

RF TEST REPORT

For

4smarts Limited

Product Name: Wireless charger

Test Model(s): 4S540998

Report Reference No. : POCE240311027RL001

FCC ID : 2BC6L-4S540998

Applicant's Name : 4smarts Limited

Address : Room 401, 4/F, Wanchai Central Building, 89 Lockhart Road, Wan Chai, Hongkong, China

Testing Laboratory : Shenzhen POCE Technology Co., Ltd.

Address : 102 Building H1 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyao, Bao'an District, Shenzhen, Guangdong, China

Test Specification Standard : 47 CFR Part 15.209

Date of Receipt : March 11, 2024

Date of Test : March 11, 2024 to April 10, 2024

Data of Issue : April 10, 2024

Result : Pass

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Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	POCE240311027RL001	April 10, 2024

NOTE1:

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15.209: Radiated emission limits; general requirements

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Antenna requirement	47 CFR Part 15.209		47 CFR Part 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.209	ANSI C63.10-2013 section 6.2	47 CFR Part 15.207(a)	Pass
20dB Occupied Bandwidth	47 CFR Part 15.209	ANSI C63.10-2013, section 6.9.2	47 CFR Part 15.215(c)	Pass
Emissions in frequency bands (below 30MHz)	47 CFR Part 15.209	ANSI C63.10-2013 section 6.4	47 CFR Part 15.209	Pass
Emissions in frequency bands (30MHz - 1GHz)	47 CFR Part 15.209	ANSI C63.10-2013 section 6.5	47 CFR Part 15.209	Pass

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : 4smarts Limited
Address : Room 401, 4/F, Wanchai Central Building, 89 Lockhart Road, Wan Chai, Hongkong, China

Manufacturer : SHENZHEN QIANHAI BADUN ACOUSTICS TECHNOLOGY CO., LTD
Address : Floor 6, Hepu Building, number 43, Yanhedong third road, Huanzhuli zone, Changping Town, Dongguan City, Guangdong

2.2 Description of Device (EUT)

Product Name:	Wireless charger
Model/Type reference:	4S540998
Series Model:	4S540999, 4S540998a, 4S540999a
Model Difference:	The product has many models, only the model name is different, and the other parts such as the circuit principle, pcb and electrical structure are the same.
Trade Mark:	N/A
Power Supply:	DC 12V/2.5A from adapter
Operation Frequency:	116KHz~205KHz
Number of Channels:	N/A
Modulation Type:	MSK
Antenna Type:	Inductive loop coil Antenna
Antenna Gain:	0dBi (Max)
Hardware Version:	V1.0
Software Version:	V1.0

2.3 Description of Test Modes

No	Title	Description
TM1	Operation(Wireless Charging Load Module):Keep the EUT pairing with other devices(Output1: 5W),OUT Wireless Phone Placed horizontally	Pre-scan
TM2	Operation(Wireless Charging Load Module):Keep the EUT pairing with other devices(Output1:7.5W),OUT Wireless Phone Placed horizontally	Pre-scan
TM3	Operation(Wireless Charging Load Module):Keep the EUT pairing with other devices(Output1:10W),OUT Wireless Phone Placed horizontally	Pre-scan
TM4	Operation(Wireless Charging Load Module):Keep the EUT pairing with other devices(Output1:15W),OUT Wireless Phone Placed horizontally	Pre-scan
TM5	Operation(Wireless Charging Load Module):Keep the EUT pairing with other devices(Output1: 5W),OUT Wireless Phone Vertically placed	Pre-scan
TM6	Operation(Wireless Charging Load Module):Keep the EUT pairing with other devices(Output1:7.5W),OUT Wireless Phone Vertically placed	Pre-scan
TM7	Operation(Wireless Charging Load Module):Keep the EUT pairing with other devices(Output1:10W),OUT Wireless Phone Vertically placed	Pre-scan
TM8	Operation(Wireless Charging Load Module):Keep the EUT pairing with other devices(Output1:15W),OUT Wireless Phone Vertically placed	Pre-scan

TM9	Operation(Wireless TWS):Keep the EUT pairing with other devices (Output2: 5W)	Pre-scan
TM10	Operation(Wireless Charging Load Module+Wireless TWS):Keep the EUT pairing with other devices(Output1+Output2: 5W+5W),OUT Wireless Phone Placed horizontally	Pre-scan
TM11	Operation(Wireless Charging Load Module+Wireless TWS):Keep the EUT pairing with other devices(Output1+Output2:7.5W+5W),OUT Wireless Phone Placed horizontally	Pre-scan
TM12	Operation(Wireless Charging Load Module+Wireless TWS):Keep the EUT pairing with other devices(Output1+Output2:10W+5W),OUT Wireless Phone Placed horizontally	Pre-scan
TM13	Operation(Wireless Charging Load Module+Wireless TWS):Keep the EUT pairing with other devices(Output1+Output2:15W+5W),OUT Wireless Phone Placed horizontally	Pre-scan
TM14	Operation(Wireless Charging Load Module+Wireless TWS):Keep the EUT pairing with other devices(Output1+Output2: 5W+5W),OUT Wireless Phone Vertically placed	Final test
TM15	Operation(Wireless Charging Load Module+Wireless TWS):Keep the EUT pairing with other devices(Output1+Output2:7.5W+5W),OUT Wireless Phone Vertically placed	Final test
TM16	Operation(Wireless Charging Load Module+Wireless TWS):Keep the EUT pairing with other devices(Output1+Output2:10W+5W),OUT Wireless Phone Vertically placed	Final test
TM17	Operation(Wireless Charging Load Module+Wireless TWS):Keep the EUT pairing with other devices(Output1+Output2:15W+5W),OUT Wireless Phone Vertically placed	Final test

Test channel	Frequency (KHz)
Cellphone loop coil Antenna/Airpods	119.8
Earbuds	129.9

2.4 Description of Support Units

Title	Manufacturer	Model No.	Serial No.
AC Adapter	UGREEN	CD212	N/A
Wireless Charging Load Module	N/A	N/A	Wireless Input Power:5W/7.5W/10W//15W
Earbuds	Apple	N/A	

2.5 Equipments Used During The Test

Conducted Emission at AC power line					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
loop antenna	EVERFINE	LLA-2	80900L-C	2024-02-19	2025-02-18
Power absorbing clamp	SCHWARZ BECK	MESS-ELEKTRONIK	/	2023-12-12	2024-12-11
Electric Network	SCHWARZ BECK	CAT5 8158	CAT5 8158#207	2023-12-12	2024-12-11
Cable	SCHWARZ BECK	/	/	2023-12-27	2024-12-26
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Ateennator	561-G071	2023-12-12	2024-12-11
50ΩCoaxial Switch	Anritsu	MP59B	M20531	2023-12-12	2024-12-11
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607K 03-102109-MH	2023-06-13	2024-06-12
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2023-12-12	2024-12-11

20dB Occupied Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	TACHOY	RTS-01	V2.0.0.0	2023-12-12	2024-12-11
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	2023-12-12	2024-12-11
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-12-12	2024-12-11
DC power	HP	66311B	38444359	2023-12-12	2024-12-11
RF Sensor Unit	Tachoy Information Technology(she nzhen) Co.,Ltd.	TR1029-2	000001	2023-12-12	2024-12-11

Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Vector signal generator	Keysight	N5181A	MY48180415	2023-11-09	2024-11-08
Signal generator	Keysight	N5182A	MY50143455	2023-11-09	2024-11-08
Spectrum Analyzer	Keysight	N9020A	MY53420323	2023-12-12	2024-12-11

Emissions in frequency bands (below 30MHz)

Emissions in frequency bands (30MHz - 1GHz)

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	2023-12-12	2024-12-11
Positioning Controller	/	MF-7802	/	2023-12-12	2024-12-11
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	2023-12-12	2024-12-11
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2021-07-05	2024-07-04
Cable(LF)#2	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(LF)#1	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2024-02-19	2025-02-18
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2024-02-19	2025-02-18
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2023-06-13	2024-06-12
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2023-06-13	2024-06-12
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Spectrum Analyzer	R&S	FSP30	1321.3008K40-101729-jR	2023-06-14	2024-06-13
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023-05-21	2025-05-20
Test Receiver	R&S	ESCI	102109	2023-06-13	2024-06-12

2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Disturbance (0.15~30MHz)	±3.41dB
Occupied Bandwidth	±3.63%
Radiated Emission (Below 1GHz)	±5.79dB
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

2.7 Identification of Testing Laboratory

Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

Identification of the Responsible Testing Location

Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
FCC Registration Number:	0032847402
Designation Number:	CN1342

2.8 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by POCE and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

3 Evaluation Results (Evaluation)

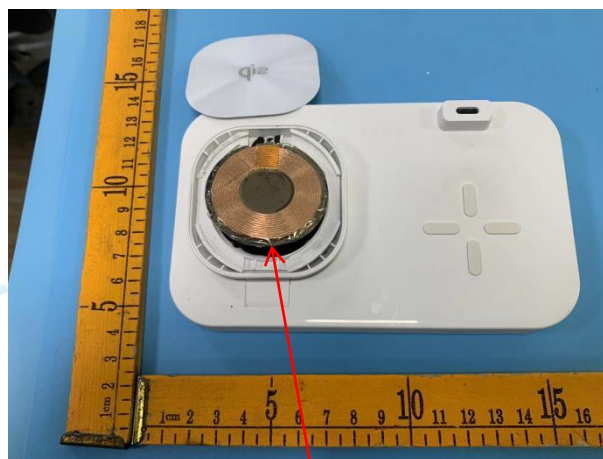
3.1 Antenna requirement

Test Requirement:	Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.
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3.1.1 Conclusion:



Airpods-ant



mobile phone-ant

4 Radio Spectrum Matter Test Results (RF)

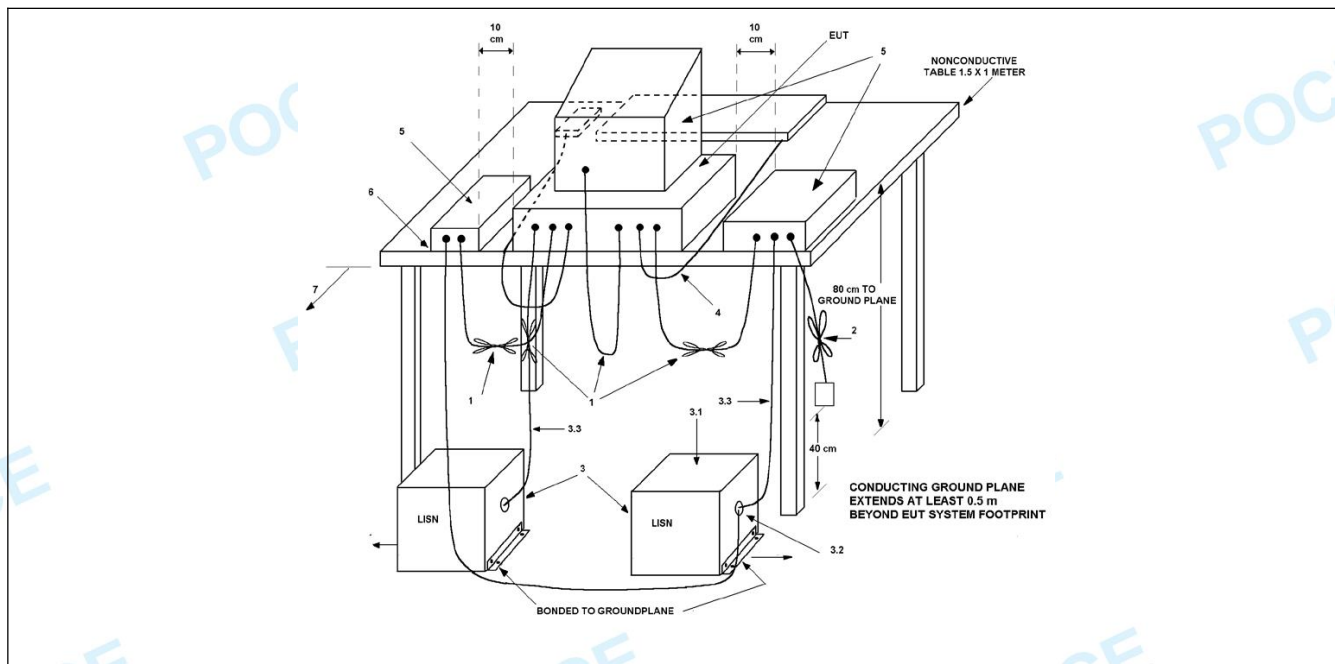
4.1 Conducted Emission at AC power line

Test Requirement:	Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
*Decreases with the logarithm of the frequency.			
Test Method:	ANSI C63.10-2013 section 6.2		
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		

4.1.1 E.U.T. Operation:

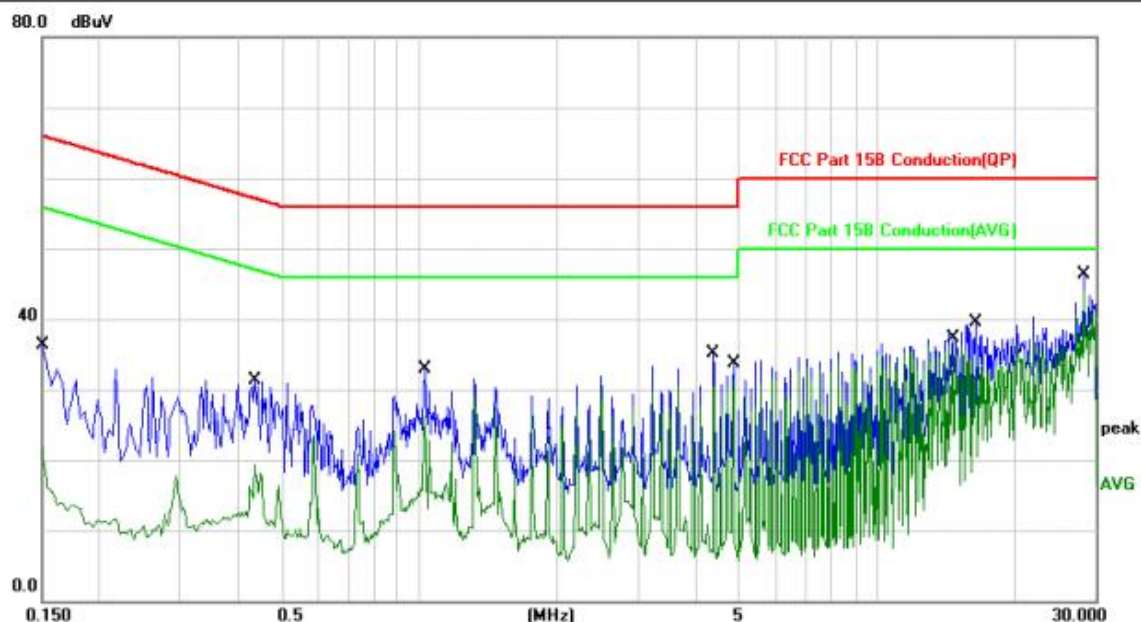
Operating Environment:					
Temperature:	23.8 °C	Humidity:	49.3 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1				
Final test mode:	TM1				

4.1.2 Test Setup Diagram:



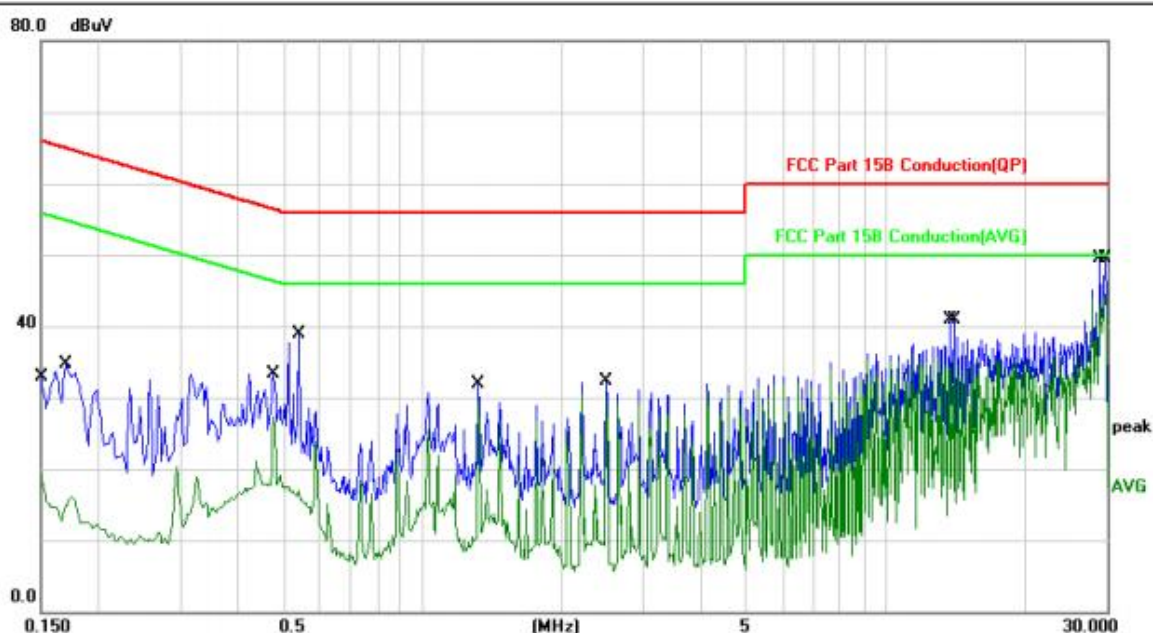
4.1.3 Test Data:

TM1 / Line: Line



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	26.35	10.05	36.40	65.99	-29.59	QP	
2		0.1500	11.59	10.05	21.64	55.99	-34.35	AVG	
3		0.4380	21.23	9.99	31.22	57.10	-25.88	QP	
4		0.4380	9.25	9.99	19.24	47.10	-27.86	AVG	
5		1.0300	22.91	9.90	32.81	56.00	-23.19	QP	
6		1.0300	16.20	9.90	26.10	46.00	-19.90	AVG	
7		4.4060	25.08	10.10	35.18	56.00	-20.82	QP	
8		4.8500	21.42	10.12	31.54	46.00	-14.46	AVG	
9		14.6940	25.86	10.45	36.31	50.00	-13.69	AVG	
10		16.4580	28.96	10.46	39.42	60.00	-20.58	QP	
11		28.2340	35.67	10.58	46.25	60.00	-13.75	QP	
12	*	28.2340	33.54	10.58	44.12	50.00	-5.88	AVG	

TM1 / Line: Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	9.34	10.05	19.39	55.99	-36.60	AVG	
2		0.1700	24.76	10.03	34.79	64.96	-30.17	QP	
3		0.4780	17.23	9.98	27.21	46.37	-19.16	AVG	
4		0.5420	28.97	9.97	38.94	56.00	-17.06	QP	
5		1.3220	22.02	9.92	31.94	56.00	-24.06	QP	
6		1.3220	19.47	9.92	29.39	46.00	-16.61	AVG	
7		2.4980	22.35	10.00	32.35	56.00	-23.65	QP	
8		2.4980	20.35	10.00	30.35	46.00	-15.65	AVG	
9		13.8140	30.47	10.44	40.91	60.00	-19.09	QP	
10		14.1060	25.32	10.44	35.76	50.00	-14.24	AVG	
11		29.0140	38.85	10.59	49.44	60.00	-10.56	QP	
12	*	29.7820	33.89	10.59	44.48	50.00	-5.52	AVG	

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor, Over = Limit - Measurement

4.2 20dB Occupied Bandwidth

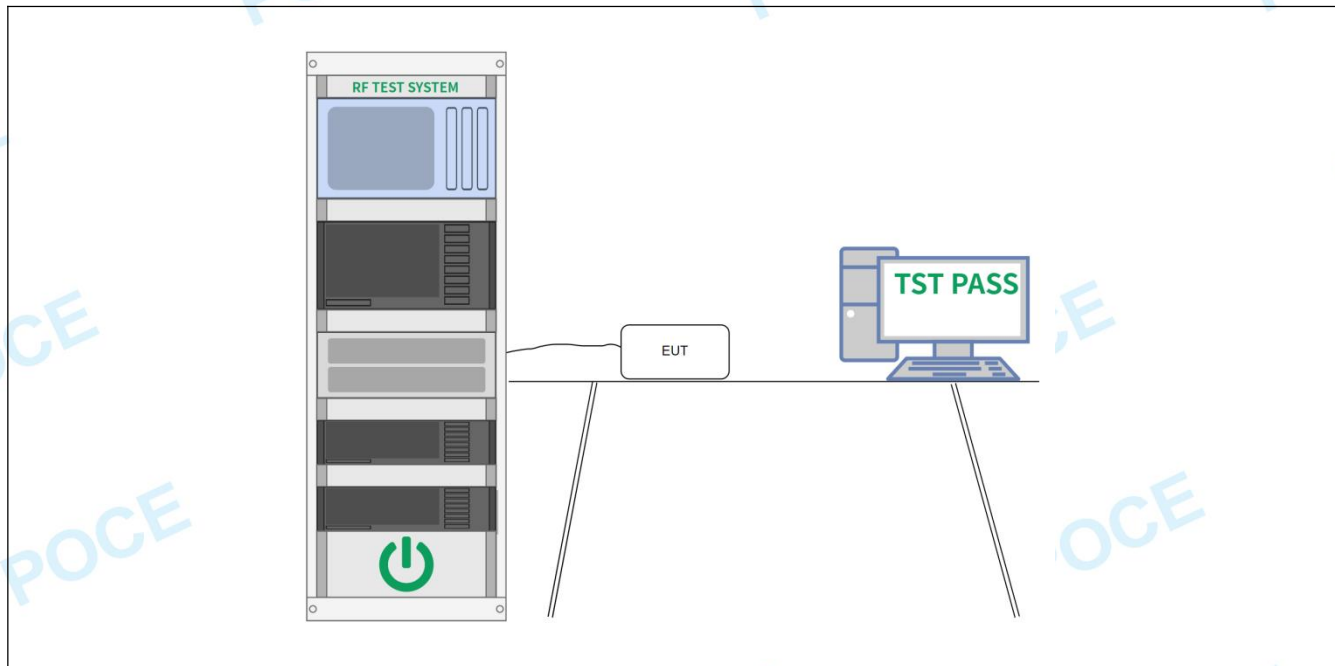
Test Requirement:	47 CFR Part 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Method:	ANSI C63.10-2013, section 6.9.2
Procedure:	a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2. d) Steps a) through c) might require iteration to adjust within the specified tolerances. e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value. f) Set detection mode to peak and trace mode to max hold. g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value). h) Determine the “-xx dB down amplitude” using $[(\text{reference value}) - \text{xx}]$. Alternatively, this calculation may be made by using the marker-delta function of the instrument. i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j). j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth. k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	49.3 %	Atmospheric Pressure:	101 kPa

Pretest mode:	TM1
Final test mode:	TM1

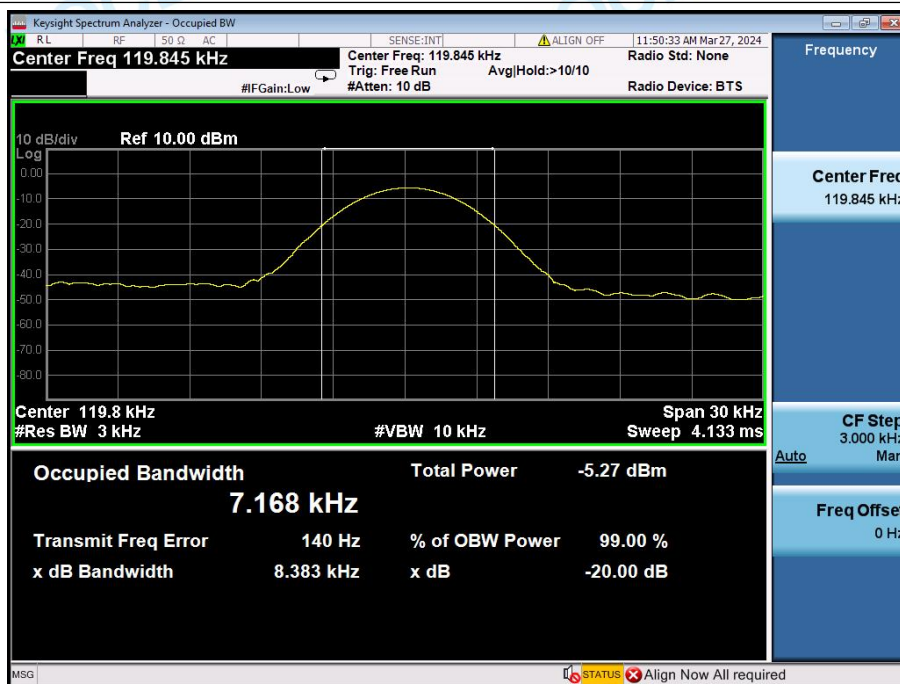
4.2.2 Test Setup Diagram:



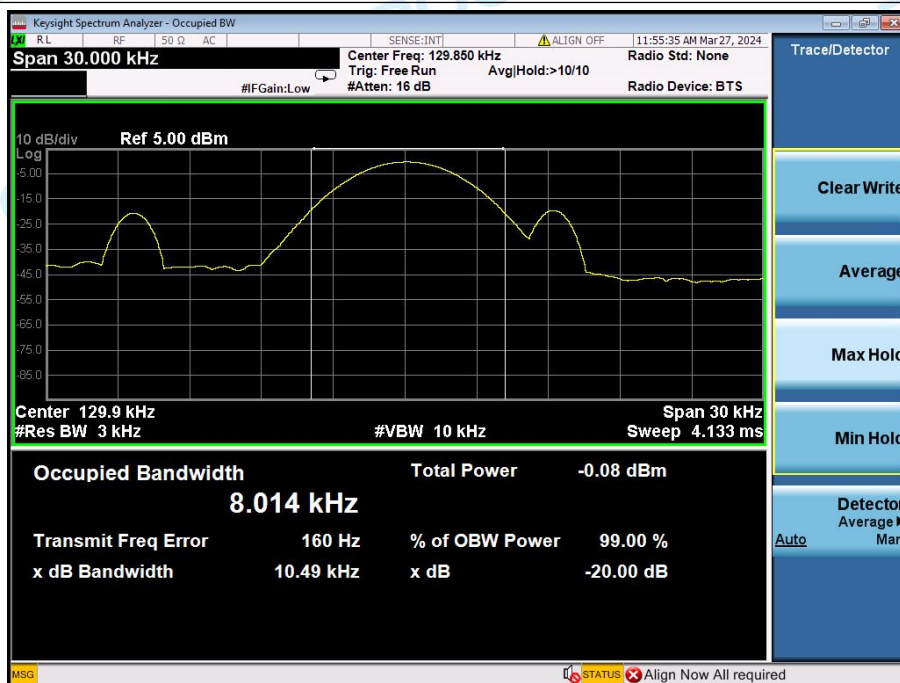
4.2.3 Test Data:

Frequency (KHz)	Antenna	-20dB_Emission_Bandwidth (KHz)	Occupied Bandwidth(KHz)
119.8	mobile phone	8.383	7.168
129.9	Earbuds	10.49	8.014

Test Frequency: 119.8KHz



Test Frequency: 129.9KHz



4.3 Emissions in frequency bands (below 30MHz)

Test Requirement:	47 CFR Part 15.209		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.			
Test Method:	ANSI C63.10-2013 section 6.4		
Procedure:	ANSI C63.10-2013 section 6.4		

4.3.1 E.U.T. Operation:

Operating Environment:			
Temperature:	23.8 °C	Humidity:	49.3 %
Atmospheric Pressure:	101 kPa		
Pretest mode:	TM1		
Final test mode:	TM1		

4.3.2 Test Data:

Concentric--Wireless Charging Load Module+Wireless TWS(Output1+Output2:15W+5W)--TM14							
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1137	47.03	19.62	66.65	126.49	-59.83	PK
2	0.1137	48.12	19.62	67.74	106.49	-38.75	AV
3	0.1213	48.40	19.95	68.35	125.93	-57.58	PK
4	0.1213	46.73	19.95	66.68	105.93	-39.25	AV
5	0.5531	28.29	21.01	49.30	72.75	-23.45	QP
6	0.9315	28.64	21.14	49.78	68.22	-18.44	QP
7	3.9174	28.63	21.29	49.92	69.54	-19.62	QP
8	10.9400	28.22	20.78	49.00	69.54	-20.54	QP

Coplanar--Wireless Charging Load Module+Wireless TWS(Output1+Output2:15W+5W)--TM14							
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1101	48.60	19.62	68.22	126.77	-58.56	PK
2	0.1101	47.15	19.62	66.77	106.77	-40.00	AV
3	0.1232	48.66	19.95	68.61	125.79	-57.18	PK
4	0.1232	47.20	19.95	67.15	105.79	-38.64	AV
5	0.5557	28.55	21.01	49.56	72.71	-23.15	QP
6	0.9199	27.38	21.14	48.52	68.33	-19.81	QP
7	3.9266	27.17	21.29	48.46	69.54	-21.08	QP
8	10.9466	29.23	20.78	50.01	69.54	-19.54	QP

Concentric--Wireless Charging Load Module+Wireless TWS(Output1+Output2:10W+5W)--TM15

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1132	47.62	19.62	67.24	126.53	-59.28	PK
2	0.1132	47.72	19.62	67.34	106.53	-39.19	AV
3	0.1227	47.88	19.95	67.83	125.83	-58.00	PK
4	0.1227	46.92	19.95	66.87	105.83	-38.96	AV
5	0.5143	27.81	21.01	48.82	73.38	-24.56	QP
6	0.9516	26.73	21.14	47.87	68.03	-20.17	QP
7	3.9373	26.82	21.29	48.11	69.54	-21.43	QP
8	10.9272	28.33	20.78	49.11	69.54	-20.43	QP

Coplanar--Wireless Charging Load Module+Wireless TWS(Output1+Output2:10W+5W)--TM15

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1106	47.60	19.62	67.22	126.73	-59.51	PK
2	0.1106	49.15	19.62	68.77	106.73	-37.96	AV
3	0.1205	47.77	19.95	67.72	125.98	-58.26	PK
4	0.1205	47.38	19.95	67.33	105.98	-38.65	AV
5	0.5167	26.48	21.01	47.49	73.34	-25.85	QP
6	0.9419	27.98	21.14	49.12	68.12	-19.00	QP
7	3.9243	28.43	21.29	49.72	69.54	-19.83	QP
8	10.9337	29.42	20.78	50.20	69.54	-19.34	QP

Concentric--Wireless Charging Load Module+Wireless TWS(Output1+Output2:7.5W+5W)--TM16

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1143	48.50	19.62	68.12	126.44	-58.32	PK
2	0.1143	47.50	19.62	67.12	106.44	-39.32	AV
3	0.1242	47.09	19.95	67.04	125.72	-58.68	PK
4	0.1242	48.35	19.95	68.30	105.72	-37.42	AV
5	0.5303	28.50	21.01	49.51	73.11	-23.60	QP
6	0.9233	28.01	21.14	49.15	68.30	-19.15	QP
7	3.9127	27.21	21.29	48.50	69.54	-21.04	QP
8	10.9406	27.43	20.78	48.21	69.54	-21.33	QP

Coplanar--Wireless Charging Load Module+Wireless TWS(Output1+Output2:7.5W+5W)--TM16

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1108	47.96	19.62	67.58	126.71	-59.13	PK
2	0.1108	47.13	19.62	66.75	106.71	-39.96	AV
3	0.1227	48.00	19.95	67.95	125.83	-57.88	PK
4	0.1227	46.68	19.95	66.63	105.83	-39.20	AV
5	0.5143	26.62	21.01	47.63	73.38	-25.75	QP
6	0.9207	28.10	21.14	49.24	68.32	-19.08	QP
7	3.9394	27.06	21.29	48.35	69.54	-21.19	QP
8	10.9214	27.20	20.78	47.98	69.54	-21.57	QP

Concentric--Wireless Charging Load Module+Wireless TWS(Output1+Output2:5W+5W)--TM17

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1112	47.49	19.62	67.11	126.68	-59.57	PK
2	0.1112	47.05	19.62	66.67	106.68	-40.01	AV
3	0.1211	48.46	19.95	68.41	125.94	-57.53	PK
4	0.1211	47.82	19.95	67.77	105.94	-38.17	AV
5	0.5228	28.69	21.01	49.70	73.24	-23.54	QP
6	0.9503	27.92	21.14	49.06	68.05	-18.98	QP
7	3.9549	27.01	21.29	48.30	69.54	-21.24	QP
8	10.9231	28.51	20.78	49.29	69.54	-20.25	QP

Coplanar--Wireless Charging Load Module+Wireless TWS(Output1+Output2:5W+5W)--TM17

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1117	49.37	19.62	68.99	126.65	-57.66	PK
2	0.1117	47.04	19.62	66.66	106.65	-39.99	AV
3	0.1226	48.43	19.95	68.38	125.83	-57.46	PK
4	0.1226	48.41	19.95	68.36	105.83	-37.47	AV
5	0.5189	29.45	21.01	50.46	73.30	-22.84	QP
6	0.9257	28.17	21.14	49.31	68.27	-18.97	QP
7	3.9119	27.33	21.29	48.62	69.54	-20.92	QP
8	10.9558	27.09	20.78	47.87	69.54	-21.67	QP

Remark: Margin=Level - Limit

Level=Test receiver reading + correction factor

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

Remark:Only the data of the worst mode would be recorded in this report.

4.4 Emissions in frequency bands (30MHz - 1GHz)

Test Requirement:	47 CFR Part 15.209		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.			
Test Method:	ANSI C63.10-2013 section 6.5		
Procedure:	ANSI C63.10-2013 section 6.5		

4.4.1 E.U.T. Operation:

Operating Environment:				
Temperature:	23.8 °C	Humidity:	49.3 %	Atmospheric Pressure: 101 kPa
Pretest mode:	TM1			
Final test mode:	TM1			

4.4.2 Test Data:

TM1 / Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	33.6802	26.06	-3.85	22.21	40.00	-17.79	QP	100		P	
2	47.8260	33.69	-8.93	24.76	40.00	-15.24	QP	100		P	
3	69.1141	35.74	-8.63	27.11	40.00	-12.89	QP	100		P	
4	179.3863	29.40	-3.13	26.27	43.50	-17.23	QP	100		P	
5 *	396.2415	36.55	1.40	37.95	46.00	-8.05	QP	100		P	
6	1000.0000	23.64	10.45	34.09	54.00	-19.91	QP	100		P	

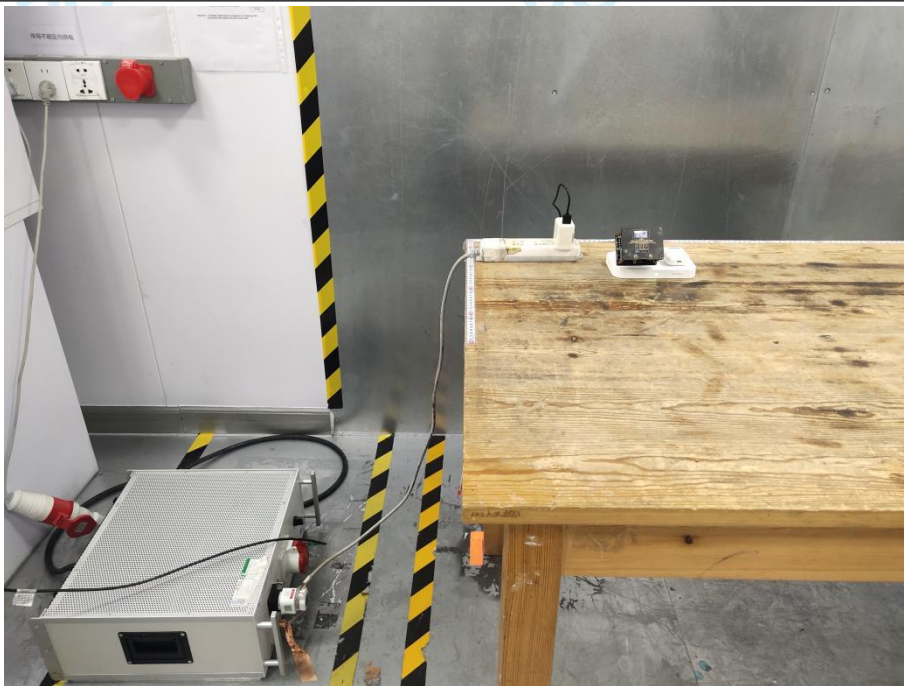
TM1 / Polarization: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	46.9948	43.91	-8.57	35.34	40.00	-4.66	QP	100		P	
2	71.0803	41.79	-8.48	33.31	40.00	-6.69	QP	100		P	
3	95.7622	35.58	-5.72	29.86	43.50	-13.64	QP	100		P	
4	125.4457	32.23	-4.67	27.56	43.50	-15.94	QP	100		P	
5	170.1948	29.35	-3.32	26.03	43.50	-17.47	QP	100		P	
6	387.9920	33.74	1.23	34.97	46.00	-11.03	QP	100		P	

5 TEST SETUP PHOTOS

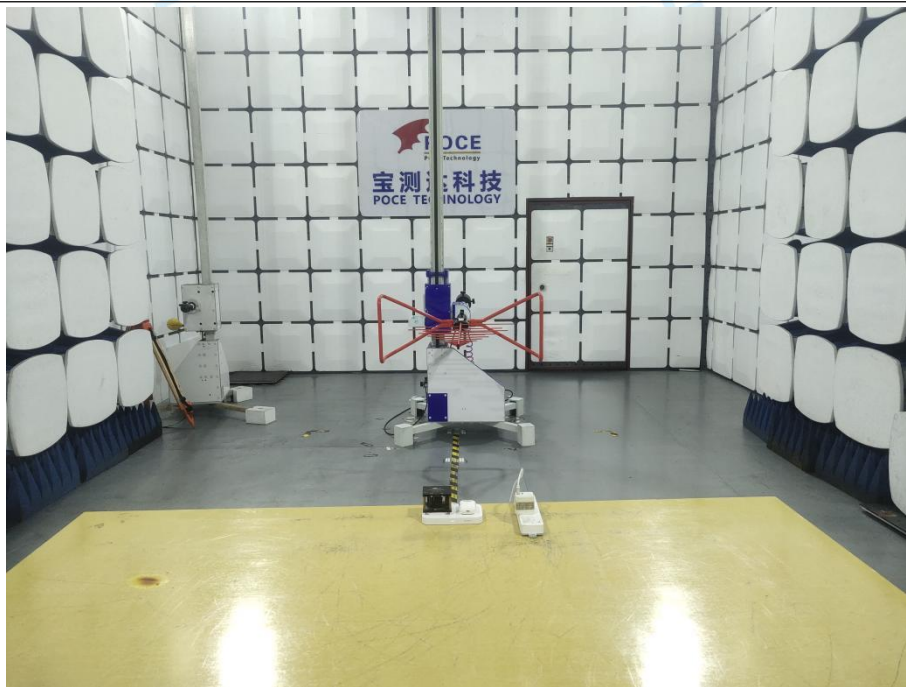
Conducted Emission at AC power line



Emissions in frequency bands (below 30MHz)



Emissions in frequency bands (30MHz - 1GHz)



6 PHOTOS OF THE EUT

External



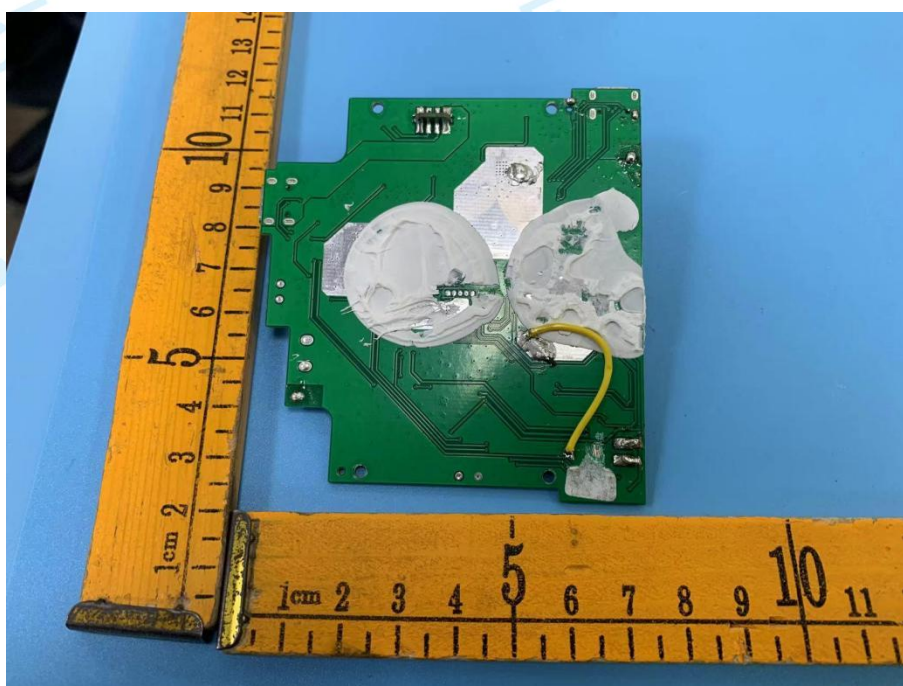


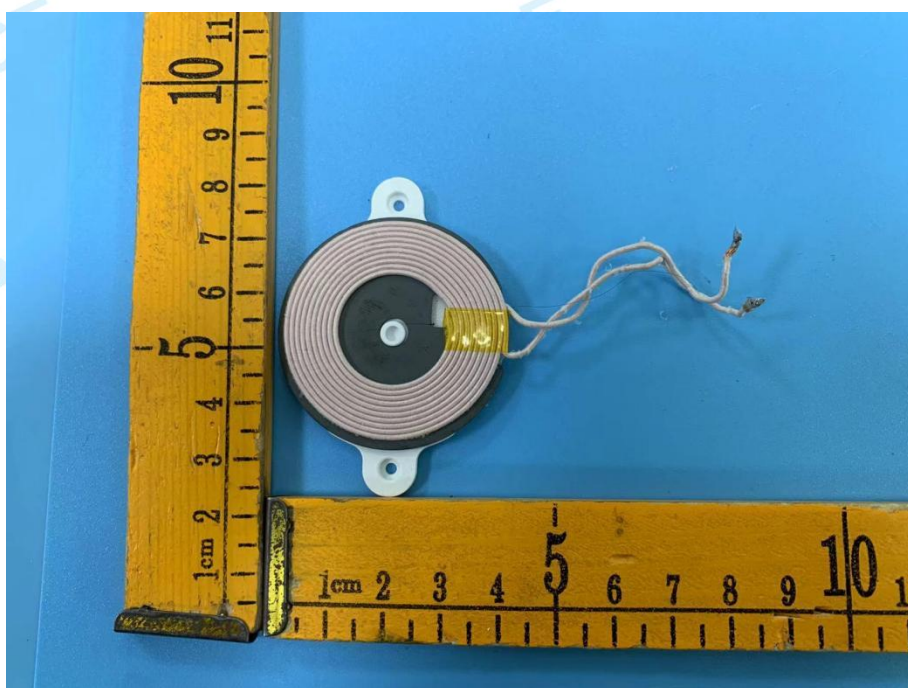
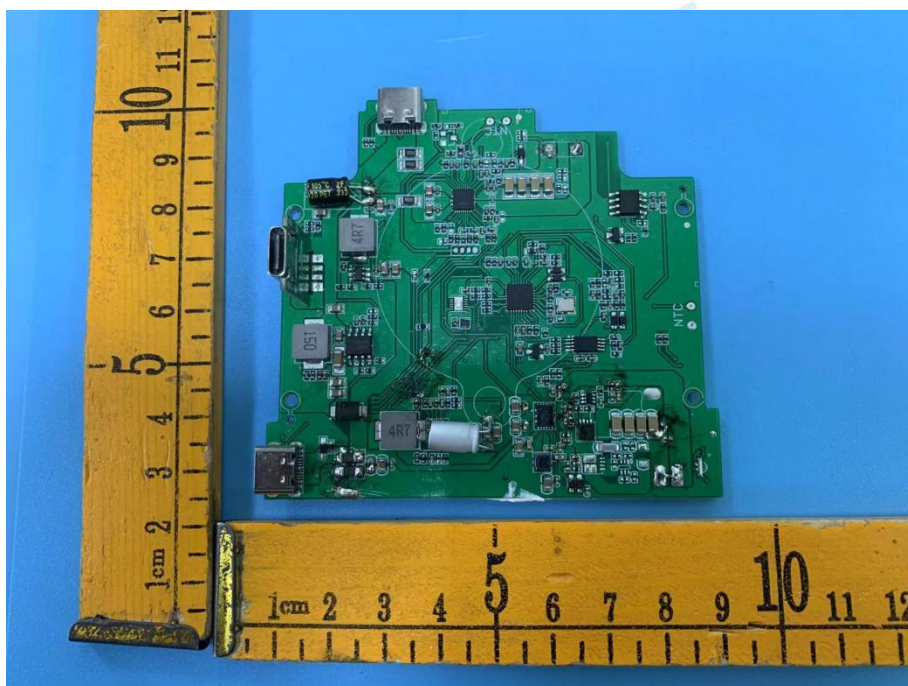


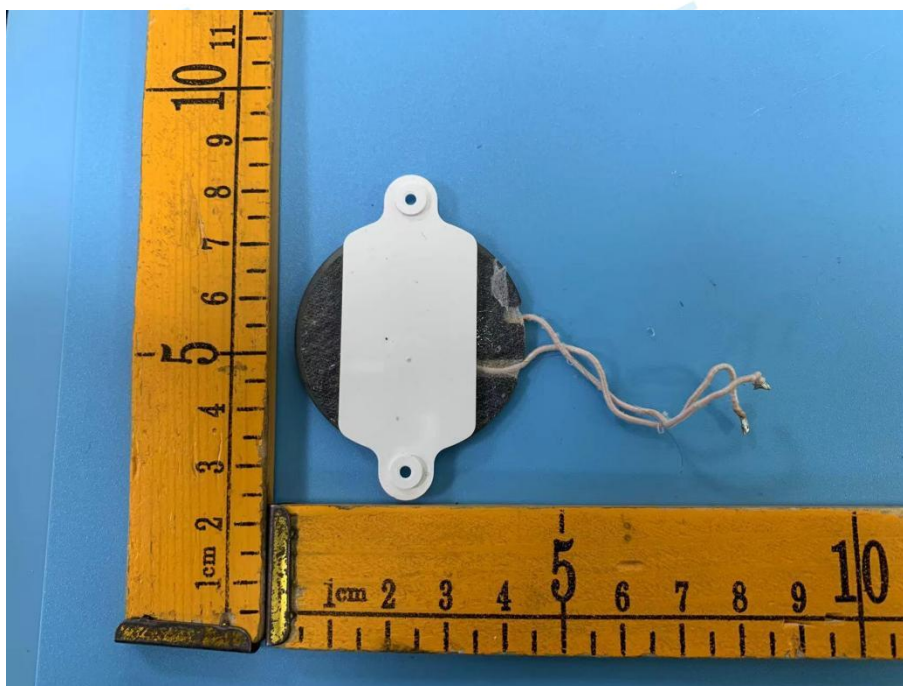


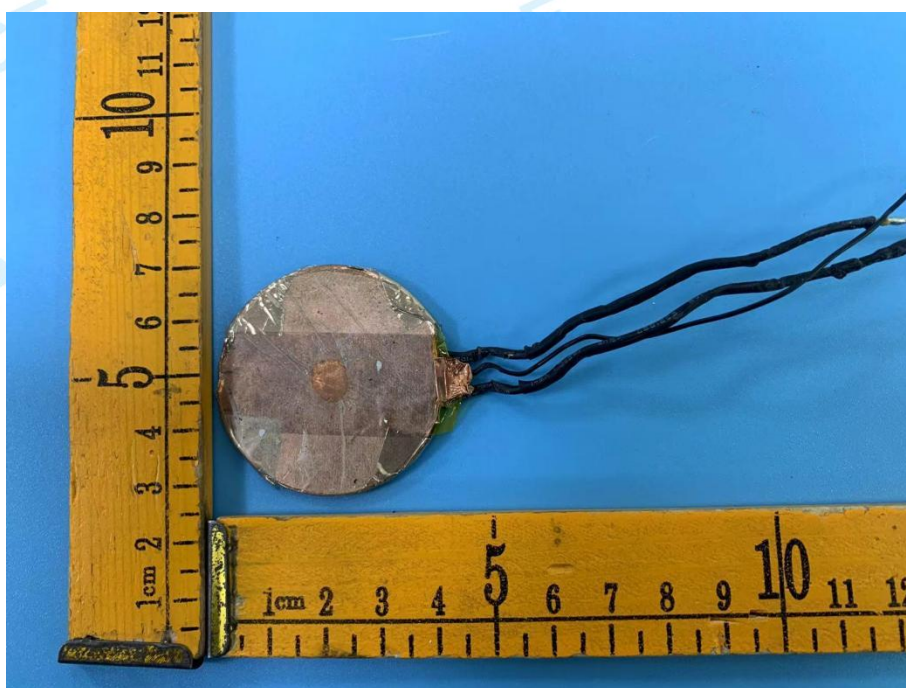
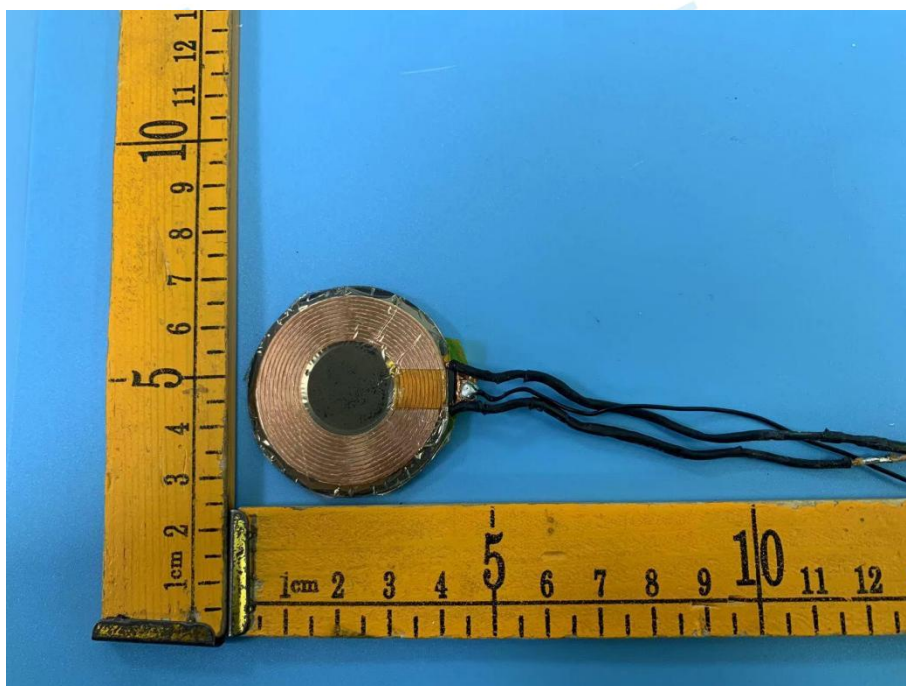
Internal











***** End of Report *****