



**Shenzhen CTA Testing Technology Co., Ltd.**

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

## TEST REPORT

### FCC Rules and Regulations Part 15 Subpart C (Section 15.209)

Report Reference No.....: CTA24061300501

FCC ID.....: 2A938-PNGB11LWW2

Compiled by

( position+printed name+signature)....: File administrators Jinghua Xiao

Supervised by

( position+printed name+signature)....: Test Engineer Lushan Kong

Approved by

( position+printed name+signature)....: Manager Eric Wang



Date of issue.....: Jul.06, 2024

**Representative Laboratory Name ..: Shenzhen CTA Testing Technology Co., Ltd.**

Address.....: Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

**Applicant's name ..: Jiangsu Austin Optronics Technology Co., Ltd.**

Address ..: Building 02, 1 KeChuang Road, Qixia District, Nanjing, China

**Test specification ..:**

Standard ..: FCC Rules and Regulations Part 15 Subpart C (Section 15.209)

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**Test item description ..: Pintura Magnetic Wireless Charger**

Trade Mark ..: Pintura

Manufacturer ..: Jiangsu Austin Optronics Technology Co., Ltd.

Model/Type reference.....: PNGB11LWW2

List Model ..: PNGB11NWW3, PNGB11NWW2, PNGB11NWW1

Modulation Type ..: ASK

Operation Frequency.....: 110-205KHz

Ratings ..: Input: DC 12.0V-20.0V

Wireless Output :15W(Max)

Result.....: **PASS**

TEST REPORT

Test Report No. :	CTA24061300501	Jul.06, 2024
		Date of issue

Equipment under Test : Pintura Magnetic Wireless Charger

Model /Type : PNGB11LWW2

Listed Models : PNGB11NWW3, PNGB11NWW2, PNGB11NWW1

**Applicant** : **Jiangsu Austin Optronics Technology Co., Ltd.**

Address : Building 02, 1 KeChuang Road, Qixia District, Nanjing, China

**Manufacturer** **Jiangsu Austin Optronics Technology Co., Ltd.**

Address : Building 02, 1 KeChuang Road, Qixia District, Nanjing, China

Test Result:	PASS
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The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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## **1. TEST STANDARDS**

The tests were performed according to following standards:

[FCC Rules and Regulations Part 15 Subpart C \(Section 15.209\)](#): Radiated emission limits; general requirements.

[ANSI C63.10: 2020](#): American National Standard for Testing Unlicensed Wireless Devices

## 2. SUMMARY

### 2.1. General Remarks

Date of receipt of test sample	:	Jun.05, 2024
Testing commenced on	:	Jun.05, 2024
Testing concluded on	:	Jul.05, 2024

### 2.2. Product Description

Product Name:	Pintura Magnetic Wireless Charger
Trade Mark:	Pintura
Model/Type reference:	PNGB11LWW2
List Model:	PNGB11NWW3, PNGB11NWW2, PNGB11NWW1
Model Declaration	N/A
Power supply:	Input: DC 12.0V-20.0V Wireless Output :15W(Max)
Hardware Version	N/A
Software Version	N/A
WPT	
Frequency Range	110.0~205.0KHz
Modulation Type	ASK (Continuous Wave)
Load Sensing	Contact transmission
Antenna Type	Coil Antenna
Antenna gain	0dBi

## 2.3. Equipment Under Test

### Power supply system utilised

Power supply voltage	:	<input type="radio"/> 230V / 50 Hz	<input type="radio"/> 120V / 60Hz
		<input checked="" type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input type="radio"/> Other (specified in blank below)	

DC 12.0V

### Description of the test mode

Operation Frequency each of channel	
Channel	Frequency
1	127.00KHz

Mode	AC mode
Mode 1	Wireless Charging 15W

- Note :1.EUT has one Type-C port, The Type-C supports wireless charging in AC mode.  
 2. All the modes have been tested and recorded worst mode in the report(Mode 1).  
 3. All modes were tested for load states less than 1%, less than 50%, and less than 99%.

## 2.4. EUT Exercise Software

N/A

## 2.5. Special Accessories

Manufacturer	Description	Model	Serial Number	Certificate
Jiangsu Austin Optronics Technology Co., Ltd.	Pintura Display Unit	PNM101LEW3	--	SDOC
-----	Adapter	G.S-014A	--	SDOC

## 2.6. External I/O Cable

I/O Port Description	Quantity	Cable
DC IN Port	1	1.0M, Unscreened Cable

## 2.7. Modifications

No modifications were implemented to meet testing criteria.

### 3. TEST ENVIRONMENT

#### 3.1. Address of the test laboratory

**Shenzhen CTA Testing Technology Co., Ltd.**

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

#### 3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

**FCC-Registration No.: 517856 Designation Number: CN1318**

Shenzhen CTA Testing Technology Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

**A2LA-Lab Cert. No.: 6534.01**

Shenzhen CTA Testing Technology Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

#### 3.3. Test Description

Description Of Test	Result
Conducted Emissions Test	Compliant
Radiated Emission Test	Compliant
Occupied Bandwidth Measurement	Compliant
Antenna Requirement	Compliant

#### 3.4. Statement of the measurement uncertainty

Measurement Uncertainty		
Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty(9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty(30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty(Above 1GHz)	=	4.06dB, k=2

### 3.5. Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	CTA-308	2023/08/02	2024/08/01
LISN	R&S	ENV216	CTA-314	2023/08/02	2024/08/01
EMI Test Receiver	R&S	ESPI	CTA-307	2023/08/02	2024/08/01
EMI Test Receiver	R&S	ESCI	CTA-306	2023/08/02	2024/08/01
Spectrum Analyzer	Agilent	N9020A	CTA-301	2023/08/02	2024/08/01
Spectrum Analyzer	R&S	FSP	CTA-337	2023/08/02	2024/08/01
Vector Signal generator	Agilent	N5182A	CTA-305	2023/08/02	2024/08/01
Analog Signal Generator	R&S	SML03	CTA-304	2023/08/02	2024/08/01
Universal Radio Communication	CMW500	R&S	CTA-302	2023/08/02	2024/08/01
Temperature and humidity meter	Chigo	ZG-7020	CTA-326	2023/08/02	2024/08/01
Ultra-Broadband Antenna	Schwarzbeck	VULB9163	CTA-310	2023/10/17	2024/10/16
Horn Antenna	Schwarzbeck	BBHA 9120D	CTA-309	2023/10/13	2024/10/12
Loop Antenna	Zhinan	ZN30900C	CTA-311	2023/10/17	2024/10/16
Horn Antenna	Beijing Hangwei Dayang	OBH100400	CTA-336	2021/08/07	2024/08/06
Antenna Tower	Suzhou Keletuo electronic Technology Co., LTD	BK-*AT-BS	N/A	N/A	N/A
Amplifier	Schwarzbeck	BBV 9745	CTA-312	2023/08/02	2024/08/01
Amplifier	Taiwan chengyi	EMC051845B	CTA-313	2023/08/02	2024/08/01
Directional coupler	NARDA	4226-10	CTA-303	2023/08/02	2024/08/01
High-Pass Filter	XingBo	XBLBQ-GTA18	CTA-402	2023/08/02	2024/08/01
High-Pass Filter	XingBo	XBLBQ-GTA27	CTA-403	2023/08/02	2024/08/01
Automated filter bank	Tonscend	JS0806-F	CTA-404	2023/08/02	2024/08/01
Power Sensor	Agilent	U2021XA	CTA-405	2023/08/02	2024/08/01
Amplifier	Schwarzbeck	BBV9719	CTA-406	2023/08/02	2024/08/01

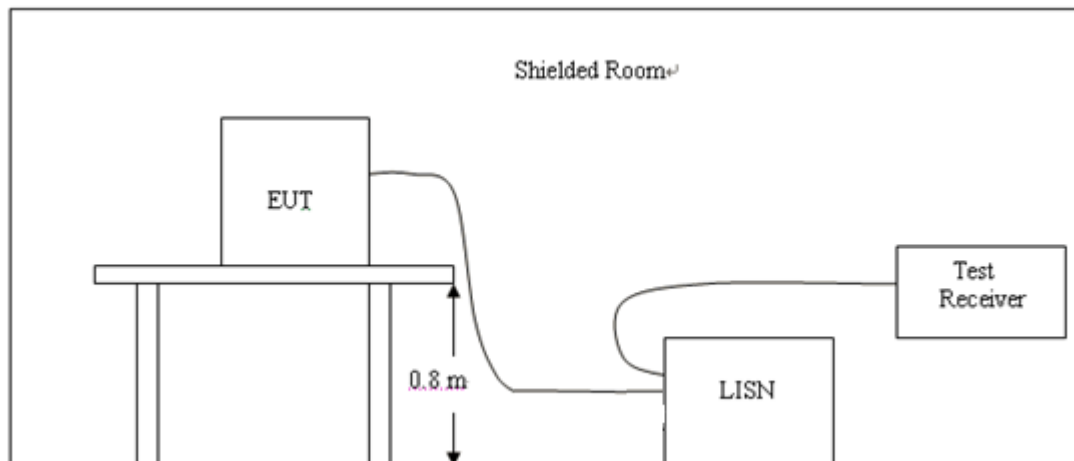
The calibration interval is 1 year.



## 4. TEST CONDITIONS AND RESULTS

### 4.1. AC Power Conducted Emission

#### TEST CONFIGURATION



#### TEST PROCEDURE

- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. 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 C63.10.
- 2, Support equipment, if needed, was placed as per ANSI C63.10.
- 3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4, The EUT received DC 12V power, the adapter received AC120V/60Hz or AC 240V/50Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5, All support equipments received AC power from a second LISN, if any.
- 6, 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.
- 7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

#### AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following :

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

\* Decreases with the logarithm of the frequency.

#### DISTURBANCE Calculation

The AC mains conducted disturbance is calculated by adding the 10dB Pulse Limiter and Cable Factor and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$CD \text{ (dBuV)} = RA \text{ (dBuV)} + PL \text{ (dB)} + CL \text{ (dB)}$$

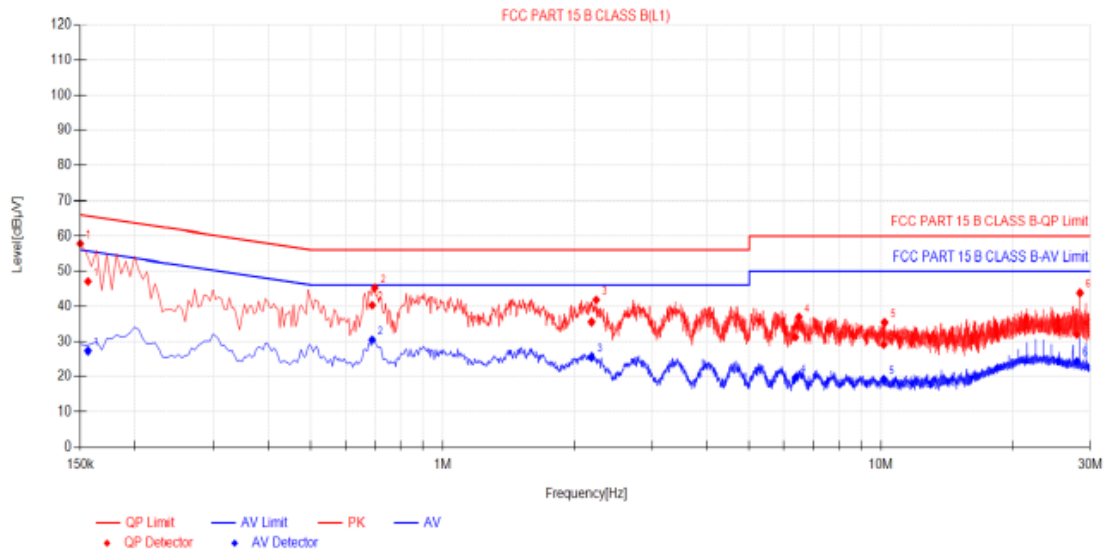
Where CD = Conducted Disturbance	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	PL = 10 dB Pulse Limiter Factor

**TEST RESULTS**

1. Both 120 VAC, 60 Hz and 240 VAC, 50 Hz power supply have been tested, only the worst result of 120 VAC, 60 Hz was reported as below:

Temperature	25°C	Humidity	60%
Test Engineer	Lushan Kong	Configurations	WPT

Power supply:	AC 120V/60Hz	Polarization	L
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**Test Graph****Final Data List**

NO.	Freq. [MHz]	Factor [dB]	QP Reading[dB μV]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.1562	10.50	36.52	47.02	65.66	18.64	16.83	27.33	55.66	28.33	PASS
2	0.6896	10.50	29.81	40.31	56.00	15.69	19.95	30.45	46.00	15.55	PASS
3	2.1836	10.50	25.02	35.52	56.00	20.48	14.98	25.48	46.00	20.52	PASS
4	6.3755	10.50	20.69	31.19	60.00	28.81	9.12	19.62	50.00	30.38	PASS
5	10.1392	10.50	18.53	29.03	60.00	30.97	8.73	19.23	50.00	30.77	PASS
6	27.9868	10.50	21.51	32.01	60.00	27.99	13.93	24.43	50.00	25.57	PASS

Note:1).QP Value (dBμV)= QP Reading (dBμV)+ Factor (dB)

2). Factor (dB)=insertion loss of LISN (dB) + Cable loss (dB)

3). QPMargin(dB) = QP Limit (dBμV) - QP Value (dBμV)

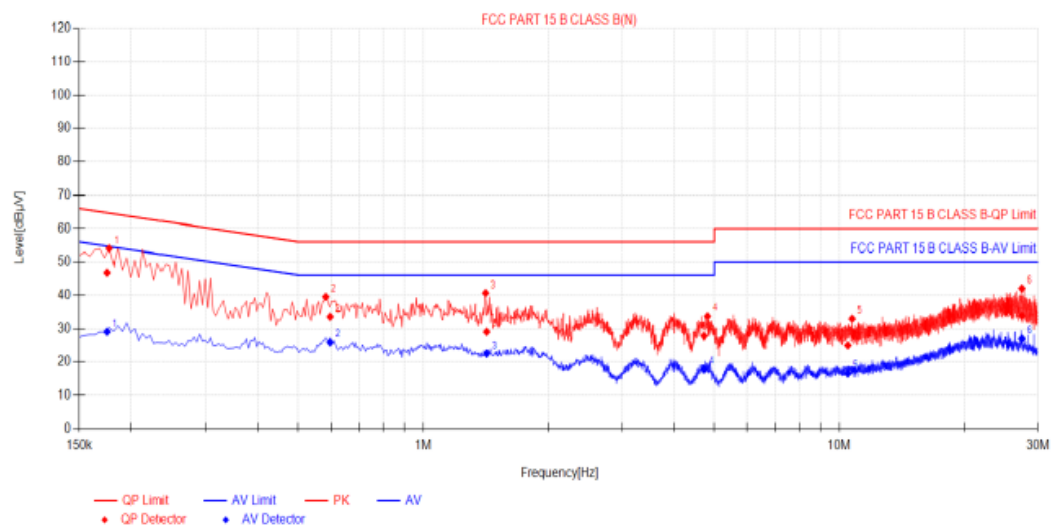
4). AVMargin(dB) = AV Limit (dBμV) - AV Value (dBμV)

Power supply:

AC 120V/60Hz

Polarization

N

**Test Graph****Final Data List**

NO.	Freq. [MHz]	Factor [dB]	QP Reading[dB μV]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.1750	10.50	36.21	46.71	64.72	18.01	18.52	29.02	54.72	25.70	PASS
2	0.5963	10.50	23.12	33.62	56.00	22.38	15.46	25.96	46.00	20.04	PASS
3	1.4185	10.50	18.53	29.03	56.00	26.97	12.03	22.53	46.00	23.47	PASS
4	4.7264	10.50	17.28	27.78	56.00	28.22	7.33	17.83	46.00	28.17	PASS
5	10.4740	10.50	14.56	25.06	60.00	34.94	6.13	16.63	50.00	33.37	PASS
6	27.4615	10.50	23.39	33.89	60.00	26.11	16.48	26.98	50.00	23.02	PASS

Note:1). QP Value (dBμV) = QP Reading (dBμV) + Factor (dB)

2). Factor (dB) = insertion loss of LISN (dB) + Cable loss (dB)

3). QPMargin(dB) = QP Limit (dBμV) - QP Value (dBμV)

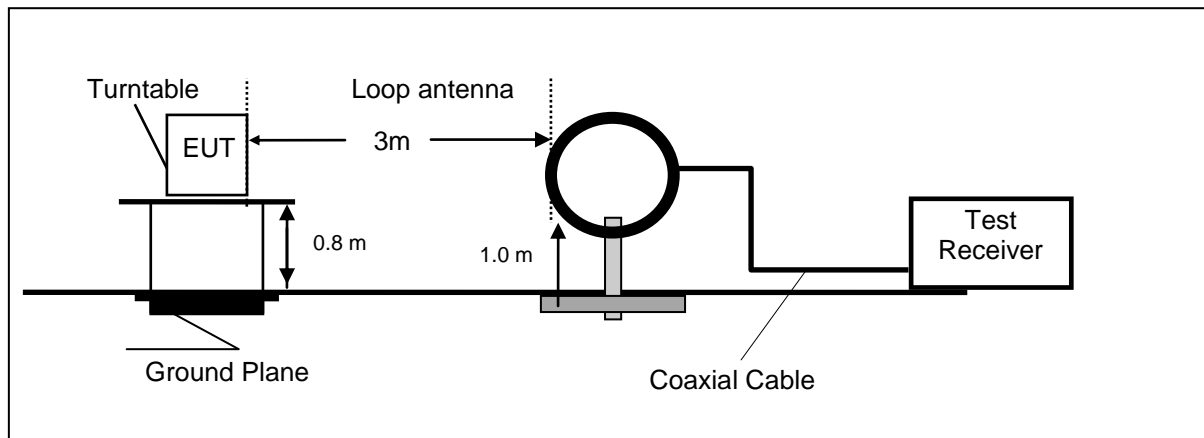
4). AVMargin(dB) = AV Limit (dBμV) - AV Value (dBμV)

Note: All the modes have been tested and recorded worst mode in the report.

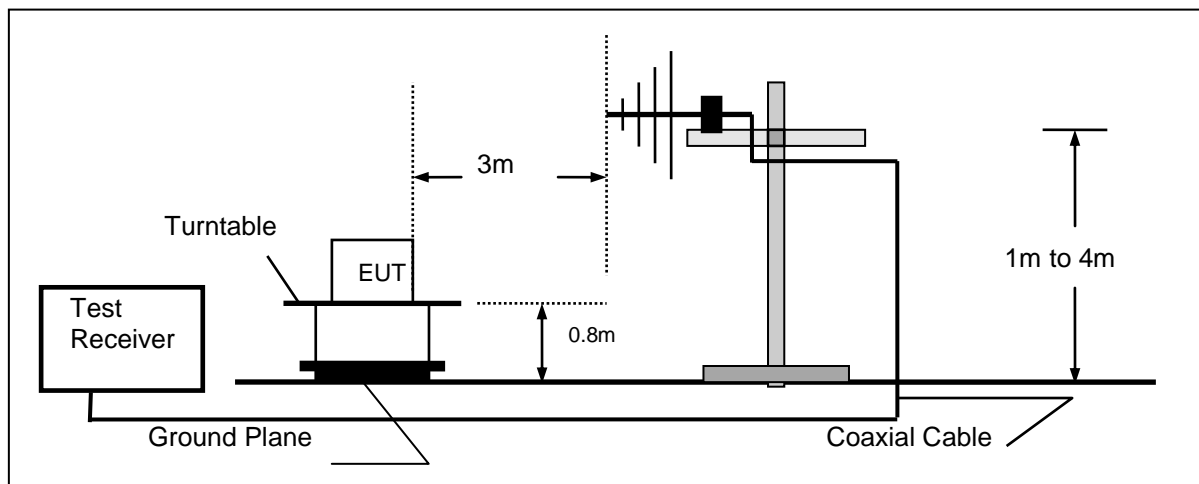
## 4.2. Radiated Emission

### TEST CONFIGURATION

Frequency range 9 KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



**TEST PROCEDURE**

- 1.The EUT was placed on a turn table which is 12mm above ground plane when testing frequency range 9 KHz –25GHz.
- 2.Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT.
- 3.And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 4.Repeat above procedures until all frequency measurements have been completed.
- 5.The EUT minimum operation frequency was 32.768KHz and maximum operation frequency was 205KHz.so radiated emission test frequency band from 9KHz to 1GHz.
- 6.The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Ultra-Broadband Antenna	3
1GHz-18GHz	Double Ridged Horn Antenna	3
18GHz-25GHz	Horn Antenna	1

- 7.Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

**Field Strength Calculation**

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

$$\text{Transd}=AF +CL-AG$$

**RADIATION LIMIT**

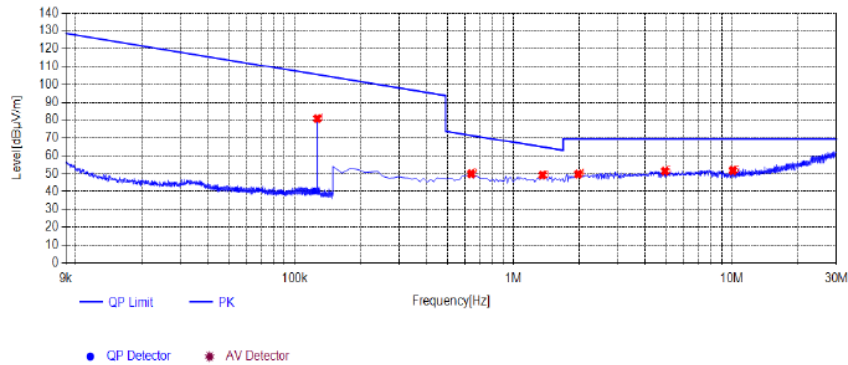
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power.

The pre-test have done for the EUT in three axes and found the worst emission at position shown in test setup photos.

Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30)+40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

**TEST RESULTS**

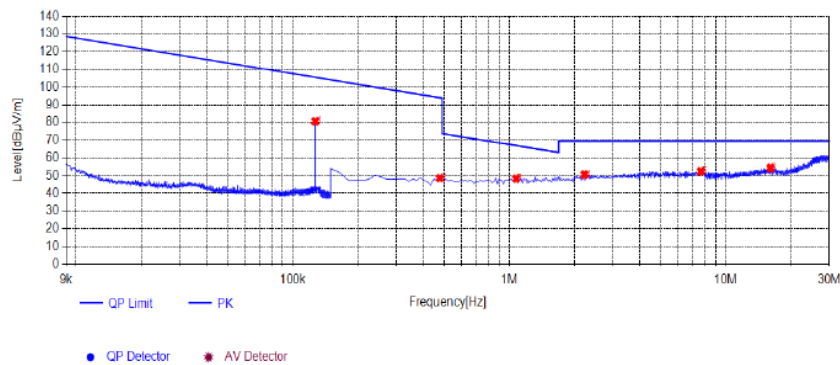
Temperature	25°C	Humidity	58%
Test Engineer	Lushan Kong	Configurations	WPT

**For 9 KHz-30MHz****Coplanar****Test Graph****Suspected List**

NO.	Frequency [MHz]	Reading [dBμV/m]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	0.127	80.48	0.34	80.82	105.53	24.71	100	249	PK	Coplanar	PASS
2	0.6425	49.34	0.67	50.01	71.45	21.44	100	131	PK	Coplanar	PASS
3	1.3589	48.16	1.09	49.25	64.94	15.69	100	268	PK	Coplanar	PASS
4	1.9858	48.37	1.47	49.84	69.54	19.70	100	59	PK	Coplanar	PASS
5	4.9409	48.24	3.23	51.47	69.54	18.07	100	59	PK	Coplanar	PASS
6	10.105	45.64	6.20	51.84	69.54	17.70	100	245	PK	Coplanar	PASS

Note: 1. Result (dBμV/m) = Reading(dBμV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

**Coaxial****Test Graph****Suspected List**

NO.	Frequency [MHz]	Reading [dBμV/m]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	0.1271	80.28	0.34	80.62	105.52	24.90	100	282	PK	Coaxial	PASS
2	0.4784	48.00	0.58	48.58	94.01	45.43	100	219	PK	Coaxial	PASS
3	1.0754	47.37	0.93	48.30	66.97	18.67	100	95	PK	Coaxial	PASS
4	2.2246	49.04	1.61	50.65	69.54	18.89	100	308	PK	Coaxial	PASS
5	7.6722	47.64	4.79	52.43	69.54	17.11	100	143	PK	Coaxial	PASS
6	16.0899	44.70	9.63	54.33	69.54	15.21	100	53	PK	Coaxial	PASS

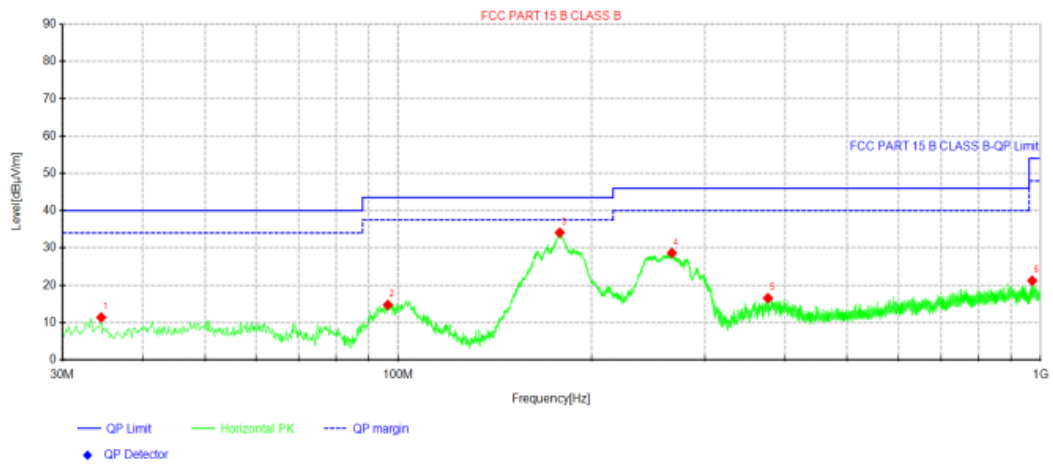
Note: 1. Result (dBμV/m) = Reading(dBμV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

For 30MHz-1GHz

## Horizontal

## Test Graph



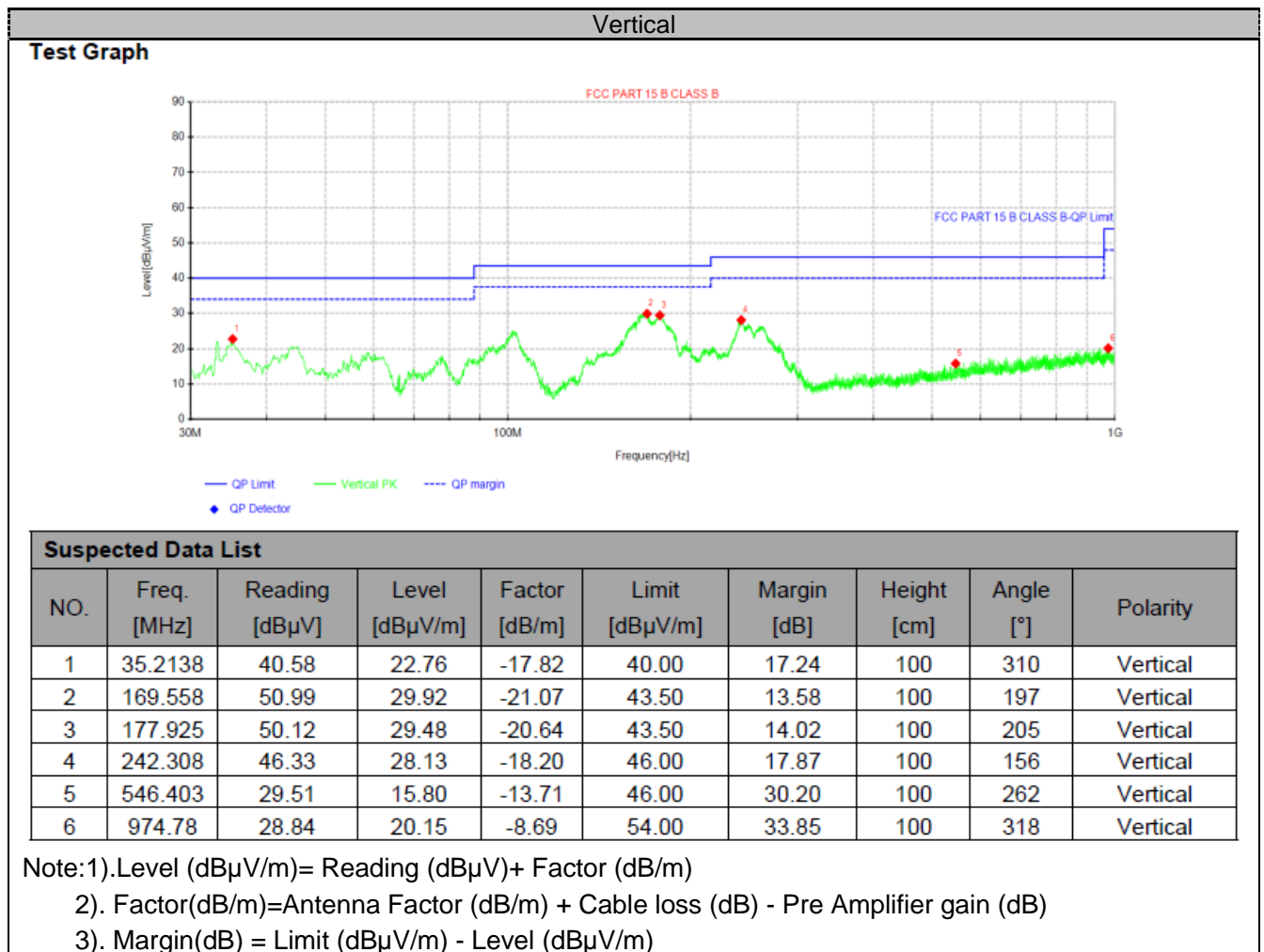
## Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.4862	29.32	11.38	-17.94	40.00	28.62	100	213	Horizontal
2	96.3238	33.67	14.73	-18.94	43.50	28.77	100	172	Horizontal
3	178.41	54.74	34.12	-20.62	43.50	9.38	100	311	Horizontal
4	266.68	46.38	28.67	-17.71	46.00	17.33	100	18	Horizontal
5	376.29	32.33	16.54	-15.79	46.00	29.46	100	359	Horizontal
6	970.415	29.97	21.22	-8.75	54.00	32.78	100	360	Horizontal

Note:1). Level (dBμV/m)= Reading (dBμV)+ Factor (dB/m)

2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBμV/m) - Level (dBμV/m)

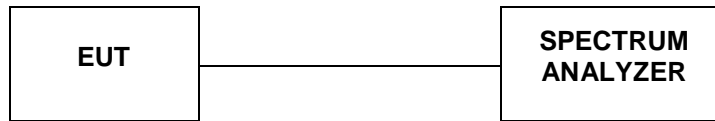


Note: All the modes have been tested and recorded worst mode in the report.



### 4.3. Occupied Bandwidth

#### TEST CONFIGURATION



#### TEST PROCEDURE

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 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip compliance with the 20dB attenuation specification may base on measurement at the intentional radiator's antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be demonstrated by measuring the radiated emissions.

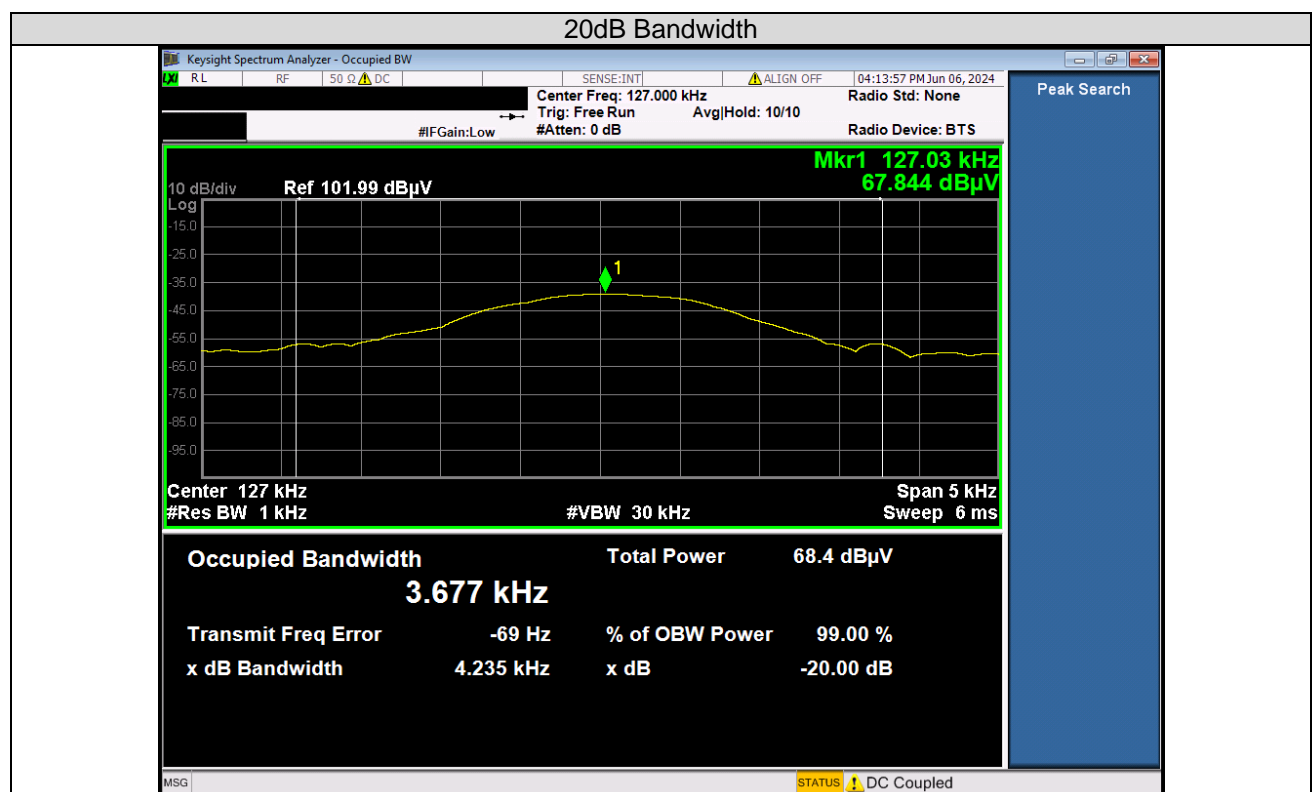
#### LIMIT

/

#### TEST RESULTS

Temperature	24.5°C	Humidity	53.9%
Test Engineer	Lushan Kong	Configurations	WPT

Mode	Freq (KHz)	20dB Bandwidth (KHz)	Limit (kHz)	Conclusion
Tx Mode	127.00KHz	4.235	/	PASS



#### **4.4. Antenna Requirement**

##### **Standard Applicable**

##### **Standard Applicable**

For intentional device, according to FCC 47 CFR Section 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.

##### **Antenna Information**

The antenna used in this product is a Coil Antenna, The directional gains of antenna used for transmitting is 0dBi.

Reference to the **Internal photos**.

## 5. Test Setup Photos of the EUT

Photo of Radiated Emissions Measurement



Fig. 1



Fig. 2

Photo of Conducted Emissions Measurement



Fig. 3

## 6. External and Internal Photos of the EUT



Fig. 1



Fig. 2





Fig. 3



Fig. 4



Fig. 5



Fig. 6



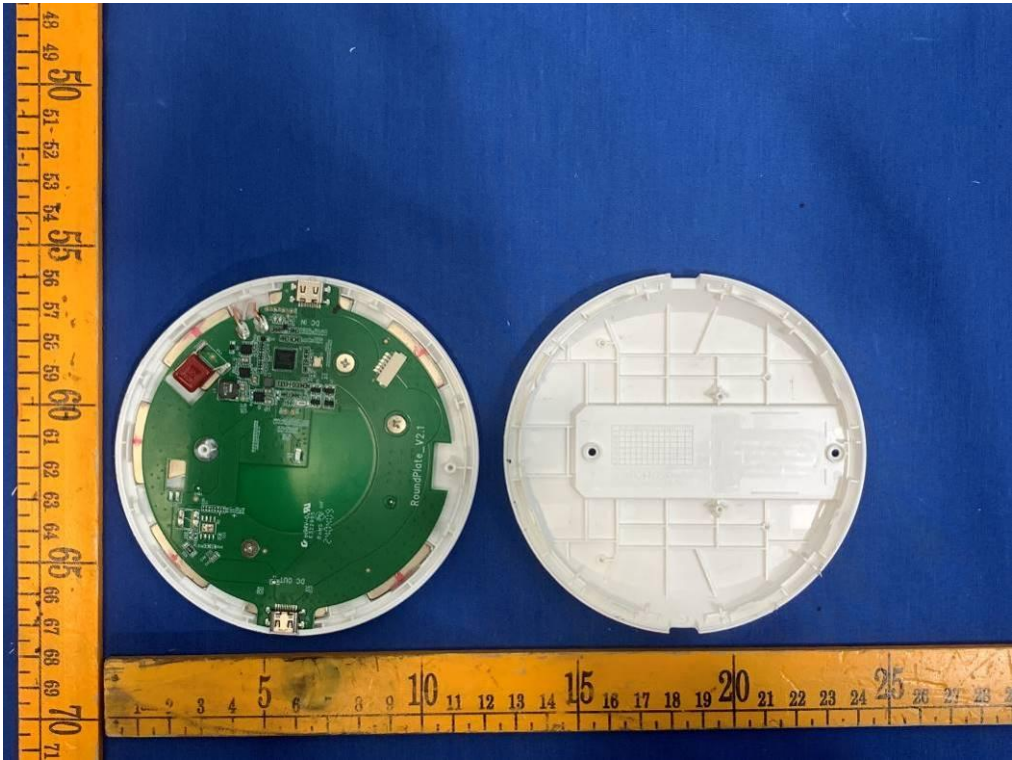


Fig. 7

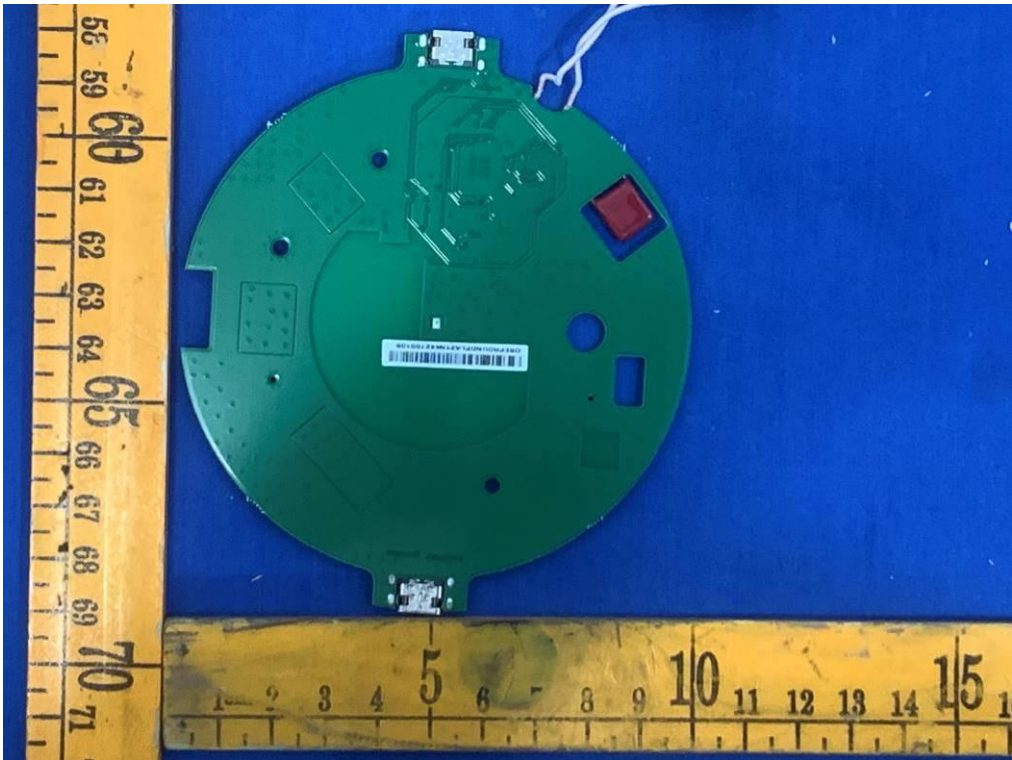


Fig. 8



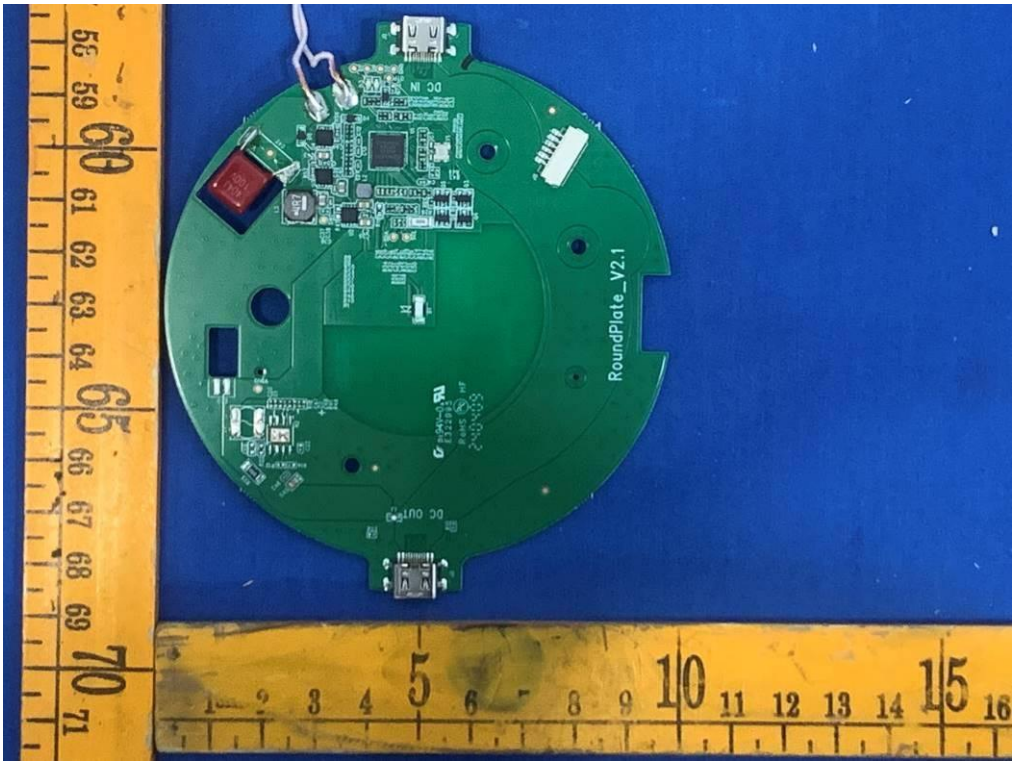


Fig. 9



Fig. 10

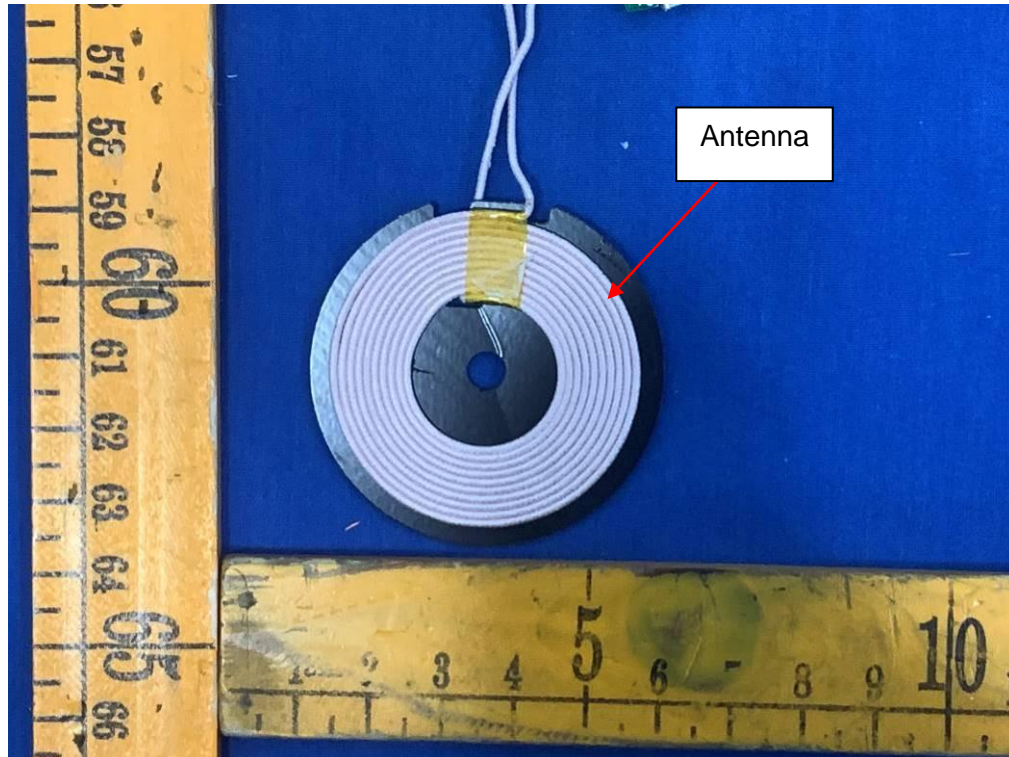


Fig. 11

.....End of Report.....