# FCC TEST REPORT

**Test report**
**On Behalf of**
**Amaztec Co., Ltd**
**For**
**Wireless Car Charger**
**Model No.: C30**

**FCC ID: 2AUR2-C30**

| | |
|---|---|
| **Prepared for :** | **Amaztec Co., Ltd**<br>**Building B11, Hengfeng Industrial Park, Zhoushi Road, Bao'an District, Shenzhen 518000, Guangdong, China** |
| **Prepared By :** | **Shenzhen HUAK Testing Technology Co., Ltd.**<br>**1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China** |

| | |
|---|---|
| **Date of Test:** | **Sep. 23, 2019 ~Sep. 29, 2019** |
| **Date of Report:** | **Sep. 29, 2019** |
| **Report Number:** | **1909252424-1E** |

# TEST RESULT CERTIFICATION

| | |
|---|---|
| **Applicant's name** ..... : | Amaztec Co., Ltd |
| Address ..... : | Building B11, Hengfeng Industrial Park, Zhoushi Road, Bao'an District, Shenzhen 518000, Guangdong, China |
| **Manufacture's Name**..... : | Amaztec Co., Ltd |
| Address ..... : | Building B11, Hengfeng Industrial Park, Zhoushi Road, Bao'an District, Shenzhen 518000, Guangdong, China |
| **Product description** | |
| Trade Mark: | N/A |
| Product name ..... : | Wireless Car Charger |
| Model and/or type reference : | C30 |
| **Standards** ..... : | FCC Rules and Regulations Part 15 Subpart C (Section 15.209), ANSI C63.10: 2013 |

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| | |
|---|---|
| **Date of Test** ..... : | |
| Date (s) of performance of tests ..... : | Sep. 23, 2019 ~Sep. 29, 2019 |
| Date of Issue..... : | Sep. 29, 2019 |
| Test Result..... : | **Pass** |

Testing Engineer : Gary Qian

(Gary Qian)

Technical Manager : Eden Hu

(Eden Hu)

Authorized Signatory : Jason Zhou

(Jason Zhou)

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# 1. TEST SUMMARY

## 1.1 TEST PROCEDURES AND RESULTS

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

## 1.2 TEST FACILITY

Test Firm : Shenzhen HUAK Testing Technology Co., Ltd.

Address 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China

## 1.3 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 |

# 2. GENERAL INFORMATION

## 2.1 General Description of EUT

| | |
|---|---|
| Equipment | Wireless Car Charger |
| Model Name | C30 |
| Serial No. | N/A |
| Model Difference | N/A |
| Trade Mark | N/A |
| FCC ID | **2AUR2-C30** |
| Antenna Type | Coil Antenna |
| Antenna Gain | 1dBi |
| BT Operation frequency | 125KHz |
| Number of Channels | 1 |
| Modulation Type | ASK |
| Power Source | DC voltage |
| Power Rating | Input voltage: DC 5V/2A or 9V/1.67A<br>Output voltage: DC5V/1A or 9V/1.2A |

## 2.2. Carrier Frequency of Channels

| Operation Frequency each of channel | |
|---|---|
| Channel | Frequency |
| 1 | 125KHz |

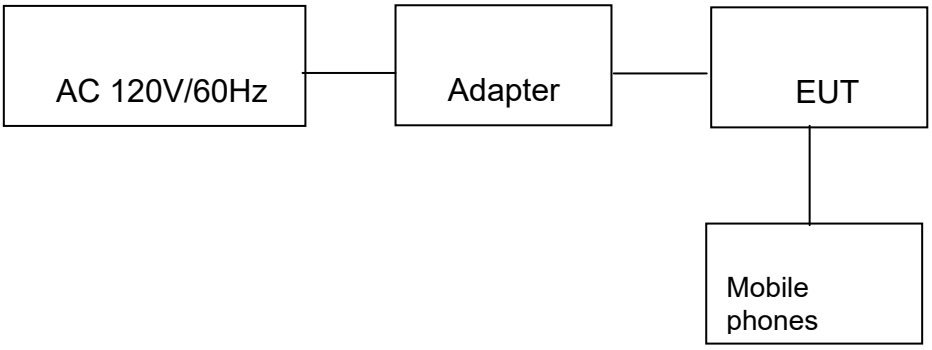
## 2.3 Operation of EUT during testing

Operating Mode

The mode is used: Transmitting mode

## 2.4 Description of Test Setup

Operation of EUT during testing




Setup:Transmission mode

- Adapter information
  Model: EP-TA10CBC
  Input: 110-240V AC, 50/60Hz, 0.35A
  Output: DC5.3V/2.0A

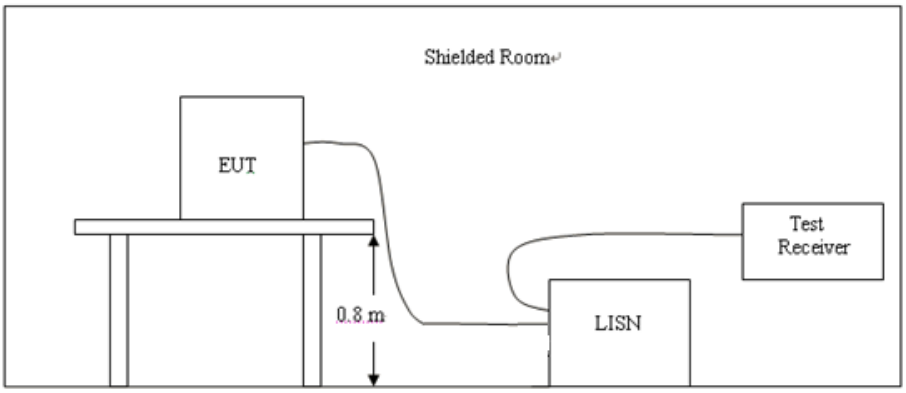
- Mobile phones information
  Model: S6
  Input: 5VDC

## 2.5 Measurement Instruments List

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | L.I.S.N. Artificial Mains Network | R&S | ENV216 | HKE-002 | Dec. 27, 2018 | 1 Year |
| 2. | Receiver | R&S | ESCI 7 | HKE-010 | Dec. 27, 2018 | 1 Year |
| 3. | RF automatic control unit | Tonscend | JS0806-2 | HKE-060 | Dec. 27, 2018 | 1 Year |
| 4. | Spectrum analyzer | R&S | FSP40 | HKE-025 | Dec. 27, 2018 | 1 Year |
| 5. | Spectrum analyzer | Agilent | N9020A | HKE-048 | Dec. 27, 2018 | 1 Year |
| 6. | Preamplifier | Schwarzbeck | BBV 9743 | HKE-006 | Dec. 27, 2018 | 1 Year |
| 7. | EMI Test Receiver | Rohde & Schwarz | ESCI 7 | HKE-010 | Dec. 27, 2018 | 1 Year |
| 8. | Bilog Broadband Antenna | Schwarzbeck | VULB9163 | HKE-012 | Dec. 27, 2018 | 1 Year |
| 9. | Loop Antenna | Schwarzbeck | FMZB 1519 B | HKE-014 | Dec. 27, 2018 | 1 Year |
| 10. | Horn Antenna | Schewarzbeck | 9120D | HKE-013 | Dec. 27, 2018 | 1 Year |
| 11. | Pre-amplifier | EMCI | EMC051845 SE | HKE-015 | Dec. 27, 2018 | 1 Year |
| 12. | Pre-amplifier | Agilent | 83051A | HKE-016 | Dec. 27, 2018 | 1 Year |
| 13. | EMI Test Software EZ-EMC | Tonscend | JS1120-B Version | HKE-083 | Dec. 27, 2018 | N/A |
| 14. | Power Sensor | Agilent | E9300A | HKE-086 | Dec. 27, 2018 | 1 Year |
| 15. | Spectrum analyzer | Agilent | N9020A | HKE-048 | Dec. 27, 2018 | 1 Year |
| 16. | Signal generator | Agilent | N5182A | HKE-029 | Dec. 27, 2018 | 1 Year |
| 17. | Signal Generator | Agilent | 83630A | HKE-028 | Dec. 27, 2018 | 1 Year |
| 18. | Shielded room | Shiel Hong | 4*3*3 | HKE-039 | Dec. 27, 2017 | 3 Year |

# 3. CONDUCTED EMISSION TEST

## 3.1 Block Diagram of Test Setup




## 3.2 Conducted Power Line Emission Limit

According to FCC Part 15.207(a)

| Frequency (MHz) | Maximum RF Line Voltage (dBμV) | | | |
|---|---|---|---|---|
| | CLASS A | | CLASS B | |
| | Q.P. | Ave. | Q.P. | Ave. |
| 0.15 - 0.50 | 79 | 66 | 66-56* | 56-46* |
| 0.50 - 5.00 | 73 | 60 | 56 | 46 |
| 5.00 - 30.0 | 73 | 60 | 60 | 50 |

* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207Line Conducted Emission Limit is same as above table.

## 3.3 Test Procedure

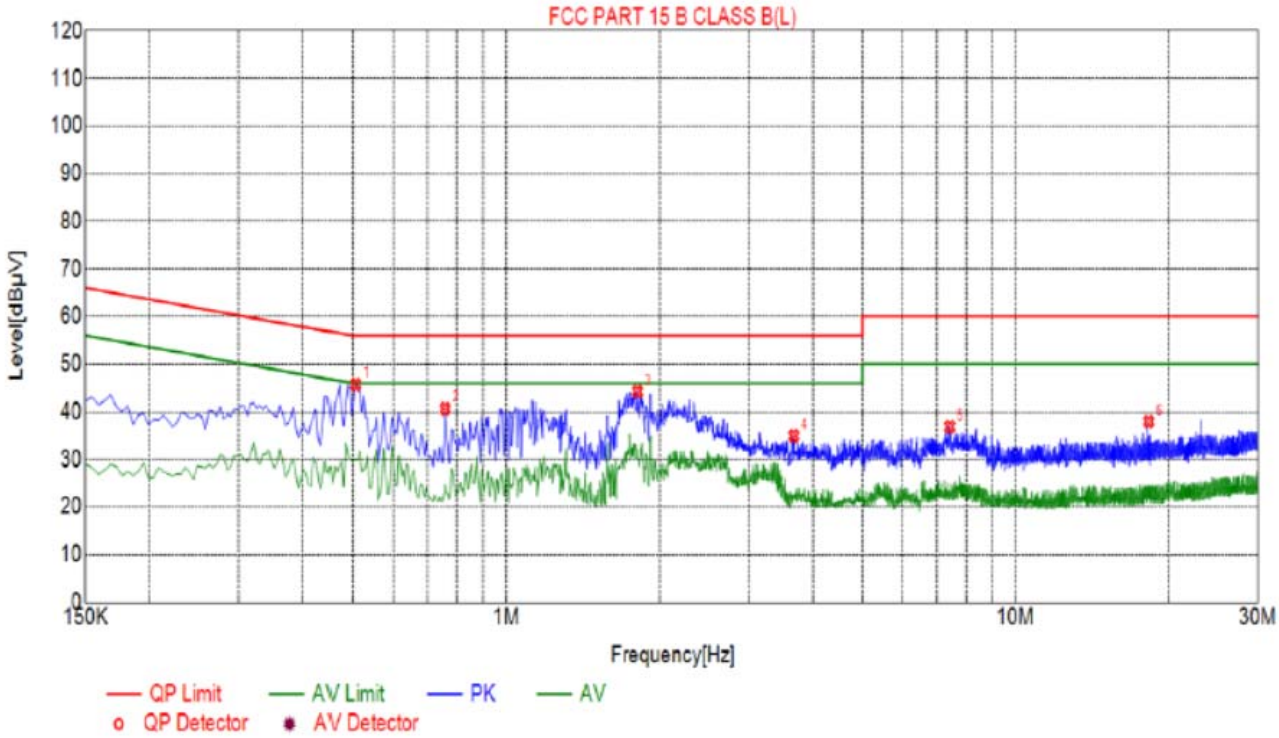
1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2, Support equipment, if needed, was placed as per ANSI 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 AC120V/60Hz 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

## 3.4 Test Result

PASS

**Remark: We tested the voltage in 5VDC and 9VDC, the worst(9VDC) case was recorded. Please refer to following diagram for individual**

Test Specification: Line



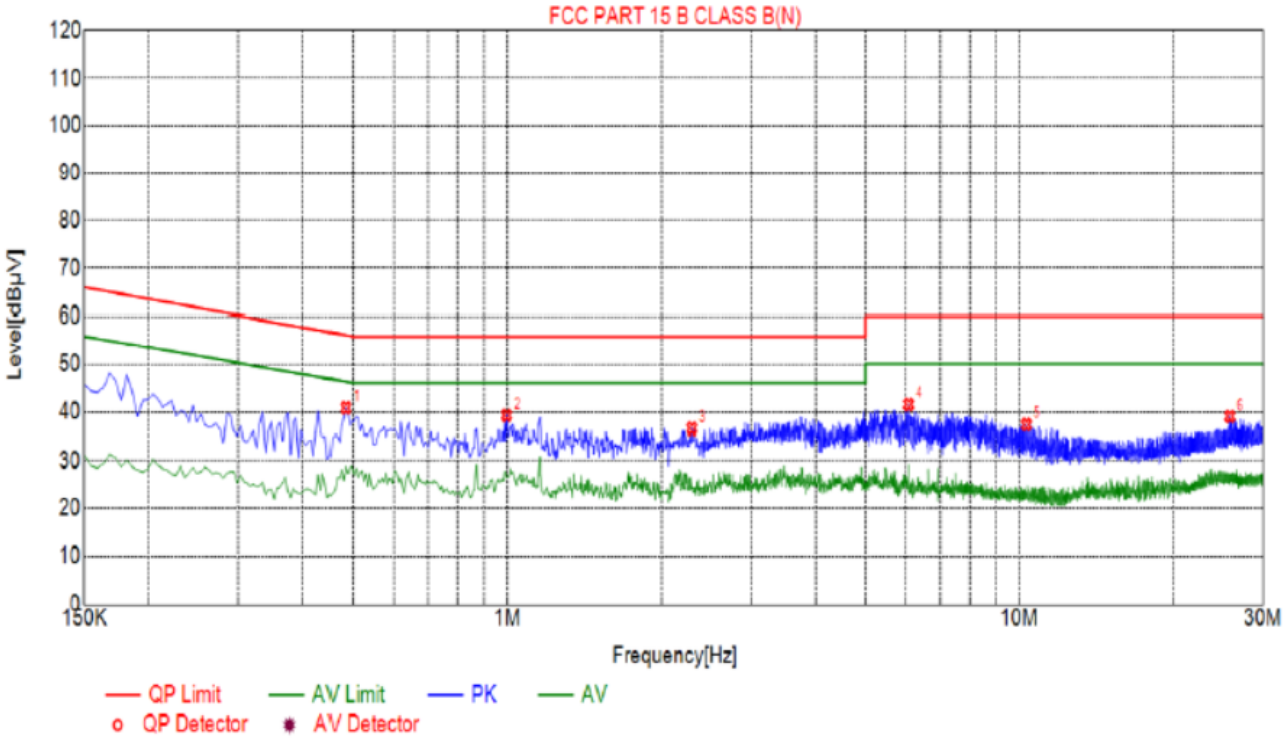

| Suspected List | | | | | | |
|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | Level [dBµV] | Factor [dB] | Limit [dBµV] | Margin [dB] | Detector |
| 1 | 0.5055 | 45.76 | 10.04 | 56.00 | 10.24 | PK |
| 2 | 0.7575 | 40.64 | 10.06 | 56.00 | 15.36 | PK |
| 3 | 1.8060 | 44.29 | 10.14 | 56.00 | 11.71 | PK |
| 4 | 3.6690 | 34.99 | 10.25 | 56.00 | 21.01 | PK |
| 5 | 7.4355 | 36.89 | 10.18 | 60.00 | 23.11 | PK |
| 6 | 18.2760 | 37.97 | 10.04 | 60.00 | 22.03 | PK |

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

Test Specification: Neutral




| Suspected List | | | | | | |
|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | Level [dBμV] | Factor [dB] | Limit [dBμV] | Margin [dB] | Detector |
| 1 | 0.4830 | 40.79 | 10.04 | 56.29 | 15.50 | PK |
| 2 | 0.9960 | 39.25 | 10.06 | 56.00 | 16.75 | PK |
| 3 | 2.2920 | 36.58 | 10.18 | 56.00 | 19.42 | PK |
| 4 | 6.0810 | 41.49 | 10.23 | 60.00 | 18.51 | PK |
| 5 | 10.3290 | 37.31 | 10.05 | 60.00 | 22.69 | PK |
| 6 | 25.8225 | 39.02 | 10.26 | 60.00 | 20.98 | PK |

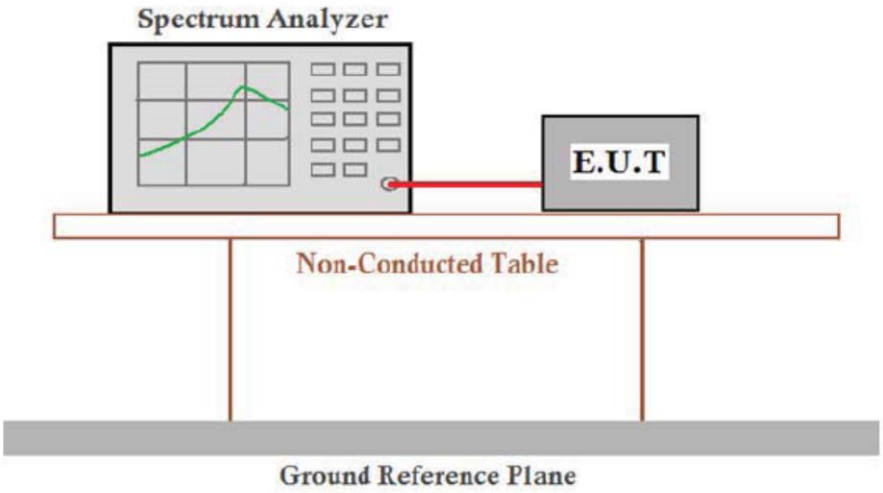
Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

4. Occupied Bandwidth

## 4.1 Block Diagram of Test Setup




## 4.2 Rules and specifications

CFR 47 Part 15.215(c)

ANSI C63.10-2013

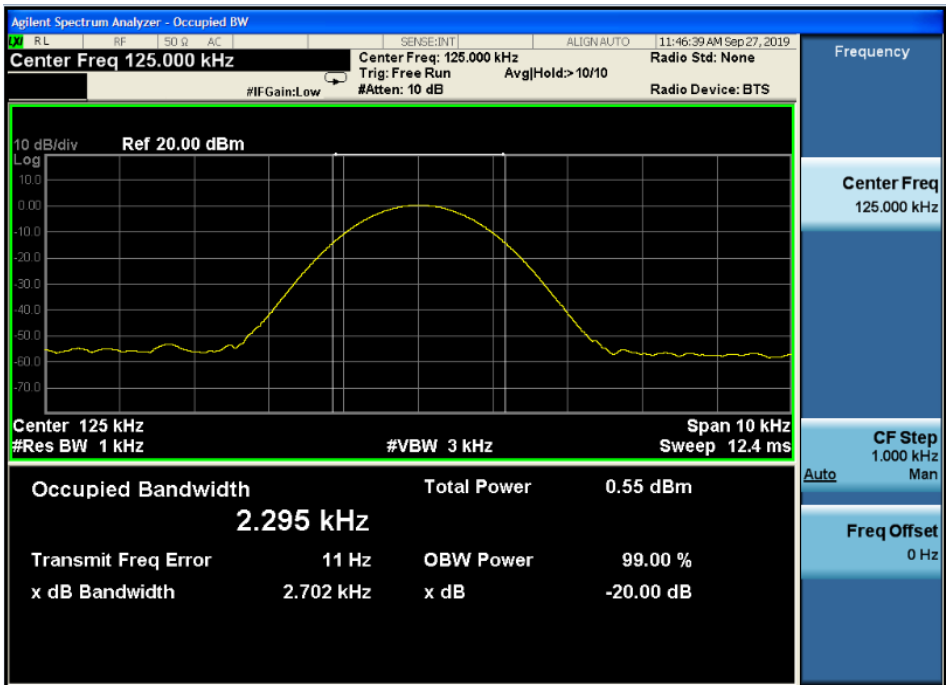
## 4.3 Test Procedure

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.deomonstrated by measuring the radiated emissions.

## 4.4 Test Result

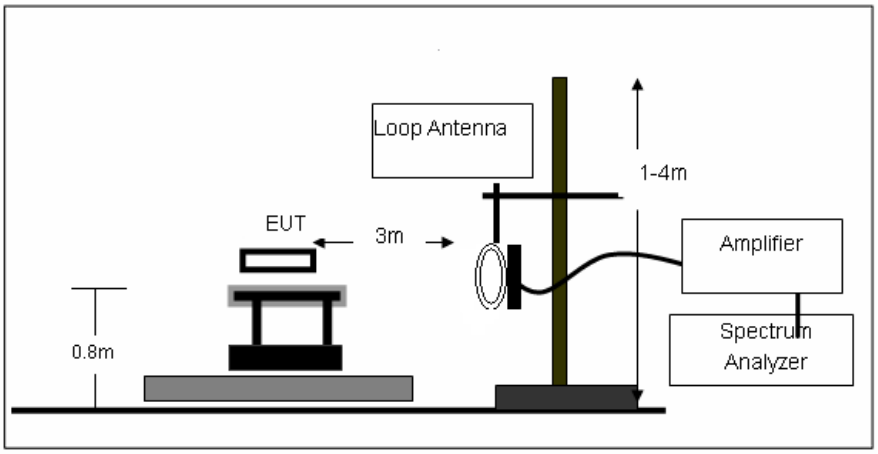
PASS

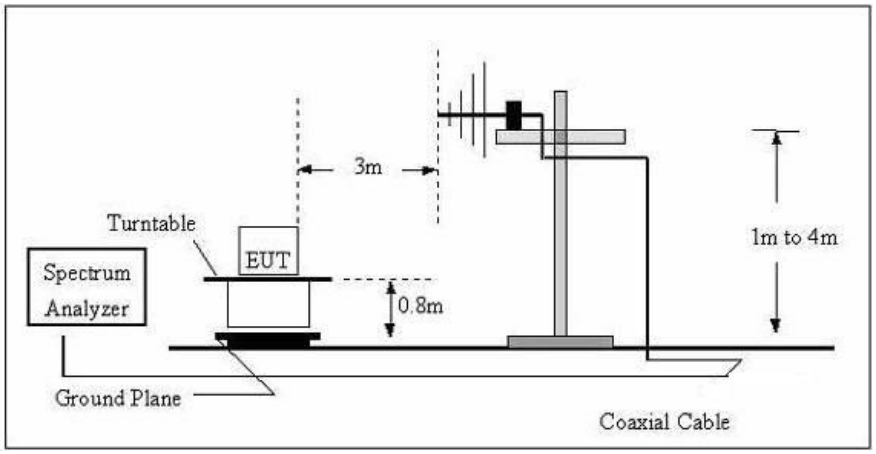
| Mode | Freq (KHz) | 20dB Bandwidth (KHz) | Limit (kHz) | Conclusion |
|---|---|---|---|---|
| Tx Mode | 125 | 2.702 | / | PASS |


Agilent Spectrum Analyzer - Occupied BW
Center Freq 125.000 kHz
Center Freq: 125.000 kHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
11:46:39 AM Sep 27, 2019
Frequency
10 dB/div
Log
Ref 20.00 dBm
Center 125 kHz
#Res BW 1 kHz
#VBW 3 kHz
Span 10 kHz
Sweep 12.4 ms
Center Freq
125.000 kHz
CF Step
1.000 kHz
Auto
Man
Freq Offset
0 Hz
Occupied Bandwidth
2.295 kHz
Total Power 0.55 dBm
Transmit Freq Error 11 Hz
OBW Power 99.00 %
x dB Bandwidth 2.702 kHz
x dB -20.00 dB

# 5. RADIA TED EMISSIONS

## 5.1 Block Diagram of Test Setup



## 5.2 Rules and specifications

CFR 47 Part 15, section 15.205

Only spurious emissions are permitted in any of the frequency bands listed the tables in these sections.

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 |
| \1\ 0.495-0.505 | 16.69475-16.69525 | 608-614 | 5.35-5.46 |
| 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 | 7.25-7.75 |
| 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 |
| 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 |
| 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 |
| 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 |
| 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 |
| 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 |
| 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 |
| 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 |
| 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 |
| 12.29-12.293. | 167.72-173.2 | 3332-3339 | 31.2-31.8 |
| 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 |
| 12.57675-12.57725 | 322-335.4 | 3600-4400 | (\2\) |
| 13.36-13.41 | | | |

CFR 47 Part 15, section 15.209

The emissions from an intentional radiator shall not exceed the limits in the tables in these sections using an average detector

| 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 |

Limit calculation and transfer to 3m distance as showed in the following table:

| Frequency (MHz) | Limit (dBuV/m) | Distance (m) |
|---|---|---|
| 0.009-0.490 | 20log(2400/F(KHz))+40log(300/3) | 3 |
| 0.490-1.705 | 20log(24000/F(KHz))+40log(300/3) | 3 |
| 1.705-30.0 | 69.5 | 3 |
| 30-88 | 40.0 | 3 |
| 88-216 | 43.5 | 3 |
| 216-960 | 46.0 | 3 |
| Above 960 | 54.0 | 3 |

CFR 47 Part 15, section 15.35

When average radiated emission measurements are specified, the limit on the peak level of the radio Frequency emission is 20dB above the maximum permitted average emission limit.

| Transmitter Spurious Emissions 9KHz-30MHz | | | |
|---|---|---|---|
| | 9-150KHz | 150-490KHz | 490KHz-30MHz |
| Resolution Bandwidth | 200Hz | 9KHz | 9KHz |
| Video Bandwidth | 2KHz | 100KHz | 100KHz |
| Detector | Peak | Peak | Peak |
| Trace Mode | Max Hold | Max Hold | Max Hold |
| Sweep Time | Auto | Auto | Auto |

## 5.3 Test Procedure

Measurement distance 3m
For the measurement range up to 30MHz in the following plots the field strength result from 3m Distance measurement are extrapolated to 300m and 30m distance respectively, by 40dB/decade, According to part 15.31(f)(2), per antenna factor scaling.
Measurements below 1000MHz are performed with a peak detector and compared to average limits, Measurements with an average detector are not required.

Note:

For battery operated equipment, the equipment tests shall be performed using a new battery.

## 5.4 Test Result

PASS

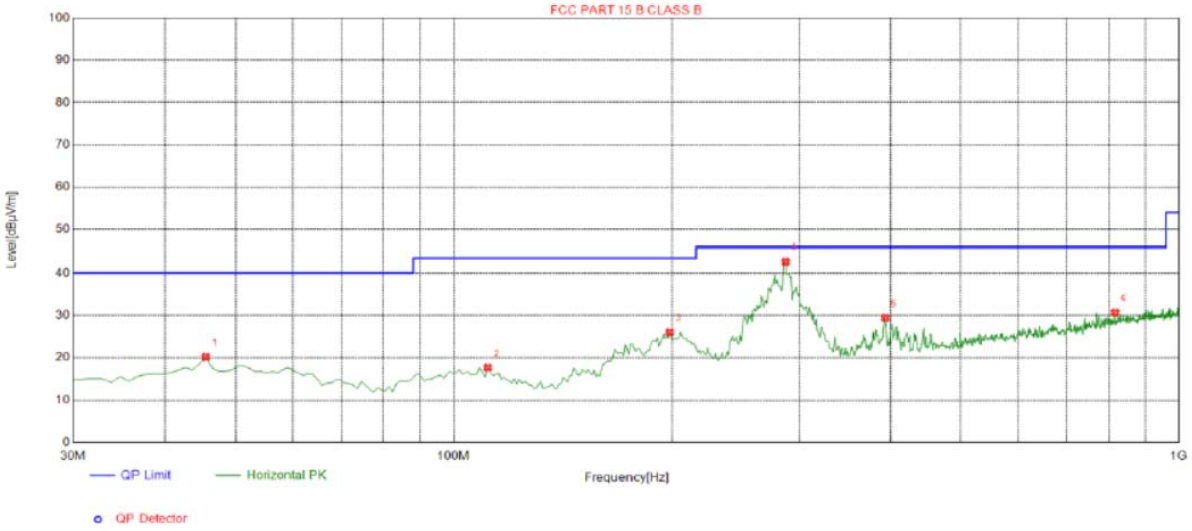
For 9KHz-30MHz

| Freq. (MHz) | Detector Mode (PK/QP) | Reading (dBuV) | Factor (dB) | Actual FS (dBuV/m) | Limits 3m (dBuV/m) | Margin (dBuV/m) |
|---|---|---|---|---|---|---|
| 0.110 | Peak | 23.24 | 24.8 | 48.04 | 126.77 | 78.73 |
| 0.125 | Peak | 46.22 | 24.8 | 71.02 | 125.67 | 54.65 |
| 0.486 | Peak | 25.53 | 25.03 | 50.56 | 113.71 | 63.15 |
| 0.500 | Peak | 26.70 | 25.03 | 51.73 | 113.62 | 61.89 |

For 30MHz-1GHz

**Remark: We tested the voltage in 5VDC and 9VDC, the worst(9VDC) case was recorded. Please refer to following diagram for individual**

Antenna polarity: H



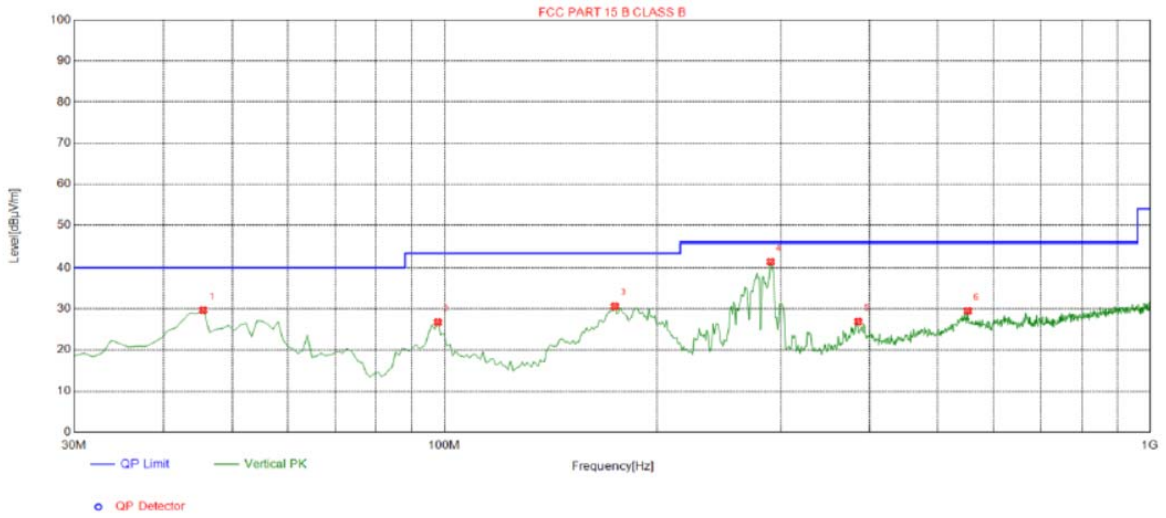

| Suspected List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
| 1 | 45.5200 | 20.16 | -13.65 | 40.00 | 19.84 | 100 | 14 | Horizontal |
| 2 | 111.480 | 17.68 | -15.68 | 43.50 | 25.82 | 100 | 165 | Horizontal |
| 3 | 198.780 | 26.05 | -15.18 | 43.50 | 17.45 | 100 | 254 | Horizontal |
| 4 | 287.050 | 42.62 | -12.96 | 46.00 | 3.38 | 100 | 40 | Horizontal |
| 5 | 393.750 | 29.37 | -10.56 | 46.00 | 16.63 | 100 | 34 | Horizontal |
| 6 | 817.640 | 30.65 | -2.76 | 46.00 | 15.35 | 100 | 165 | Horizontal |

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

Antenna polarity: V




| Suspected List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
| 1 | 45.5200 | 29.70 | -13.65 | 40.00 | 10.30 | 100 | 190 | Vertical |
| 2 | 97.9000 | 26.77 | -15.75 | 43.50 | 16.73 | 100 | 305 | Vertical |
| 3 | 174.530 | 30.62 | -17.10 | 43.50 | 12.88 | 100 | 116 | Vertical |
| 4 | 289.960 | 41.49 | -12.84 | 46.00 | 4.51 | 100 | 116 | Vertical |
| 5 | 385.990 | 26.90 | -10.72 | 46.00 | 19.10 | 100 | 116 | Vertical |
| 6 | 551.860 | 29.46 | -6.91 | 46.00 | 16.54 | 100 | 183 | Vertical |

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

# 6 ANTENNA REQUIREMENT

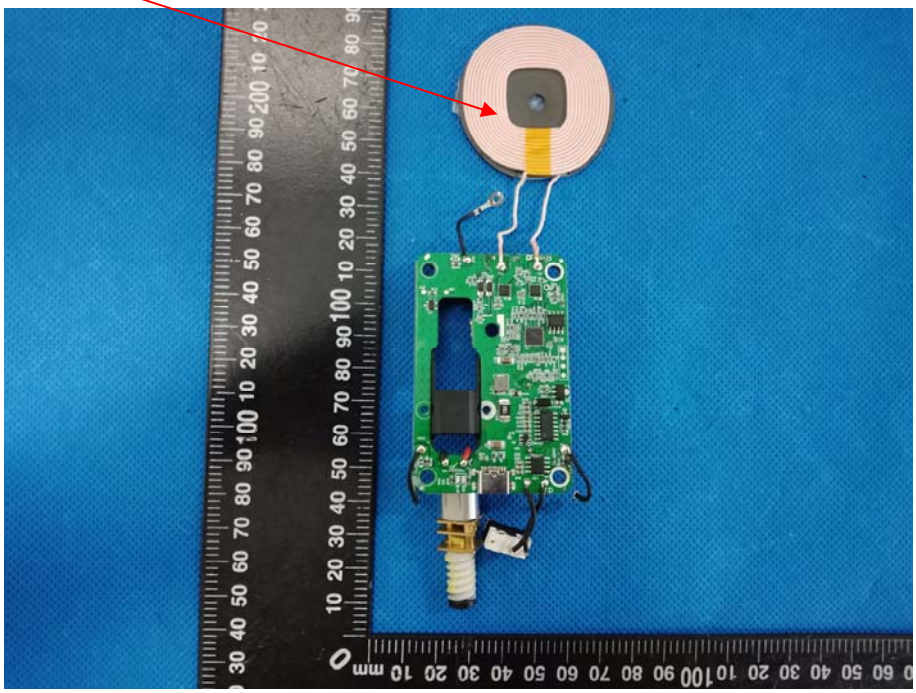
**Standard Applicable**
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

**Refer to statement below for compliance.**
The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

**Antenna Connected Construction**

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

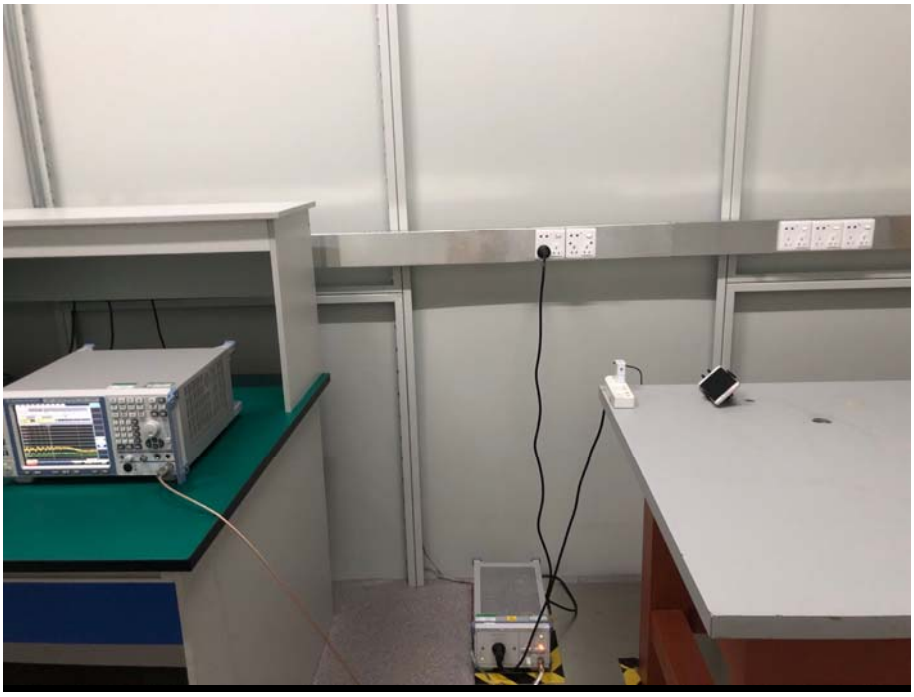
ANTENNA



# 7. PHOTOGRAPH OF TEST

## 7.1 Radiated Emission

7.2 Conducted Emission



8. PHOTOGRAPH OF TEST

Reference to the reporter : ANNEX A of external photos and ANNEX B of internal photos

---------End of test report---------