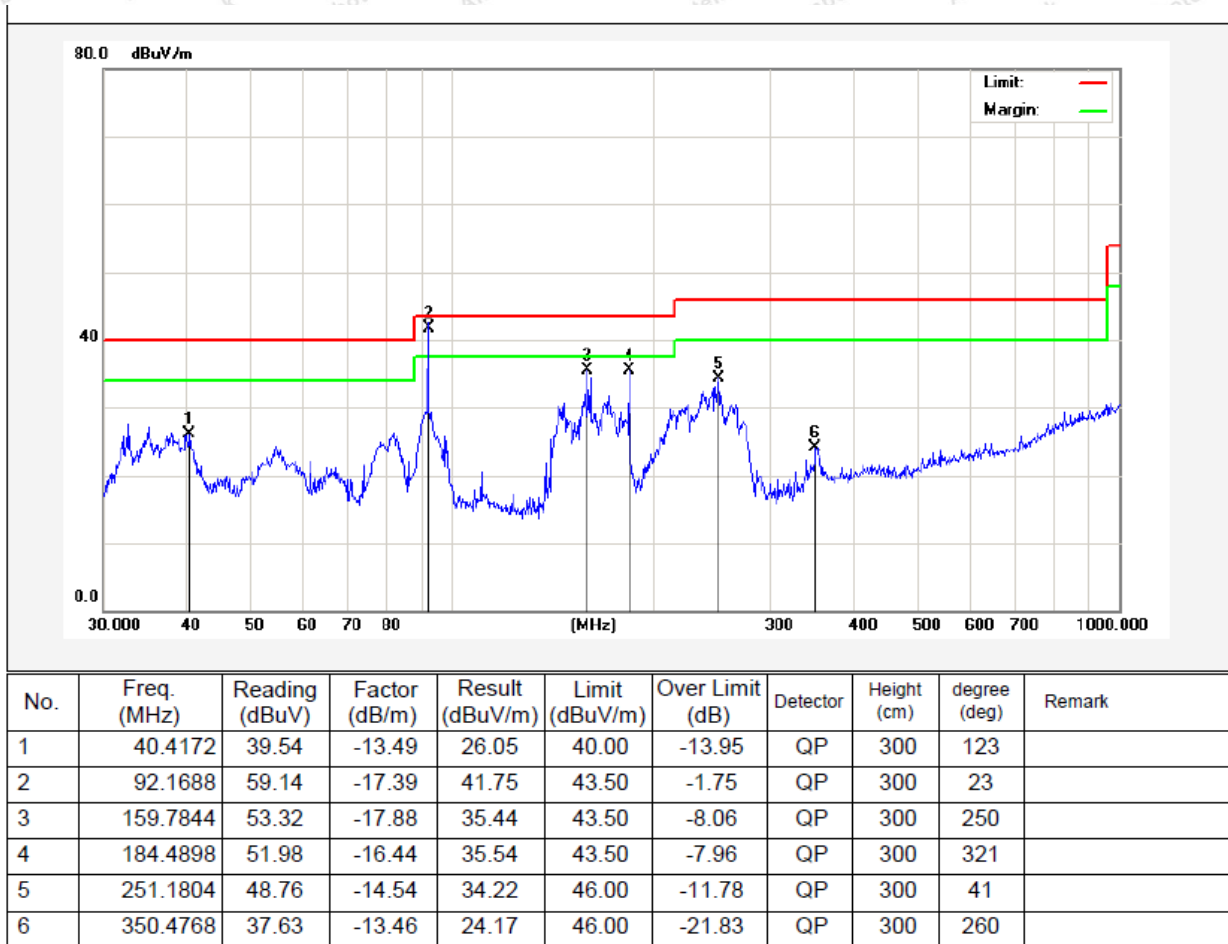
Test Results (30~1000MHz)

Test item: Radiation Test **Polarization:** Horizontal
Standard: (RE)FCC Part 15 Subpart B **Power Source:** AC 120V, 60Hz for adapter
Distance: 3m **Temp.(°C)/Hum.(%RH):** 22.4(°C)/50%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	92.1388	53.67	-23.40	30.27	43.50	-13.23	QP	300	14	
2	184.4898	48.77	-20.88	27.89	43.50	-15.61	QP	300	274	
3	252.9482	49.55	-19.20	30.35	46.00	-15.65	QP	300	302	
4	365.5391	43.05	-13.91	29.14	46.00	-16.86	QP	300	63	
5	490.7447	33.97	-11.23	22.74	46.00	-23.26	QP	300	224	
6	651.9417	33.27	-9.79	23.48	46.00	-22.52	QP	300	116	

Test item: Radiation Test Polarization: Vertical
Standard: (RE)FCC Part 15 Subpart B Power Source: AC 120V, 60Hz for adapter
Distance: 3m Temp.(°C)/Hum.(%RH): 22.4(°C)/50%RH

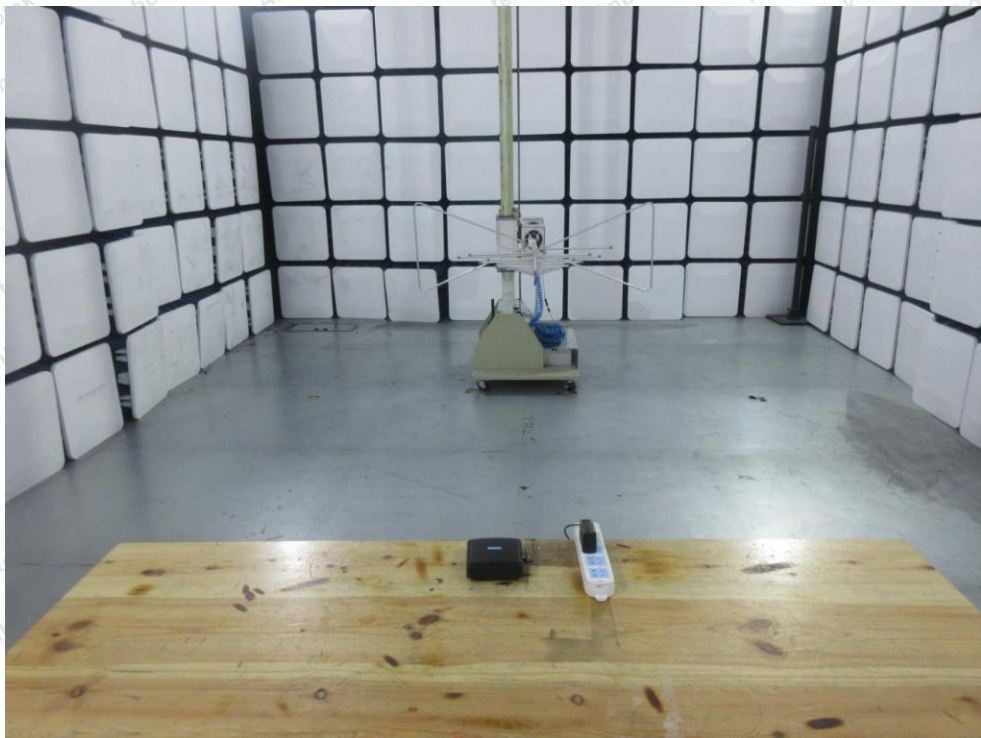


APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Power Line Conducted Emission Test



Photo of Radiated Emission Test

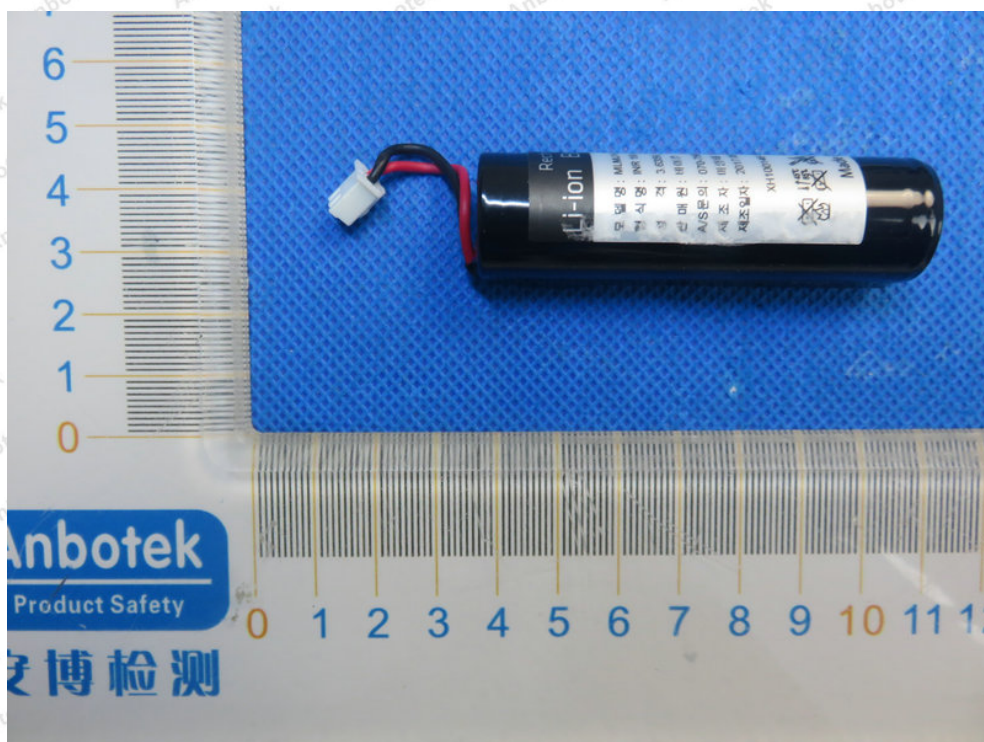


APPENDIX II -- EXTERNAL PHOTOGRAPH

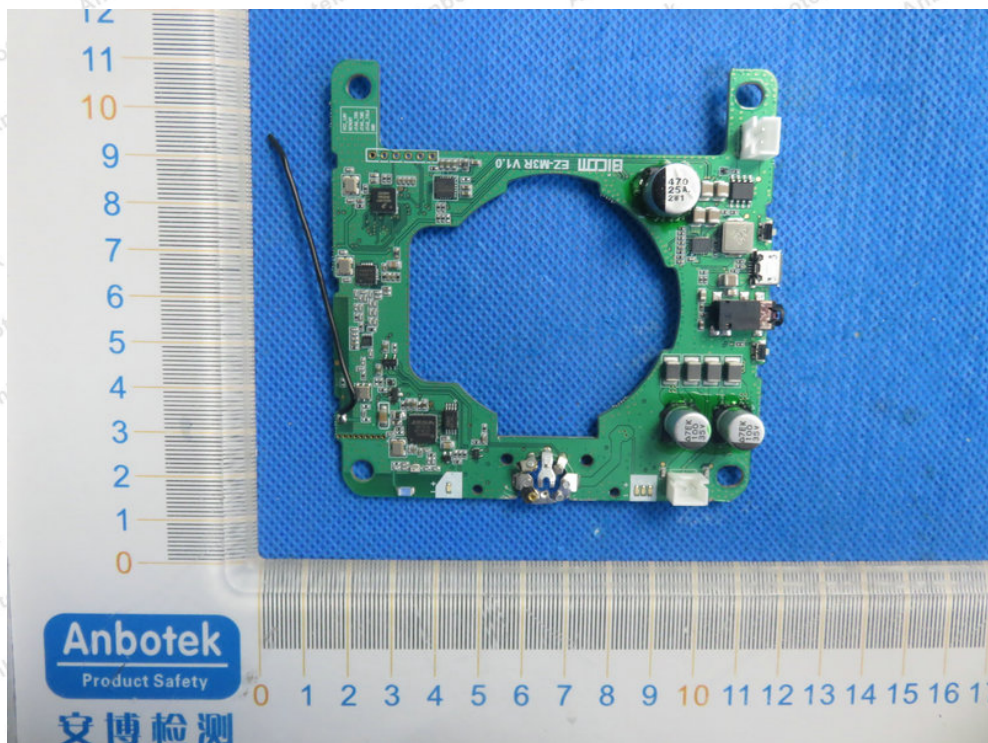
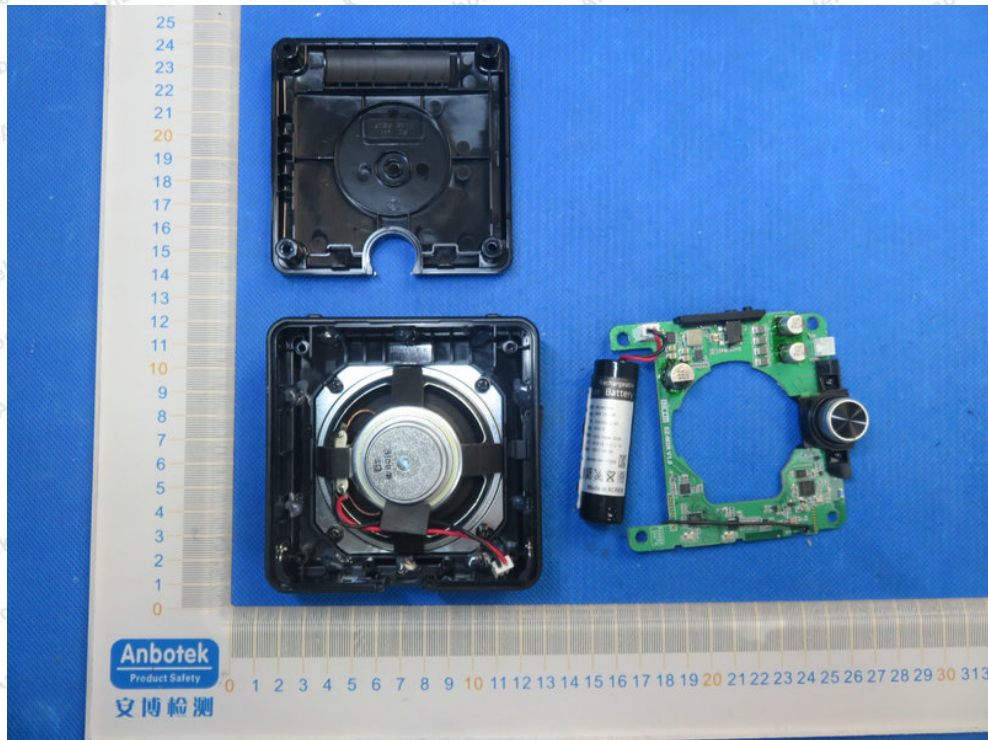


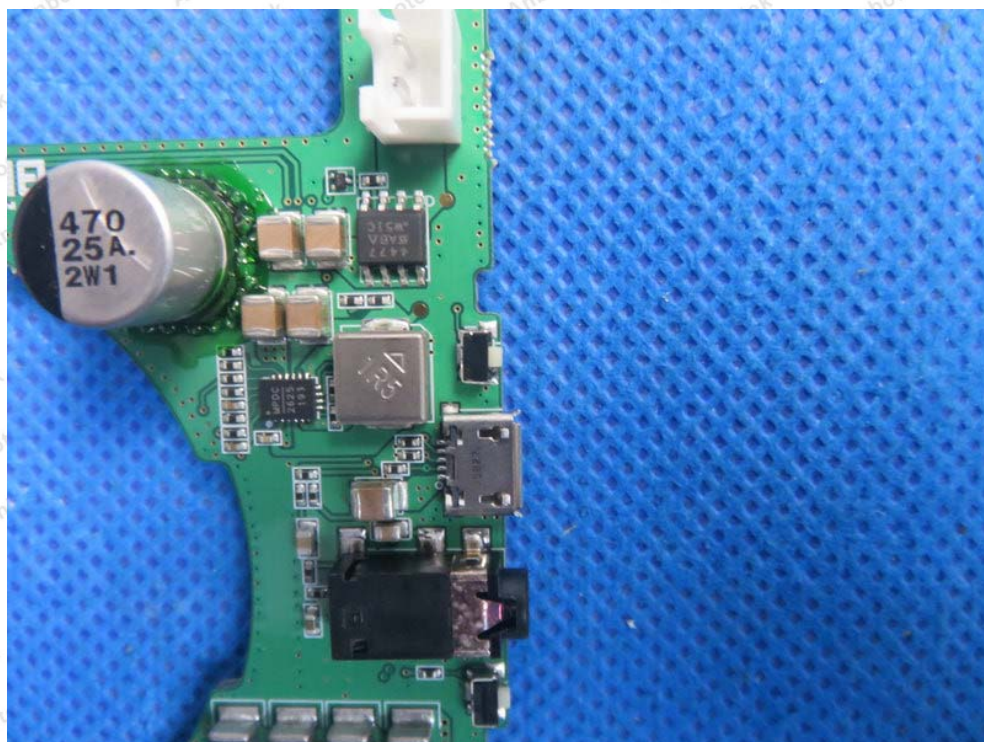
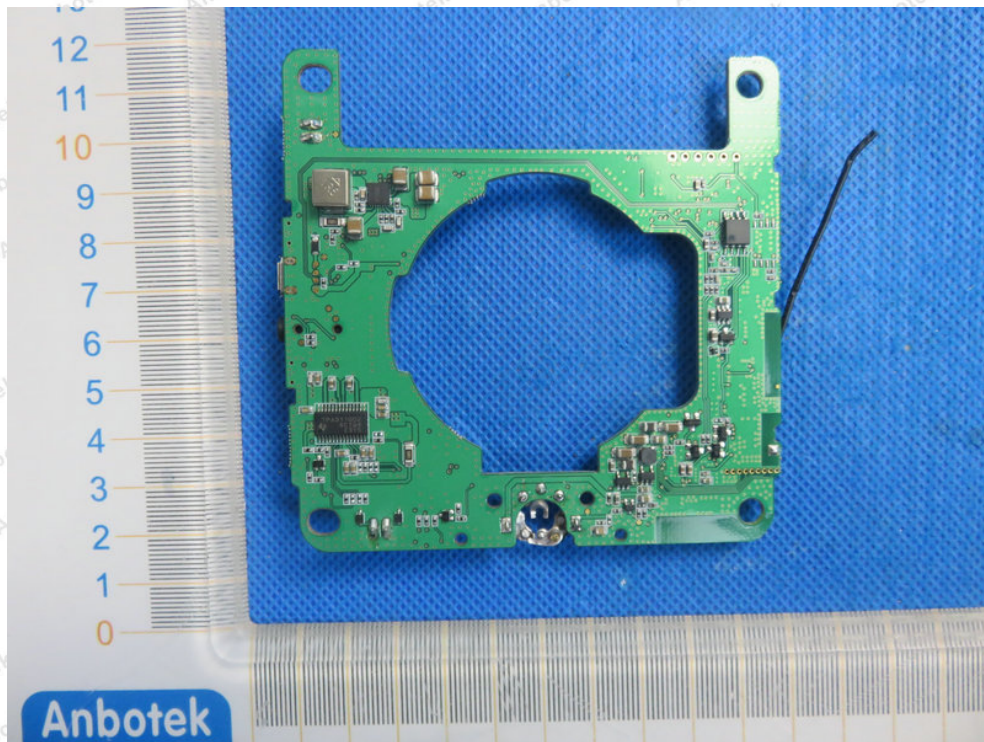


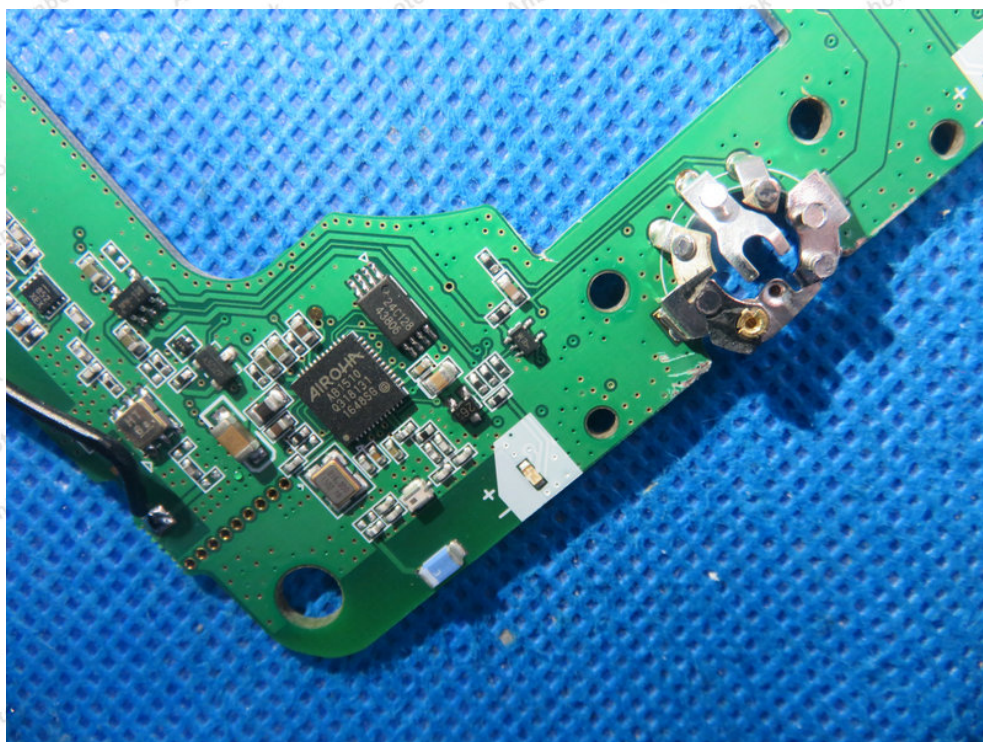
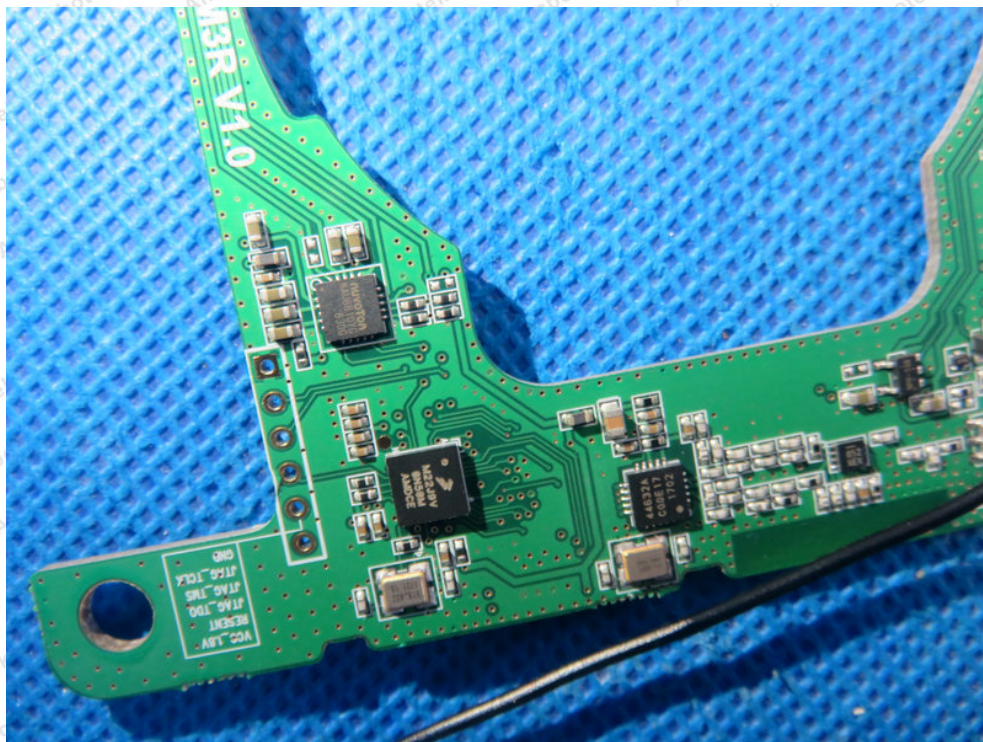


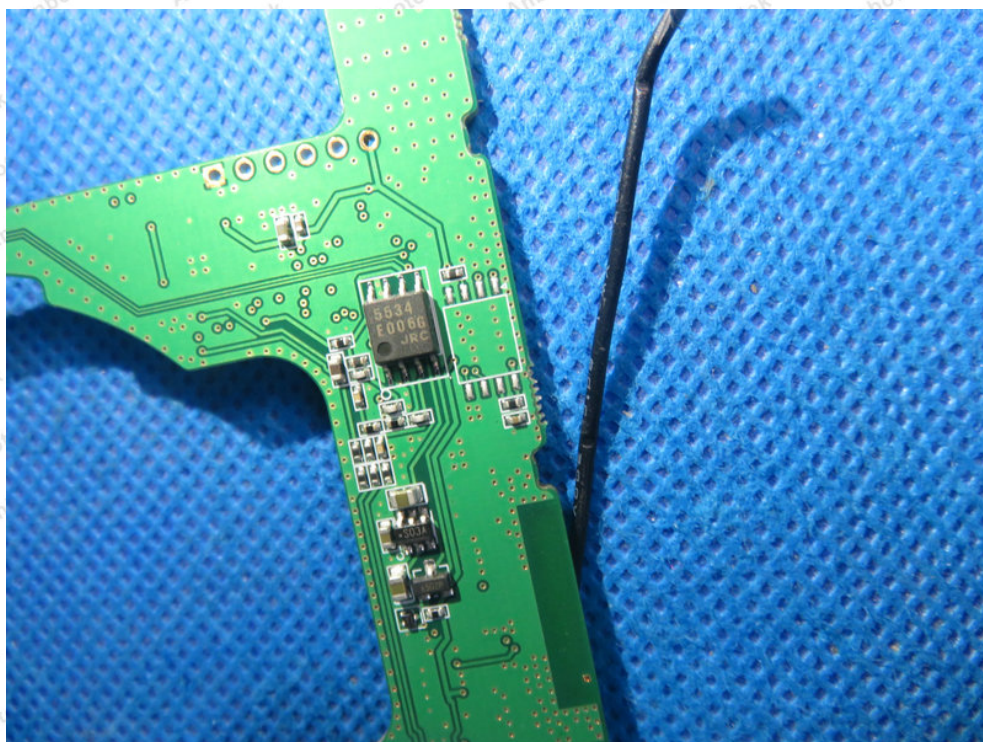
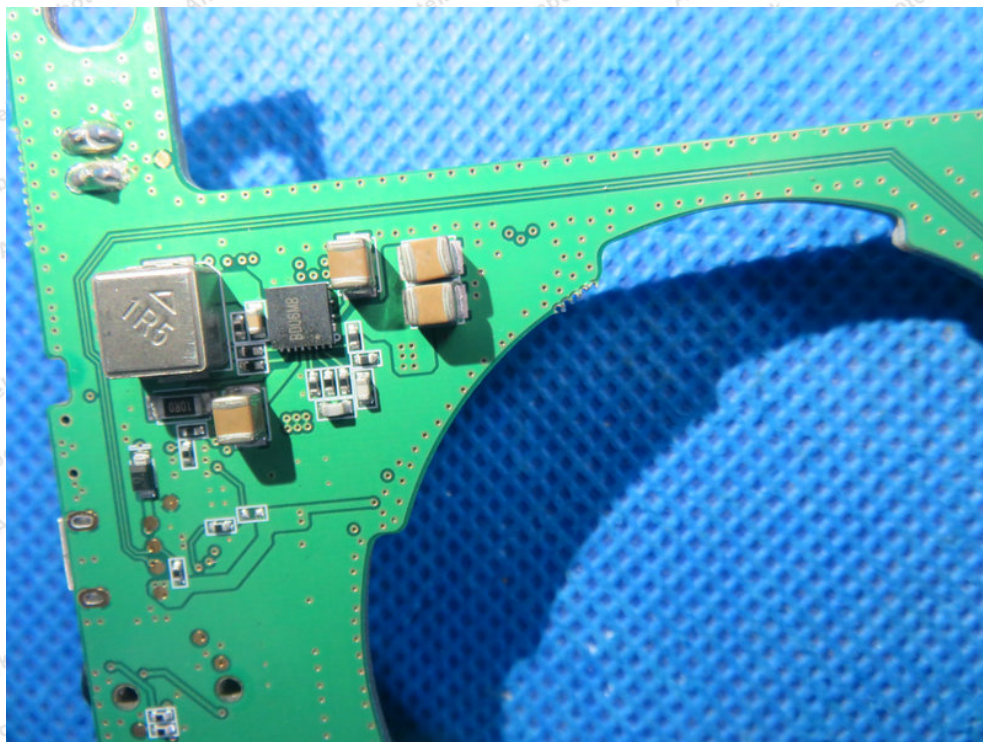


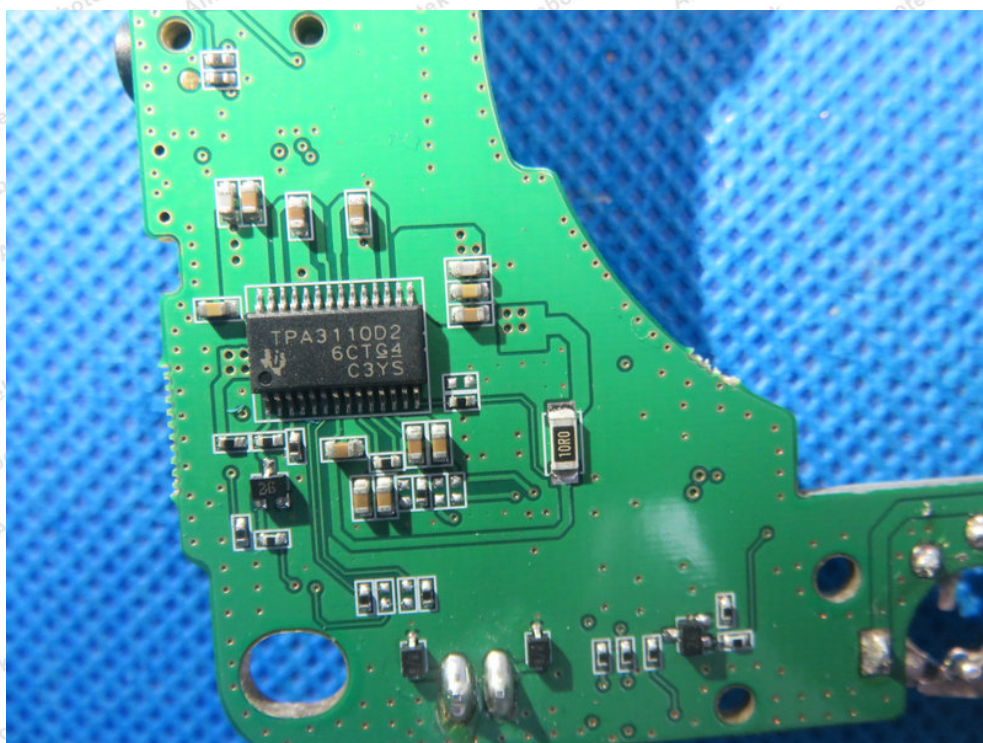
APPENDIX III -- INTERNAL PHOTOGRAPH











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