

FCC Test Report

Report No.: AGC00737180809FE01

FCC ID : 2AMH2-BH036B
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : Bluetooth Headset
BRAND NAME : MPOW
MODEL NAME : BH036B
CLIENT : MPOW TECHNOLOGY CO., LIMITED
DATE OF ISSUE : Aug. 21, 2018
STANDARD(S) : FCC Part 15 Subpart B
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug. 21, 2018	Valid	Initial release

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1. VERIFICATION OF CONFORMITY

Applicant	MPOW TECHNOLOGY CO., LIMITED
Address	RM 603, 6/F, HANG PONT COMM BLDG 31 TONKIN ST, CHEUNG SHA WAN KL, HK, CHINA
Manufacturer	MPOW TECHNOLOGY CO., LIMITED
Address	RM 603, 6/F, HANG PONT COMM BLDG 31 TONKIN ST, CHEUNG SHA WAN KL, HK, CHINA
Product Designation	Bluetooth Headset
Brand Name	MPOW
Test Model	BH036B
Date of test	Aug. 15, 2018 to Aug. 17, 2018
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-IT/AC

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. For compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2014. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements. The test results of this report relate only to the tested sample identified in this report.

Tested By



Jonhen Wang(Wang Yonghuan) Aug. 17, 2018

Reviewed By



Cool Cheng(Cheng Mengguo) Aug. 21, 2018

Approved By



 Forrest Lei(Lei Yonggang)
 Authorized Officer Aug. 21, 2018

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2. SYSTEM DESCRIPTION

EUT set up procedure:

1. Connect the EUT with adapter, mobile phone or PC.
2. Make sure the EUT charging normally during the test.

Test Mode

TEST MODE DESCRIPTION		
NO.	TEST MODE DESCRIPTION	WORST
1	AUX in with charging	V

Note: V means EMI worst mode.

3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

- Uncertainty of Conducted Emission, $U_c = \pm 2.75$ dB
- Uncertainty of Radiated Emission, $U_c = \pm 3.2$ dB

4. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.107	Conduction Emission	Compliant
§15.109	Radiated Emission	Compliant

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5. PRODUCT INFORMATION

Housing Type	Plastic
Voltage	DC 3.7V by battery

I/O Port Information (☒ Applicable ☐ Not Applicable)

I/O Port of EUT			
I/O Port Type	Q'TY	Cable	Tested with
USB Port	1	0	1
AUX in Port	1	0	1

6. SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Power Cable
Adapter	I PRO	NTR-S01	N/A	0
PC	APPLE	A1465	N/A	0
USB Cable	N/A	N/A	N/A	1m unshielded
AUX in Cable	N/A	N/A	N/A	1m unshielded
Mobile Phone	HUAWEI	V8	N/A	0

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

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7. TEST FACILITY

Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District B112-B113, Bldg.12, Baoan Bldg Materials Center, No.1 of Xixiang Inner Ring Road, Baoan District, Shenzhen 518012
NVLAP Lab Code	600153-0
Designation Number	CN5028
Test Firm Registration Number	682566
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by National Voluntary Laboratory Accreditation program, NVLAP Code 600153-0

8. TEST EQUIPMENT LIST

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101417	July 4, 2018	July 3, 2019
LISN	R&S	ESH2-Z5	838979/009	Mar.01 2018	Feb. 28, 2019

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Spectrum Analyzer	AGILENT	E4440A	US41421290	Jul. 13, 2018	Jul. 12, 2019
EMI Test Receiver	SCHWARZBECK	VULB9168	VULB9168-494	Mar.12,2018	Mar. 11, 2019
Wideband Frequency Antenna	MF	MF-7802	MF780208285	Mar.12, 2018	Mar.11, 2019
Amplifier	EM	EM30180	060552	Mar.01,2018	Feb. 28, 2019
Horn Antenna	EM	EM-AH-10180	67	Mar.01,2018	Feb. 28, 2019

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9. FCCLINE CONDUCTED EMISSION TEST

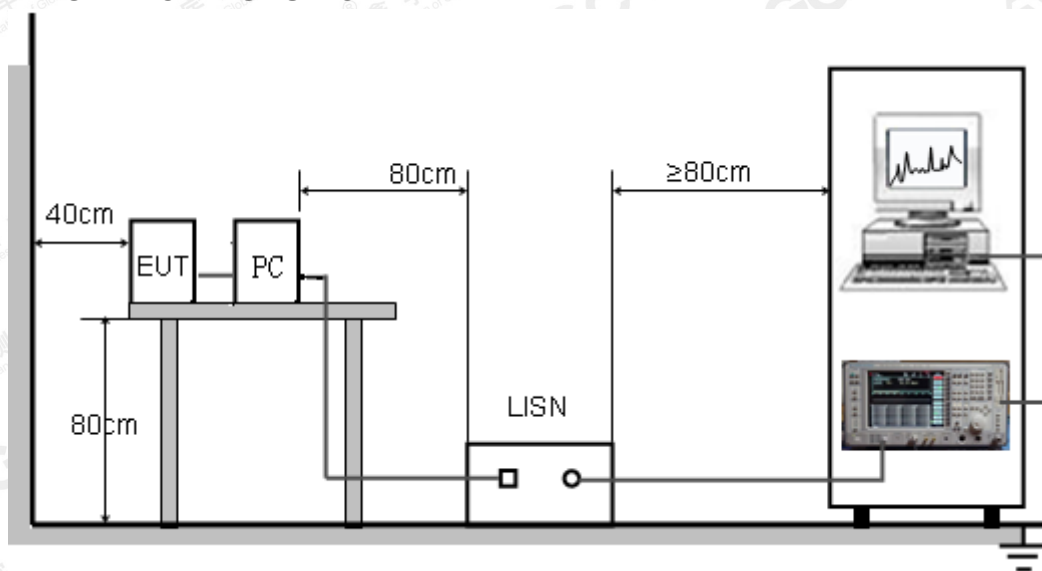
9.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

9.2. BLOCK DIAGRAM OF TEST SETUP



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9.3. PROCEDURE OF LINE CONDUCTED EMISSION TEST

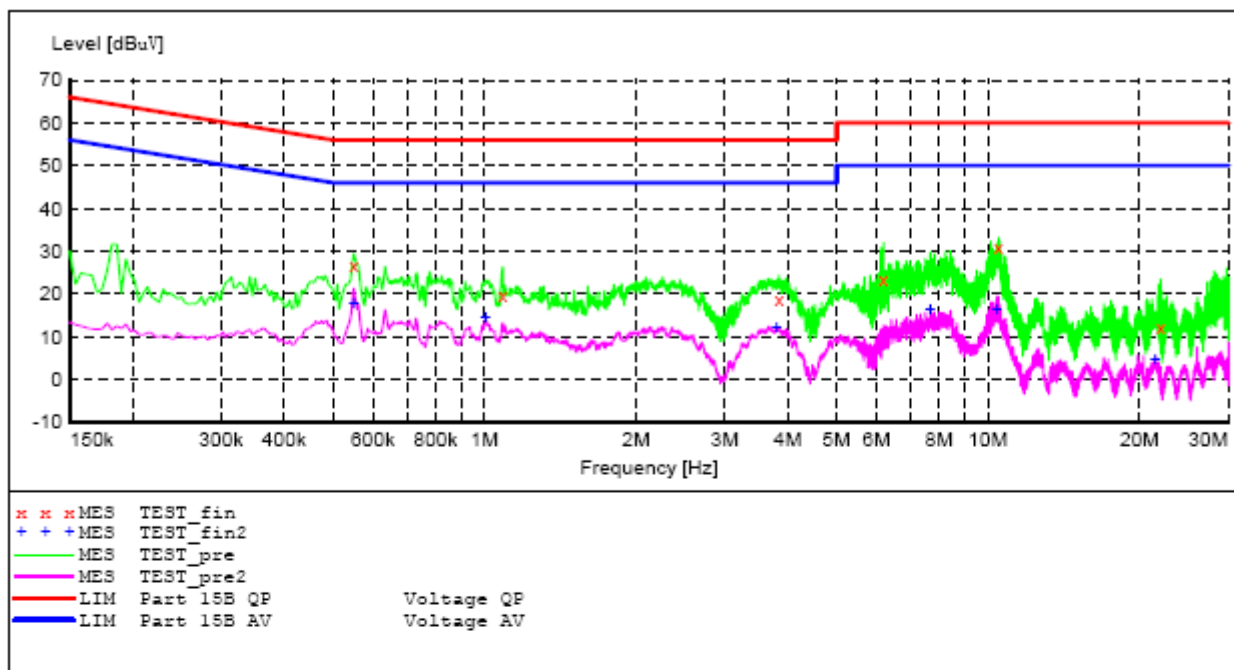
- (1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- (2) Support equipment, if needed, was placed as per ANSI C63.4.
- (3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- (4) The EUT received charging voltage by adapter which receive AC120V/60Hz power from a LISN.
- (5) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- (6) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- (7) During the above scans, the emissions were maximized by cable manipulation.
- (8) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
- (9) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

The test data of the worst case condition (mode 1) was reported on the Summary Data page.

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9.4. TEST RESULT OF LINE CONDUCTED EMISSION TEST

LINE CONDUCTED EMISSION TEST-L



MEASUREMENT RESULT: "TEST_fin"

2018/8/15 14:39

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.550000	26.70	10.1	56	29.3	QP	L1	FLO
1.086000	19.60	10.2	56	36.4	QP	L1	FLO
3.842000	18.80	10.1	56	37.2	QP	L1	FLO
6.194000	23.30	10.3	60	36.7	QP	L1	FLO
10.490000	31.00	9.7	60	29.0	QP	L1	FLO
21.982000	12.30	11.1	60	47.7	QP	L1	FLO

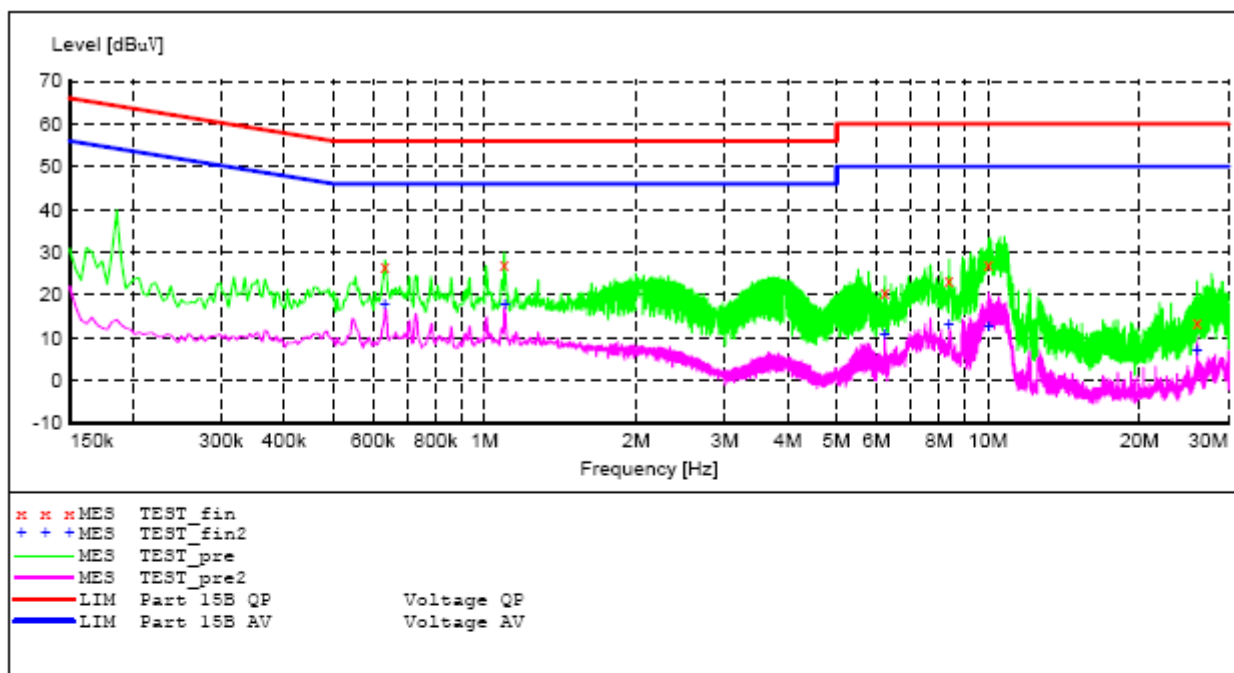
MEASUREMENT RESULT: "TEST_fin2"

2018/8/15 14:39

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.550000	17.70	10.1	46	28.3	AV	L1	FLO
1.006000	14.40	10.2	46	31.6	AV	L1	FLO
3.802000	12.00	10.1	46	34.0	AV	L1	FLO
7.682000	16.60	10.2	50	33.4	AV	L1	FLO
10.414000	16.60	9.7	50	33.4	AV	L1	FLO
21.478000	4.70	11.1	50	45.3	AV	L1	FLO

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LINE CONDUCTED EMISSION TEST-N



MEASUREMENT RESULT: "TEST_fin"

2018/8/15 14:45

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.634000	26.60	10.1	56	29.4	QP	N	FLO
1.094000	27.30	10.2	56	28.7	QP	N	FLO
6.238000	20.50	10.3	60	39.5	QP	N	FLO
8.362000	23.60	10.0	60	36.4	QP	N	FLO
10.022000	27.00	9.7	60	33.0	QP	N	FLO
25.998000	13.40	11.1	60	46.6	QP	N	FLO

MEASUREMENT RESULT: "TEST_fin2"

2018/8/15 14:45

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.634000	17.80	10.1	46	28.2	AV	N	FLO
1.098000	17.80	10.2	46	28.2	AV	N	FLO
6.230000	10.90	10.3	50	39.1	AV	N	FLO
8.362000	13.30	10.0	50	36.7	AV	N	FLO
10.022000	12.70	9.7	50	37.3	AV	N	FLO
25.998000	6.90	11.1	50	43.1	AV	N	FLO

RESULT: PASS

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10. FCC RADIATED EMISSION TEST

10.1. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
960~1000	3	54.0
Above 1000	3	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)

Note: The lower limit shall apply at the transition frequency.

10.1.1 The following table is the setting of spectrum analyzer and receiver:

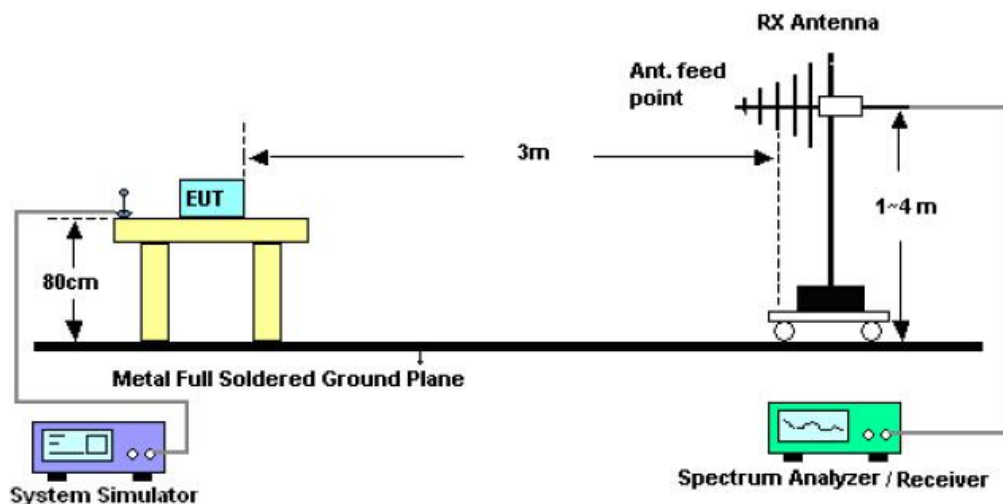
Spectrum Parameter	Setting
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~13GHz RBW 1MHz/ VBW 3MHz for Peak, RBW 1MHz/ VBW 10Hz for Average

Receiver Parameter	Setting
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

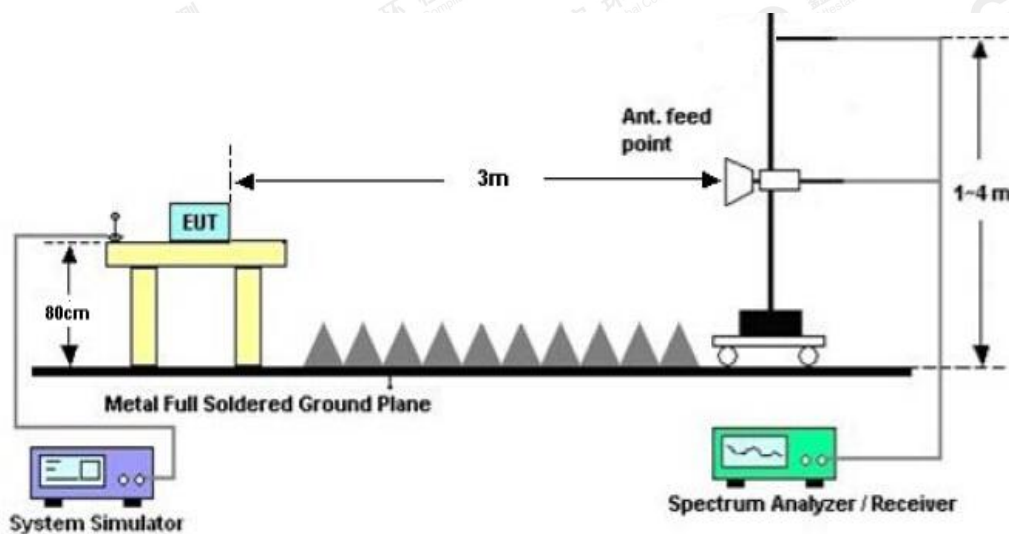
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10.2. BLOCK DIAGRAM OF TEST SETUP

RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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10.3. PROCEDURE OF RADIATED EMISSION TEST

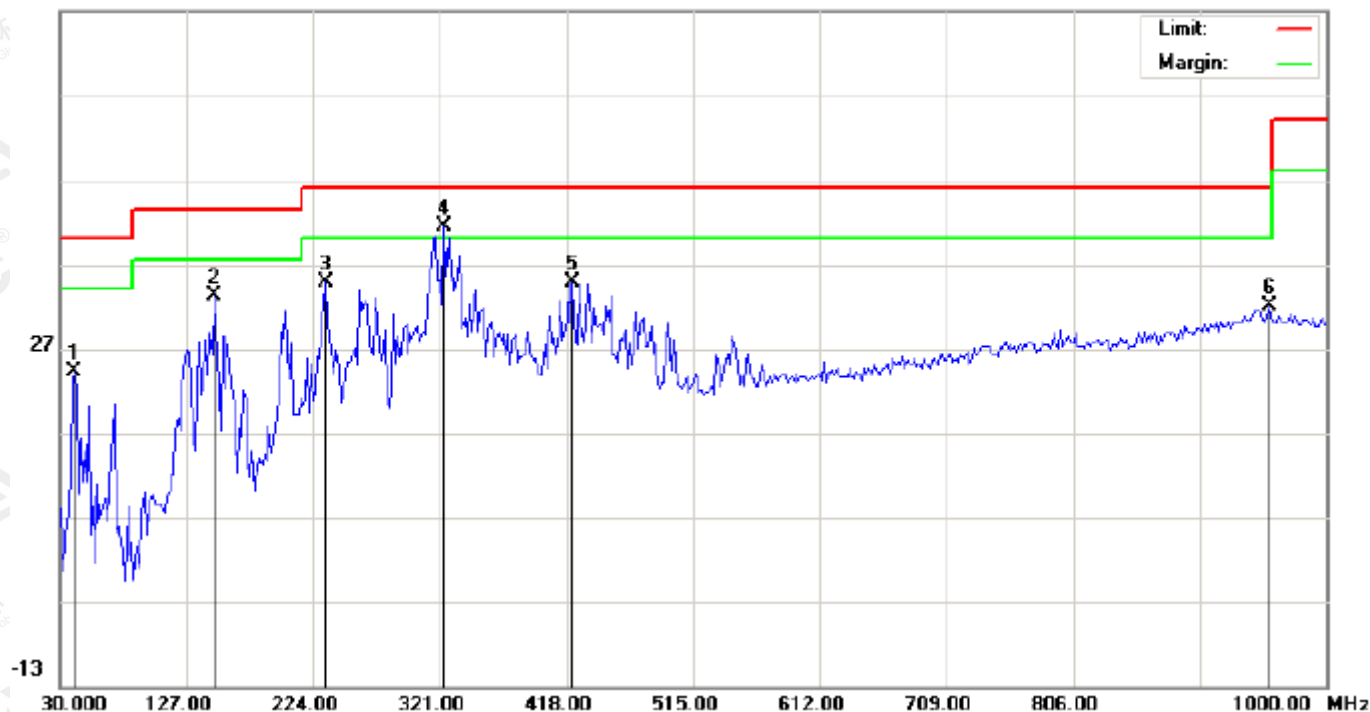
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.

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10.4. TEST RESULT OF RADIATED EMISSION TEST

Radiated Emission Test at 3m Distance-Horizontal

66.9 dBuV/m



No.	Mk	Freq. MHz	Reading dBuV	Factor dB/m	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		41.3167	12.33	11.81	24.14	40.00	-15.86	peak			
2		148.0167	20.03	13.25	33.28	43.50	-10.22	peak			
3		233.7000	26.24	8.56	34.80	46.00	-11.20	peak			
4	*	324.2333	24.35	17.02	41.37	46.00	-4.63	peak			
5		422.8500	15.10	19.76	34.86	46.00	-11.14	peak			
6		956.3500	1.98	29.94	31.92	46.00	-14.08	peak			

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Radiated Emission Test at 3m Distance-Vertical



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		131.8500	16.16	11.80	27.96	43.50	-15.54	peak			
2		248.2500	18.17	13.73	31.90	46.00	-14.10	peak			
3		325.8500	14.28	17.13	31.41	46.00	-14.59	peak			
4		460.0333	10.96	20.70	31.66	46.00	-14.34	peak			
5		539.2500	6.02	22.19	28.21	46.00	-17.79	peak			
6	*	899.7667	5.35	28.60	33.95	46.00	-12.05	peak			

RESULT: PASS

Note: Measurement = Reading + Factor, Over = Measurement – Limit.

1~13GHz at least have 20dB margin. No recording in the test report.

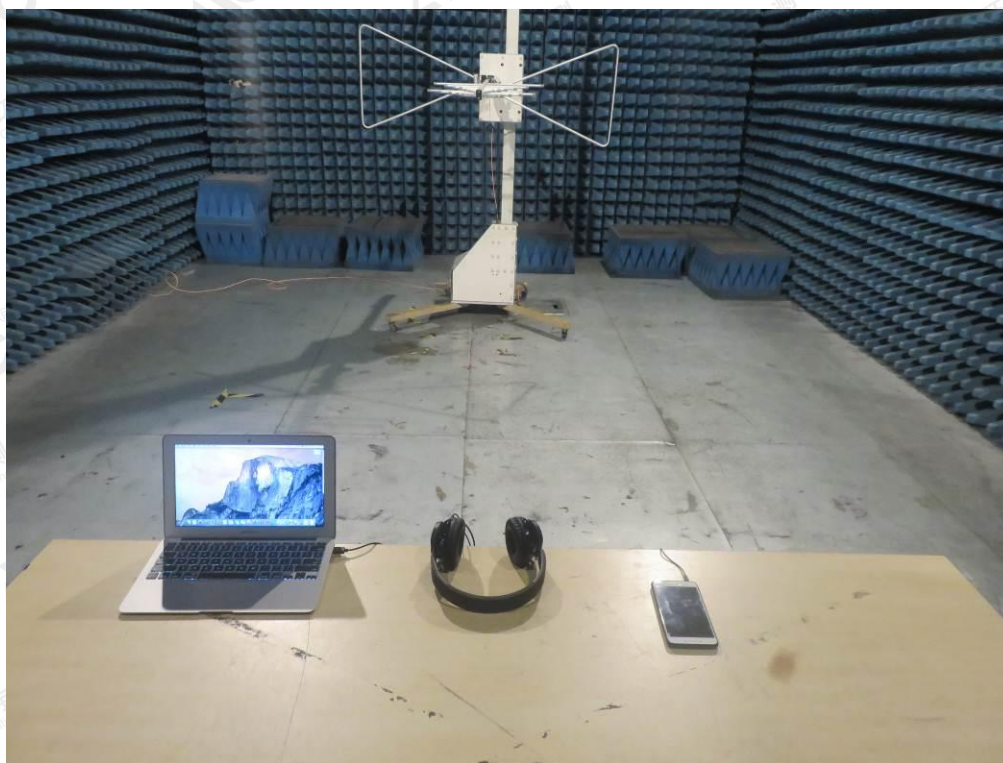
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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP



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APPENDIX B: PHOTOGRAPHS OF EUT
TOP VIEW OF EUT



BOTTOM VIEW OF EUT



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FRONT VIEW OF EUT



BACK VIEW OF EUT



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LEFT VIEW OF EUT



RIGHT VIEW OF EUT



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VIEW OF EUT (PORT)



OPEN VIEW OF EUT

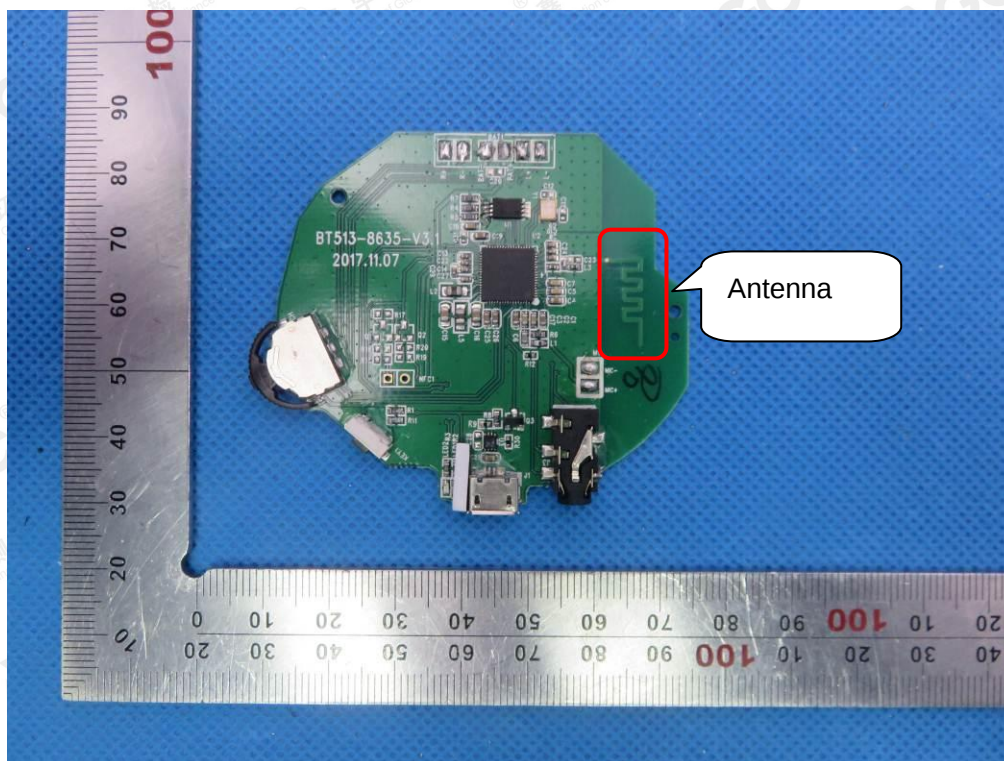


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VIEW OF BATTERY

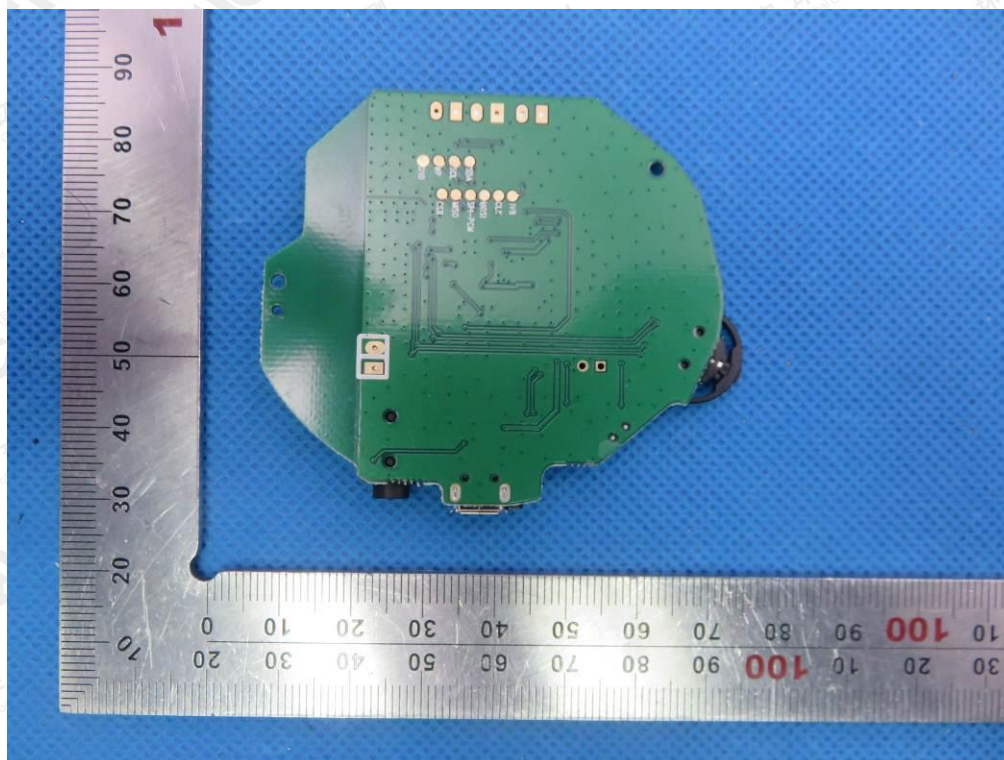


INTERNAL VIEW OF EUT-1

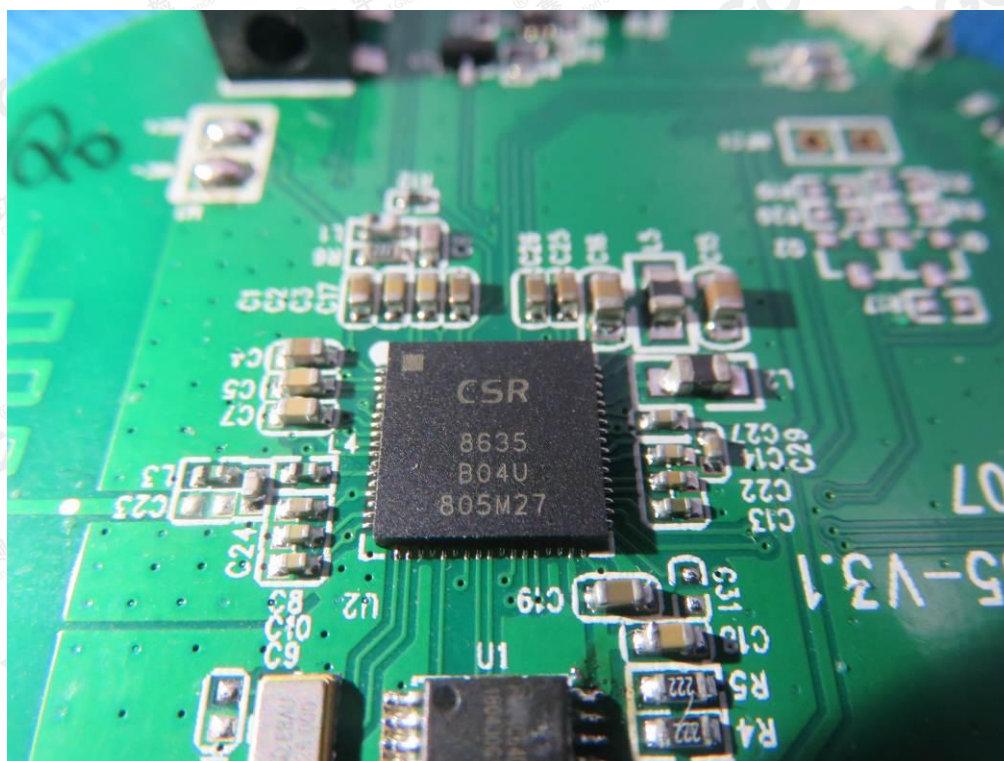


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INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



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VIEW OF ADAPTER (AE)



THE ADAPTER SUPPLIED BY AGC

-----END OF REPORT-----

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