



Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104,Building 7 and 8,DCC Cultural and Creative Garden No.98,Pingxin North Road,Shangmugu,Pinghu Street, Longgang District,Shenzhen,Guangdong,China

TEST REPORT

FCC Rules and Regulations Part 15 Subpart C (Section 15.209), ANSI C63.10: 2013

Report Reference No.....: **GTS20190306001-1-1-1**

FCC ID.....: 2ARPF-T144

Compiled by

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Date of issue.....: Mar.27, 2019

Representative Laboratory Name ..: Shenzhen Global Test Service Co.,Ltd.

Address.....: No.7-101 and 8A-104,Building 7 and 8,DCC Cultural and Creative Garden No.98,Pingxin North Road,Shangmugu,Pinghu Street,Longgang District,Shenzhen,Guangdong,China

Applicant's name.....: UNIVERSAL THROUGH(HK) LIMITED

Address: Room 1405C,14/F,Lucky centre,165-171,Wanchai Road,Wanchai, Hongkong,China

Test specification

Standard: FCC Rules and Regulations Part 15 Subpart C (Section 15.209),
ANSI C63.10: 2013

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Test item description Wireless car charger holder

Trade Mark: /

Manufacturer: **SHENZHEN UNIEVERSAL THROUGH TECHNOLOGY CO.LTD**

Model/Type reference.....: T144

List Model: /

Modulation Type: ASK

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

Ratings: Input voltage: DC5V/9V From Adapter
Output voltage: DC5V

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

TEST REPORT

Test Report No. :	GTS20190306001-1-1-1	Mar.27, 2019
		Date of issue

Equipment under Test : Wireless car charger holder

Model /Type : T144

Listed Models : /

Applicant : **SHENZHEN UNIEVERSAL THROUGH TECHNOLOGY CO.LTD**

Address : 2F,B,Block,No.,8,Longcun,Chaungye,Road,Dakang,Community,
Henggang Street,Longgang District Shenzhen,China.

Manufacturer **SHENZHEN UNIEVERSAL THROUGH TECHNOLOGY CO.LTD**

Address : 4th,Floor,Dong shan Gang industrial area,Gusu one road,Xi'xiang
town,Bao'an district,SZ

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: 2013](#): American National Standard for Testing Unlicensed Wireless Devices

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Mar.15, 2019
Testing commenced on	:	Mar.15, 2019
Testing concluded on	:	Mar.27, 2019

2.2. Product Description

Product Name:	Wireless car charger holder
Trade Mark:	/
Model/Type reference:	T144
List Model:	/
Power supply:	Input voltage: DC5V/9V From adapter Output voltage: DC5V
Adapter information(Auxiliary test):	Mode:EP-TA20CBC Input:AC100-240V-50/60Hz, 0.5A Output:DC 5V,2A/9V/2A
Antenna Type	Coil Antenna
Antenna Gain	0.0dBi
Operation frequency	110-205KHz
Modulation Type	CW (Continuous Wave)

2.3. Equipment Under Test

Power supply system utilised

Power supply voltage	:	☐ 230V / 50 Hz	☐ 120V / 60Hz
		☐ 12 V DC	☐ 24 V DC
		☒ Other (specified in blank below)	

DC 5.0V/9.0V From Adapter

Description of the test mode

Operation Frequency each of channel	
Channel	Frequency
1	125KHz

Operating Mode

The mode is used: Transmitting mode

2.4. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104,Building 7 and 8,DCC Cultural and Creative Garden No.98,Pingxin North Road,Shangmugu,Pinghu Street,Longgang District,Shenzhen,Guangdong,China

3.2. Test Description

DESCRIPTION OF TEST	RESULT
CONDUCTED EMISSIONS TEST	COMPLIANT
RADIATED EMISSION TEST	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	COMPLIANT
ANTENNA REQUIREMENT	COMPLIANT

3.3. 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

3.4. Equipments Used during the Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	R&S	ESCI	103710	2018/06/02	2019/06/01
2	Signal Generator	Agilent	N5182A	MY47420864	2018/05/21	2019/05/20
3	Signal Generator	Agilent	E4421B	US40051744	2018/05/21	2019/05/20
4	Data acquisition card	Agilent	U2021XA	MY5365004	2018/05/21	2019/05/20
5	Power Sensor	Agilent	U2531A	TW53323507	2018/05/21	2019/05/20
6	Climate Chamber	ESPEC	EL-10KA	A20120523	2018/05/20	2019/05/19

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	ULTRA-ROADBAND ANTENNA	Sunol Sciences Corp.	JB1	A061713	2018/06/02	2019/06/01
2	Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2018/05/19	2019/05/18
3	EMI Test Receiver	R&S	ESCI	103710	2018/06/02	2019/06/01
4	Controller	EM Electronics	Controller EM 1000	N/A	2018/05/21	2019/05/20
5	Amplifier	Agilent	8349B	3008A02306	2018/05/19	2019/05/18
6	Amplifier	Agilent	8447D	2944A10176	2018/05/19	2019/05/18

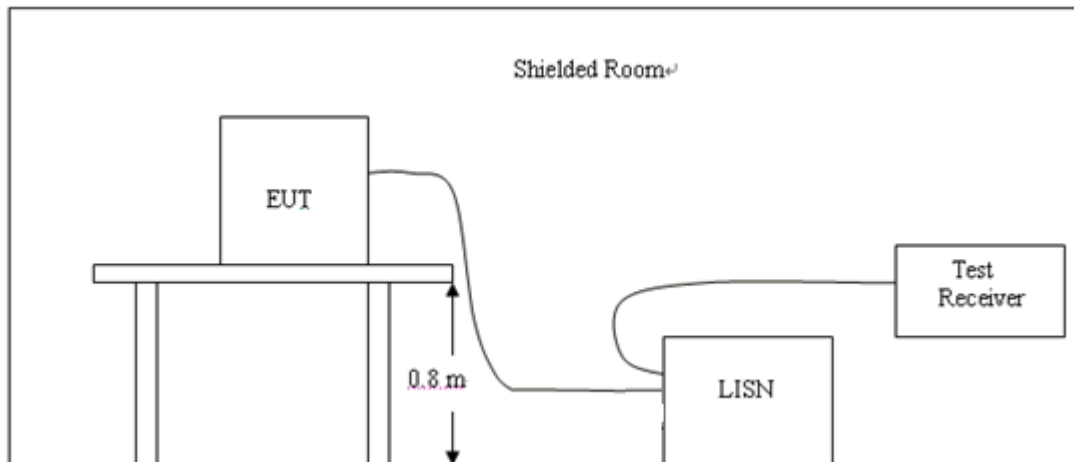
7	Temperature/Humidity Meter	Gangxing	CTH-608	02	2018/05/20	2019/05/19
8	High-Pass Filter	K&L	9SH10-2700/X127 50-O/O	N/A	2018/05/20	2019/05/19
9	High-Pass Filter	K&L	41H10-1375/U127 50-O/O	N/A	2018/05/20	2019/05/19
10	RF Cable	HUBER+SUHNER	RG214	N/A	2018/05/20	2019/05/19
11	Loop antenna	Beijing Da Ze Technology Co., Ltd.	ZN30900C	15006	2018/05/20	2019/05/19

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, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received 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.

TEST RESULTS

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

Power supply:

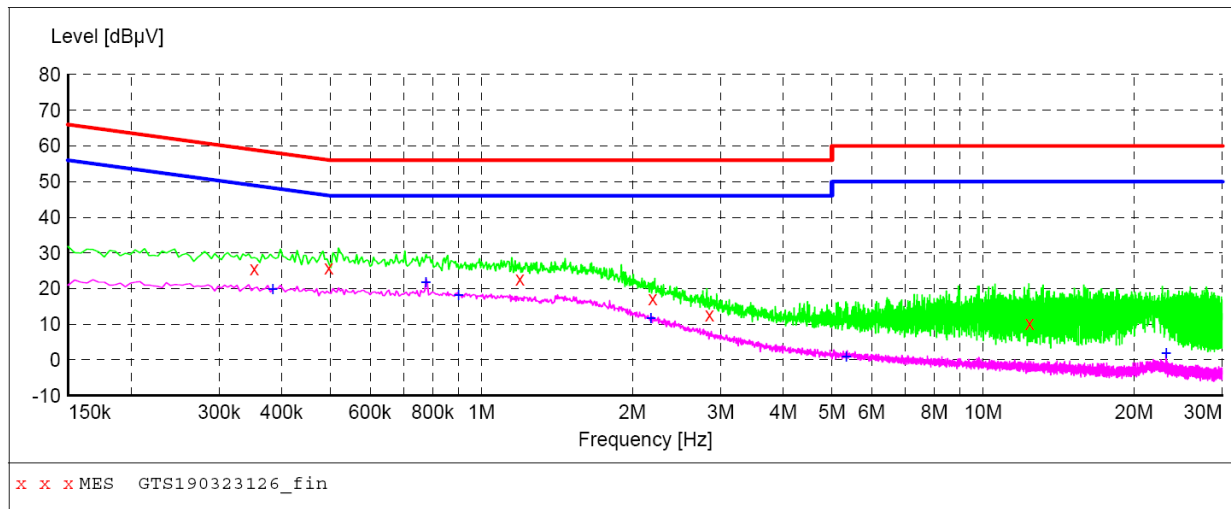
DC 5V from Adapter
AC 120V/60Hz

Polarization

L

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "GTS190323126_fin"**

3/23/2019 9:50AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.352500	25.60	9.9	59	33.3	QP	L1	GND
0.496500	25.90	9.8	56	30.2	QP	L1	GND
1.194000	22.70	9.6	56	33.3	QP	L1	GND
2.197500	17.20	9.5	56	38.8	QP	L1	GND
2.850000	12.70	9.5	56	43.3	QP	L1	GND
12.385500	10.20	8.5	60	49.8	QP	L1	GND

MEASUREMENT RESULT: "GTS190323126_fin2"

3/23/2019 9:50AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.384000	19.80	9.8	48	28.4	AV	L1	GND
0.775500	21.90	9.7	46	24.1	AV	L1	GND
0.901500	18.10	9.6	46	27.9	AV	L1	GND
2.179500	11.80	9.5	46	34.2	AV	L1	GND
5.343000	0.90	9.3	50	49.1	AV	L1	GND
23.199000	1.80	7.0	50	48.2	AV	L1	GND

Power supply:

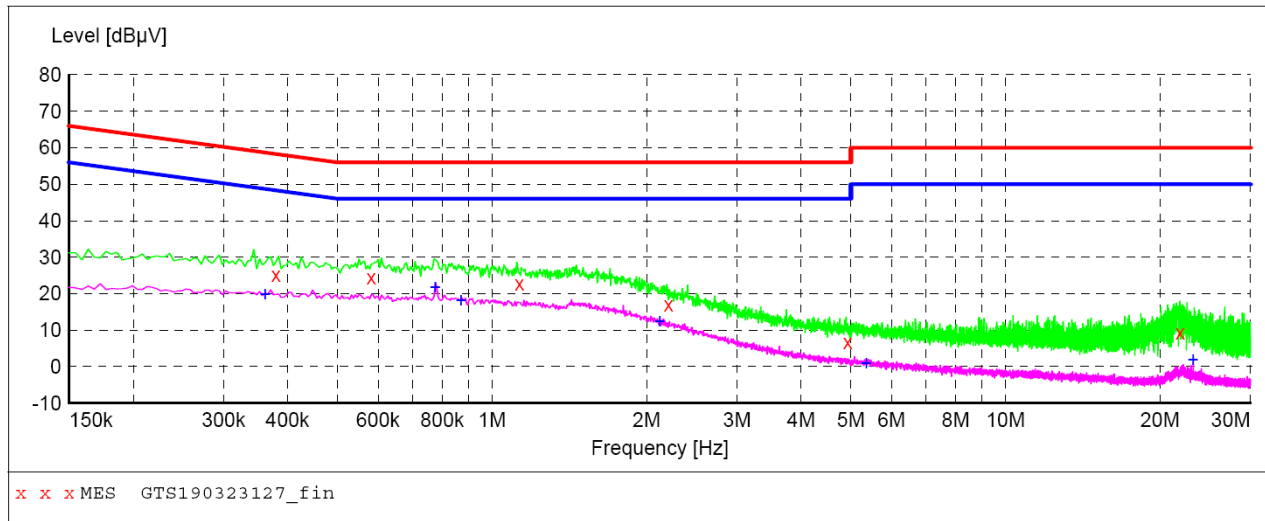
DC 5V from Adapter
AC 120V/60Hz

Polarization

N

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "GTS190323127_fin"**

3/23/2019 9:53AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.379500	25.20	9.8	58	33.1	QP	N	GND
0.582000	24.30	9.7	56	31.7	QP	N	GND
1.131000	22.70	9.6	56	33.3	QP	N	GND
2.206500	17.00	9.5	56	39.0	QP	N	GND
4.929000	6.70	9.3	56	49.3	QP	N	GND
21.889500	9.20	7.0	60	50.8	QP	N	GND

MEASUREMENT RESULT: "GTS190323127_fin2"

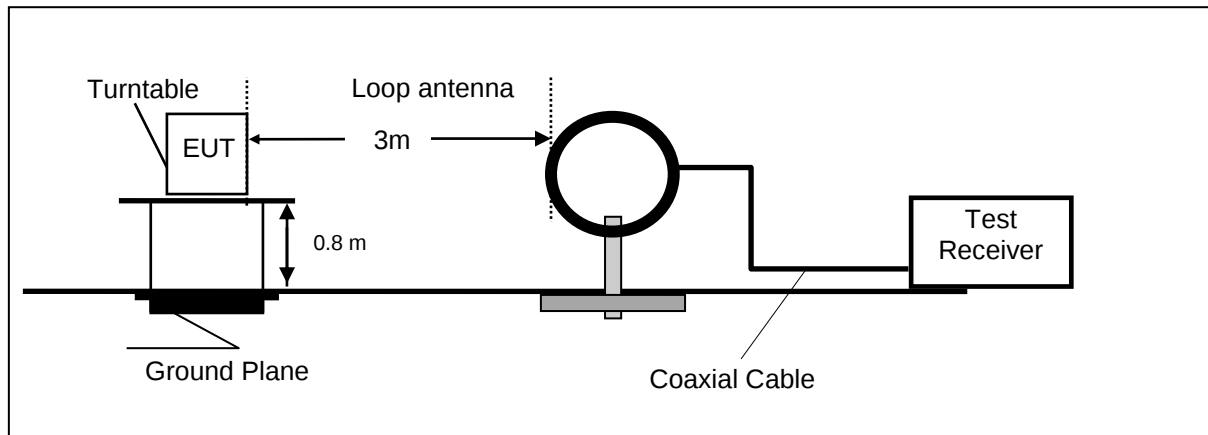
3/23/2019 9:53AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.361500	19.90	9.9	49	28.8	AV	N	GND
0.775500	21.90	9.7	46	24.1	AV	N	GND
0.870000	18.20	9.6	46	27.8	AV	N	GND
2.121000	12.30	9.5	46	33.7	AV	N	GND
5.361000	0.90	9.3	50	49.1	AV	N	GND
23.199000	1.80	7.0	50	48.2	AV	N	GND

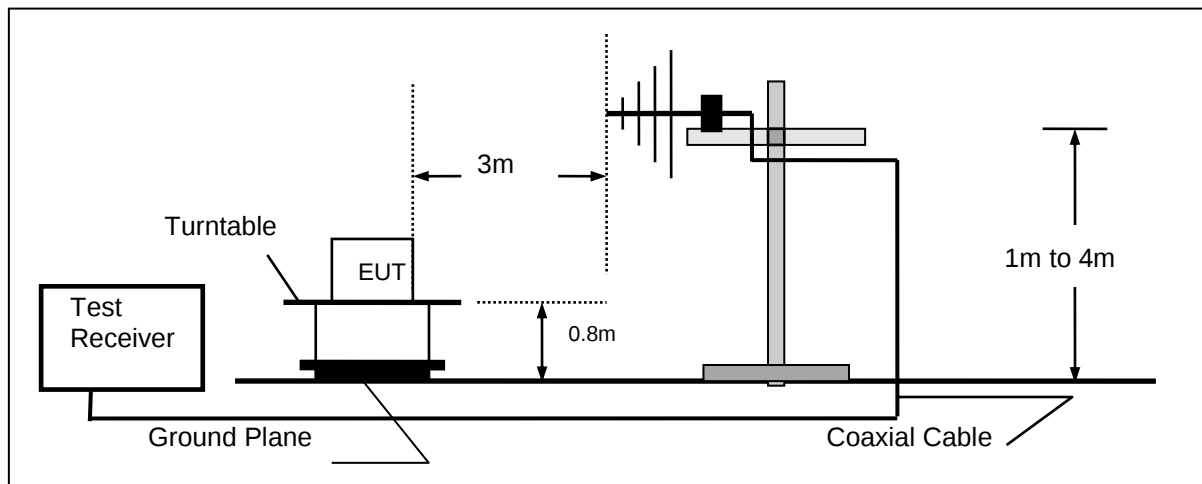
4.2. Radiated Emission

TEST CONFIGURATION

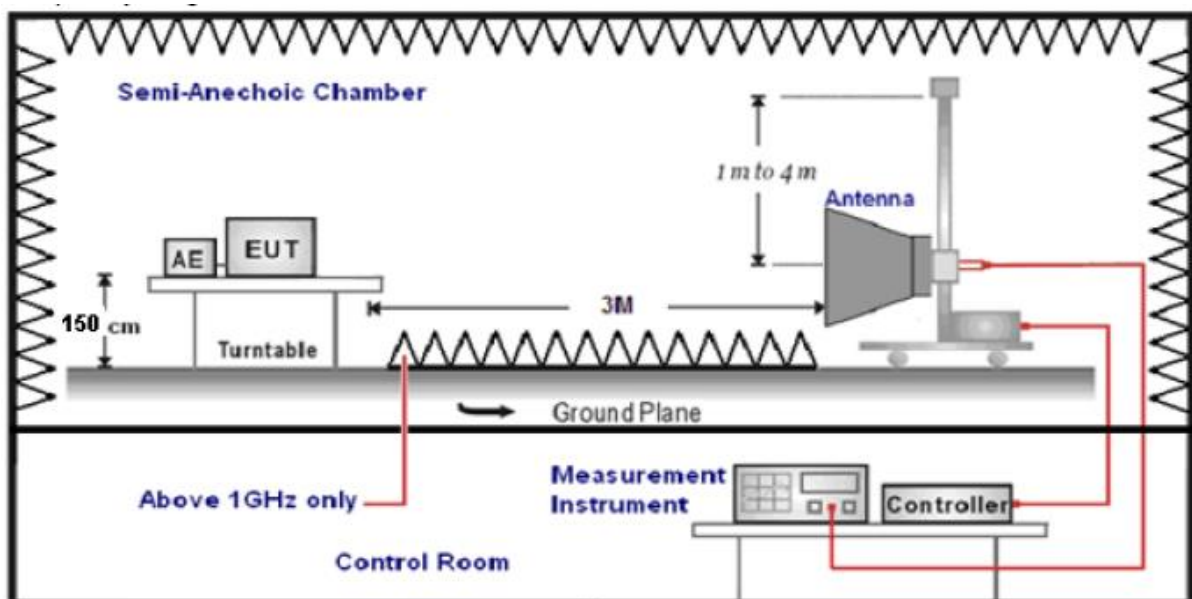
Frequency range 9 KHz – 30MHz



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°C to 360°C 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 2480MHz.so radiated emission test frequency band from 9KHz to 25GHz.
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	

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

RADIATION LIMIT

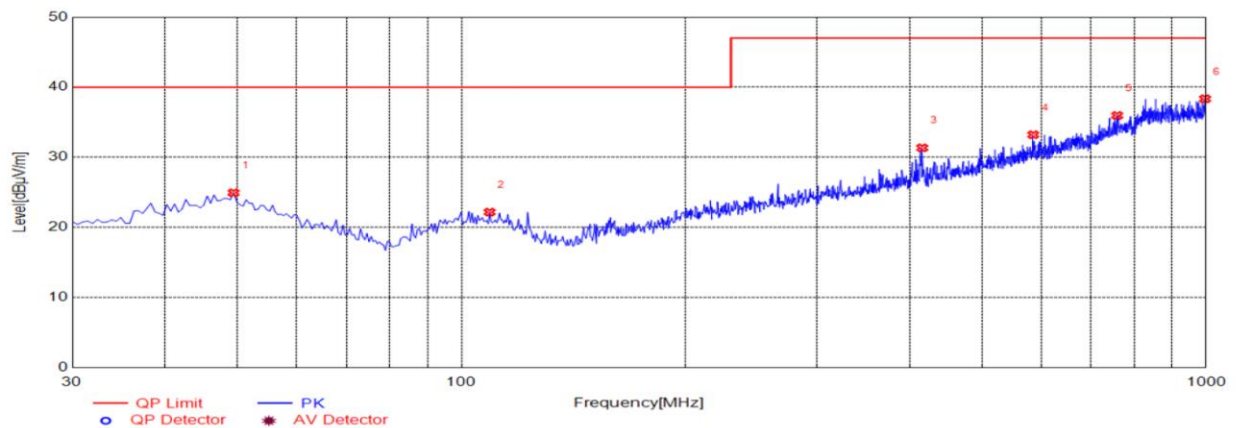
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is 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.

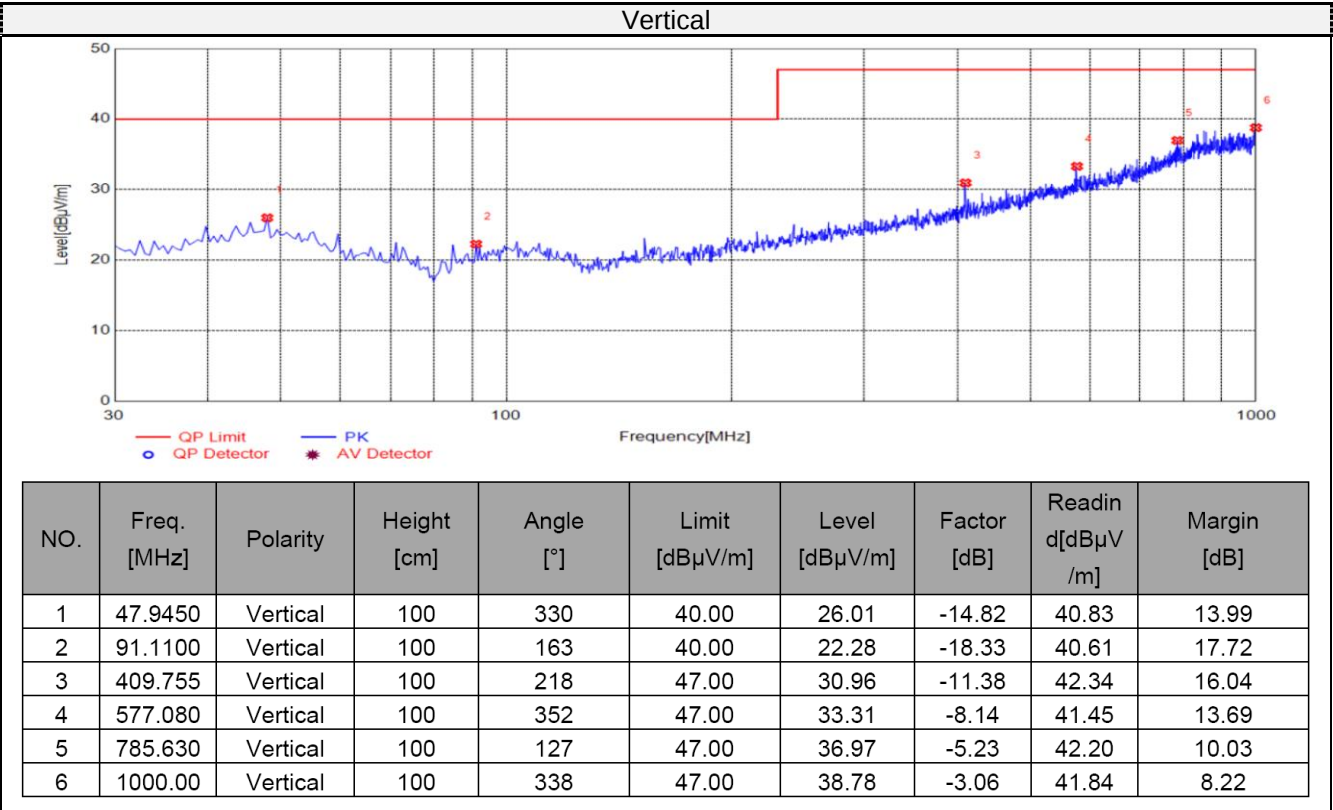
Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz})) + 40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz})) + 40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30) + 40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150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

TEST RESULTS**For 9 KHz-30MHz**

Frequency (MHz)	Corrected Reading (dBuV/m)@3m	FCC Limit (dBuV/m) @3m	Margin (dB)	Detector	Result
0.110	49.59	126.77	77.18	QP	PASS
1.125	70.42	125.67	55.25	QP	PASS
0.486	51.32	113.71	62.39	QP	PASS
0.500	51.37	113.62	62.25	QP	PASS

For 30MHz-1GHz**Horizontal**

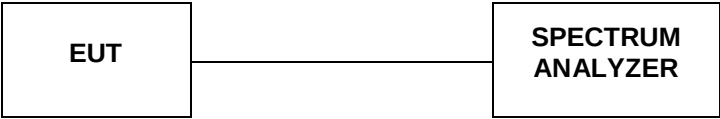
NO.	Freq. [MHz]	Polarity	Height [cm]	Angle [°]	Limit [dBμV/m]	Level [dBμV/m]	Factor [dB]	Readin d[dBμV /m]	Margin [dB]
1	49.4000	Horizontal	100	47	40.00	24.96	-14.84	39.80	15.04
2	109.055	Horizontal	100	264	40.00	22.19	-16.99	39.18	17.81
3	415.575	Horizontal	100	252	47.00	31.36	-11.52	42.88	15.64
4	585.810	Horizontal	100	242	47.00	33.23	-7.94	41.17	13.77
5	759.440	Horizontal	100	71	47.00	35.98	-5.51	41.49	11.02
6	996.605	Horizontal	100	127	47.00	38.35	-3.20	41.55	8.65



NO.	Freq. [MHz]	Polarity	Height [cm]	Angle [°]	Limit [dBμV/m]	Level [dBμV/m]	Factor [dB]	Readin d[dBμV /m]	Margin [dB]
1	47.9450	Vertical	100	330	40.00	26.01	-14.82	40.83	13.99
2	91.1100	Vertical	100	163	40.00	22.28	-18.33	40.61	17.72
3	409.755	Vertical	100	218	47.00	30.96	-11.38	42.34	16.04
4	577.080	Vertical	100	352	47.00	33.31	-8.14	41.45	13.69
5	785.630	Vertical	100	127	47.00	36.97	-5.23	42.20	10.03
6	1000.00	Vertical	100	338	47.00	38.78	-3.06	41.84	8.22

4.3. Occupied Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

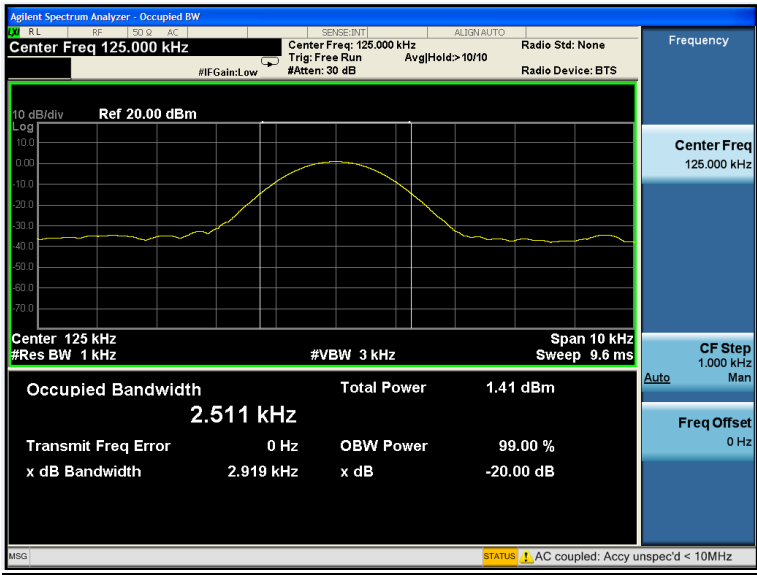
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule 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

Mode	Freq (KHz)	20dB Bandwidth (KHz)	Limit (kHz)	Conclusion
Tx Mode	125	2.919	/	PASS



4.4. Antenna Requirement

Standard Applicable

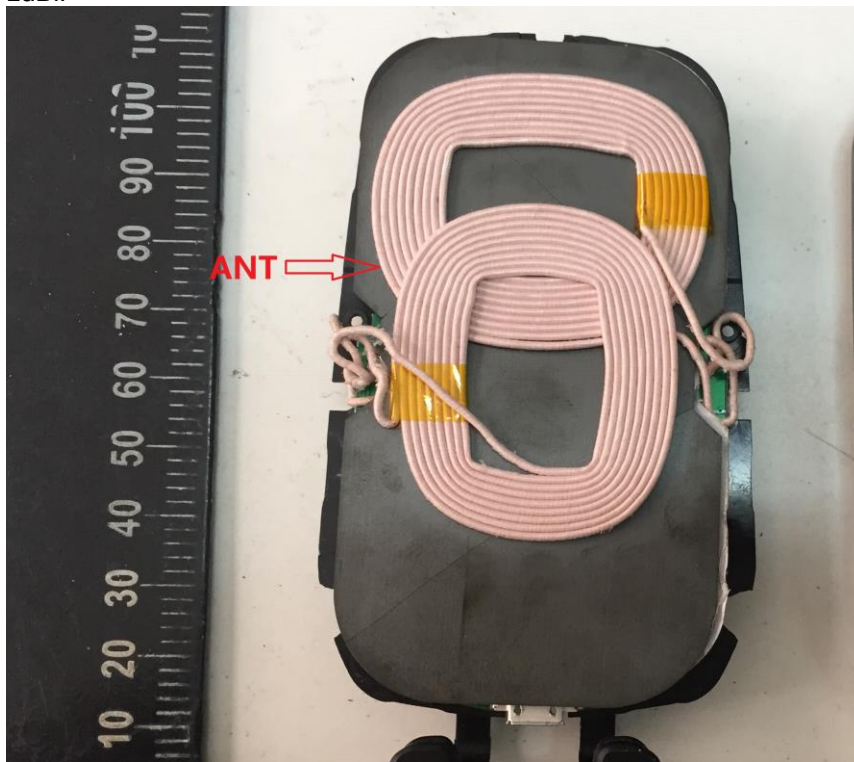
Standard Applicable

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.

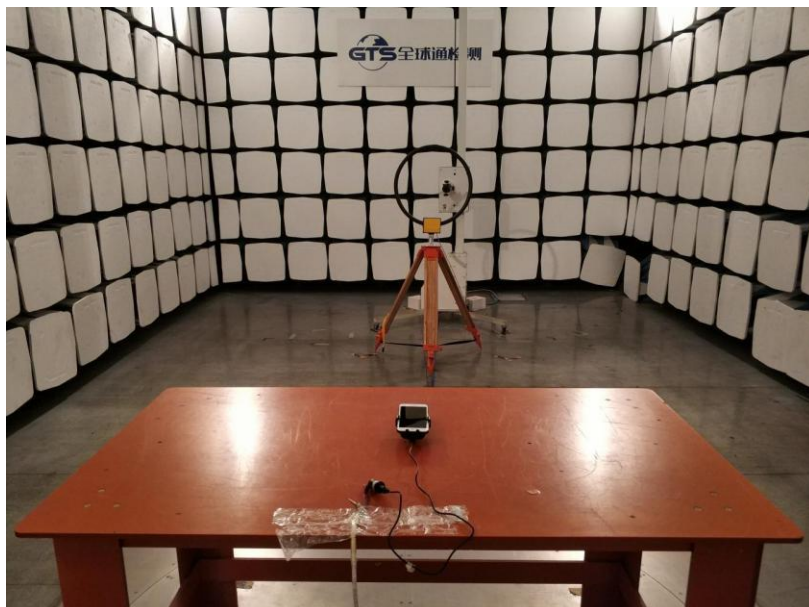
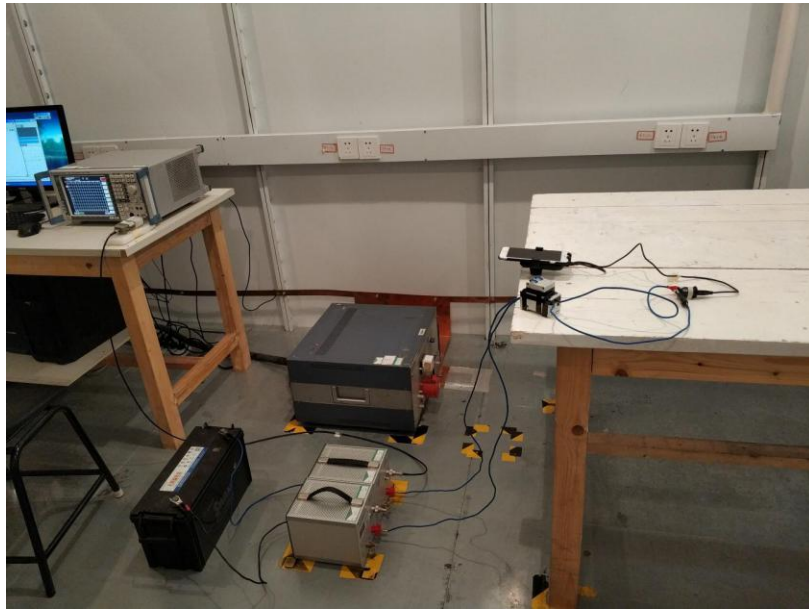
And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Antenna Information

The antenna used in this product is a Coil Antenna, The directional gains of antenna used for transmitting is 1dBi.



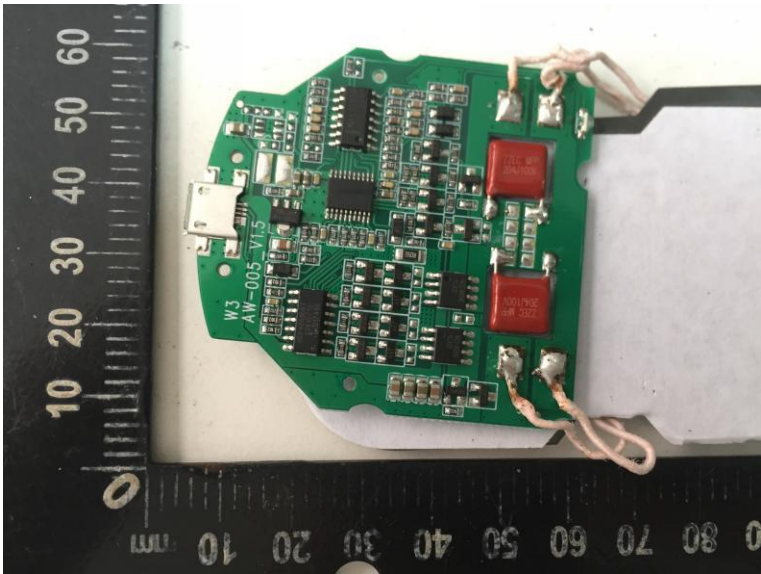
5. Test Setup Photos of the EUT

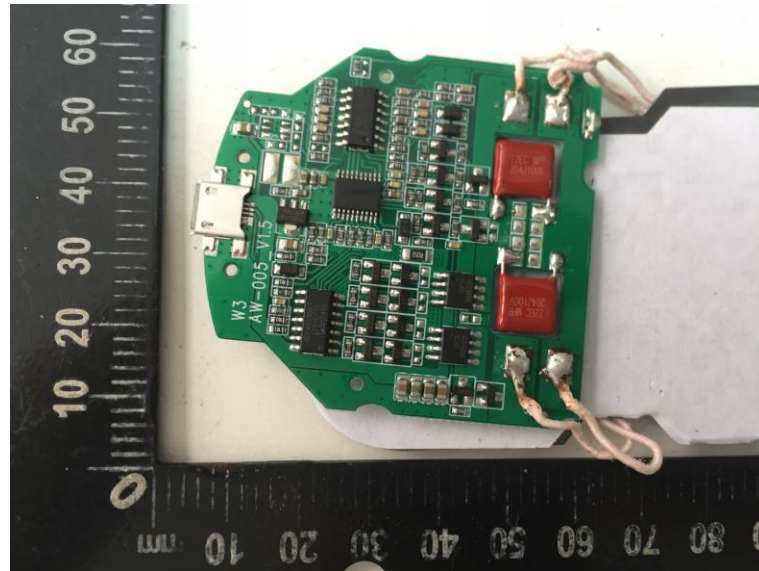


6. External and Internal Photos of the EUT









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