

# FCC PART 15 SUBPART C

Magnetic Wireless Charger

MODEL No.: Y103

FCC ID: 2BFEUY103

REPORT NO.:NCT24021309XE-1

ISSUE DATE: May. 21, 2024

*Prepared for*

Dongguan Yiqu intelligent Technology Co.,Ltd

11/F, Building 5, Silicon Valley Power Digital Valley, Yongtai Road, Tangxia Town,  
Dongguan City, Guangdong Province, 523000 China

*Prepared by*

Shenzhen NCT Testing Technology Co., Ltd.

A101&2F B2, Fuqiao 6th Area, Xintian Community, Fuhai Street, Baoan District,  
Shenzhen, People's Republic of China

TEL: 400-8868-419

FAX: 86-755-27790922

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**TEST REPORT DESCRIPTION**

Applicant : Dongguan Yiqu intelligent Technology Co.,Ltd  
Address : 11/F, Building 5, Silicon Valley Power Digital Valley, Yongtai Road, Tangxia Town, Dongguan City, Guangdong Province, 523000 China  
Manufacturer : Dongguan Yiqu intelligent Technology Co.,Ltd  
Address : 11/F, Building 5, Silicon Valley Power Digital Valley, Yongtai Road, Tangxia Town, Dongguan City, Guangdong Province, 523000 China  
EUT : Magnetic Wireless Charger  
Model Name : Y103  
Trademark : N/A

Measurement Procedure Used:

| APPLICABLE STANDARDS          |             |
|-------------------------------|-------------|
| STANDARD                      | TEST RESULT |
| FCC 47 CFR Part 15, Subpart C | PASS        |

The above equipment was tested by Shenzhen NCT Testing Technology Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15C

The test results of this report relate only to the tested sample identified in this report.

Test Engineer:



Keven Wu / Engineer

Technical Manager:

  
  
Henry Wang / Manager

## Modified Information

| Version | Report No.      | Revision Data | Summary          |
|---------|-----------------|---------------|------------------|
| Ver.1.0 | NCT24021309XE-1 | May.21, 2024  | Original Version |
|         |                 |               |                  |

## 1. SUMMARY OF TEST RESULTS

| Test Item                        | Section in CFR 47 | Result |
|----------------------------------|-------------------|--------|
| Antenna requirement              | 15.203            | Pass   |
| AC Power Line Conducted Emission | 15.207            | N/A    |
| Spurious Emission                | 15.209(a)(f)      | Pass   |
| 20dB Bandwidth                   | 15.215            | Pass   |

## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

EUT : Magnetic Wireless Charger

Model Number : Y103  
Model different : /

Power Rating : Type-C Input: 5Vdc,3A or 9Vdc,2A  
Wireless Output: 5W/7.5W/10W/15W

Operation : 110-205 KHz  
Frequency for WPT

Modulation : FSK

Antenna Type: : Coil Antenna

Date of Received : May.13, 2024

Date of Test : May.14, 2024 to May.20, 2024

### 2.2. Description of Support Units

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  | Magnetic Wireless Charger | N/A       | Y103           | N/A        | EUT       |
| E-2  | iPhone                    | N/A       | iPhone 13      | N/A        | Auxiliary |
| E-3  | Power adapter             | N/A       | A2244          | N/A        | Auxiliary |

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.

### 2.3. Independent Operation Modes

|                                                                                         | Mode | Description  | Remark() |
|-----------------------------------------------------------------------------------------|------|--------------|----------|
|                                                                                         | 1.   | EUT + iPhone | 5%       |
|                                                                                         | 2.   |              | 50%      |
|                                                                                         | 3.   |              | 95%      |
| Remark: All the modes have tested and recorded the worst mode (Full Load) in the report |      |              |          |

### 2.4. Test Mode

| Test Items | Test Voltage | Operation Modes |
|------------|--------------|-----------------|
| Full Load  | AC 120V/60Hz | Mode 1          |

### 2.5. Description of Test Facility

#### Site Description

EMC Lab. : Accredited by CNAS, 2022-09-27  
The certificate is valid until 2028.01.07  
The Laboratory has been assessed and proved to be in compliance with  
CNAS-CL01:2006 (identical to ISO/IEC 17025:2017)  
The Certificate Registration Number is L8251

Designation Number: CN1347  
Test Firm Registration Number: 894804  
Accredited by A2LA, June 14, 2023  
The Certificate Registration Number is 6837.01

Accredited by Industry Canada, November 09, 2018  
The Conformity Assessment Body Identifier is CN0150  
Company Number: 30806

Name of Firm : Shenzhen NCT Testing Technology Co., Ltd.  
Site Location : A101&2F B2, Fuqiao 6th Area, Xintian Community, Fuhai Street, Baoan District, Shenzhen, People's Republic of China

## 2.6. Measurement Uncertainty

| Parameter                          | Uncertainty              |
|------------------------------------|--------------------------|
| RF output power, conducted         | ±1.0dB                   |
| Power Spectral Density, conducted  | ±2.2dB                   |
| Radio Frequency                    | ± 1 × 10 <sup>-6</sup>   |
| Bandwidth                          | ± 1.5 × 10 <sup>-6</sup> |
| Time                               | ±2%                      |
| Duty Cycle                         | ±2%                      |
| Temperature                        | ±1 °C                    |
| Humidity                           | ±5%                      |
| DC and low frequency voltages      | ±3%                      |
| Conducted Emissions (150kHz~30MHz) | ±3.64dB                  |
| Radiated Emission(9kHz~30MHz)      | ±4.51dB                  |
| Radiated Emission(30MHz~1GHz)      | ±5.03dB                  |
| Radiated Emission(1GHz~25GHz)      | ±4.74dB                  |

### 3. MEASURING DEVICE AND TEST EQUIPMENT

#### Radiated emission & Radio Frequency Test Equipment

| Name                                                | Model No.         | Serial No. | Manufacturer    | Date of Cal. | Due Date  |
|-----------------------------------------------------|-------------------|------------|-----------------|--------------|-----------|
| 966 Shielded Room                                   | 966 Room          | /          | EMToni          | 2022/5/31    | 2025/5/30 |
| EMI Test Receiver                                   | ESCI              | 101178     | Rohde & Schwarz | 2023/6/21    | 2024/6/20 |
| Spectrum Analyze<br>(10Hz-26.5GHz)                  | N9020A            | MY50510202 | Agilent         | 2023/6/21    | 2024/6/20 |
| Amplifi<br>(30MHz-1GHz)                             | BBV 9743 B        | 00374      | SCHNARZBECK     | 2023/6/21    | 2024/6/20 |
| Bilog Antenna<br>(30MHz-1GHz)                       | VULB9162          | 00473      | SCHNARZBECK     | 2023/3/19    | 2025/3/18 |
| Horn antenna<br>(1GHz-18GHz)                        | BBHA 9120 D       | 02622      | SCHNARZBECK     | 2023/3/19    | 2025/3/18 |
| Pream plifier<br>(1GHz-18GHz)                       | BBV 9718D         | 0024       | SCHNARZBECK     | 2023/6/21    | 2024/6/20 |
| Spectrum Analyze<br>(10Hz-40GHz)                    | FSV 40            | 100952     | Rohde & Schwarz | 2023/6/21    | 2024/6/20 |
| Pream plifier<br>(18GHz-40GHz)                      | BBV 9721          | 0056       | SCHNARZBECK     | 2023/6/21    | 2024/6/20 |
| Double Ridge Guide<br>Horn Antenna<br>(18GHz-40GHz) | SAS-574           | 588        | A.H.System      | 2023/3/19    | 2025/3/18 |
| Loop Antenna<br>(9KHz-30MHz)                        | FMZB1519B         | 014        | SCHNARZBECK     | 2023/6/21    | 2024/6/20 |
| Amplifier<br>(9KHz-30MHz)                           | CVP 9222 C        | 00109      | SCHNARZBECK     | 2023/6/21    | 2024/6/20 |
| MXG Signal<br>Analyzer                              | N9020A            | MY50510202 | Agilent         | 2023/6/21    | 2024/6/20 |
| MXG Vector Signal<br>Generator                      | N5182A            | MY50140020 | Agilent         | 2023/6/21    | 2024/6/20 |
| MXG Analog Signal<br>Generator                      | N5181A            | MY47420919 | Agilent         | 2023/6/21    | 2024/6/20 |
| Power Sensor                                        | TR1029-2          | 512364     | Techoy          | 2023/6/21    | 2024/6/20 |
| RF Swith                                            | TR1029-1          | 512364     | Techoy          | 2023/6/21    | 2024/6/20 |
| Cable                                               | DA800-<br>4000MM  | NA         | DA              | 2023/6/21    | 2024/6/20 |
| Cable                                               | DA800-<br>11000MM | NA         | DA              | 2023/6/21    | 2024/6/20 |

## Conducted emission Test Equipment

| Name              | Model No.    | Serial No. | Manufacturer    | Date of Cal. | Due Date  |
|-------------------|--------------|------------|-----------------|--------------|-----------|
| 944 Shielded Room | 944 Room     | /          | EMToni          | 2022/5/31    | 2025/5/30 |
| EMI Test Receiver | ESPI         | 101604     | Rohde & Schwarz | 2023/6/21    | 2024/6/20 |
| LISN              | ENV 216      | 102796     | Rohde & Schwarz | 2023/6/21    | 2024/6/20 |
| LISN              | VN1-13S      | 004023     | CRANAGE         | 2023/6/21    | 2024/6/20 |
| Cable             | RG223-1500MM | NA         | RG              | 2023/6/21    | 2024/6/20 |

## Other

| Item | Name                         | Manufacturer | Model  | Software version |
|------|------------------------------|--------------|--------|------------------|
| 1    | EMC Conduction Test System   | AUDIX        | e3     | 6.120718         |
| 2    | EMC radiation test system    | AUDIX        | e3     | 6.120718         |
| 3    | RF test system               | TACHOY       | RFTest | V1.0.0           |
| 4    | RF communication test system | TACHOY       | RFTest | V1.0.0           |

## 4. 20DB BANDWIDTH

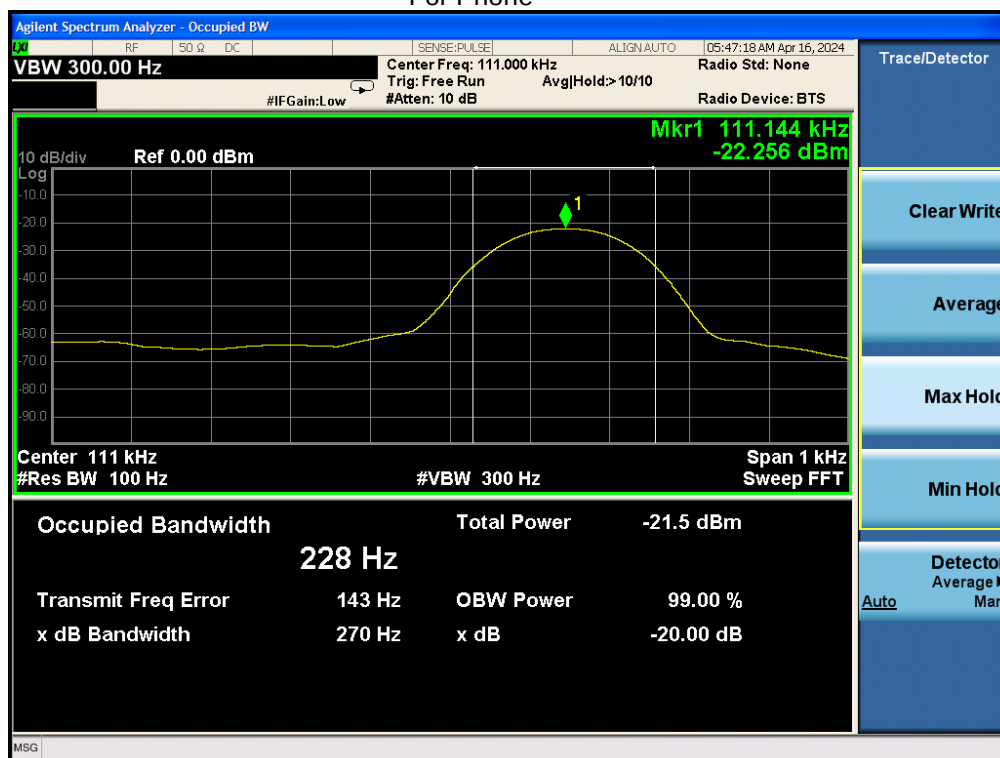
### 4.1. Test Procedure

Set to the maximum power setting and enable the EUT transmit continuously  
 Set RBW = 1-5%OBW.  
 Set the video bandwidth (VBW) =3RBW.  
 Set Span= 1kHz  
 Set Detector = Peak.  
 Set Trace mode = max hold.  
 Set Sweep = auto couple.  
 Measure and record the results in the test report.

### 4.2. Test Results

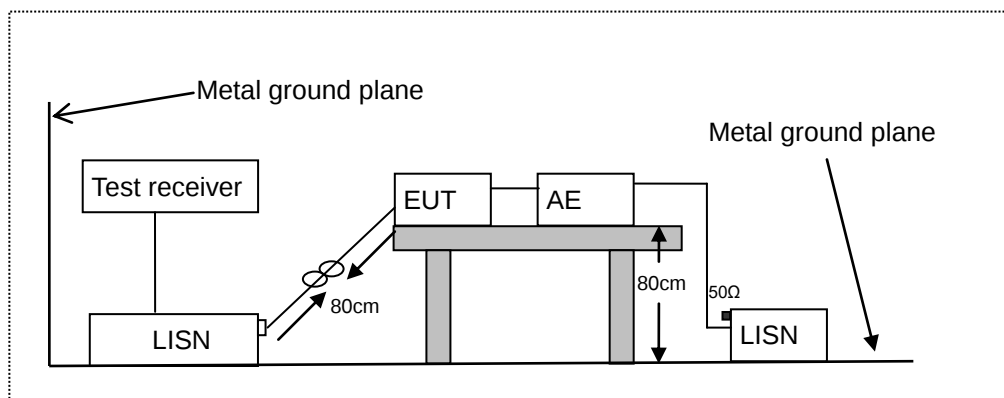
|           | Frequency (KHz) | 20dB bandwidth (Hz) | 99% bandwidth (Hz) | Result |
|-----------|-----------------|---------------------|--------------------|--------|
| For Phone | 111.144         | 270                 | 228                | Pass   |

For Phone



## 5. POWER LINE CONDUCTED EMISSION MEASUREMENT

### 5.1. Block Diagram of Test Setup



LISN: Line Impedance Stabilization Network

AE: Associated equipment

EUT: Equipment under test

### 5.2. Limits

FCC Part 15.207

| Frequency (MHz) | Limit (dB $\mu$ V) |               |
|-----------------|--------------------|---------------|
|                 | Quasi-peak Level   | Average Level |
| 0.15 ~ 0.50     | 66.0 ~ 56.0 *      | 56.0 ~ 46.0 * |
| 0.50 ~ 5.00     | 56.0               | 46.0          |
| 5.00 ~ 30.00    | 60.0               | 50.0          |

NOTE1-The lower limit shall apply at the transition frequencies.  
NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

### 5.3. Test Procedure

The EUT was placed on a desk 0.8 m height from the metal ground plane and 0.4 m from the conducting wall of the shielding room and it was kept at least 0.8 m from any other grounded conducting surface. The size of the table will nominally be 1.5 m x1.0 m.

The rear of the arrangement shall be flush with the back of the supporting tabletop unless that would not be possible or typical of normal use.

All units of equipment forming the system under test (includes the EUT as well as connected peripherals and associated equipment or devices) shall be arranged such that a nominal 0.1 m separation is achieved between the neighboring units.

Connect EUT to the power mains through a line impedance stabilization network (LISN). Where the mains cable supplied by the manufacturer is longer than 1 m, the excess should be folded at the centre into a bundle no longer than 0.4 m, so that its length is shortened to 1 m.

All the support units are connecting to the other LISN.

The LISN provides 50 ohm coupling impedance for the measuring instrument.

Both sides of AC line were checked for maximum conducted interference.

The frequency range from 150 kHz to 30 MHz was sweep.

Set the test-receiver system to quasi peak detect function and average detect function, and to measure the conducted emissions values.

Test results were obtained from the following equation:

Emission Level (dBμV) = LISN Factor (dB) + Cable Loss (dB) + Reading (dBμV)

Margin (dB) = Emission Level (dBμV) - Limit (dBμV)

#### 5.4. Measuring Results

**Not applicable to DC products**

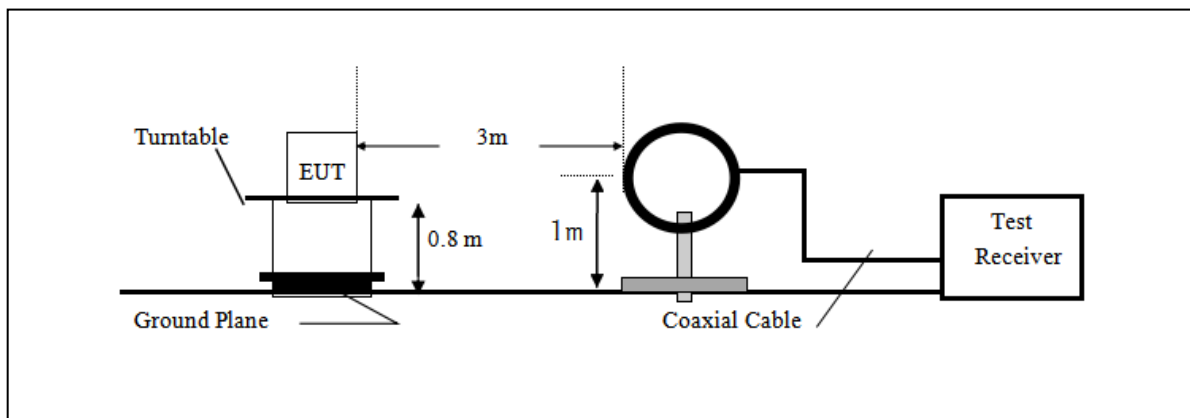
## 6. RADIATED EMISSION TEST

### 6.1. Measurement Procedure

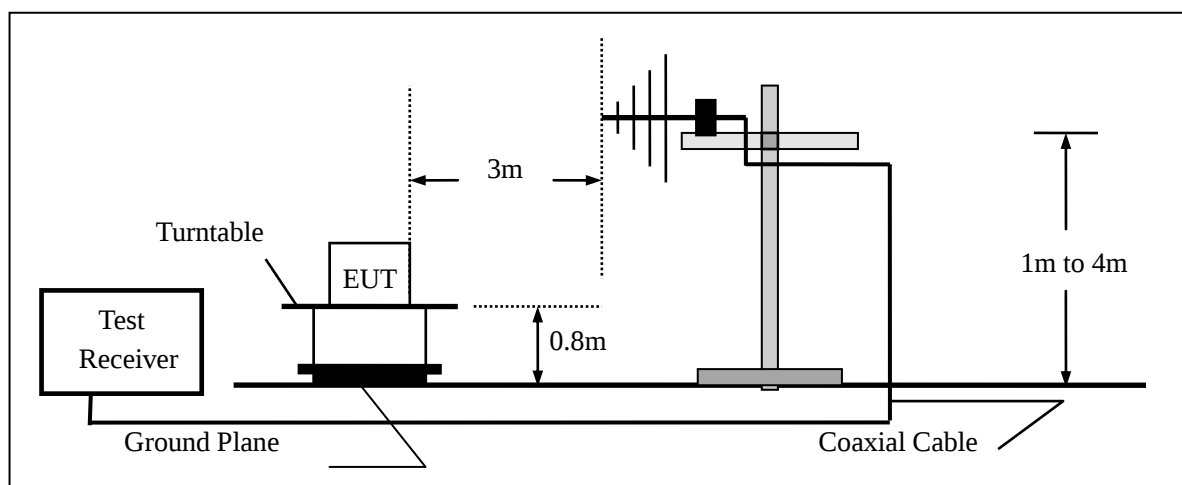
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.
5. Use the following receiver/spectrum analyzer settings:  
Span = wide enough to fully capture the emission being measured  
RBW=200Hz for 9KHz to 150KHz,  
RBW=9kHz for 150KHz to 30MHz,  
RBW=120KHz for 30MHz to 1GHz  
VBW  $\geq 3 \times$  RBW  
Sweep = auto  
Detector function = QP  
Trace = max hold

### 6.2. Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



## (B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



## 6.3. Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

| FCC Part 15.209 |                           |      |                                                                 |                                   |
|-----------------|---------------------------|------|-----------------------------------------------------------------|-----------------------------------|
| Frequency (MHz) | Field Strength Limitation |      | Field Strength Limitation Frequency tion at 3m Measurement Dist |                                   |
|                 | (uV/m)                    | Dist | (uV/m)                                                          | (dBuV/m)                          |
| 0.009 – 0.490   | $2400 / F(\text{KHz})$    | 300m | $10000 * 2400/F(\text{KHz})$                                    | $20\log 2400/F(\text{KHz}) + 80$  |
| 0.490 – 1.705   | $24000 / F(\text{KHz})$   | 30m  | $100 * 24000/F(\text{KHz})$                                     | $20\log 24000/F(\text{KHz}) + 40$ |
| 1.705 – 30.00   | 30                        | 30m  | $100 * 30$                                                      | $20\log 30 + 40$                  |
| 30.0 – 88.0     | 100                       | 3m   | 100                                                             | $20\log 100$                      |
| 88.0 – 216.0    | 150                       | 3m   | 150                                                             | $20\log 150$                      |
| 216.0 – 960.0   | 200                       | 3m   | 200                                                             | $20\log 200$                      |
| Above 960.0     | 500                       | 3m   | 500                                                             | $20\log 500$                      |

**15.205 Restricted bands of operation**

| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 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     | ( <sup>2</sup> ) |

Remark: 1. Emission level in dBuV/m=20 log (uV/m)  
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.  
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

## 6.4.Measurement Result

Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80

Limit dBuV/m @3m = Limit dBuV/m @30m + 40

9 kHz~30 MHz

|                |              |                    |        |
|----------------|--------------|--------------------|--------|
| Temperature:   | 23℃          | Relative Humidity: | 47%    |
| Pressure:      | 100kPa       |                    |        |
| Test Voltage : | AC 120V/60Hz | Mode:              | Mode 1 |

| Frequency<br>(kHz) | Meter Reading<br>(dBμV/m) | Factor<br>(dB/m) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Detector Type |
|--------------------|---------------------------|------------------|----------------------------|--------------------|----------------|---------------|
| 111.600            | 71.14                     | -22.76           | 48.38                      | 106.72             | -58.34         |               |
| 111.600            | 84.14                     | -22.76           | 61.38                      | 106.72             | -45.34         | AV            |
| 3911.000           | 32.68                     | -22.32           | 10.36                      | 69.50              | -59.14         | QP            |
| 6627.200           | 39.49                     | -21.74           | 17.75                      | 69.50              | -51.75         | QP            |
| 12030.300          | 34.19                     | -20.82           | 13.37                      | 69.50              | -56.13         | QP            |
| 18865.800          | 32.18                     | -19.11           | 13.07                      | 69.50              | -56.43         | QP            |
| 23970.300          | 31.75                     | -19.36           | 12.39                      | 69.50              | -57.11         | QP            |

Note:

Pre-scan in the all of mode, the worst case in of was recorded.

Factor = antenna factor + cable loss – pre-amplifier.

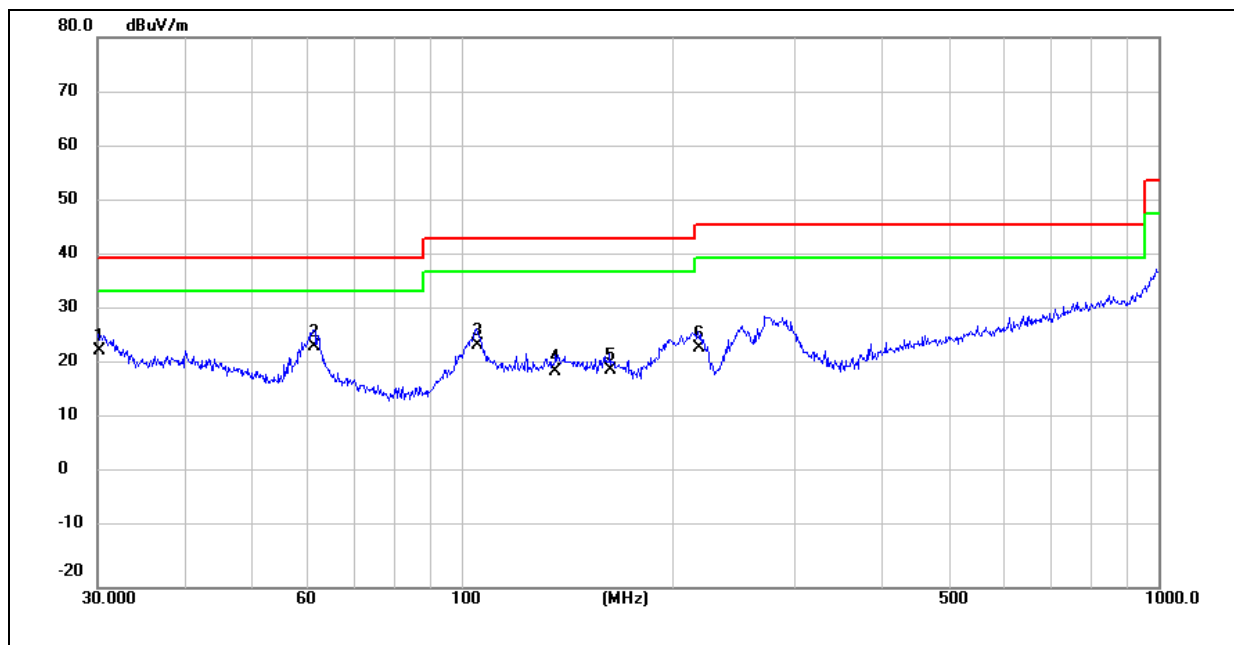
Margin = Emission Level- Limit.

Restricted band edge:

| Frequency<br>(kHz) | Meter Reading<br>(dBμV/m) | Factor<br>(dB/m) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Detector Type |
|--------------------|---------------------------|------------------|----------------------------|--------------------|----------------|---------------|
| 110.000            | 40.77                     | -22.76           | 18.01                      | 106.77             | -88.76         |               |
| 110.000            | 32.10                     | -22.76           | 9.34                       | 106.77             | -97.43         | AV            |
| 110.400            | 81.27                     | -22.76           | 58.51                      | 106.74             | -48.23         | PK            |
| 110.400            | 70.12                     | -22.76           | 47.36                      | 106.74             | -59.38         | AV            |

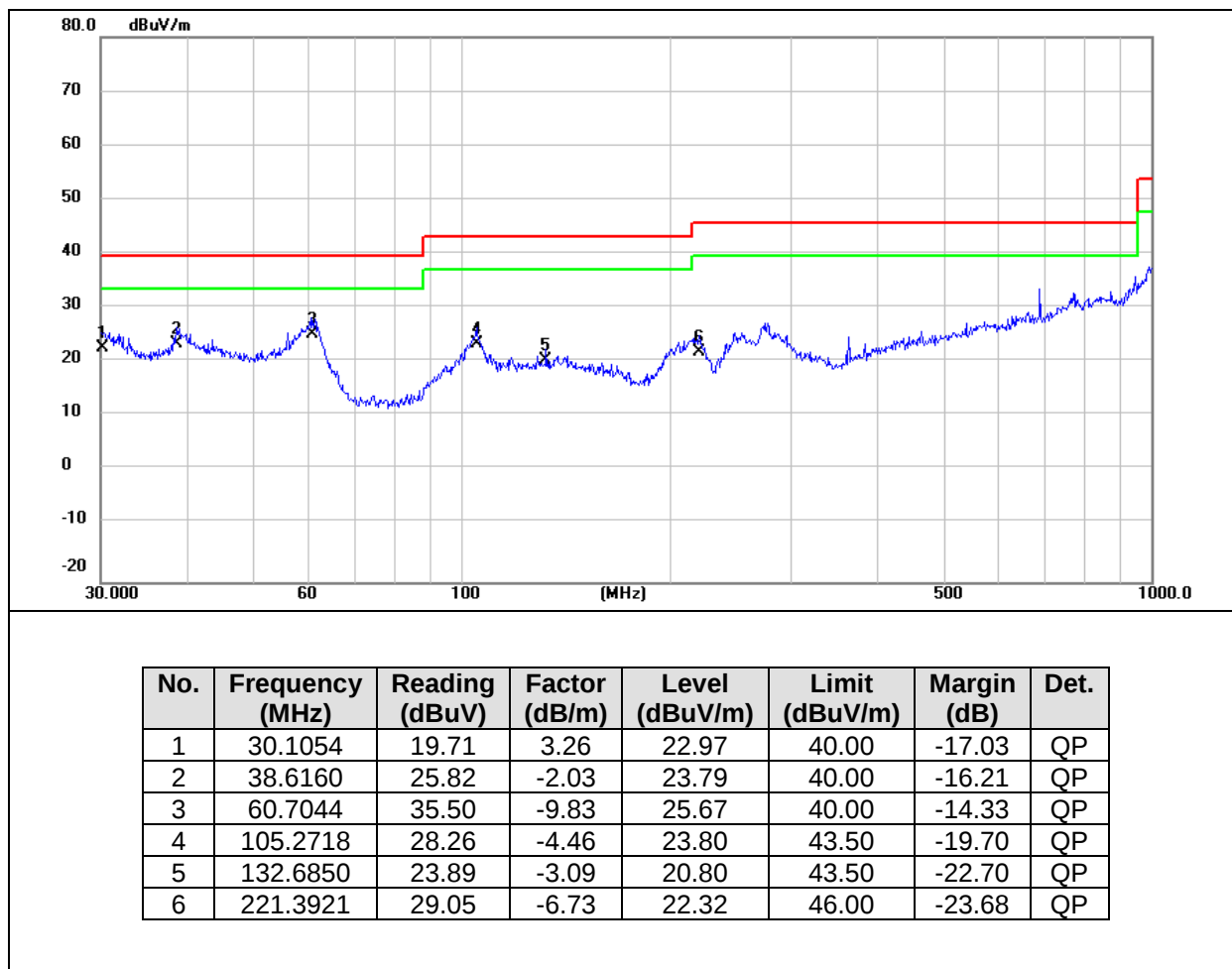
30MHz-1GHz:

|               |              |                    |            |
|---------------|--------------|--------------------|------------|
| Temperature:  | 23°C         | Relative Humidity: | 51%        |
| Pressure:     | 101 kPa      | Polarization:      | Horizontal |
| Test Voltage: | AC 120V/60Hz | Mode:              | Model 1    |



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|------|
| 1   | 30.1054         | 19.93          | 3.26          | 23.19          | 40.00          | -16.81      | QP   |
| 2   | 61.1316         | 33.79          | -9.86         | 23.93          | 40.00          | -16.07      | QP   |
| 3   | 104.9033        | 28.55          | -4.48         | 24.07          | 43.50          | -19.43      | QP   |
| 4   | 136.4598        | 22.14          | -2.82         | 19.32          | 43.50          | -24.18      | QP   |
| 5   | 163.1818        | 24.18          | -4.72         | 19.46          | 43.50          | -24.04      | QP   |
| 6   | 218.3085        | 30.26          | -6.64         | 23.62          | 46.00          | -22.38      | QP   |

|               |              |                    |          |
|---------------|--------------|--------------------|----------|
| Temperature:  | 23°C         | Relative Humidity: | 51%      |
| Pressure:     | 101 kPa      | Polarization:      | Vertical |
| Test Voltage: | AC 120V/60Hz | Mode:              | Model 1  |



Remarks:

- 1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2.The emission levels of other frequencies are very lower than the limit and not show in test report.

## 7. TEST PHOTOGRAPHS AND EUT PHOTOGRAPHS

Please the attachment for details.

-----The end-----