

FCC Test Report

For

AM/FM 2 Band Radio

Model No.: V-112

Prepared For : HENAN ESHOW ELECTRONIC COMMERCE CO., LTD
Address : Room 722, Sanjiang Building, No.170 Nanyang Road, Huiji District,
Zhengzhou, Henan, China

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
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Report Number : SZAWW180329003-01
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TEST REPORT

Applicant : HENAN ESHOW ELECTRONIC COMMERCE CO., LTD
Manufacturer : HENAN ESHOW ELECTRONIC COMMERCE CO., LTD
Product Name : AM/FM 2 Band Radio
Model No. : V-112
Trade Mark : RETEKESS
Rating(s) : Input: DC 5V, 0.5A (with DC 3.7V, 500 mAh Battery inside)

Test Standard(s) : FCC Rules and Regulations Part 15 Subpart B: 2017 / ANSI C63.4-2014

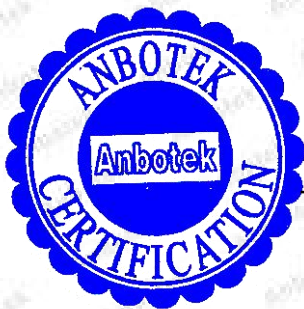
The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results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

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited

Date of Test:

Mar. 29~Apr. 10, 2018

Prepared By:



Winkey Wang

(Tested Engineer / Winkey Wang)

Reviewer:

Tangcy. T.

(Project Manager / Tangcy. T)

Approved & Authorized Signer:

Tom Chen

(Manager / Tom Chen)

1. General Information

1.1. Client Information

Applicant	:	HENAN ESHOW ELECTRONIC COMMERCE CO., LTD
Address	:	Room 722, Sanjiang Building, No.170 Nanyang Road, Huiji District, Zhengzhou, Henan, China
Manufacturer	:	HENAN ESHOW ELECTRONIC COMMERCE CO., LTD
Address	:	Room 722, Sanjiang Building, No.170 Nanyang Road, Huiji District, Zhengzhou, Henan, China

1.2. Description of Device (EUT)

Product Name	:	AM/FM 2 Band Radio	
Model No.	:	V-112	
Trade Mark	:	RETEKESS	
Test Power Supply	:	AC 120V, 60Hz for adapter / AC 240V, 60Hz for adapter DC 3.7V Battery inside	
Operation Frequency:	:	FM: 88.1-107.9MHz; AM: 520KHz-1710KHz	
Antenna Type	:	Copper Post Antenna	
Antenna Gain(Peak)	:	0 dBi	
Product Description	:	N/A	
Remark: (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.			

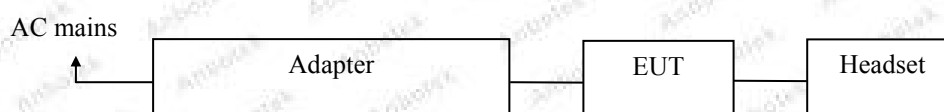
1.3. Auxiliary Equipment Used During Test

Adapter	:	Manufacturer: ZTE M/N: STC-A2050I1000USBA-C S/N: 201202102100876 Input: 100-240V~50/60Hz 0.3A Output: DC 5V, 1000mA
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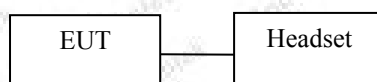
1.4. Description of Test Mode

Pretest Mode	Description
Mode 1	Charge @ FM Mode
Mode 2	AM Mode

For Mode 1 Block Diagram of Test Setup



For Mode 2 Block Diagram of Test Setup



1.5. Test Summary

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.		

1.6. 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. 17, 2017	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Nov. 17, 2017	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 17, 2017	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. 17, 2017	1 Year
2.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 20, 2017	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Nov. 17, 2017	1 Year
4.	Software Name EZ-EMC	Ferrari Technology	ANB-03A	N/A	N/A	N/A

1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB
Disturbance Uncertainty	:	Ud = 2.6 dB

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek 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 Anbotek 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

All Emissions tests were performed at Shenzhen Anbotek Compliance Laboratory Limited.

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

2. Power Line Conducted Emission Test

2.1. Test Standard and Limit

Test Standard	FCC Part 15 Subpart B
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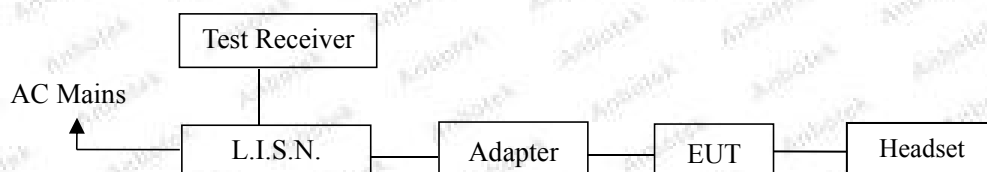
Power Line Conducted Emission Measurement Limits (FCC Part 15 Class B)

Test Limit	Frequency (MHz)	At mains terminals (dBμV)	
		Quasi-peak Level	Average Level
	0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
	0.50 ~ 5.00	56	46
	5.00 ~ 30.00	60	50

Remark: (1) The lower limit shall apply at the transition frequencies.

(2) * Decreasing linearly with logarithm of frequency.

2.2. Test Setup



2.3. EUT Configuration on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

2.4. Operating Condition of EUT

2.4.1. Setup the EUT as shown in Section 2.2.

2.4.2. Turn on the power of all equipments.

2.4.3. Let the EUT work in test mode and measure it.

2.5. 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.

All the test results are listed in Section 2.6.

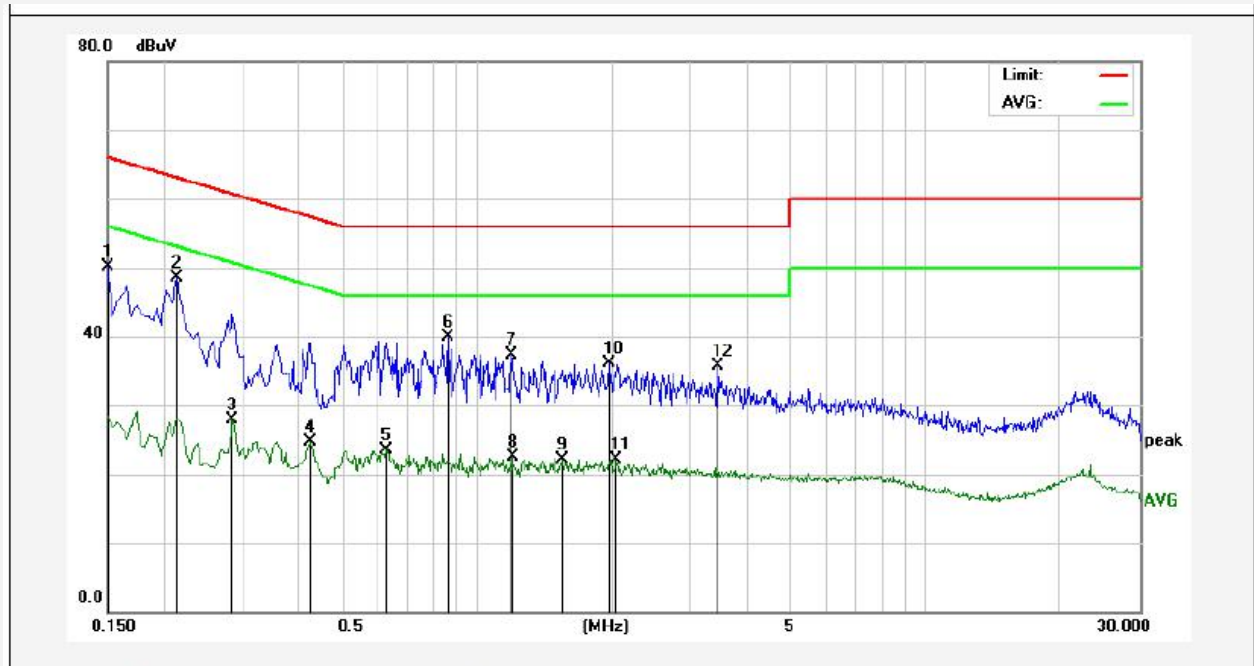
2.6. Test Results

PASS

The test curves are shown in the following pages.

Conducted Emission Test Data

Test Site: 1# Shielded Room
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Temp.: 25°C Hum.: 50%

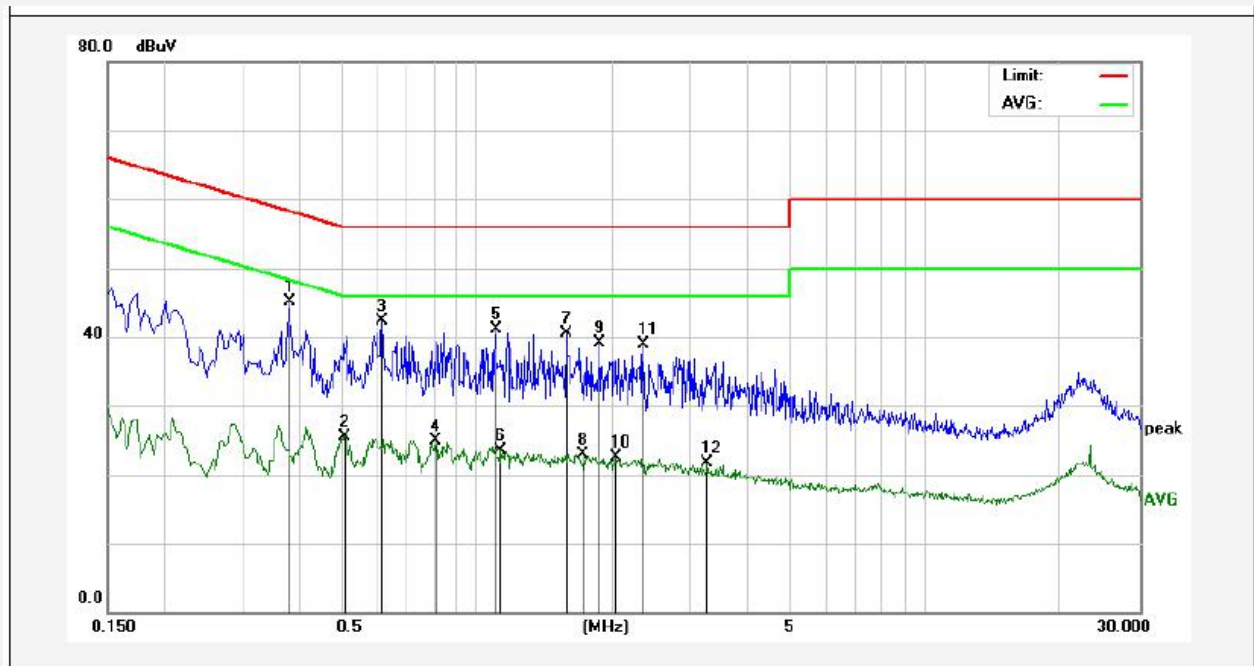


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1500	30.11	19.90	50.01	65.99	-15.98	QP	
2	0.2140	28.55	19.90	48.45	63.04	-14.59	QP	
3	0.2860	7.92	19.89	27.81	50.64	-22.83	AVG	
4	0.4260	4.83	19.95	24.78	47.33	-22.55	AVG	
5	0.6300	3.45	20.02	23.47	46.00	-22.53	AVG	
6	0.8620	19.73	20.08	39.81	56.00	-16.19	QP	
7	1.1940	17.13	20.12	37.25	56.00	-18.75	QP	
8	1.2020	2.36	20.12	22.48	46.00	-23.52	AVG	
9	1.5460	2.06	20.13	22.19	46.00	-23.81	AVG	
10	1.9700	15.90	20.14	36.04	56.00	-19.96	QP	
11	2.0500	1.91	20.14	22.05	46.00	-23.95	AVG	
12	3.4460	15.56	20.17	35.73	56.00	-20.27	QP	

Note: Result=Reading+Factor Over Limit=Result-Limit

Conducted Emission Test Data

Test Site: 1# Shielded Room
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Temp.: 25°C Hum.: 50%

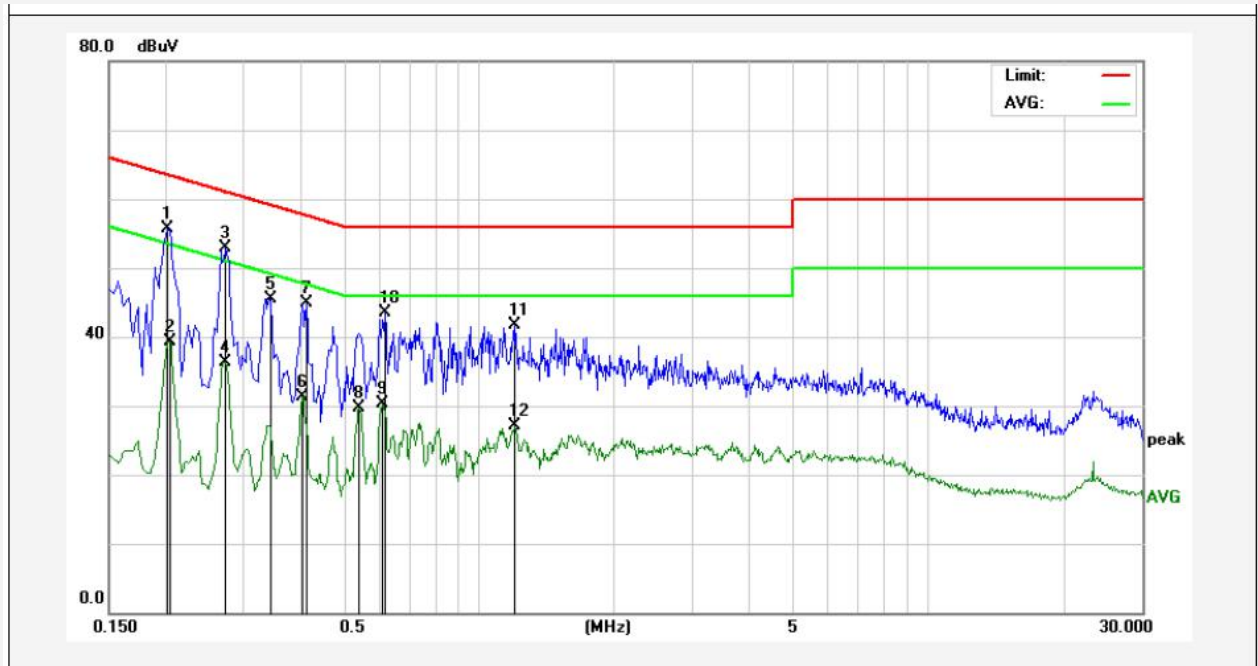


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.3820	25.17	19.93	45.10	58.23	-13.13	QP	
2	0.5100	5.60	19.98	25.58	46.00	-20.42	AVG	
3	0.6140	22.30	20.01	42.31	56.00	-13.69	QP	
4	0.8100	4.88	20.07	24.95	46.00	-21.05	AVG	
5	1.1019	20.98	20.12	41.10	56.00	-14.90	QP	
6	1.1340	3.39	20.12	23.51	46.00	-22.49	AVG	
7	1.5780	20.42	20.13	40.55	56.00	-15.45	QP	
8	1.7340	2.82	20.13	22.95	46.00	-23.05	AVG	
9	1.8860	19.04	20.14	39.18	56.00	-16.82	QP	
10	2.0540	2.44	20.14	22.58	46.00	-23.42	AVG	
11	2.3540	18.84	20.15	38.99	56.00	-17.01	QP	
12	3.2659	1.53	20.17	21.70	46.00	-24.30	AVG	

Note: Result=Reading+Factor Over Limit=Result-Limit

Conducted Emission Test Data

Test Site: 1# Shielded Room
Test Specification: AC 240V, 60Hz for adapter
Comment: Live Line
Temp.: 25°C Hum.: 50%

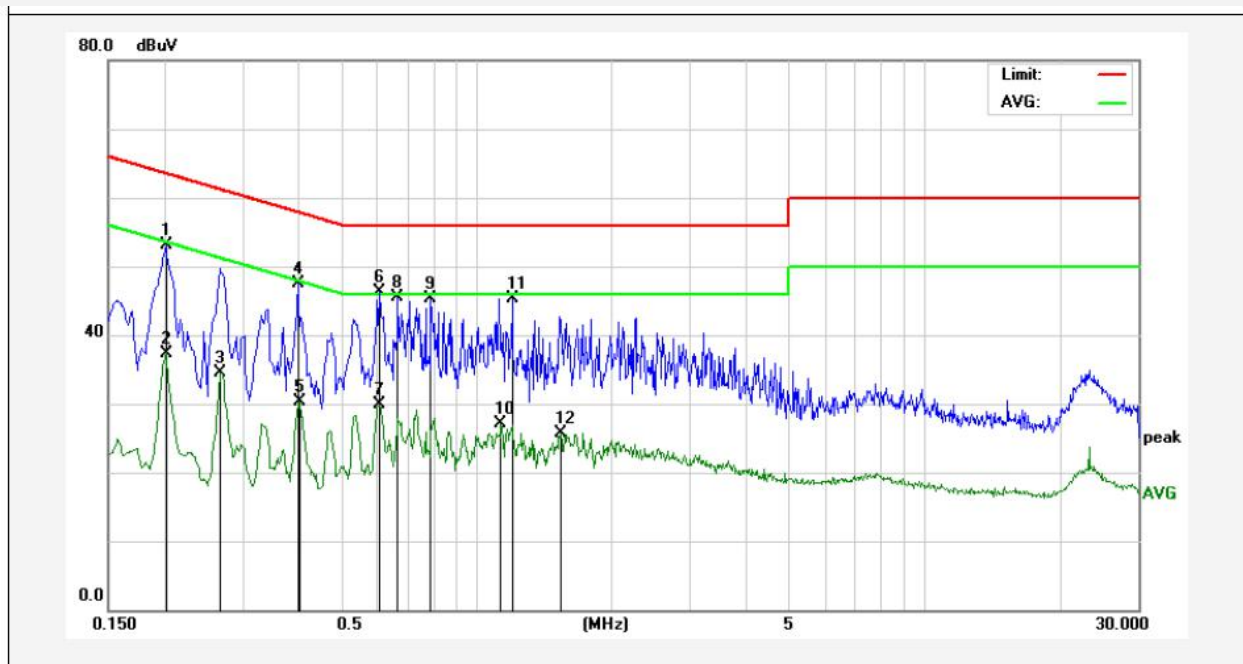


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.2020	35.73	19.90	55.63	63.52	-7.89	QP	
2	0.2060	19.49	19.90	39.39	53.36	-13.97	AVG	
3	0.2740	32.99	19.89	52.88	60.99	-8.11	QP	
4	0.2740	16.42	19.89	36.31	50.99	-14.68	AVG	
5	0.3460	25.68	19.91	45.59	59.06	-13.47	QP	
6	0.4060	11.35	19.94	31.29	47.73	-16.44	AVG	
7	0.4140	24.87	19.94	44.81	57.57	-12.76	QP	
8	0.5420	9.70	19.99	29.69	46.00	-16.31	AVG	
9	0.6100	10.34	20.01	30.35	46.00	-15.65	AVG	
10	0.6180	23.48	20.02	43.50	56.00	-12.50	QP	
11	1.2059	21.63	20.12	41.75	56.00	-14.25	QP	
12	1.2059	6.94	20.12	27.06	46.00	-18.94	AVG	

Note: Result=Reading+Factor Over Limit=Result-Limit

Conducted Emission Test Data

Test Site: 1# Shielded Room
Test Specification: AC 240V, 60Hz for adapter
Comment: Neutral Line
Temp.: 25°C Hum.: 50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.2020	33.18	19.90	53.08	63.52	-10.44	QP	
2	0.2020	17.50	19.90	37.40	53.52	-16.12	AVG	
3	0.2660	14.68	19.89	34.57	51.24	-16.67	AVG	
4	0.3980	27.56	19.93	47.49	57.89	-10.40	QP	
5	0.4020	10.44	19.94	30.38	47.81	-17.43	AVG	
6	0.6060	26.36	20.01	46.37	56.00	-9.63	QP	
7	0.6060	9.85	20.01	29.86	46.00	-16.14	AVG	
8	0.6660	25.42	20.03	45.45	56.00	-10.55	QP	
9	0.7900	25.25	20.06	45.31	56.00	-10.69	QP	
10	1.1300	6.92	20.12	27.04	46.00	-18.96	AVG	
11	1.2020	25.17	20.12	45.29	56.00	-10.71	QP	
12	1.5420	5.66	20.13	25.79	46.00	-20.21	AVG	

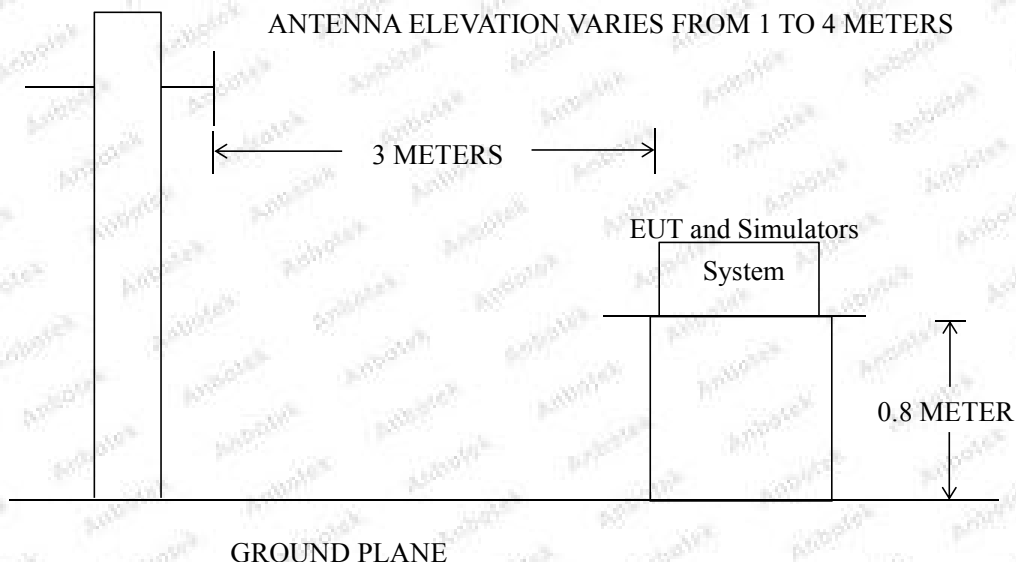
Note: Result=Reading+Factor Over Limit=Result-Limit

3. Radiated Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part 15 Subpart B			
Radiated Emission Test Limit (Subpart B Class B)				
Test Limit	Frequency (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT	
			μV/m	(dBμV/m)
	30 ~ 88	3	100	40
	88 ~ 216	3	150	43
	216 ~ 960	3	200	46
	960 ~ 1000	3	500	54
Remark: (1) Emission level (dB)μV = 20 log Emission level μV/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 an part of the device or system. (4) 3M Limit=10M Limit+k $k=20\log(D1/D2)=10$ 3M Limit=10M Limit +10 (D1= 10M D2=3M)				

3.2. Test Setup



3.3. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.4. Operating Condition of EUT

- 3.4.1. Setup the EUT as shown in Section 3.2.
- 3.4.2. Turn on the power of all equipments.
- 3.4.3. Let the EUT work in test mode and measure it.

3.5. 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.

The test results are listed in Section 3.6.

3.6. Test Results

PASS

The test curves are shown in the following pages.

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):	24.3(°C)/55%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	33.4673	42.63	-15.99	26.64	40.00	-13.36	peak			
2	67.1616	34.15	-17.94	16.21	40.00	-23.79	peak			
3	99.9128	36.98	-14.52	22.46	43.50	-21.04	peak			
4	112.7512	36.81	-15.80	21.01	43.50	-22.49	peak			
5	120.1216	38.40	-17.04	21.36	43.50	-22.14	peak			
6	206.3580	35.63	-16.30	19.33	43.50	-24.17	peak			

Note: **Result=Reading+Factor** **Over Limit=Result-Limit**

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): 24.3(°C)/55%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	100.4895	37.44	-20.54	16.90	43.50	-26.60	peak			
2	103.4240	38.90	-20.79	18.11	43.50	-25.39	peak			
3	112.7511	38.65	-21.80	16.85	43.50	-26.65	peak			
4	123.6293	39.05	-23.17	15.88	43.50	-27.62	peak			
5	181.8114	38.61	-21.42	17.19	43.50	-26.31	peak			
6	194.8145	37.37	-21.05	16.32	43.50	-27.18	peak			

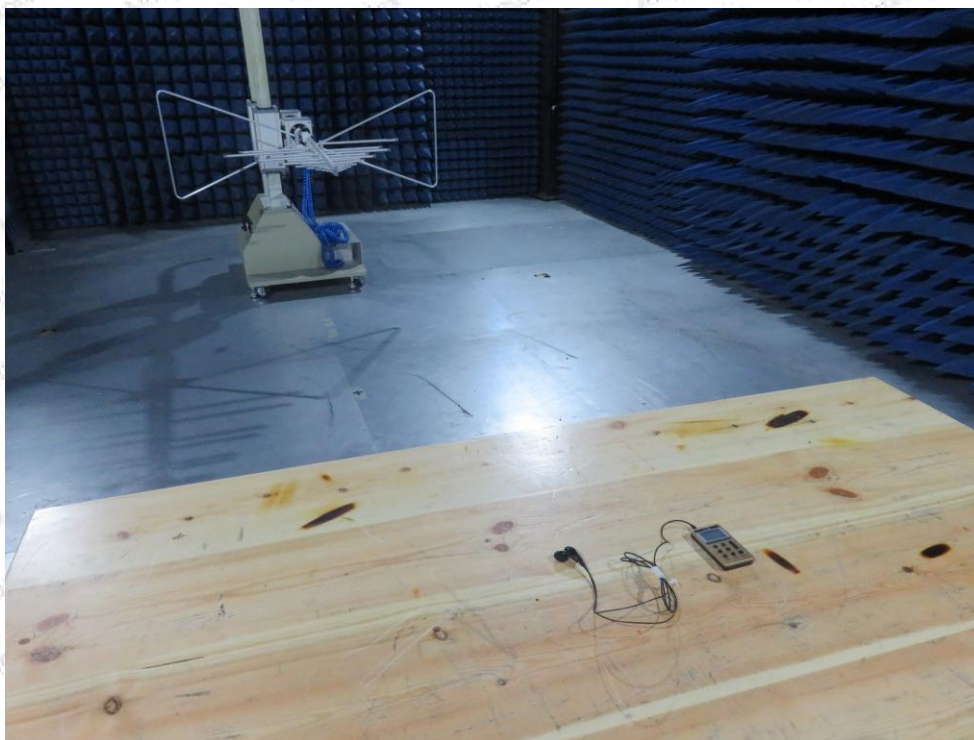
Note: Result=Reading+Factor Over Limit=Result-Limit

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Power Line Conducted Emission Test

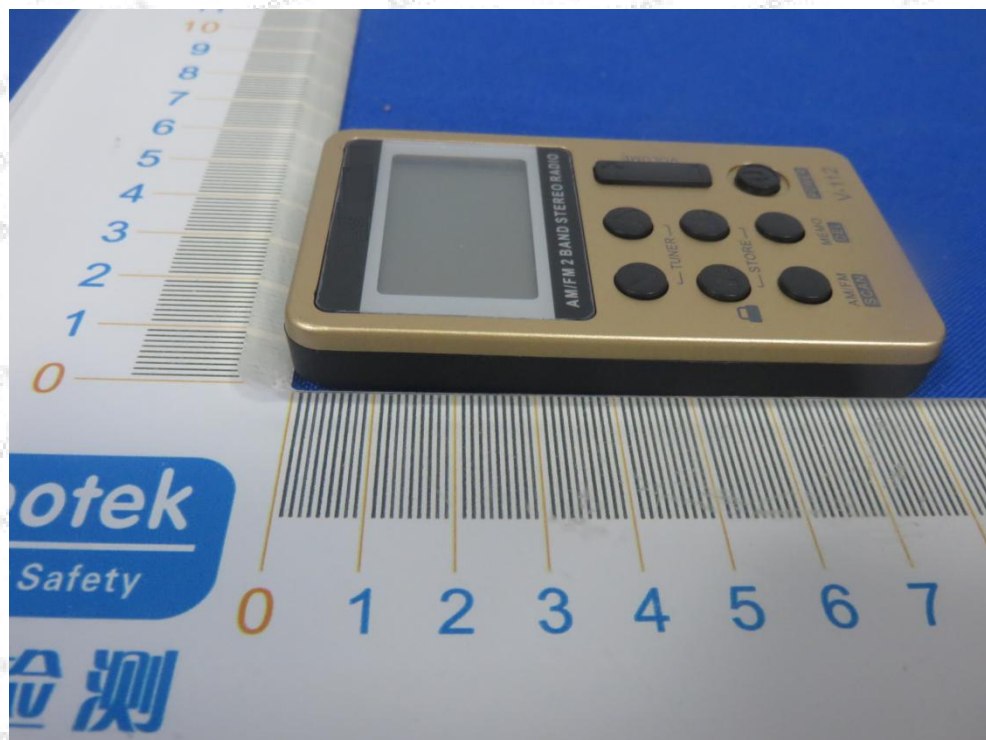


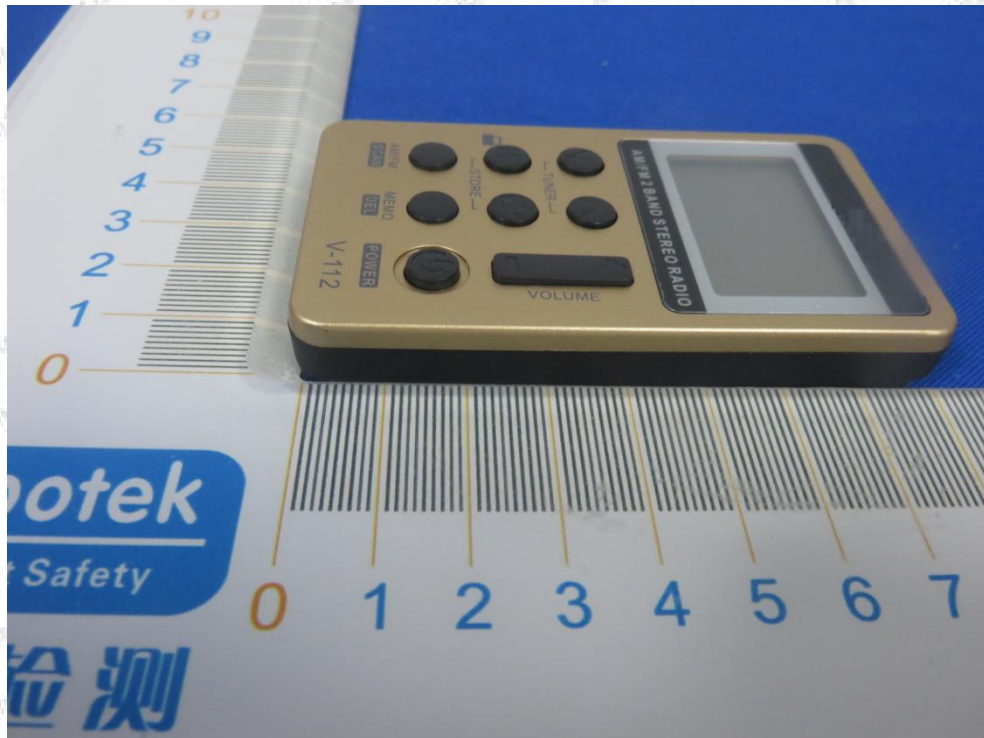
Photo of Radiated Emission Test



APPENDIX II -- EXTERNAL PHOTOGRAPH



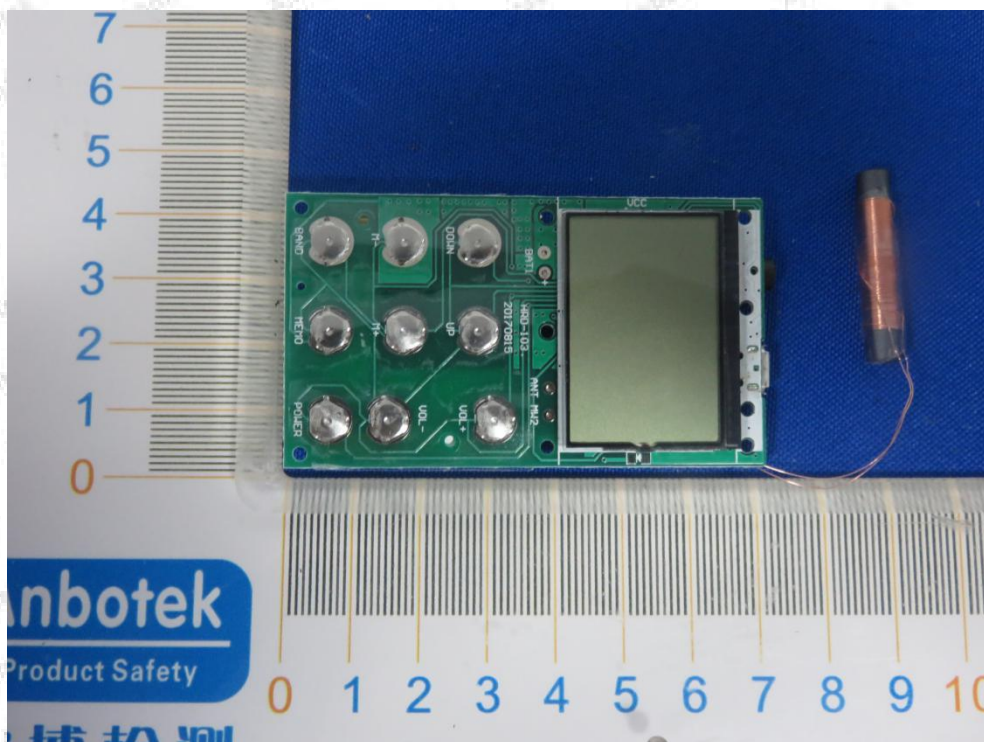


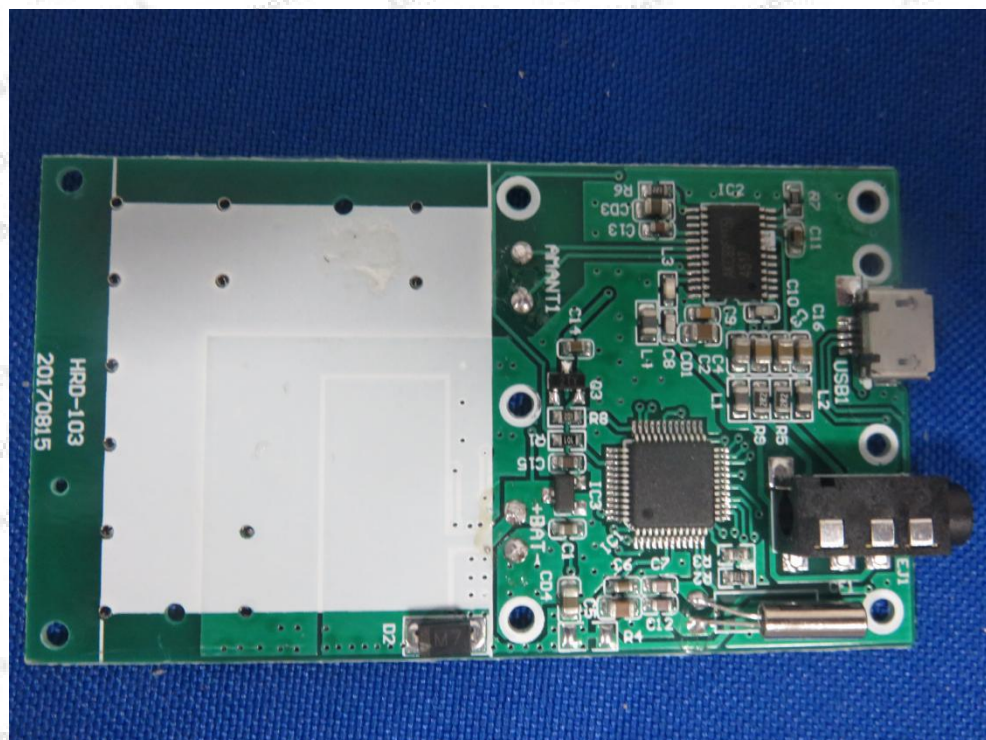
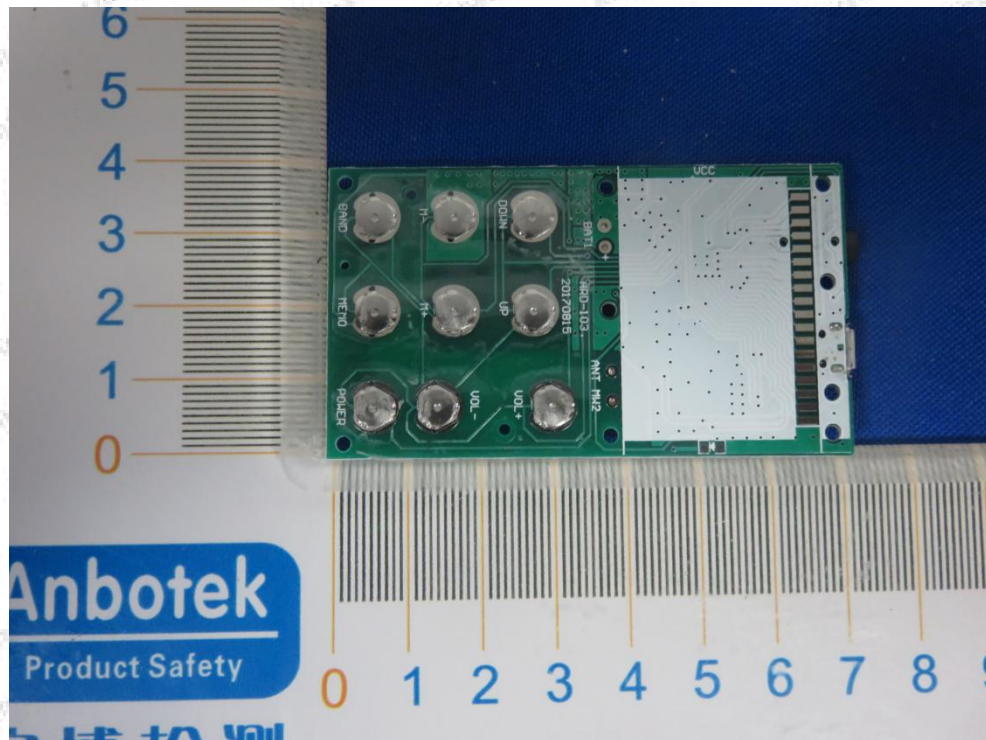


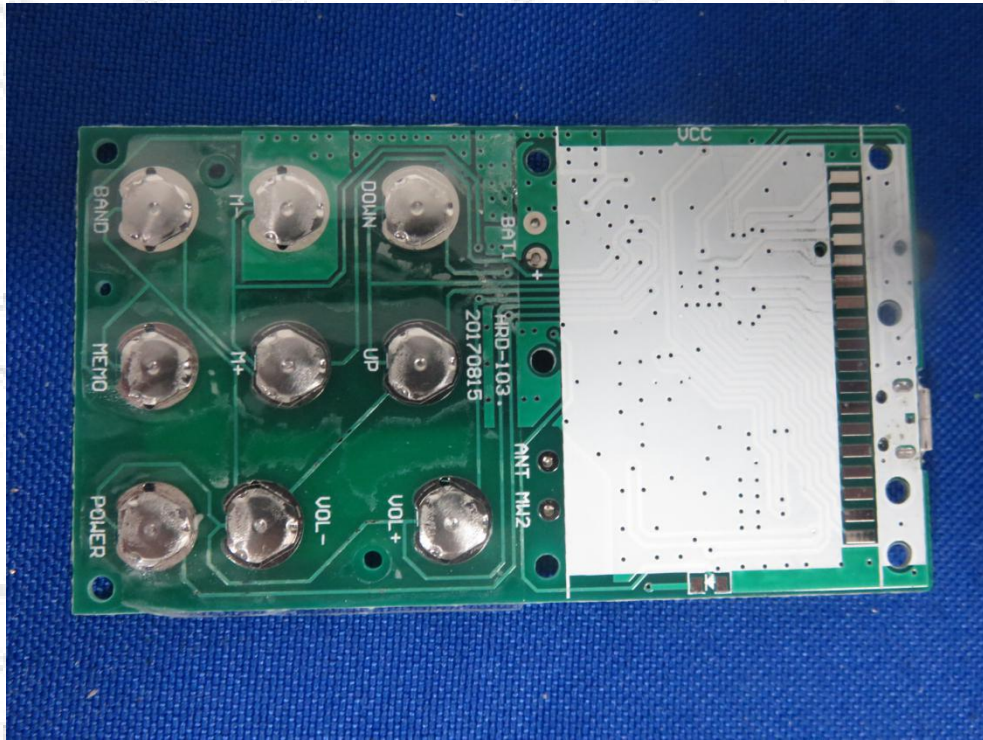


APPENDIX III -- INTERNAL PHOTOGRAPH









End of Report