



FCC TEST REPORT

FCC ID: 2A7D8-IAQST303

On Behalf of

Shenzhen AOOLIF Technology Co., Ltd

Wireless charger

Model No.: IAQST303, MAQST303, D4, WC-009, WC-010, WC-027

Prepared for : Shenzhen AOOLIF Technology Co., Ltd
Address : 2nd Fl, Bldg C, Yucai Industrial Area Phase 1, No.40, Qiaotang Rd,
Qiaotou, Fuyong, Bao'an, Shenzhen City, China

Prepared By : Shenzhen Alpha Product Testing Co., Ltd.
Address : Building i, No.2, Lixin Road, Fuyong Street, Bao'an District,
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Report Number : A2205098-C01-R01
Date of Receipt : May 30, 2022
Date of Test : May 30, 2022–June 10, 2022
Date of Report : June 10, 2022
Version Number : V0

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TEST REPORT DECLARATION

Applicant : Shenzhen AOOLIF Technology Co., Ltd
Address : 2nd Fl, Bldg C, Yucai Industrial Area Phase 1, No.40, Qiaotang Rd, Qiaotou, Fuyong, Bao'an, Shenzhen City, China
Manufacturer : Shenzhen AOOLIF Technology Co., Ltd
Address : 2nd Fl, Bldg C, Yucai Industrial Area Phase 1, No.40, Qiaotang Rd, Qiaotou, Fuyong, Bao'an, Shenzhen City, China
EUT Description : Wireless charger
(A) Model No. : IAQST303, MAQST303, D4, WC-009, WC-010, WC-027
(B) Trademark : iLive brand/Memorex brand

Measurement Standard Used:

FCC CFR Title 47 Part 15 Subpart C Section 15.209

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the FCC CFR Title 47 Part 15 Subpart C Section 15.209 requirements.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....:

Yannis Wen
Project Engineer



Approved by (name + signature).....:

Simple Guan
Project Manager



Date of issue.....:

June 10, 2022

Revision History

Revision	Issue Date	Revisions	Revised By
V0	June 10, 2022	Initial released Issue	Yannis Wen

1. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Spurious Emission	§15.209(a)(f)	PASS
Occupied Bandwidth	§15.215 (c)	PASS

Note:

1. *PASS: Test item meets the requirement.*
2. *Fail: Test item does not meet the requirement.*
3. *N/A: Test case does not apply to the test object.*
4. *The test result judgment is decided by the limit of test standard.*

2. General Information

2.1. Description of Device (EUT)

EUT Name	:	Wireless charger
Model No.	:	IAQST303, MAQST303, D4, WC-009, WC-010, WC-027
DIFF.	:	N/A
Trademark	:	iLive brand/Memorex brand
Power supply	:	Type-C Input : 5V/3A, 9V/2A, 12V/1.5A Type-C output and USB output: 5V/2A(MAX) Output of the phone:5W/7.5W/10W/15W Output of the earphone:5W
Operation frequency	:	115~205KHz
Modulation	:	MSK
Antenna Type	:	Coil Antenna, Maximum Gain is 0dBi (This value is supplied by applicant).
Software version	:	V1.0
Hardware version	:	V1.0
Connector cable loss	:	0.5dB (This value is supplied by applicant).
Intend use environment	:	Residential, commercial and light industrial environment

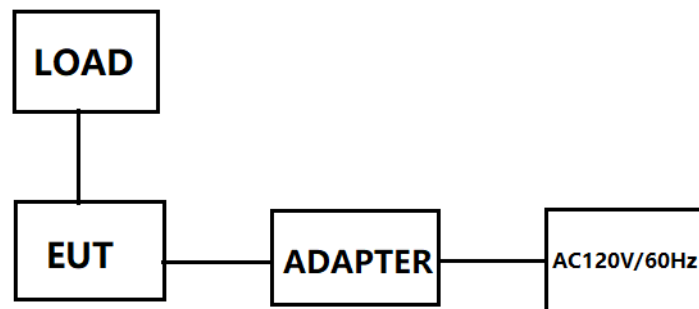
2.2. Accessories of Device (EUT)

Accessories1 : /
 Manufacturer : /
 Model : /
 Ratings : /

2.3. Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number	Certification
1	Wireless load	--	--	--	--
2	Travel Charger	SHENZHEN YIBOYUAN ELECTRONICS CO., LTD.	QC01	--	--

2.4. Block Diagram of Connection between EUT and Simulators



2.5. Description of Test Modes

Channel	Frequency (KHz)
1	122
2	145

2.6. Test Conditions

Items	Required	Actual
Temperature range:	15-35°C	24°C
Humidity range:	25-75%	56%
Pressure range:	86-106kPa	98kPa

2.7. Test Facility

Shenzhen Alpha Product Testing Co., Ltd

Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

June 21, 2018 File on Federal Communication Commission

Registration Number: 293961

July 15, 2019 Certificated by IC

Registration Number: CN0085

2.8. Measurement Uncertainty

(95% confidence levels, k=2)

Item	Uncertainty
Uncertainty for Power point Conducted Emissions Test	1.63dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	3.5dB
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.74dB(Polarize: V)
	3.76dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	3.77dB(Polarize: V)
	3.80dB(Polarize: H)
Uncertainty for radio frequency	5.06×10^{-8} GHz
Uncertainty for conducted RF Power	0.40dB
Uncertainty for temperature	0.2°C
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

2.9. Test Equipment List

Equipment	Manufacture	Model No.	Firmware version	Serial No.	Last cal.	Cal Interval
9*6*6 anechoic chamber	CHENYU	9*6*6	/	N/A	2020.09.02	3Year
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	2.3	102137	2021.08.25	1Year
Spectrum analyzer	Agilent	N9020A	A.14.16	MY499100060	2021.08.25	1Year
Receiver	ROHDE&SCHWARZ	ESR	2.28 SP1	1316.3003K03-10 2082-Wa	2021.08.25	1Year
Receiver	R&S	ESCI	4.42 SP1	101165	2021.08.25	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	/	VULB 9168#627	2021.08.30	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	/	2106	2021.08.30	2Year
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	/	00059	2021.08.30	2Year
RF Cable	Resenberger	Cable 1	/	RE1	2021.08.25	1Year
RF Cable	Resenberger	Cable 2	/	RE2	2021.08.25	1Year
RF Cable	Resenberger	Cable 3	/	CE1	2021.08.25	1Year
Pre-amplifier	HP	HP8347A	/	2834A00455	2021.08.25	1Year
Pre-amplifier	Agilent	8449B	/	3008A02664	2021.08.25	1Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	/	8126-466	2021.08.25	1Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	/	101043	2021.08.25	1 Year
Horn Antenna	SCHWARZBECK	BBHA9170	/	00946	2021.08.30	2 Year
Preamplifier	SKET	LNPA_1840 -50	/	SK2018101801	2021.08.25	1 Year
Power Meter	Agilent	E9300A	/	MY41496628	2021.08.25	1 Year
Power Sensor	DARE	RPR3006W	/	15100041SNO91	2021.08.25	1 Year
Temp. & Humid. Chamber	Weihuang	WHTH-1000 -40-880	/	100631	2022.04.22	1 Year
Switching Mode Power Supply	JUNKE	JK12010S	/	20140927-6	2021.08.25	1 Year
Adjustable attenuator	MWRFTtest	N/A	/	N/A	N/A	N/A
10dB Attenuator	Mini-Circuits	DC-6G	/	N/A	N/A	N/A

Software Information			
Test Item	Software Name	Manufacturer	Version
RE	EZ-EMC	EZ	Alpha-3A1
CE	EZ-EMC	EZ	Alpha-3A1
RF-CE	MTS 8310	MW	V2.0.0.0

3. Test Results and Measurement Data

3.1. Conducted Emission

3.1.1. Test Specification

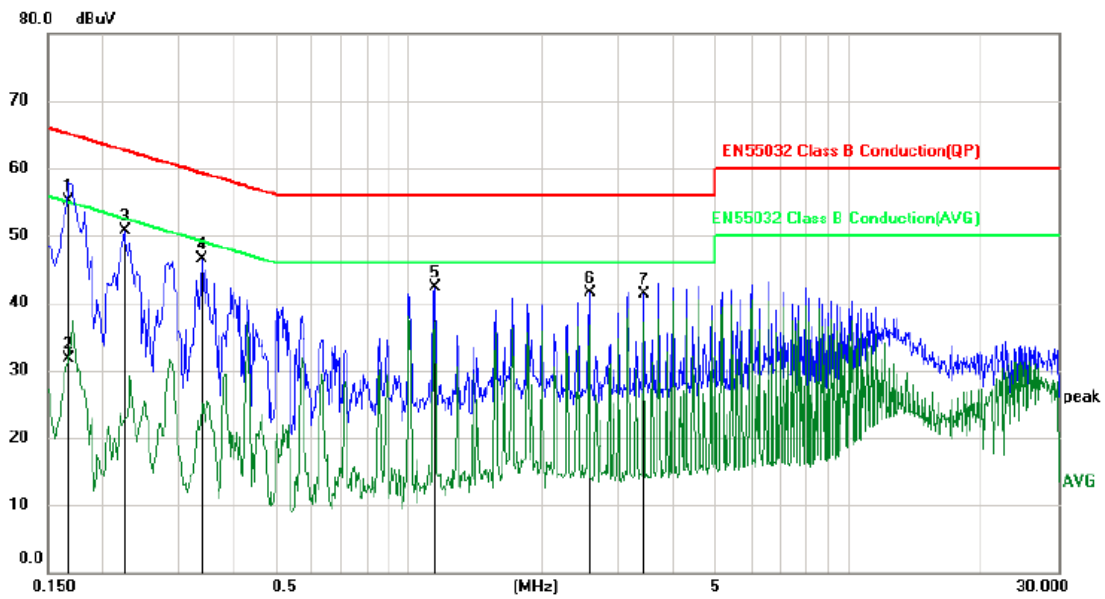
Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10:2013														
Frequency Range:	150 kHz to 30 MHz														
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test Setup:	Reference Plane E.U.T Adapter LISN Filter AC power EMI Receiver Test table/Insulation plane 40cm 80cm Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m														
Test Mode:	Charging + Transmitting Mode														
Test Procedure:	1. The E.U.T is connected to an adapter through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.														
Test Result:	PASS														

3.1.2. Test Data

Please refer to following diagram for individual

Test Mode	: 5W, 7.5W, 10W, 15W, 15W+5W
Test Result	: PASS
Note:	The test results are listed in next pages. All test modes has been tested, this report only reflected the worst mode.(15W+5W) If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out. If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.

Pol	Line
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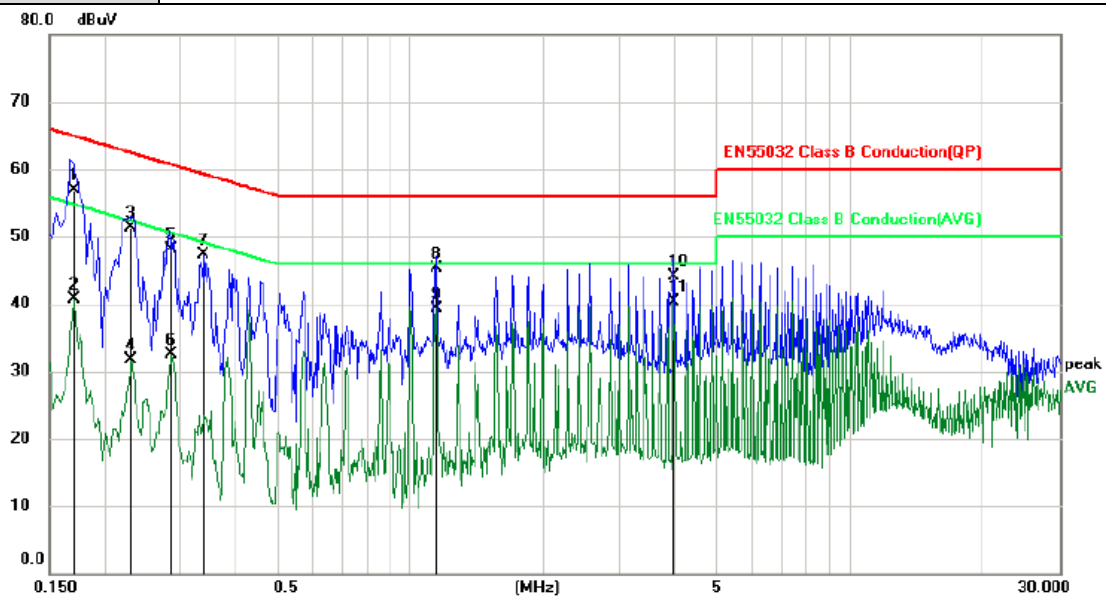
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1680	45.26	9.93	55.19	65.06	-9.87	QP	
2		0.1680	21.73	9.93	31.66	55.06	-23.40	AVG	
3		0.2250	40.75	9.94	50.69	62.63	-11.94	peak	
4		0.3360	36.64	9.94	46.58	59.30	-12.72	peak	
5		1.1430	32.47	9.90	42.37	56.00	-13.63	peak	
6		2.5710	31.60	9.91	41.51	56.00	-14.49	peak	
7		3.4260	31.38	9.96	41.34	56.00	-14.66	peak	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Pol	Neutral
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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1710	46.98	9.93	56.91	64.91	-8.00	QP	
2		0.1710	30.81	9.93	40.74	54.91	-14.17	AVG	
3		0.2310	41.27	9.95	51.22	62.41	-11.19	QP	
4		0.2310	21.67	9.95	31.62	52.41	-20.79	AVG	
5		0.2850	38.20	9.93	48.13	60.67	-12.54	QP	
6		0.2850	22.64	9.93	32.57	50.67	-18.10	AVG	
7		0.3390	37.44	9.94	47.38	59.23	-11.85	peak	
8		1.1430	35.46	9.90	45.36	56.00	-10.64	QP	
9		1.1430	29.44	9.90	39.34	46.00	-6.66	AVG	
10		3.9810	34.08	9.97	44.05	56.00	-11.95	QP	
11	*	3.9810	30.28	9.97	40.25	46.00	-5.75	AVG	

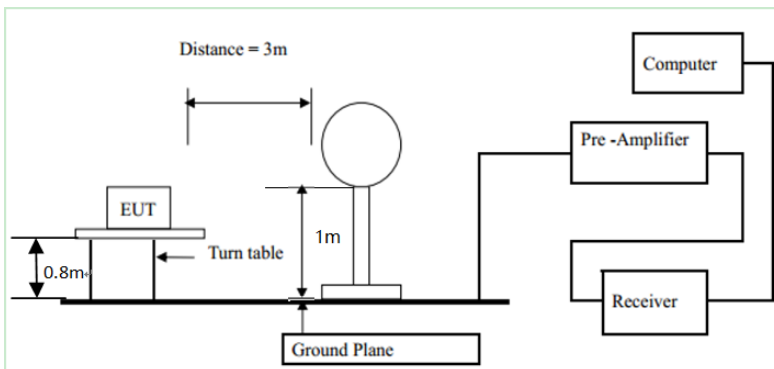
*:Maximum data x:Over limit !:over margin

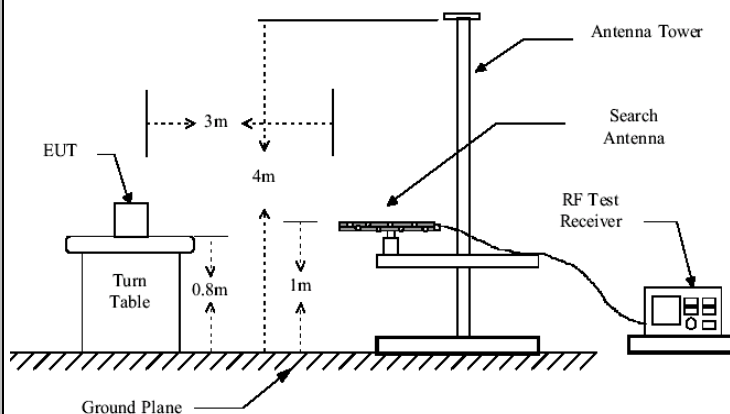
(Reference Only)

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

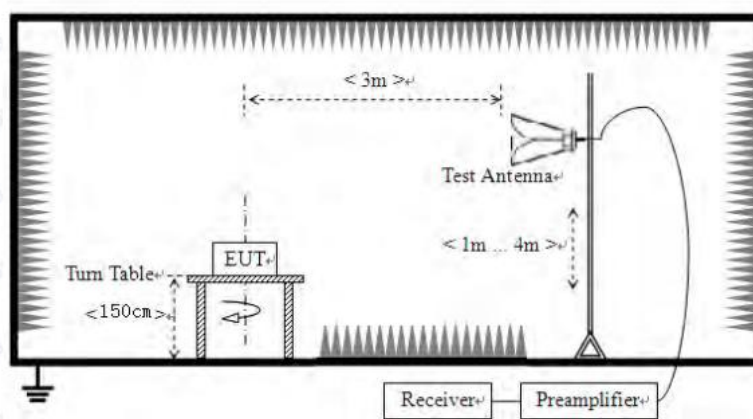
3.2. Radiated Spurious Emission Measurement

3.2.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.209					
Test Method:	ANSI C63.10: 2013					
Frequency Range:	9 kHz to 25 GHz					
Measurement Distance:	3 m					
Antenna Polarization:	Horizontal & Vertical					
Operation mode:	Refer to item 4.1					
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark	
	9kHz-150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value	
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value	
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value	
	Above 1GHz	Peak	1MHz	3MHz	Peak Value	
Peak		1MHz	10Hz	Average Value		
Limit:	Frequency		Field Strength (microvolts/meter)		Measurement Distance (meters)	
	0.009-0.490		2400/F(KHz)		300	
	0.490-1.705		24000/F(KHz)		30	
	1.705-30		30		30	
	30-88		100		3	
	88-216		150		3	
	216-960		200		3	
	Above 960		500		3	
	Frequency		Field Strength (microvolts/meter)		Measurement Distance (meters)	Detector
	Above 1GHz		500		3	Average
		5000		3	Peak	
Test setup:	For radiated emissions below 30MHz					
						
	30MHz to 1GHz					



Above 1GHz



Test Procedure:

1. For the radiated emission test below 1GHz:

The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level.

For the radiated emission test above 1GHz:

Place the measurement antenna on a turntable with 1.5 meter above ground, which is 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.

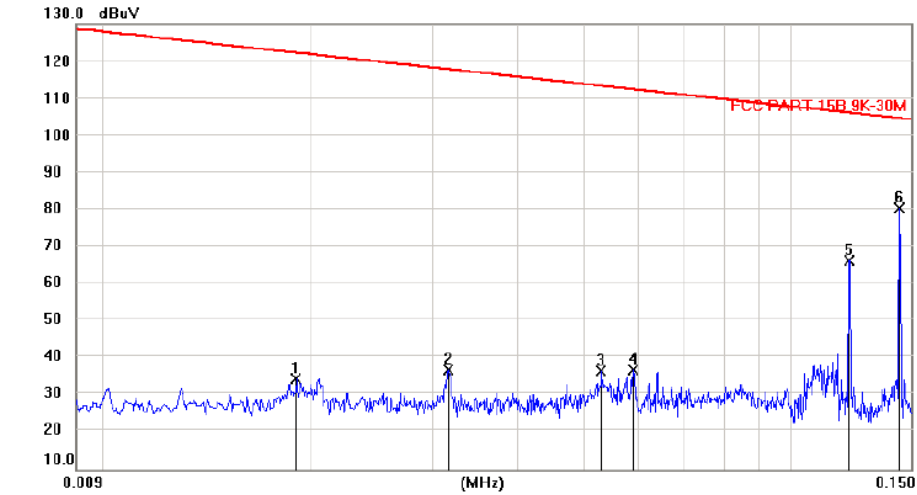
2. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
3. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using

	the quasi-peak detector and reported. 4. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for $f \square 1$ GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test mode:	Refer to section 4.1 for details
Test results:	PASS

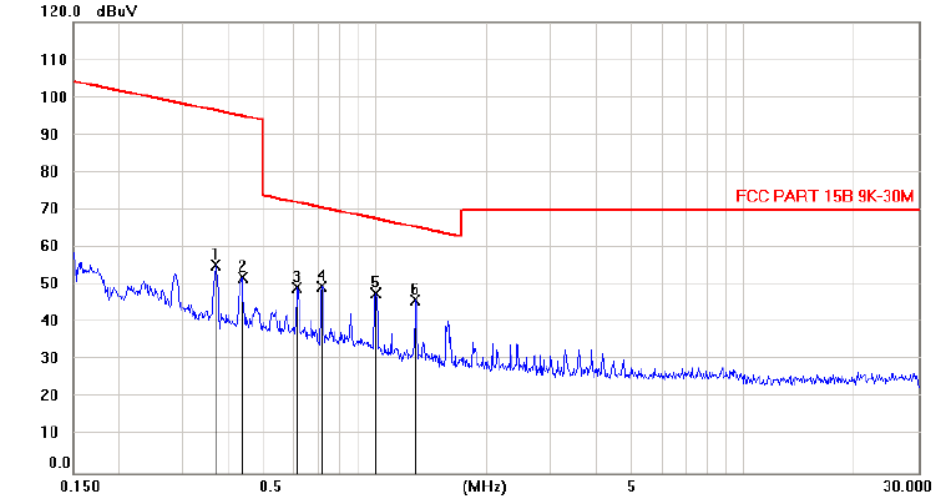
3.2.2. Test Data

Please refer to following diagram for individual

Frequency Range	: 9KHz~30MHz
Test Mode	: TX: 122kHz, 145kHz
Test Results	: PASS
Note:	1. The test results are listed in next pages. 2. This mode is worst case mode, so this report only reflected the worst mode. 3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the quasi-peak detector need not be carried out.

For two coil

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	dBuV	Factor	ment			Height	Degree	
				dB	dBuV	dBuV	dB	cm	degree	Comment
1		0.0189	13.23	21.28	34.51	122.1	-87.67	peak		
2		0.0316	16.08	20.90	36.98	117.7	-80.75	peak		
3		0.0529	16.72	19.94	36.66	113.2	-76.61	peak		
4		0.0588	16.79	20.03	36.82	112.3	-75.54	peak		
5		0.1221	46.34	19.82	66.16	106.0	-39.87	peak		
6	*	0.1444	60.29	20.12	80.41	104.5	-24.17	peak		



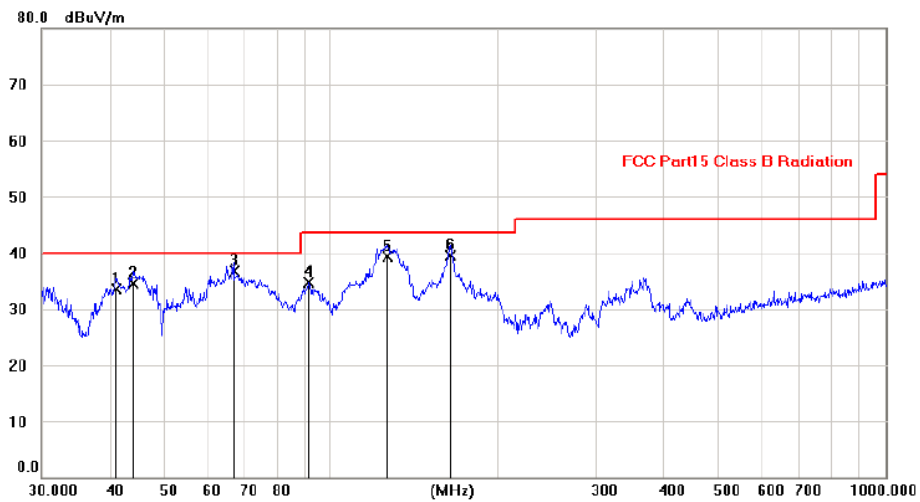
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	dBuV	Factor	ment			Height	Degree	
				dB	dBuV	dBuV	dB	cm	degree	Comment
1		0.3680	35.45	19.89	55.34	96.48	-41.14	peak		
2		0.4329	32.37	19.80	52.17	95.07	-42.90	peak		
3		0.6130	29.57	19.77	49.34	72.02	-22.68	peak		
4		0.7149	29.76	19.83	49.59	70.67	-21.08	peak		
5		1.0019	27.72	20.00	47.72	67.69	-19.97	peak		
6	*	1.2875	25.93	20.07	46.00	65.48	-19.48	peak		

Frequency Range	: 30MHz~1000MHz
Test Mode	: 5W, 7.5W, 10W, 15W, 15W+5W
Test Results	: PASS
Note:	1. The test results are listed in next pages. 2. All test modes has been tested, this report only reflected the worst mode. (15W+5W) 3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the quasi-peak detector need not be carried out.

Frequency Range	: Above 1GHz	
EUT	: /	Test Date : /
M/N	: /	Temperature : /
Test Engineer	: /	Humidity : /
Test Mode	: /	
Test Results	: N/A	
Note:	1. The highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. So the frequency rang above 1GHz radiation test not applicable.	

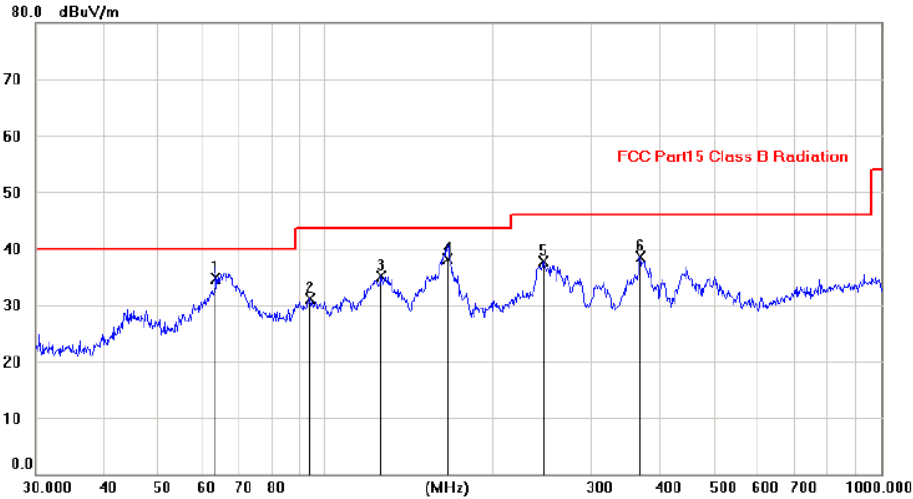
30MHz-1GHz

Pol	Vertical
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No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table
		MHz	dBuV	Factor	ment			Height	Degree
					dBuV/m	dBuV/m	dB	cm	degree
							Detector		Comment
1		41.0982	19.24	14.34	33.58	40.00	-6.42	QP	
2		43.9605	20.28	14.23	34.51	40.00	-5.49	QP	
3	*	66.9120	24.96	11.81	36.77	40.00	-3.23	QP	
4		90.9723	24.54	10.19	34.73	43.50	-8.77	peak	
5		126.3726	25.89	13.39	39.28	43.50	-4.22	QP	
6		164.3684	24.80	14.62	39.42	43.50	-4.08	QP	

Pol	Horizontal
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No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table
		MHz	dBuV	Factor	ment			Height	Degree
					dBuV/m	dBuV/m	dB	cm	degree
							Detector		Comment
1	*	63.3280	22.29	12.51	34.80	40.00	-5.20	QP	
2		94.0648	20.66	10.37	31.03	43.50	-12.47	peak	
3		126.2841	21.68	13.39	35.07	43.50	-8.43	peak	
4		165.6028	23.61	14.50	38.11	43.50	-5.39	QP	
5		246.5264	25.03	12.70	37.73	46.00	-8.27	peak	
6		368.3267	22.93	15.60	38.53	46.00	-7.47	peak	

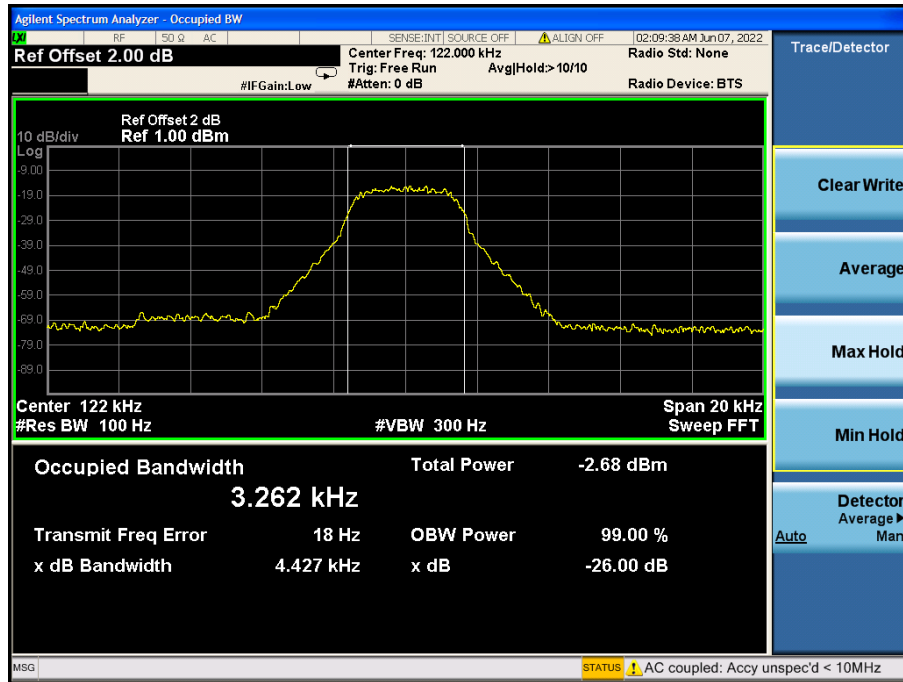
3.3. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)
Test Method:	ANSI C63.10: 2013
Limit:	N/A
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW$\geq$1% of the 20 dB bandwidth; VBW$\geq$RBW; Sweep = auto; Detector function = peak; Trace = max hold. 4. Measure and record the results in the test report.
Test setup:	 The diagram illustrates the test setup. On the left is a green Spectrum Analyzer with a blue screen. A cable connects it to a small white rectangular component, which is then connected to a yellow rectangular component labeled 'EUT' (Equipment Under Test).
Test Mode:	Refer to section 4.1 for details
Test results:	PASS

3.3.1. Test Data

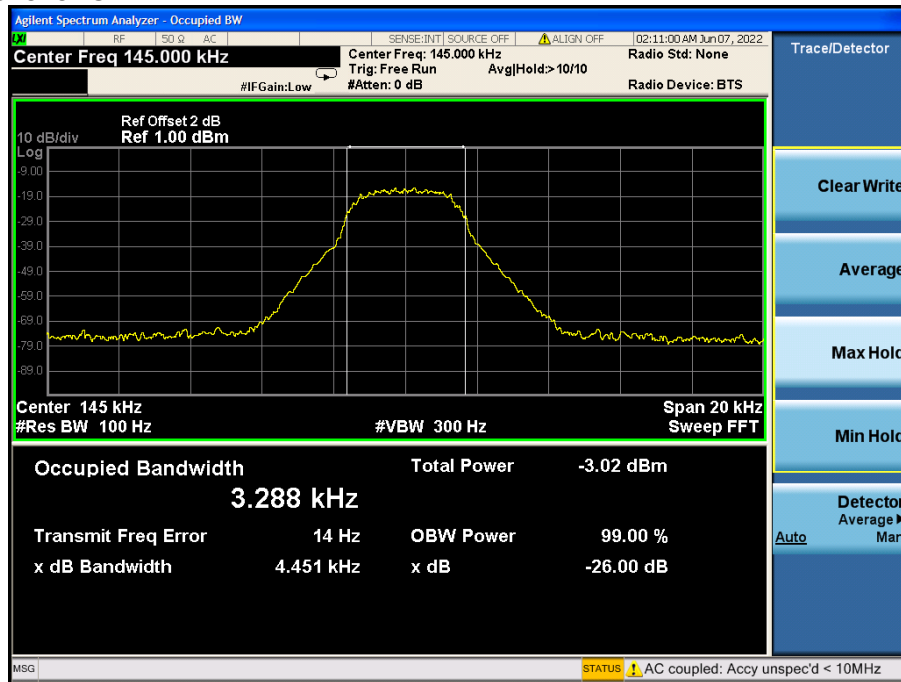
For earphone			
Frequency(KHz)	20dB Occupy Bandwidth (kHz)	Limit (kHz)	Conclusion
122	4.427	---	PASS

Test plots as follows:



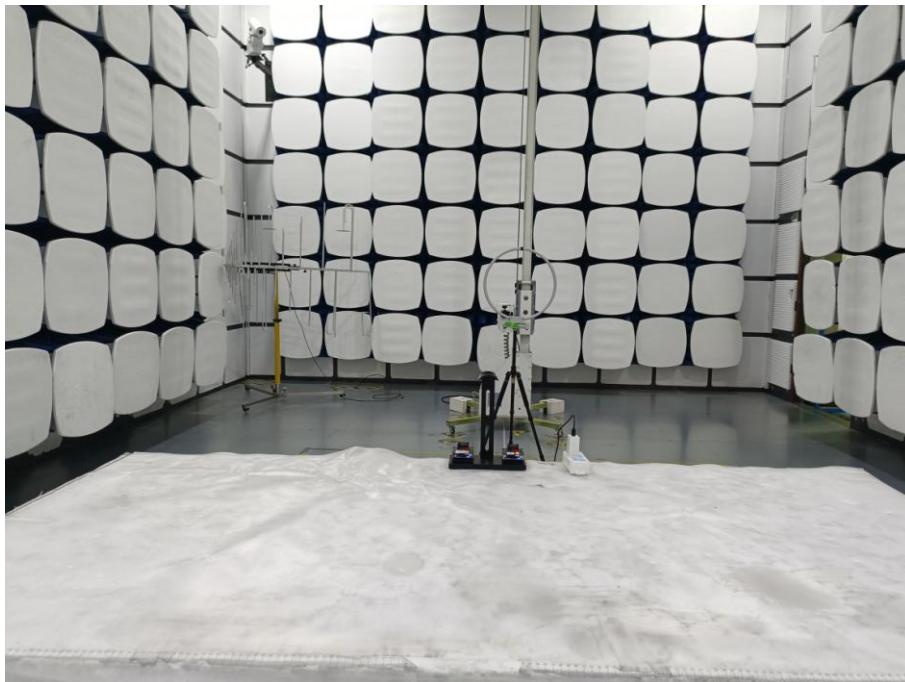
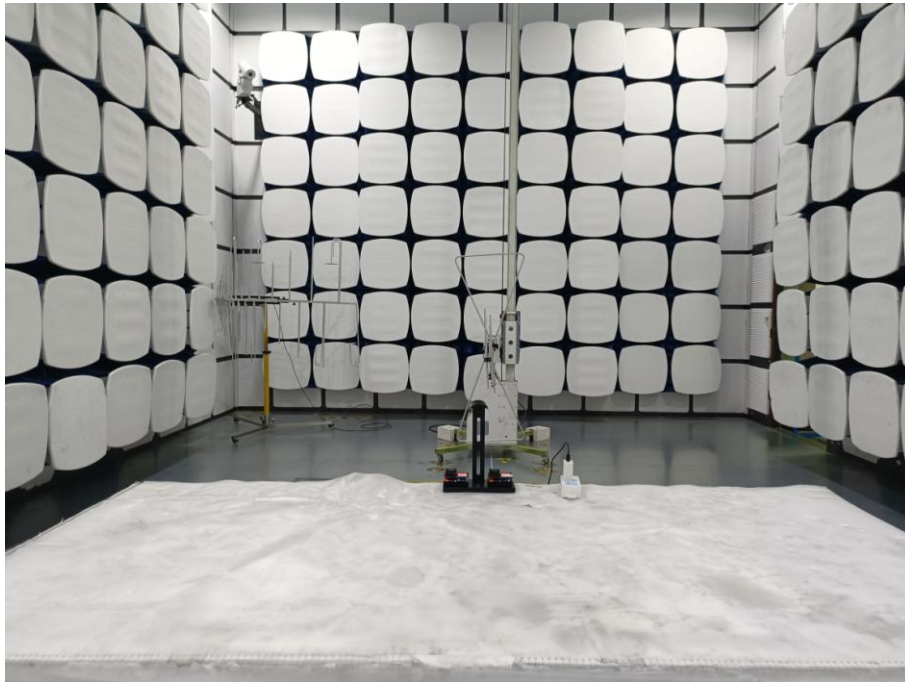
For phone			
Frequency(KHz)	20dB Occupy Bandwidth (kHz)	Limit (kHz)	Conclusion
145	4.451	---	PASS

Test plots as follows:



4. Photos of Test Setup

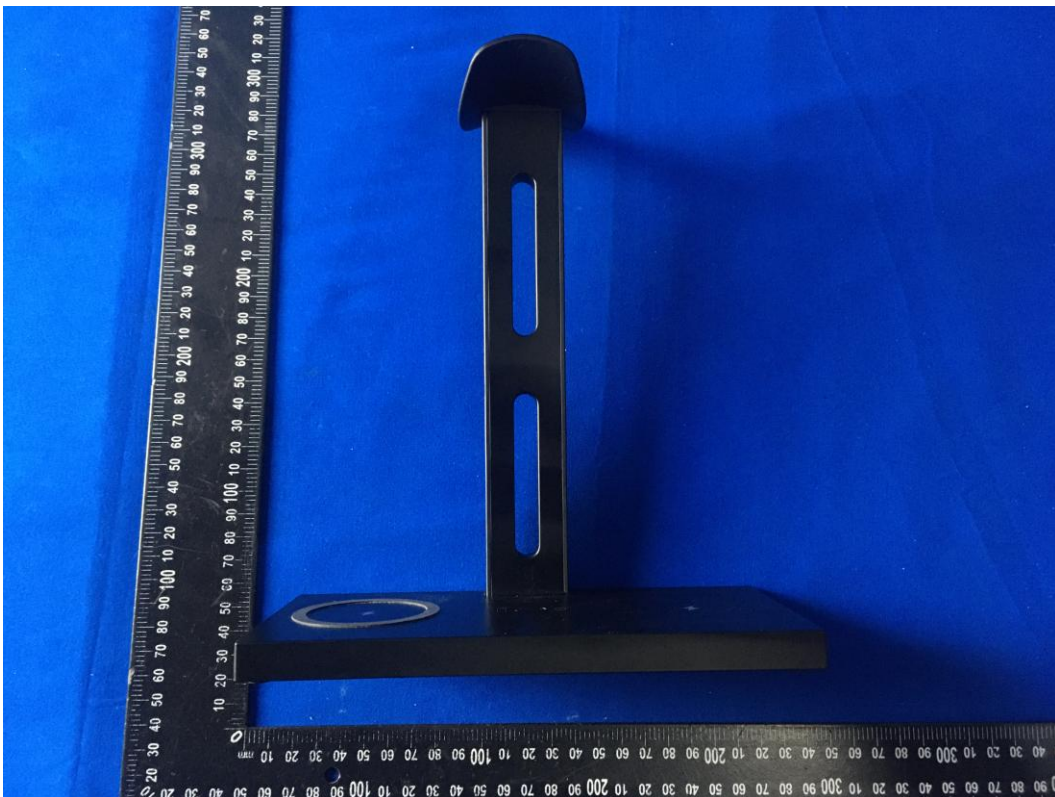
Radiated Emission



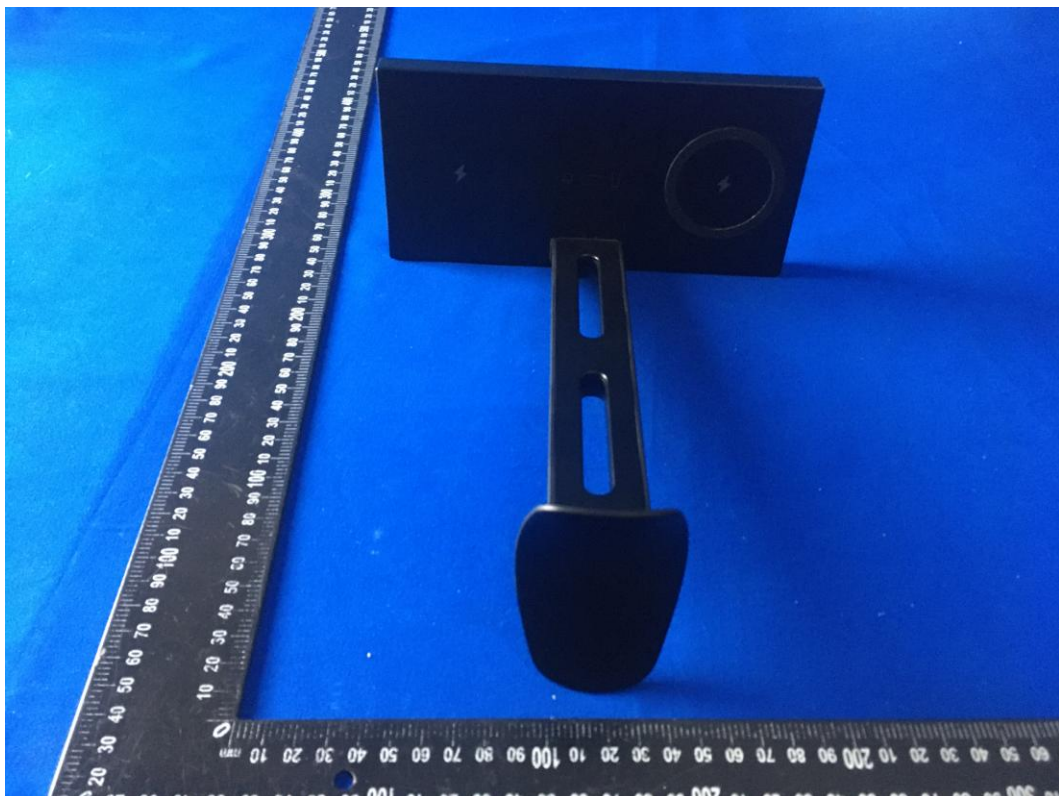
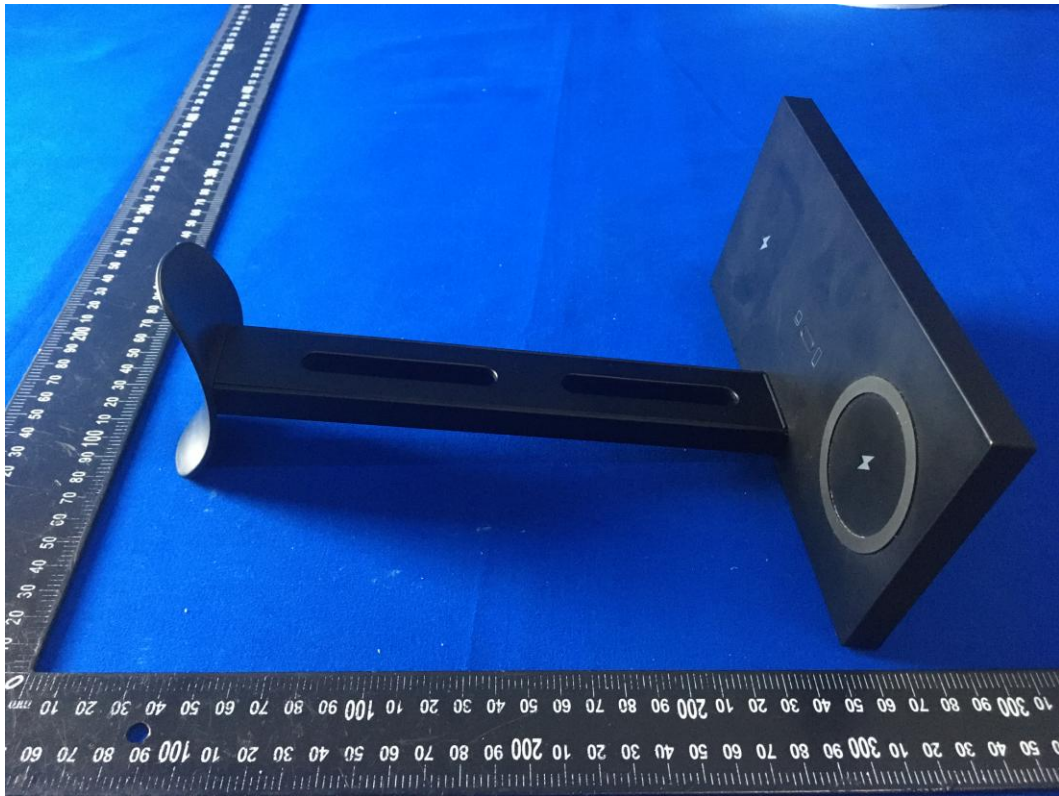
Conducted Emission

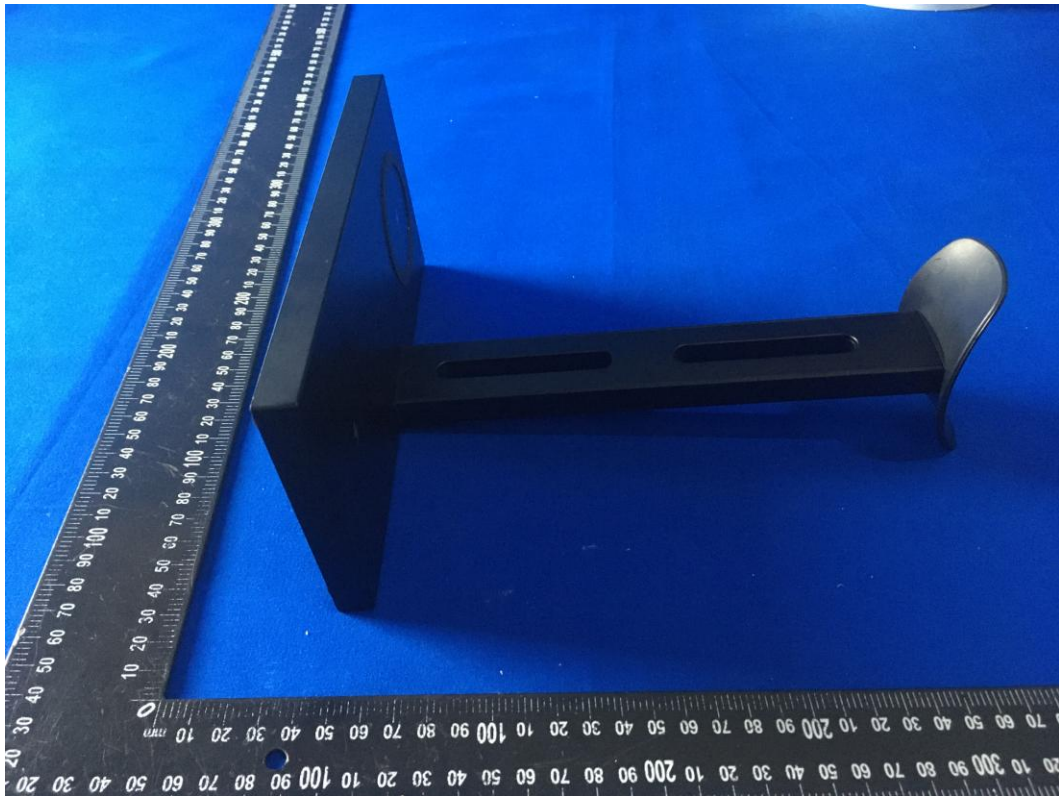


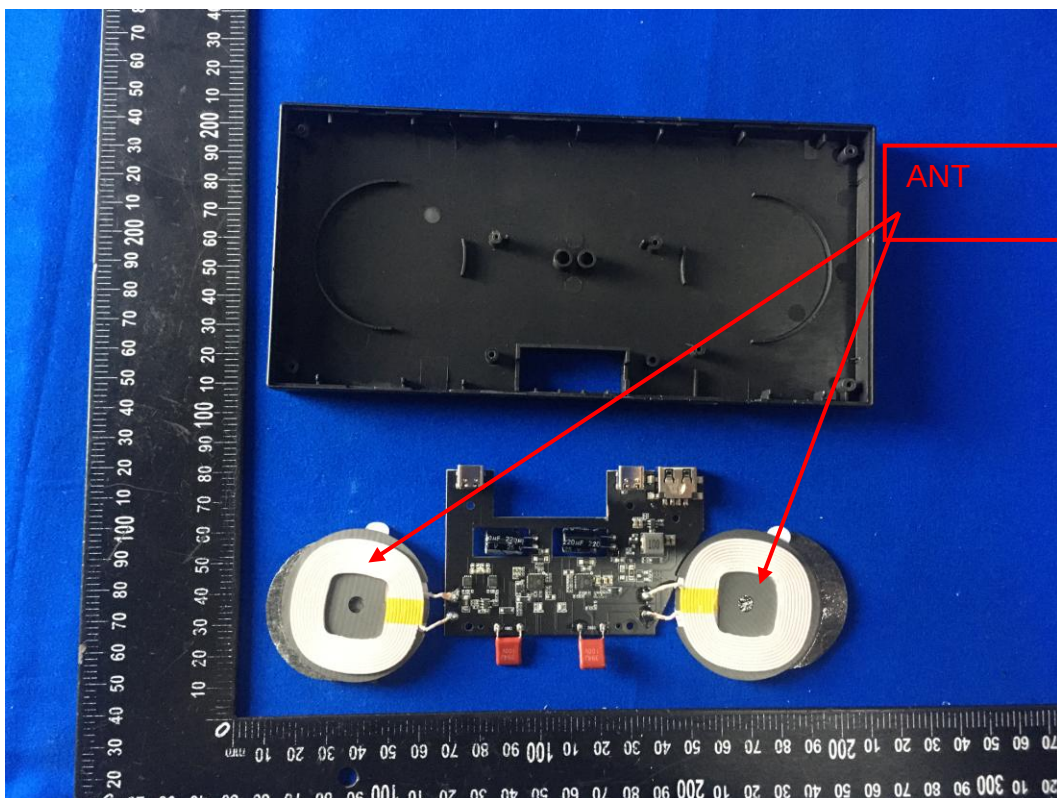
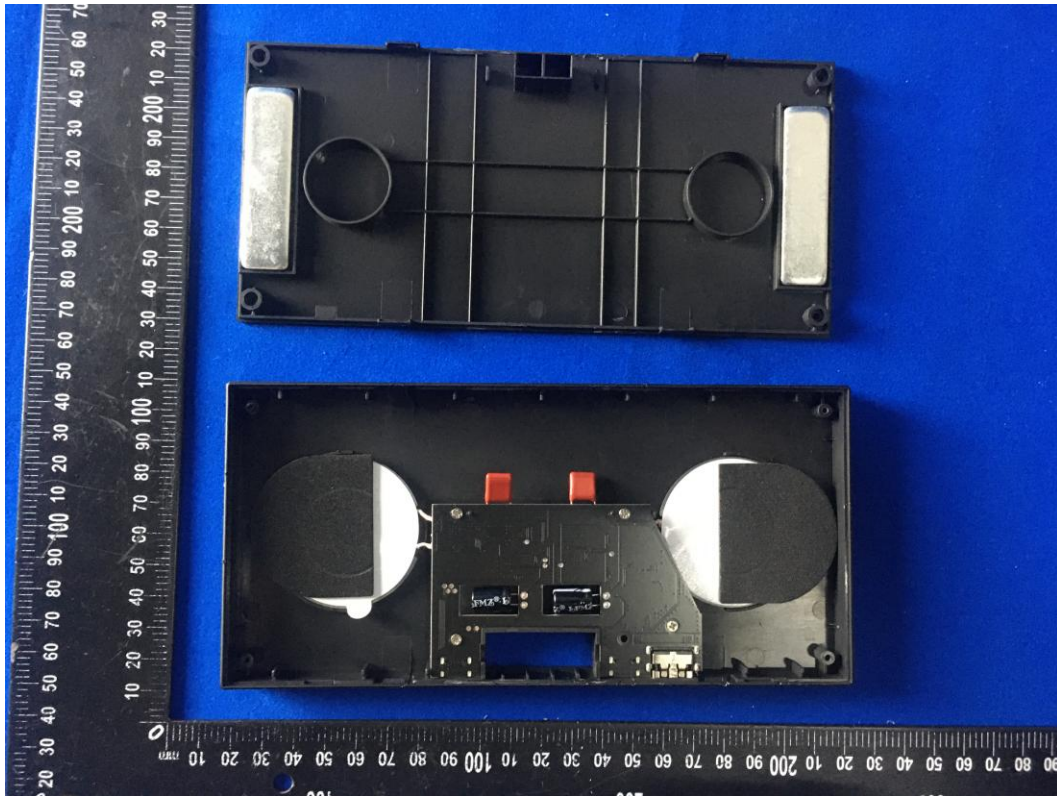
5. Photographs of EUT

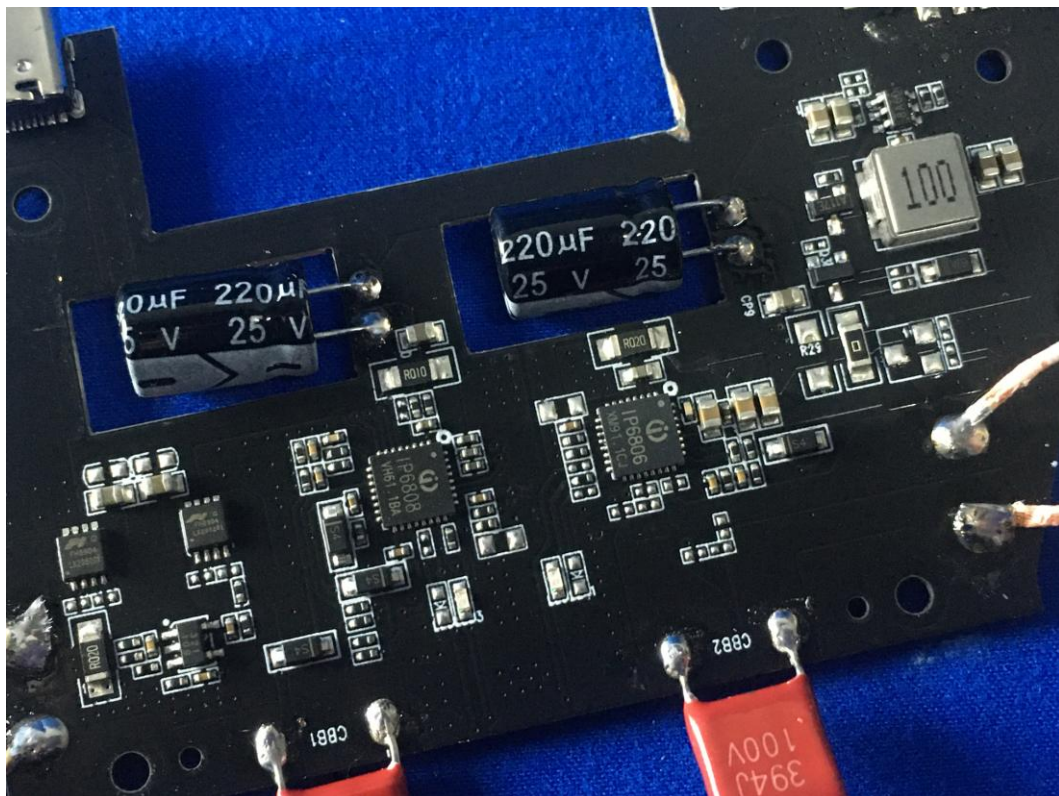
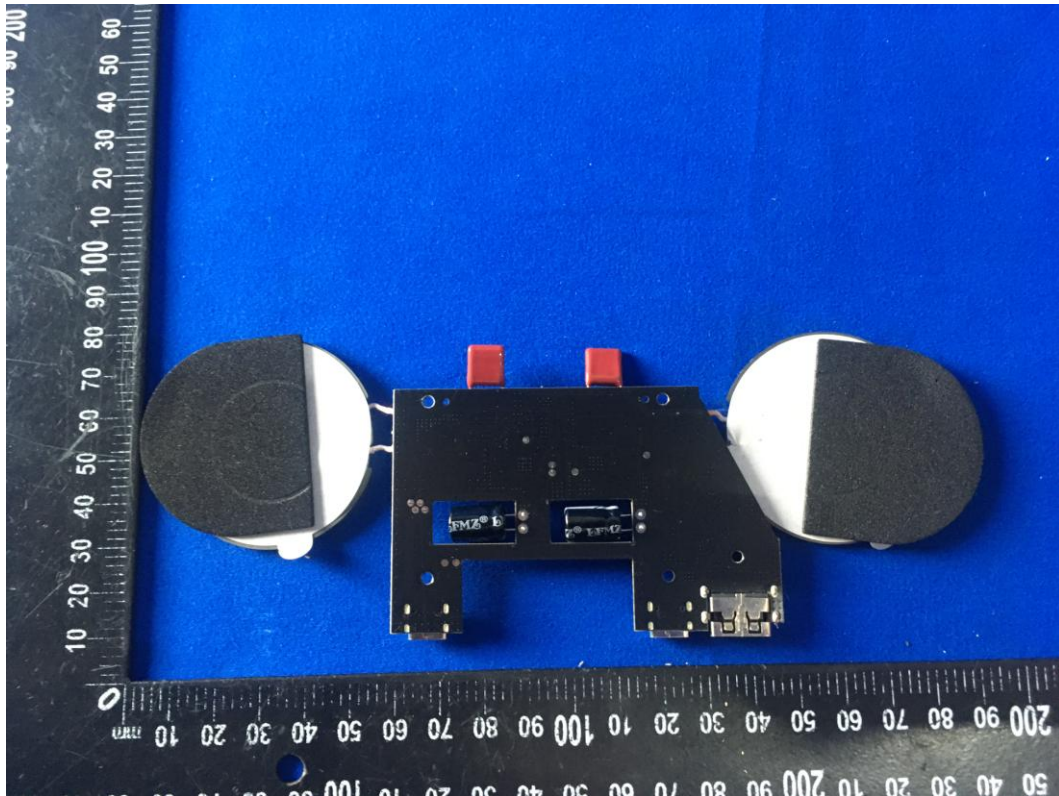












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