



# **FCC RADIO TEST REPORT**

## **FCC ID: 2AAXWTWC2B**

**Product :** TRIDENT Wireless Charging Cradle

**Trade Name :** Aarcomm

**Model Name :** TWC2B

**Serial Model :** PAT-83884-00

**Report No. :** POCE- 20170403131R

### **Prepared for**

Aarcomm Systems Inc

112-17 Fawcett Rd., Coquitlam, BC, V3K 6V2, Canada

### **Prepared by**

Shenzhen POCE Technology Co.,Ltd.

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Baoan District, Shenzhen, China

### TEST RESULT CERTIFICATION

**Applicant's name** ..... : Aarcomm Systems Inc  
Address ..... : 112-17 Fawcett Rd., Coquitlam, BC, V3K 6V2, Canada  
**Manufacture's Name**..... : Aarcomm Systems Inc  
Address ..... : 112-17 Fawcett Rd., Coquitlam, BC, V3K 6V2, Canada

**Product description**

Product name ..... : TRIDENT Wireless Charging Cradle  
Model and/or type reference : TWC2B, PAT-83884-00

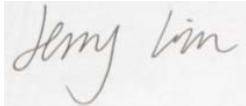
**Standards** ..... : 15.209


Test procedure ..... ANSI C63.4: 2014

This device described above has been tested by POCE, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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**Date of Test** ..... :  
Date (s) of performance of tests ..... : 7 Apr. 2017 ~17 Apr. 2017  
Date of Issue..... : 17 Apr. 2017  
Test Result..... : **Pass**

Testing Engineer :   
\_\_\_\_\_  
(Jerry Lin)

Technical Manager :   
\_\_\_\_\_  
(Jimmy Yao)

Authorized Signatory :   
\_\_\_\_\_  
(Terry Yang)

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## 1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part 15.207 FCC Part 15.209	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	
15.203	Antenna Requirement	--	PASS	

1.1 TEST FACILITY

Shenzhen POCE Technology Co.,Ltd.

Add. : Room 502, Bldg. 1, Xinghua Garden, Baoan Road Xixiang, Baoan District, Shenzhen, China

FCC Registered No.: 222278

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately **95 %**.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
POCE01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
POCE01	ANSI	30MHz ~ 1000MHz	4.7	
		1GHz ~6GHz	5.0	

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	TRIDENT Wireless Charging Cradle
Brand Name	Aarcomm
Model Name.	TWC2B
Serial No	PAT-83884-00
Model Difference	All the model are the same circuit and RF module, except model names.
Power Supply	DC 5V from USB port
Operation frequency	110-205KHz
Antenna Type	Loop antenna

## 2.2 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

For Conducted Test	
Final Test Mode	Description
Mode 1	Charging Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	Charging Mode

### 2.3 DESCRIPTION OF TEST SETUP

E1	E2
----	----



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	TRIDENT Wireless Charging Cradle	Aarcomm	TWC2B	N/A	EUT
E-2	GALAXY S7	SAMSUNG	G9350	N/A	

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

## 2.5 MEASUREMENT INSTRUMENTS LIST

### Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2016.07.06	2017.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2016.06.07	2017.06.06	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2016.07.06	2017.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2016.06.07	2017.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2016.06.07	2017.06.06	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2016.07.06	2017.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2016.07.06	2017.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2016.12.22	2017.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2016.06.08	2017.06.07	1 year
10	Power Meter	R&S	NRVS	100696	2016.07.06	2017.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2016.07.06	2017.07.05	1 year

### Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2016.06.06	2017.06.05	1 year
2	LISN	R&S	ENV216	101313	2016.08.24	2017.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2016.08.24	2017.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2016.06.07	2017.06.06	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2016.06.07	2017.06.06	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2016.06.08	2017.06.07	1 year

### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class B (dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

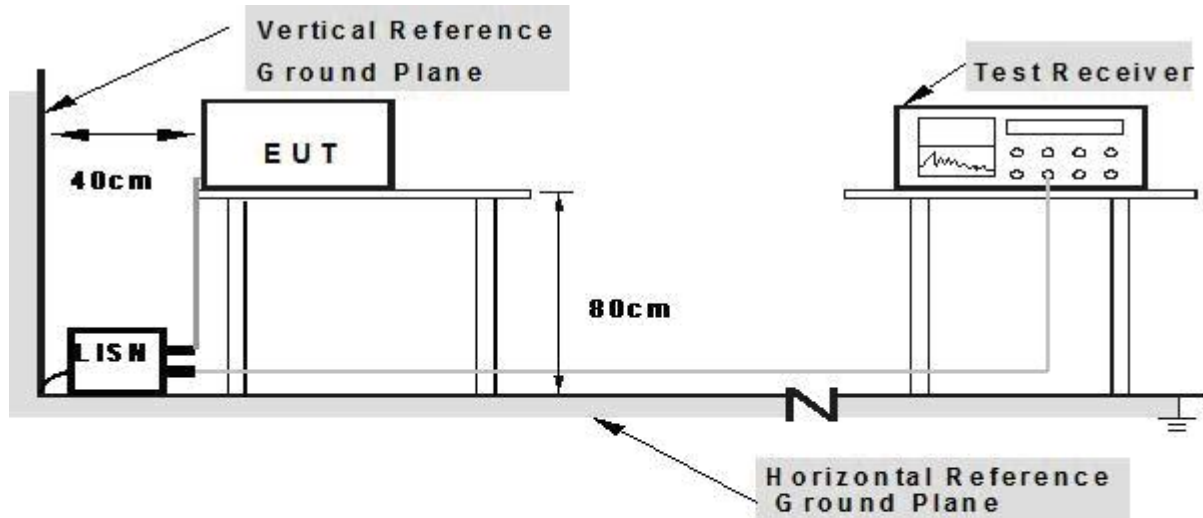
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

### 3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.1.3 TEST SETUP



**Note: 1. Support units were connected to second LISN.**

**2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

### 3.1.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

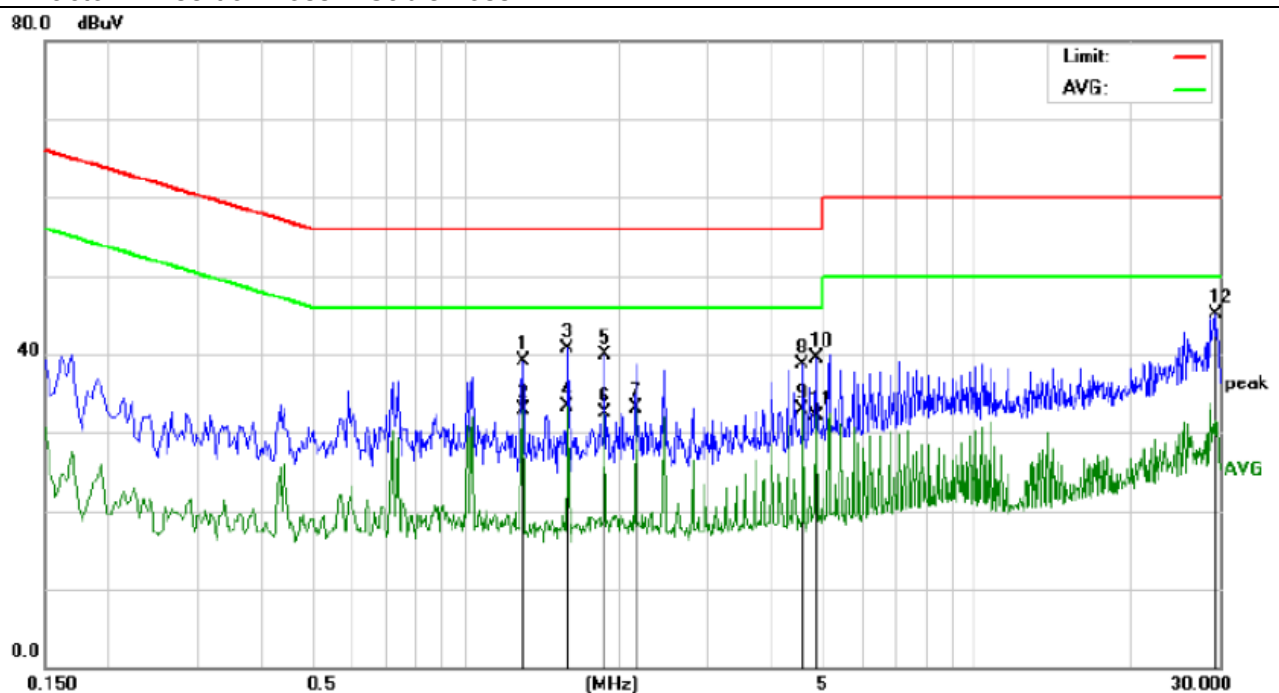
### 3.1.5 TEST RESULTS

EUT :	TRIDENT Wireless Charging Cradle	Model Name. :	TWC2B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	AC120V/60Hz	Test Mode :	Charging

No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector
1	1.2980	19.05	20.13	39.18	56.00	-16.82	QP
2	1.2980	12.84	20.13	32.97	46.00	-13.03	AVG
3	1.5859	20.53	20.13	40.66	56.00	-15.34	QP
4	1.5859	13.12	20.13	33.25	46.00	-12.75	AVG
5	1.8740	19.69	20.14	39.83	56.00	-16.17	QP
6	1.8740	12.42	20.14	32.56	46.00	-13.44	AVG
7	2.1619	13.00	20.14	33.14	46.00	-12.86	AVG
8	4.5780	18.52	20.20	38.72	56.00	-17.28	QP
9	4.5780	12.77	20.20	32.97	46.00	-13.03	AVG
10	4.8700	19.30	20.20	39.50	56.00	-16.50	QP
11	4.8700	11.88	20.20	32.08	46.00	-13.92	AVG
12	29.5220	24.88	20.27	45.15	60.00	-14.85	QP

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

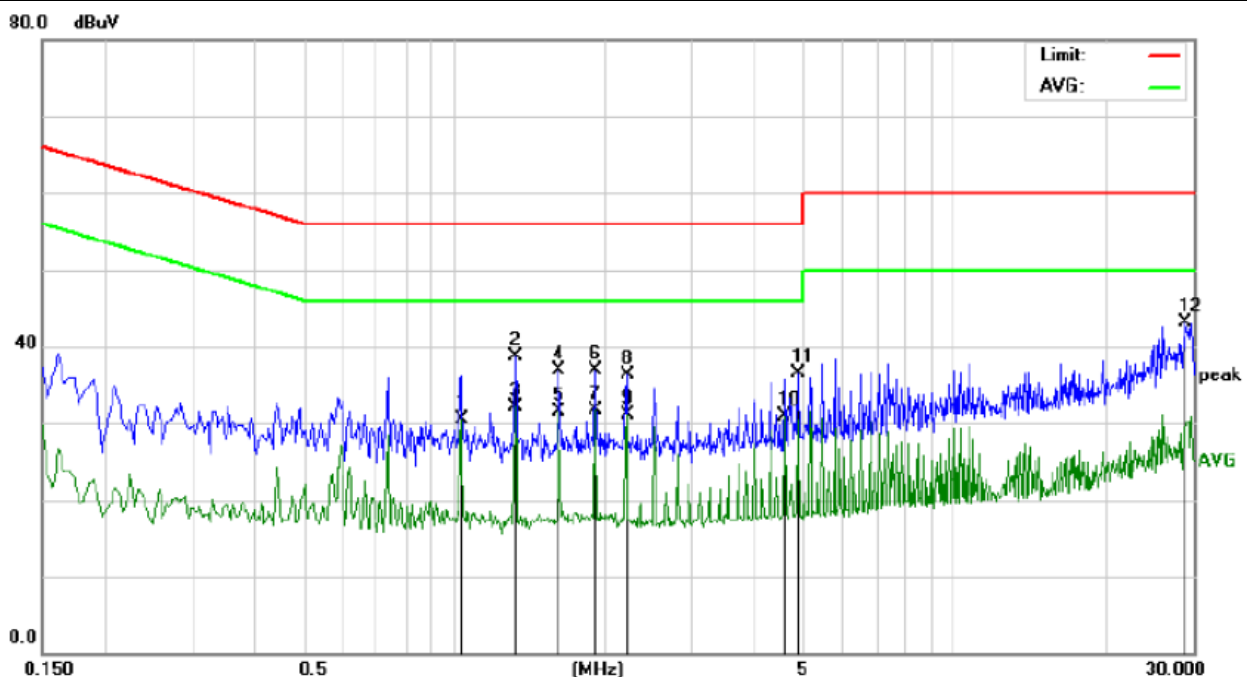


EUT :	TRIDENT Wireless Charging Cradle	Model Name. :	TWC2B
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	AC120V/60Hz	Test Mode :	Charging

No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector
1	1.0339	10.31	20.12	30.43	46.00	-15.57	AVG
2	1.3300	18.57	20.13	38.70	56.00	-17.30	QP
3	1.3300	11.98	20.13	32.11	46.00	-13.89	AVG
4	1.6260	16.82	20.13	36.95	56.00	-19.05	QP
5	1.6260	11.34	20.13	31.47	46.00	-14.53	AVG
6	1.9180	16.70	20.14	36.84	56.00	-19.16	QP
7	1.9180	11.59	20.14	31.73	46.00	-14.27	AVG
8	2.2139	16.15	20.14	36.29	56.00	-19.71	QP
9	2.2139	10.91	20.14	31.05	46.00	-14.95	AVG
10	4.5739	10.80	20.20	31.00	46.00	-15.00	AVG
11	4.8700	16.38	20.20	36.58	56.00	-19.42	QP
12	28.9260	22.80	20.27	43.07	60.00	-16.93	QP

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



### 3.2 RADIATED EMISSION MEASUREMENT

#### 3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Notes:

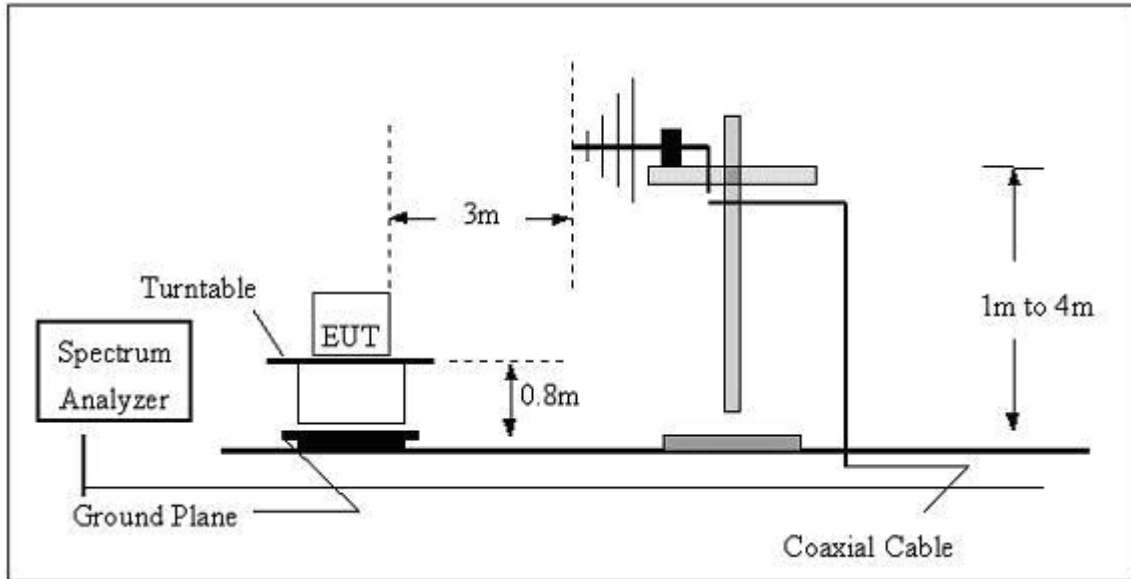
- (1) The limit for radiated test was performed according to as following:  
FCC PART 15B /ICES-003.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

#### 3.2.2 TEST PROCEDURE

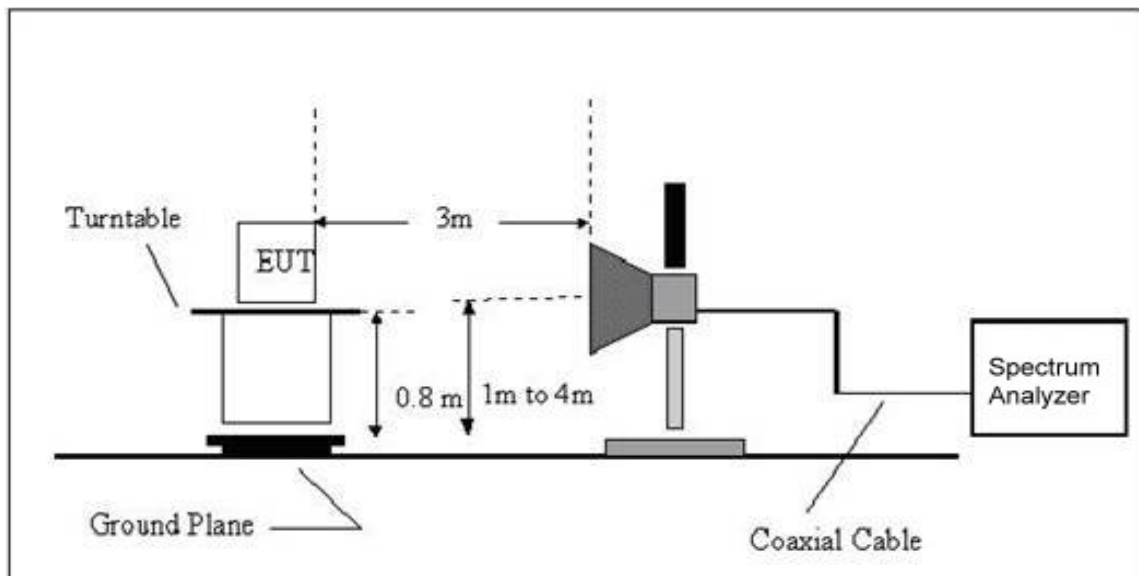
- a. The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.2.3 TEST SETUP

#### (A) Radiated Emission Test Set-Up Frequency Below 1 GHz



#### (B) Radiated Emission Test Set-Up Frequency Above 1GHz



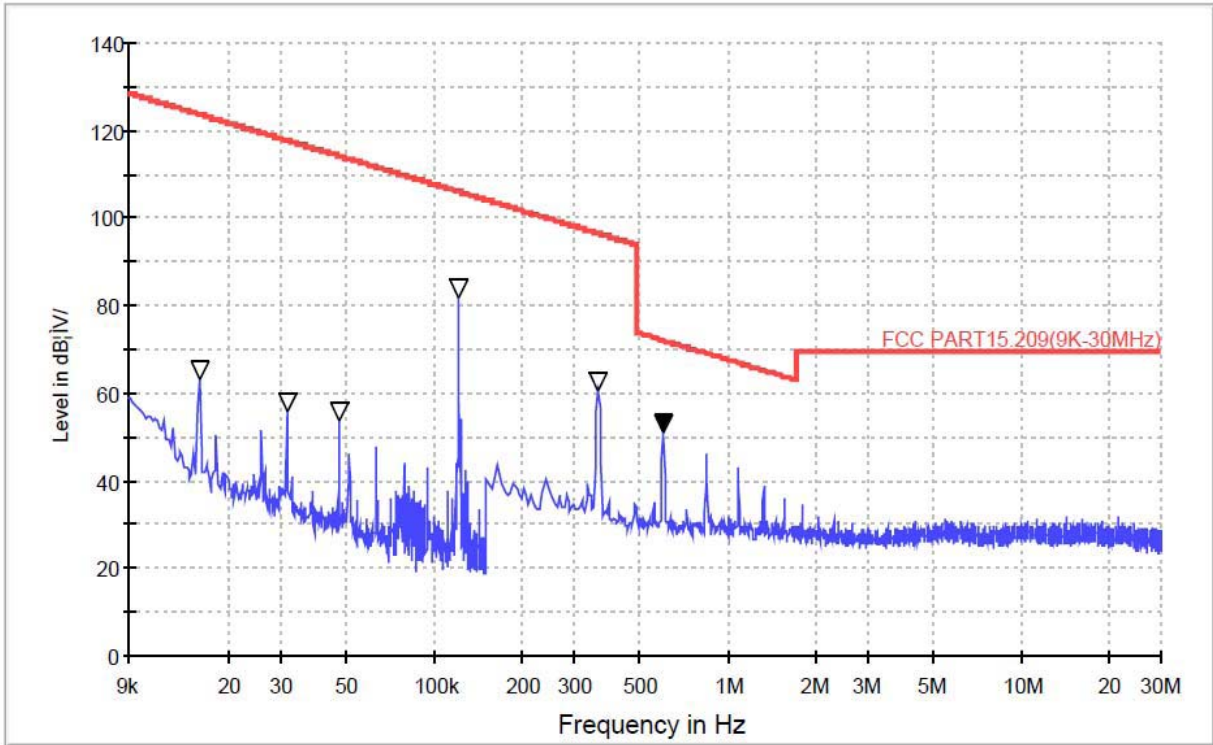
### 3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.



3.2.5 TEST RESULTS(Blow 30MHZ)

<b>Job No.:</b>	<b>011610151I</b>	<b>Plarization:</b>	<b>Horizontal</b>
<b>Standard:</b>	<b>FCC PART15 C _3m</b>		
<b>Test item:</b>	<b>Radiation Test</b>	<b>Temp.(C)/Hum.(%RH):</b>	<b>24.4(C)/50%RH</b>
<b>Test Mode:</b>	<b>Charging</b>	<b>Distance:</b>	<b>3m</b>



Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Remark
0.0158	41.874	18.59	2.38	0	62.844	Pass
0.0314	34.708	18.67	2.39	0	55.768	Pass
0.0472	31.784	19.45	2.38	0	53.614	Pass
PP 0.1208	58.689	20.58	2.39	0	81.659	Pass
0.3620	36.063	21.53	2.76	0	60.353	Pass
0.6020	25.646	22.86	2.53	0	51.036	Pass

Note: pp is Fundamental Field strength.

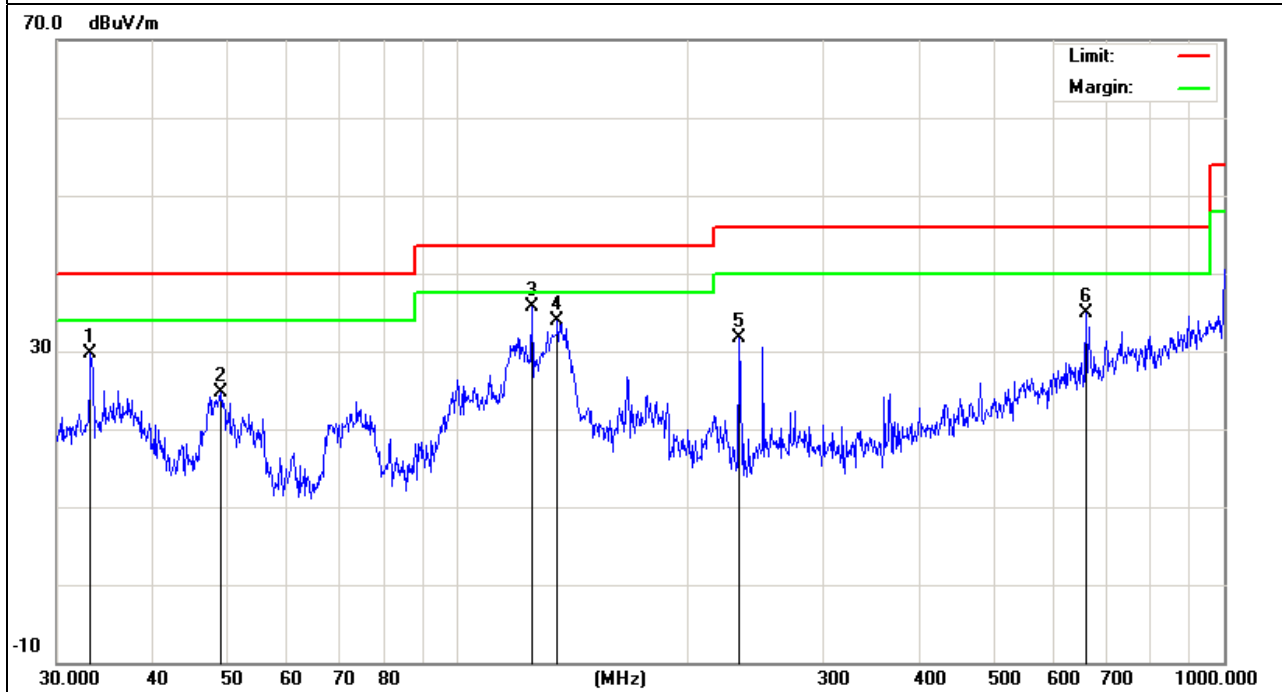
### 3.2.6 TEST RESULTS( 30MHZ-1GHZ)

EUT :	TRIDENT Wireless Charging Cradle	Model Name :	TWC2B
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC120V
Test Mode :	Charging	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
33.2111	12.94	16.79	29.73	40.00	-10.27	QP
49.1865	16.07	8.62	24.69	40.00	-15.31	QP
125.0066	23.52	12.21	35.73	43.50	-7.77	QP
135.0319	21.72	12.25	33.97	43.50	-9.53	QP
233.3487	20.62	10.99	31.61	46.00	-14.39	QP
661.1504	11.16	23.67	34.83	46.00	-11.17	QP

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

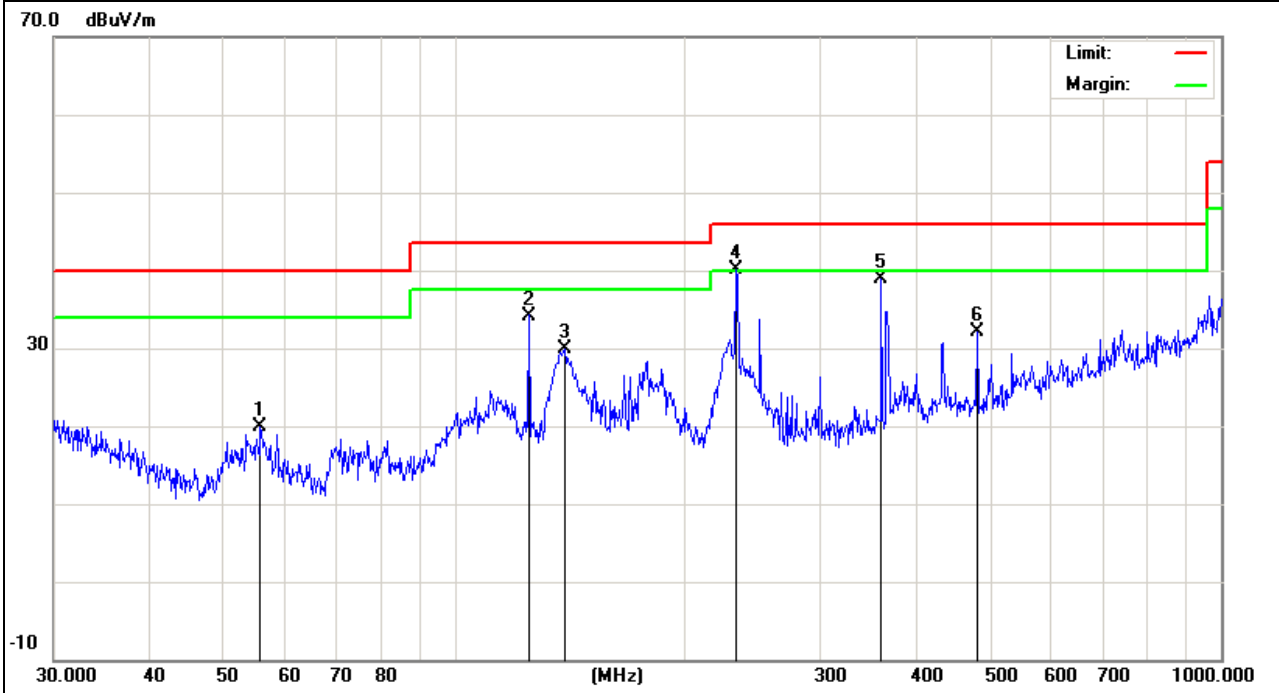


EUT :	TRIDENT Wireless Charging Cradle	Model Name :	TWC2B
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	AC120V
Test Mode :	Charging	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
55.8046	13.82	6.04	19.86	40.00	-20.14	QP
125.0066	21.99	12.21	34.20	43.50	-9.30	QP
139.3611	17.70	12.18	29.88	43.50	-13.62	QP
232.5318	29.21	10.94	40.15	46.00	-5.85	QP
360.4476	22.51	16.46	38.97	46.00	-7.03	QP
480.5276	12.15	20.04	32.19	46.00	-13.81	QP

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



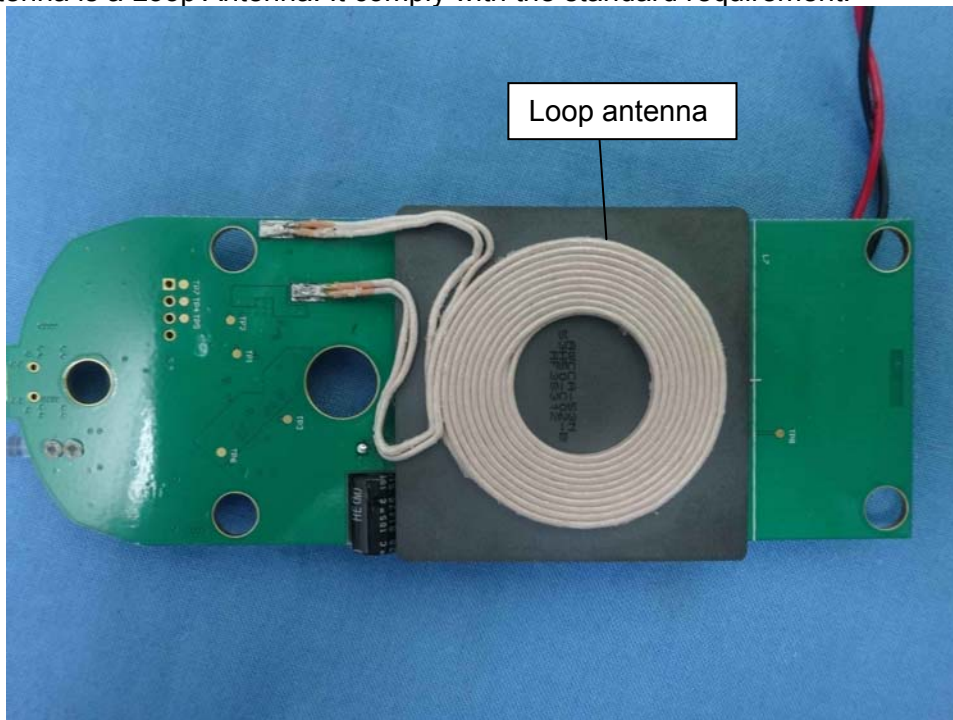
## 4. ANTENNA REQUIREMENT

### 4.1 STANDARD REQUIREMENT

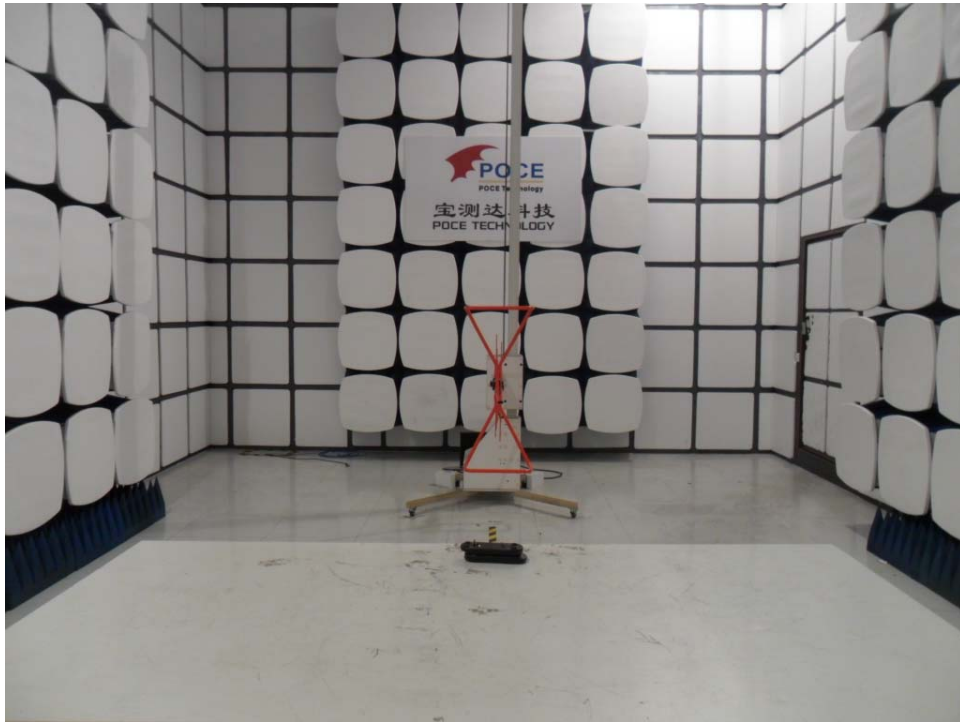
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

### 4.2 EUT ANTENNA

The EUT antenna is a Loop Antenna. It comply with the standard requirement.



RADIATED SPURIOUS EMISSION



CONDUCTED EMISSION TEST

