

FCC TEST REPORT

Client Name : WICKED AUDIO, INC
Address : 875 WEST 325 NORTH, LINDON UT, United States,
84042
Product Name : True wireless earbuds Charger
Date : Jul. 26, 2019

Shenzhen Anbotek Compliance Laboratory Limited



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TEST REPORT

Applicant : WICKED AUDIO, INC
Manufacturer : GUANGZHOU HAVIT TECHNOLOGY CO., LTD
Product Name : True wireless earbuds Charger
Model No. : WI-TW3950, WI-TW395X, WI-TW3951, WI-TW3952, WI-TW3953, WI-TW3954, WI-TW3955
Trade Mark : Wicked Audio
Rating(s) : Input: DC 5V, 1A(with DC 3.7V, 2200 mAh Battery inside)
USB Output: DC 5V, 1A

Test Standard(s) : FCC Part 18 Subpart C 2018
Test Method(s) : FCC MP5-5:1986

The device described above is tested by Shenzhen Anbotek 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 Anbotek 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 18 Subpart C requirements.

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

Date of Receipt

Jun. 25, 2019

Date of Test

Jun. 25~Jul. 23, 2019

Prepared By



Dolly Mo

(Engineer / Dolly Mo)

Reviewer

Snowy Meng

(Supervisor / Snowy Meng)

Approved & Authorized Signer

Sally Zhang

(Manager / Sally Zhang)

1. General Information

1.1. Client Information

Applicant	:	WICKED AUDIO, INC
Address	:	875 WEST 325 NORTH, LINDON UT, United States, 84042
Manufacturer	:	GUANGZHOU HAVIT TECHNOLOGY CO., LTD
Address	:	Rms1307, Poly World Trade Center, Phase2, 1000 Xingang East Rd, Haizhu, Guangzhou
Factory	:	GUANGZHOU HAVIT TECHNOLOGY CO., LTD
Address	:	Rms1307, Poly World Trade Center, Phase2, 1000 Xingang East Rd, Haizhu, Guangzhou

1.2. Description of Device (EUT)

Product Name	:	True wireless earbuds Charger	
Model No.	:	WI-TW3950, WI-TW395X, WI-TW3951, WI-TW3952, WI-TW3953, WI-TW3954, WI-TW3955 (Note: All samples are the same except the model name , so we prepare "WI-TW3950" for test only.)	
Trade Mark	:	Wicked Audio	
Test Power Supply	:	AC 120V, 60Hz for adapter/ DC 3.7V Battery inside	
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)	
Product Description	:	Operation Frequency:	110.1~205KHz
	:	Modulation Type:	FSK
	:	Antenna Type:	Inductive loop coil 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.			

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
Wireless Charging Power Bank	:	Model: MC-018

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.

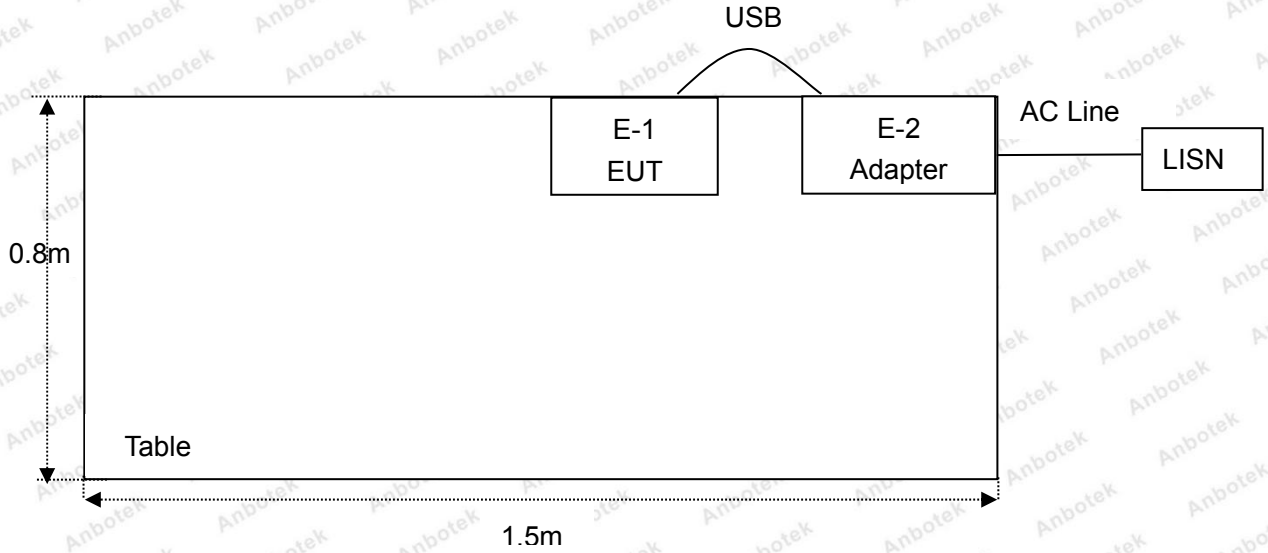
Pretest Mode	Description
Mode 1	Charging mode
Mode 2	Wireless Charge Mode

For Conducted Emission	
Final Test Mode	Description
Mode 1	Charging mode
Mode 2	Wireless Charge Mode

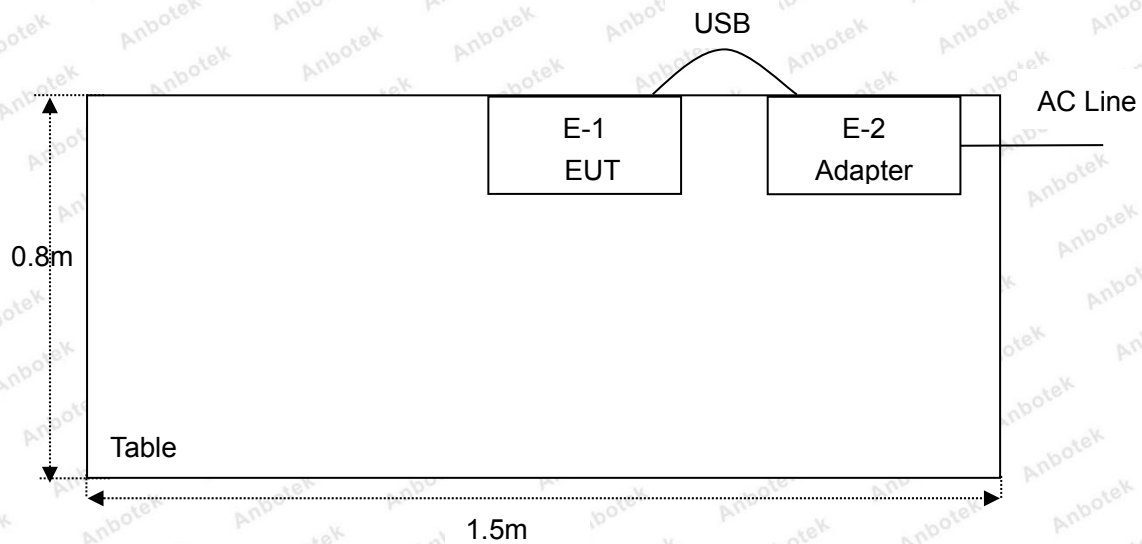
For Radiated Emission	
Final Test Mode	Description
Mode 1	Charging mode
Mode 2	Wireless Charge Mode

1.5. Description Of Test Setup

CE



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1.6. 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. 26, 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	BK1G18G30 D	KD17503	Nov. 05, 2018	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 19, 2018	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 19, 2018	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 19, 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	15100041SN045	Nov. 05, 2018	1 Year
15.	Power Sensor	DAER	RPR3006W	15100041SN046	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	LW	TPR-6420D	374470	Oct. 31, 2018	1 Year
20.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80 B	N/A	Nov. 01, 2018	1 Year
21.	L.I.S.N. Artificial Mains Network	Schwarzbeck	NSLK 8127	8126377	Nov. 26, 2018	1 Year

1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1 dB (Horizontal)
		Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

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, September 30, 2018.

ISED-Registration No.: 8058A

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, March 07, 2019.

Test Location

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. Summary of Test Results

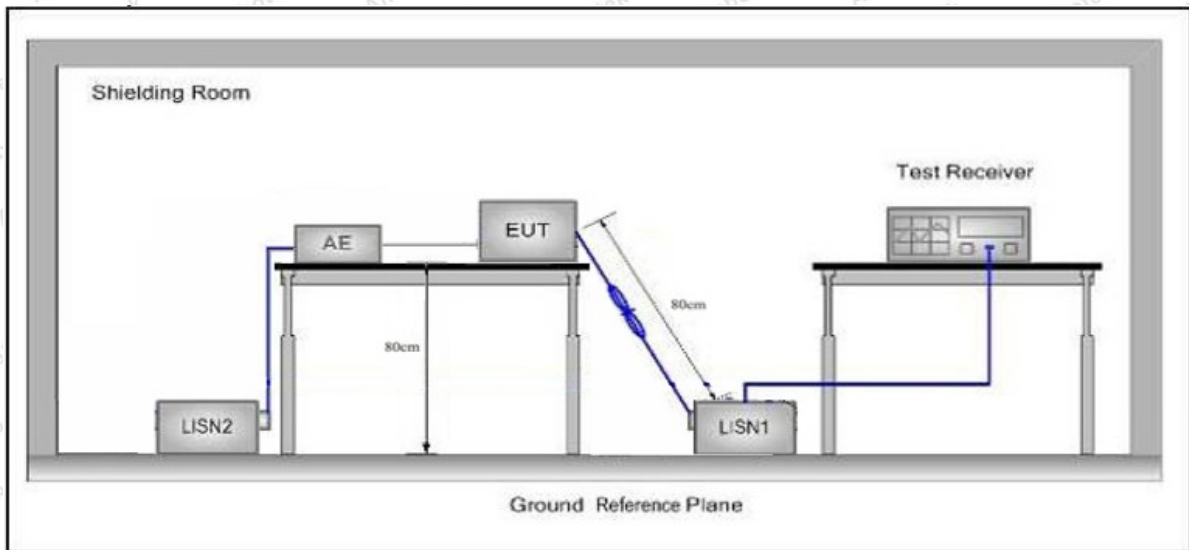
Standard Section	Test Item	Result
FCC Part 18, Paragraph 18.307(b)	Conducted Emission Test	PASS
FCC Part 18, Paragraph 18.305(b)	Spurious Emission Test	PASS

3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part18 Section 18.307		
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.

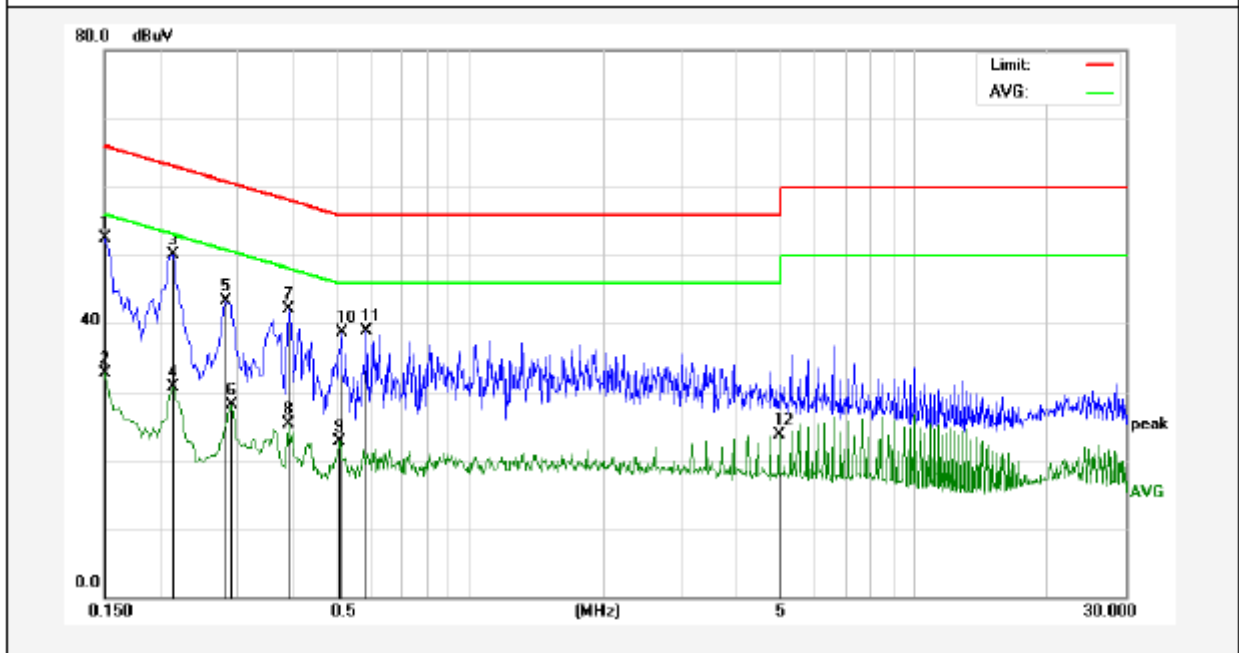
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

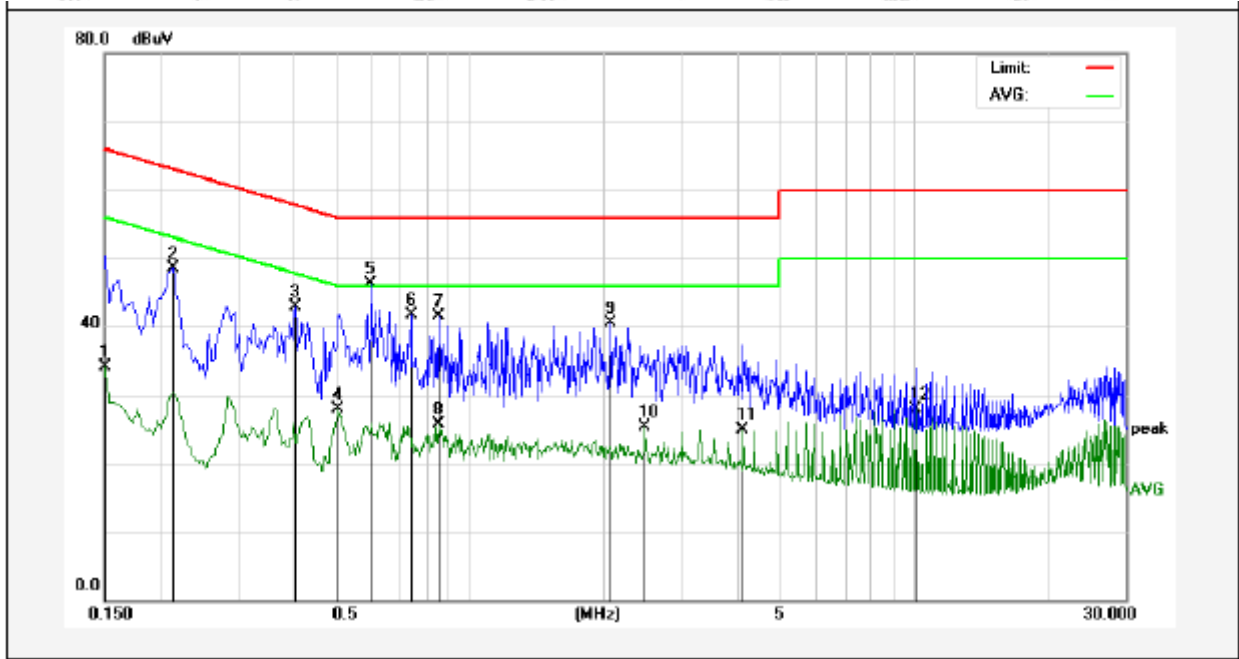
Test Site: 1# Shielded Room
 Operating Condition: Mode 2
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Live Line
 Tem.: 21.9°C Hum.: 56%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	32.53	19.90	52.43	65.99	-13.56	QP	
2	0.1500	12.90	19.90	32.80	55.99	-23.19	AVG	
3	0.2140	30.19	19.90	50.09	63.04	-12.95	QP	
4	0.2140	10.80	19.90	30.70	53.04	-22.34	AVG	
5	0.2819	23.34	19.89	43.23	60.76	-17.53	QP	
6	0.2900	8.29	19.89	28.18	50.52	-22.34	AVG	
7	0.3899	22.09	19.93	42.02	58.06	-16.04	QP	
8	0.3899	5.41	19.93	25.34	48.06	-22.72	AVG	
9	0.5100	2.71	19.98	22.69	46.00	-23.31	AVG	
10	0.5140	18.72	19.98	38.70	56.00	-17.30	QP	
11	0.5860	18.86	20.01	38.87	56.00	-17.13	QP	
12	4.9780	3.58	20.21	23.79	46.00	-22.21	AVG	

Conducted Emission Test Data

Test Site: 1# Shielded Room
 Operating Condition: Mode 2
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Neutral Line
 Tem.: 21.9°C Hum.: 56%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	14.29	19.90	34.19	55.99	-21.80	AVG	
2	0.2140	28.62	19.90	48.52	63.04	-14.52	QP	
3	0.4060	23.05	19.94	42.99	57.73	-14.74	QP	
4	0.5060	7.95	19.98	27.93	46.00	-18.07	AVG	
5	0.5980	26.29	20.01	46.30	56.00	-9.70	QP	
6	0.7380	21.65	20.05	41.70	56.00	-14.30	QP	
7	0.8500	21.36	20.08	41.44	56.00	-14.56	QP	
8	0.8500	5.56	20.08	25.64	46.00	-20.36	AVG	
9	2.0660	20.43	20.14	40.57	56.00	-15.43	QP	
10	2.4780	5.19	20.15	25.34	46.00	-20.66	AVG	
11	4.1300	4.77	20.18	24.95	46.00	-21.05	AVG	
12	10.1020	7.56	20.34	27.90	50.00	-22.10	AVG	

4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Test Standard: FCC 18.305

Test Limit:

(b) The field strength levels of emissions which lie outside the bands specified in §18.301, unless otherwise indicated, shall not exceed the following:

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	Below 500	25	300
		500 or more	$25 \times \sqrt{\text{power}/500}$	¹ 300
	Any non-ISM frequency	Below 500	15	300
		500 or more	$15 \times \sqrt{\text{power}/500}$	¹ 300
Industrial heaters and RF stabilized arc welders	On or below 5,725 MHz Above 5,725 MHz	Any Any	10 (²)	1,600 (²)
Medical diathermy	Any ISM frequency Any non-ISM frequency	Any Any	25	300
			15	300
Ultrasonic	Below 490 kHz	Below 500	$2,400/F(\text{kHz})$	300
		500 or more	$2,400/F(\text{kHz}) \times \sqrt{\text{power}/500}$	³ 300
	490 to 1,600 kHz Above 1,600 kHz	Any Any	$24,000/F(\text{kHz})$	30
			15	30
Induction cooking ranges	Below 90 kHz On or above 90 kHz	Any Any	1,500	⁴ 30
			300	⁴ 30

¹Field strength may not exceed 10 µV/m at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.

²Reduced to the greatest extent possible.

³Field strength may not exceed 10 µV/m at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts.

⁴Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

Measurement Requirement:

- 1) This product belongs to non-ISM equipment, the field strength limit is 15uV/m at 300 meter distance.
- 2) Limit: $20\log(15\mu\text{V/m}) + 20\log(300/3) = 23.52 + 40 = 63.52\text{dBuV/m}$ at 3 meters .

4.2. Test Setup

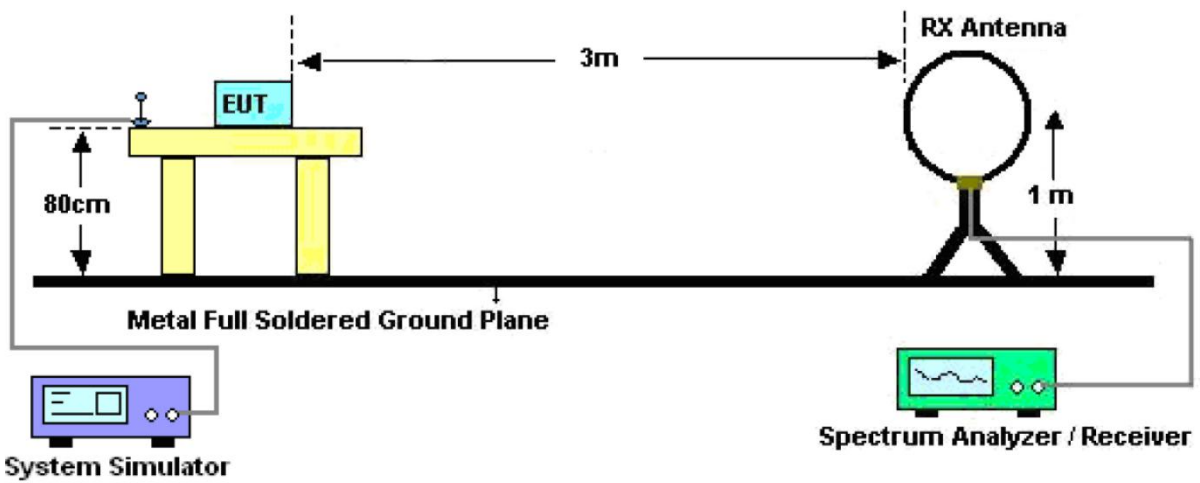


Figure 1. Below 30MHz

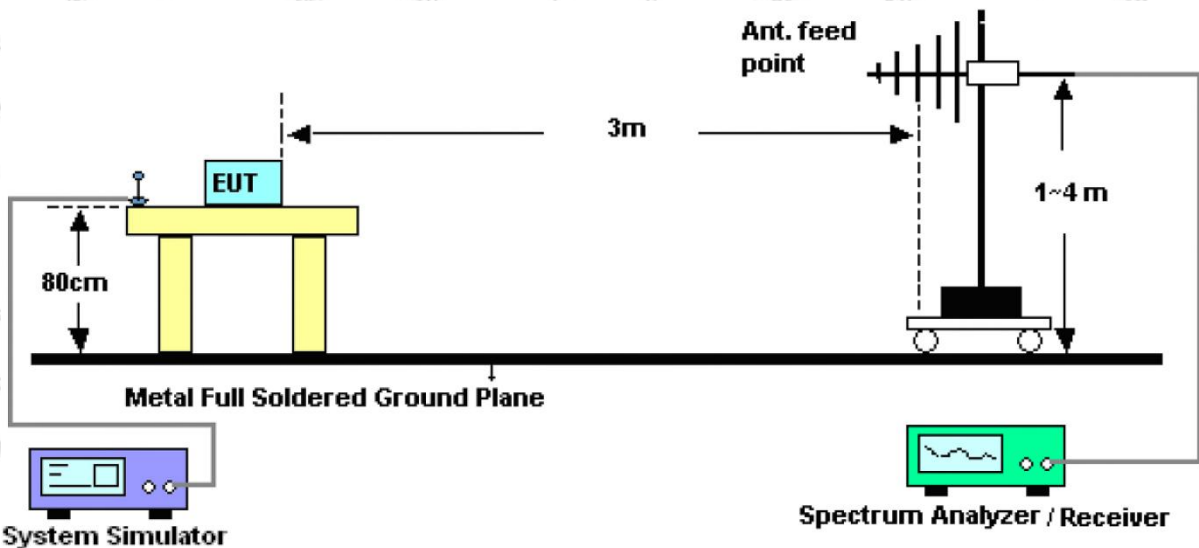


Figure 2. 30MHz to 1GHz

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

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

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

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

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

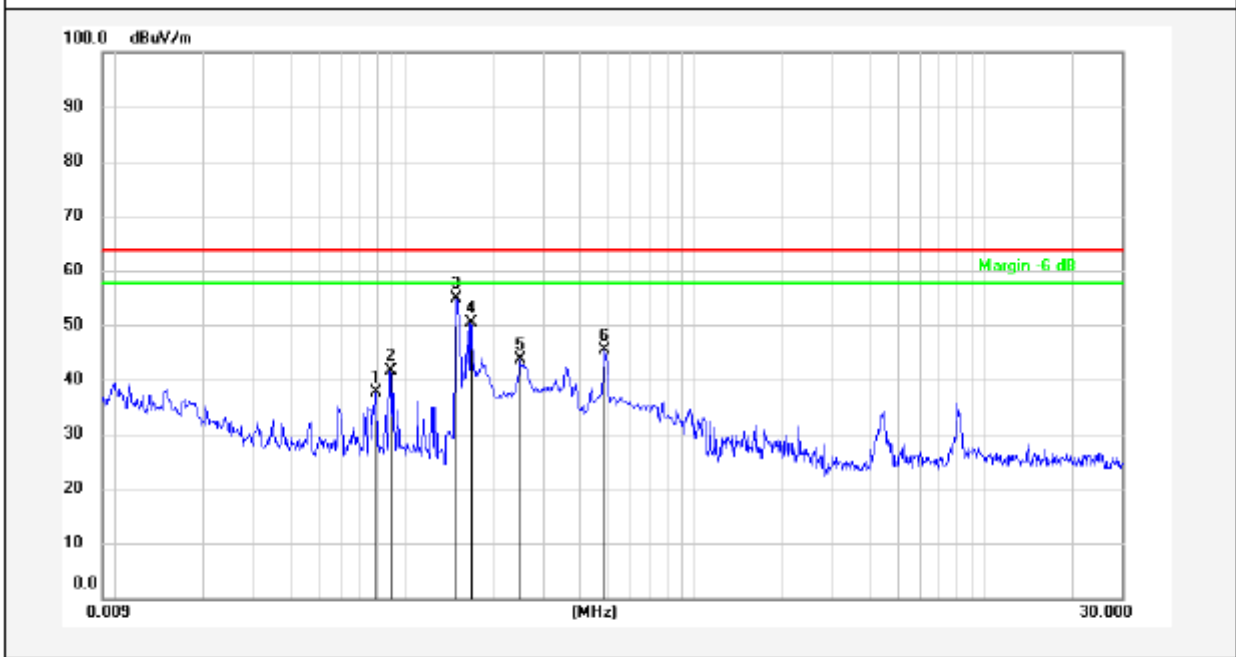
RBW = 100kHz, VBW \geq RBW, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

PASS

(Between 0.009MHz -30MHz)

Test Mode: Mode 2
Power Source: AC 120V, 60Hz for adapter
Temp.(°C)/Hum.(%RH): 23.2°C/53%RH



No.	Freq. (MHz)	Reading (dBUV)	Factor ()	Result (dBUV/m)	Limit (dBUV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.0791	17.35	20.33	37.68	63.52	-25.84	QP	100		
2	0.0889	21.21	20.34	41.55	63.52	-21.97	QP	100		
3	0.1502	34.69	20.29	54.98	63.52	-8.54	QP	100		
4	0.1683	30.03	20.28	50.31	63.52	-13.21	QP	100		
5	0.2500	23.30	20.24	43.54	63.52	-19.98	QP	100		
6	0.4909	25.30	20.20	45.50	63.52	-18.02	QP	100		

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement



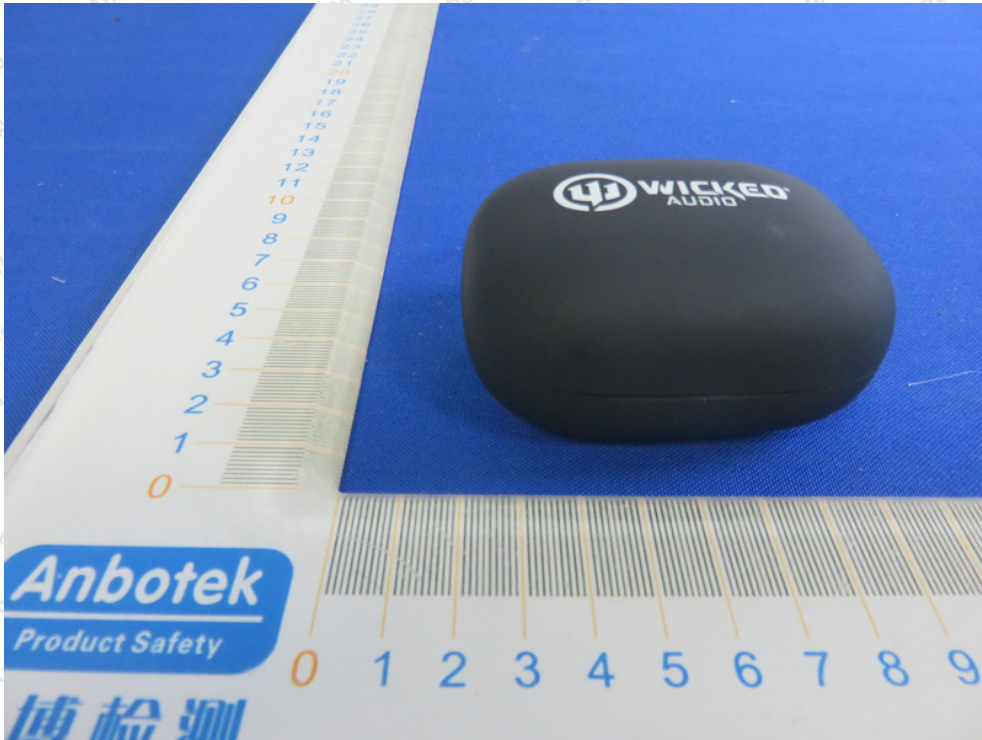
Photo of Radiation Emission Test





APPENDIX II -- EXTERNAL PHOTOGRAPH



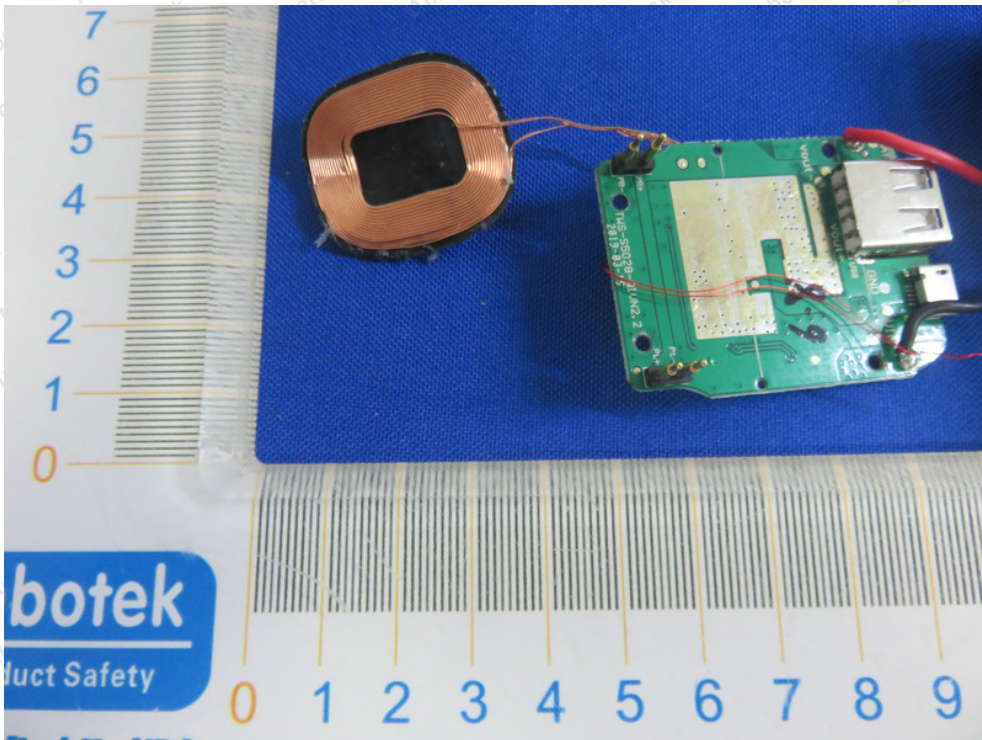
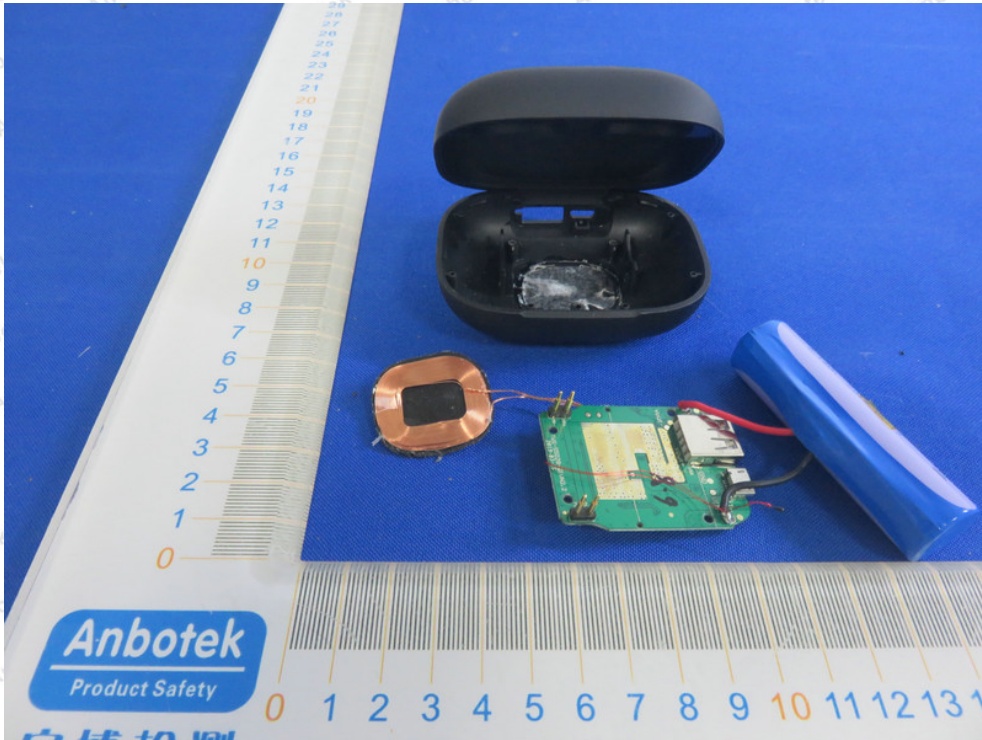


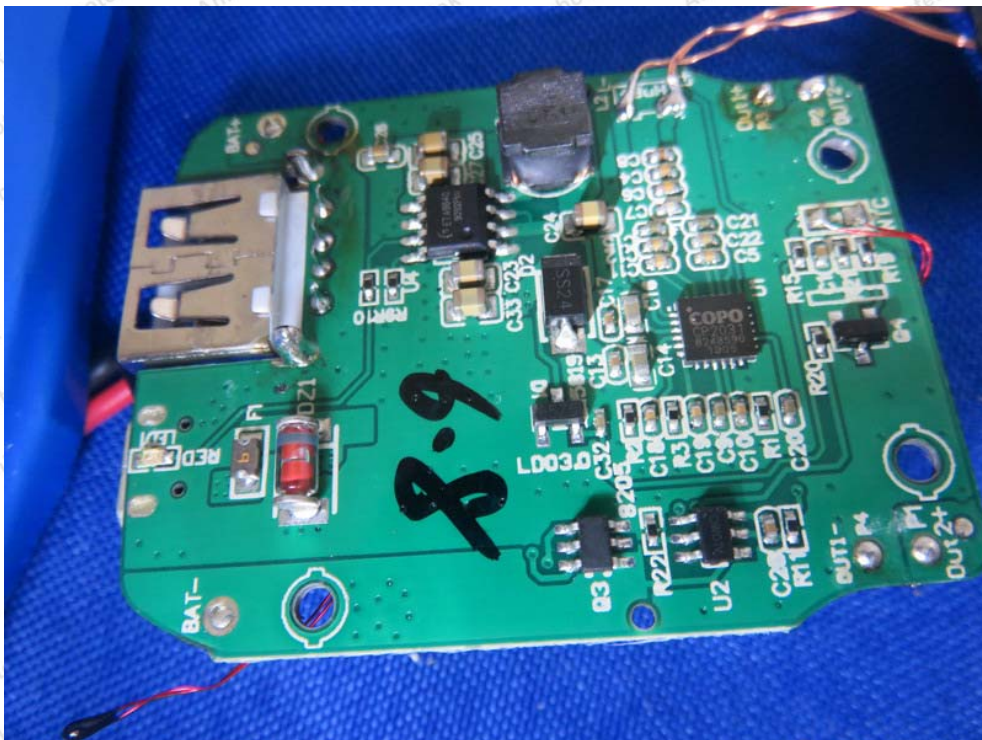
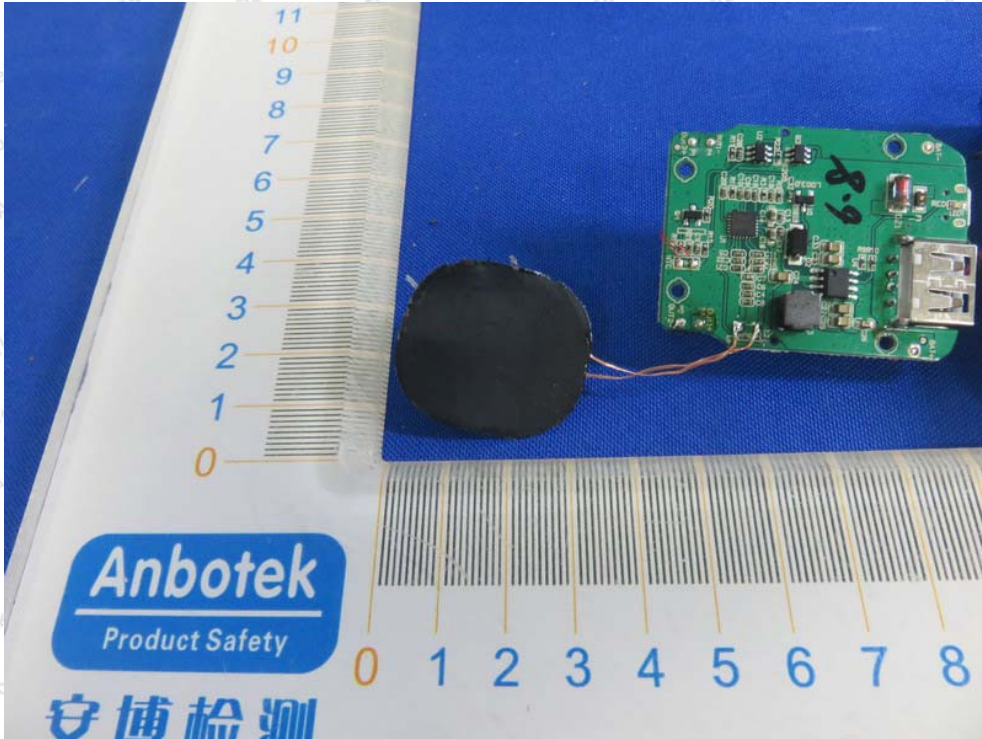




APPENDIX III -- INTERNAL PHOTOGRAPH









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