Certificate #6613.01

# RADIO TEST REPORT

# (FCC Part 15 Subpart C)

| | |
|---|---|
| Applicant: | Power Idea Technology (Shenzhen) Co., Ltd. |
| Address: | 4th Floor, A Section, Languang Science&technology Building, No.7 Xinxi RD, Hi-Tech Industrial Park North, Nanshan District, ShenZhen, P.R.C. |

| | |
|---|---|
| Manufacturer: | Power Idea Technology (Shenzhen) Co., Ltd. |
| Address: | 4th Floor, A Section, Languang Science&technology Building, No.7 Xinxi RD, Hi-Tech Industrial Park North, Nanshan District, ShenZhen, P.R.C. |
| Product: | Smart Phone |
| Brand Name: | RugGear |
| Model Name: | PSM05G |
| Marketing name： | RG880i |
| FCC ID: | ZLE-PSM05G |
| Date of tests: | Aug. 28, 2024 ~ Sep.27, 2024 |

The tests have been carried out according to the requirements of the following standard:

☒ **Part 15 Subpart C §15. 225**

☒ **RSS-Gen Issue 5, Amendment 2 (February 2021)**

☒ **ANSI C63.10-2020**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

| Prepared by Hanwen Xu | Approved by Peibo Sun |
|---|---|
| Engineer / Mobile Department | Manager / Mobile Department |
| Date: Sep.27, 2024 | Date: Sep.27, 2024 |

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# REPORT REVISE RECORD

| ISSUE NO. | REASON FOR CHANGE | DATE ISSUED |
|---|---|---|
| PSU-NQN2406210109RF10 | Original release | Sep.27, 2024 |

# SUMMARY OF TEST RESULT

| FCC Rule | IC Rule | Description | Limit | Result | Remark |
|---|---|---|---|---|---|
| - | RSS-Gen 6.7 | 99% Bandwidth | - | Pass | - |
| 15.225(a)(b)(c) | RSS-210 Annex B.6 | Field Strength of Fundamental Emissions | 15.225(a)(b)(c) RSS-210 Annex B.6 | Pass | - |
| 15.215 | - | 20dB Spectrum Bandwidth | 15.215 | Pass | - |
| 15.225(d) 15.209 | RSS-210 Annex B.6 | Radiated Emission | 15.225(d) & 15.209 RSS-210 Annex B.6 | Pass | - |
| 15.207 | RSS-GEN 8.8 | AC Conducted Emission | 15.207(a) | Note | |
| 15.225(e) | Annex B.6 | Frequency Stability | < ±100 ppm | Pass | - |
| 15.203 | RSS-Gen 6.8 | Antenna Requirement | N/A | Pass | - |

***Test Lab Information Reference**

**Lab A:**

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

**Lab Address:**

Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province

**Accredited Test Lab Cert 6613.01**

The FCC Site Registration No. is 434559; The Designation No. is CN1325.

# 1 GENERAL DESCRIPTION

## 1.1 GENERAL DESCRIPTION OF EUT

| Items | Description |
|---|---|
| **Tx/Rx Frequency Range** | 13.553MHz ~ 13.567MHz |
| **Channel Number** | 1 |
| **20dBW** | 2.489 kHz |
| **99%OBW** | 2.098 kHz |
| **Antenna Type** | LOOP Antenna |
| **Type of Modulation** | ASK |
| **HW Version** | V02 |
| **SW Version (FVIN)** | RG880i_EAA_00.00_1 |

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

**NOTE:** Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.

**List of Accessory:**

| ACCESSORIES | BRAND | MANUFACTURER | MODEL | SPECIFICATION |
|---|---|---|---|---|
| CPU | QUALCOMM | N/A | SM6225 | N/A |
| eMMC 1 (=ROM 1) | SAMSUNG | N/A | KM2L9001CM-B518 | N/A |
| eMMC 2 (=ROM 2) | Hynix | N/A | H9QT0GECN6X145R | N/A |
| RAM 1 | N/A | N/A | N/A | N/A |
| RAM 2 | N/A | N/A | N/A | N/A |
| BT/WLAN Module | N/A | N/A | N/A | N/A |
| NFC chipset | NXP | N/A | N/A | N/A |
| Battery | N/A | N/A | BL450AGP | Power Rating: 4.4V 4500mAh |
| Adapter | N/A | Huizhou Juwei Electronics Co.,Ltd | FG18AQC3.0UU | I/P: 100-240Vac, 50/60Hz, 0.5A, O/P:5.0V 3.0A or 9.0V 2.0A or 12.0V 1.5A |
| USB Cable | N/A | N/A | N/A | N/A |

## 1.2 MODIFICATION OF EUT

No modifications are made to the EUT during all test items.

## 1.3 APPLICABLE STANDARDS

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.225
- ANSI C63.10-2020
- RSS-210 Issue 10
- RSS-Gen Issue 5

# 2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST

## 2.1 DESCRIPTIONS OF TEST MODE

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

| Test Items | |
|---|---|
| AC Power Line Conducted Emissions | Field Strength of Fundamental Emissions |
| 20dB Spectrum Bandwidth | Frequency Stability |
| Radiated Emissions 9kHz~30MHz | Radiated Emissions 30MHz~1GHz |

**Note:**

1. The EUT was programmed to be in continuously transmitting mode.
2. The ancillary equipment, NFC card, is used to make the EUT (NFC) continuously transmit at 13.56MHz and is placed around 3 cm gap to the EUT.
3. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, work in modes and data rates. Selected for the final test as listed below.

| Frequency | Work in Modes | Type | Data Rate (Kbps) |
|---|---|---|---|
| 13.56 MHz | ☐ Card Emulation<br>☑ Reader/Writer<br>☐ Peer-to-Peer | ☐ A<br>☐ B<br>☑ F<br>☐ V | ☐ 106<br>☑ 212<br>☐ 424<br>☐ 848 |

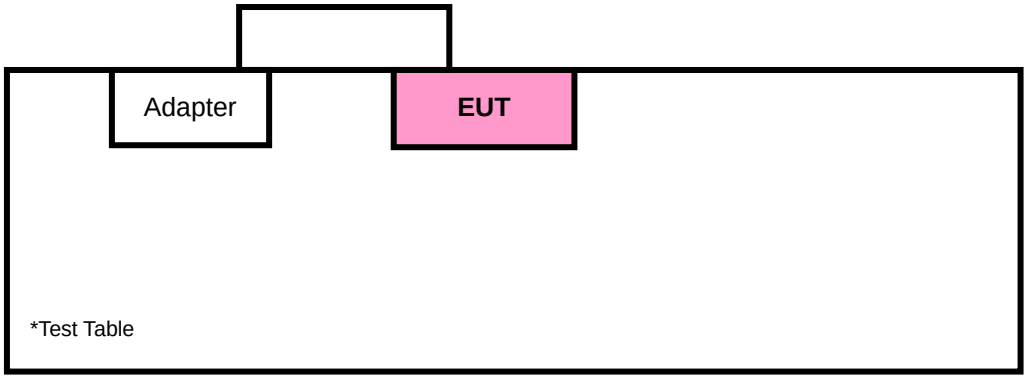
**Remark:**

The mark"☑" means is chosen for testing;

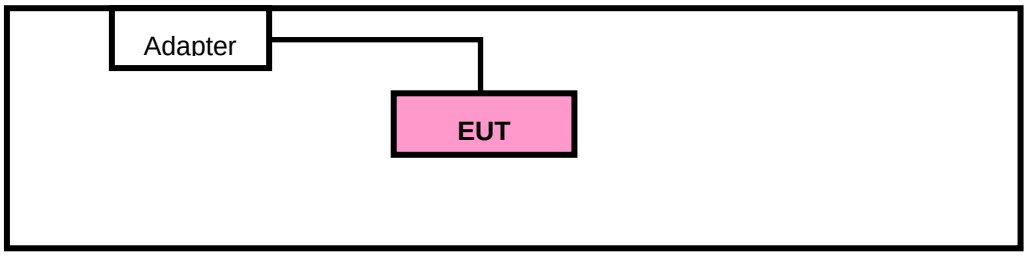
The mark"☐" means is not chosen for testing.

## 2.2 TEST CONFIGURATIONS

**<AC Conducted Emissions>**




**< For Fundamental Emissions and Mask and Radiated Emissions Measurement >**




## 2.3 SUPPORT EQUIPMENT

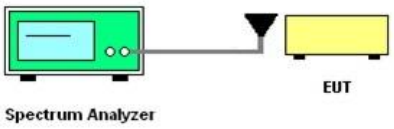
| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|---|---|---|---|---|---|
| 1 | N/A | N/A | N/A | N/A | N/A |

## 2.4 TEST SETUP

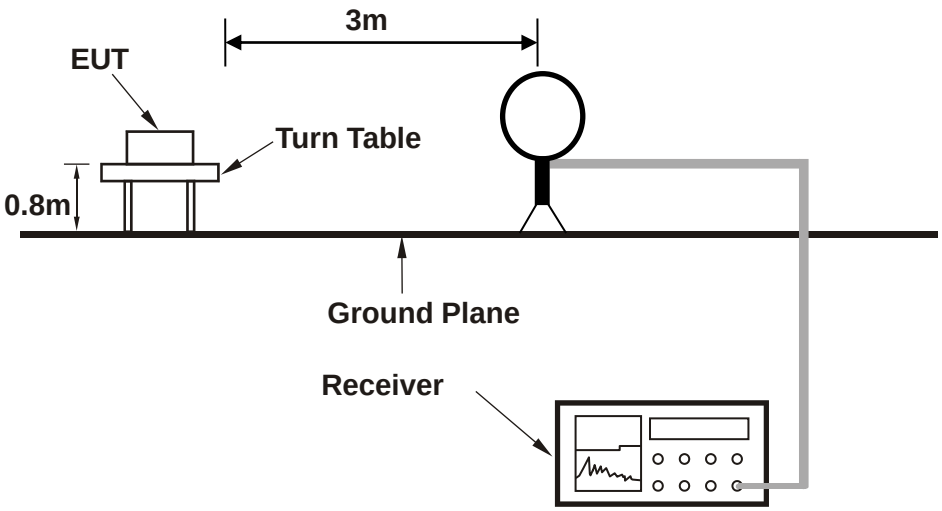
The EUT is continuously communicating during the tests.

EUT was set in the Hidden menu mode to enable NFC communications.

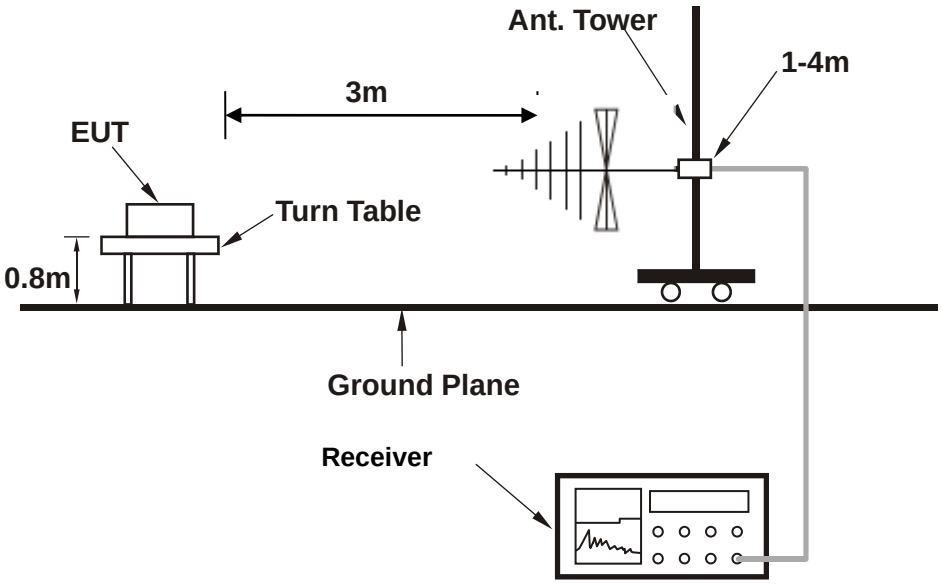
**Setup diagram for Conducted Test**




**Setup diagram for Radiation(9KHz~30MHz) Test**



**Setup diagram for Radiation(Below 1G) Test**



## 2.5 MEASUREMENT RESULTS EXPLANATION EXAMPLE

**For all conducted test items:**

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
*Offset = RF cable loss + attenuator factor.*
Following shows an offset computation example with cable loss 5 dB and 10dB attenuator.

*Offset(dB) = RF cable loss(dB) + attenuator factor(dB).*
= 5 + 10 = 15 (dB)

# 3 TEST RESULT

## 3.1 20DB AND 99% BANDWIDTH MEASUREMENT

### 3.1.1 LIMIT OF 20DB AND 99% BANDWIDTH

Intentional radiators must be designed to ensure that the 20dB and 99% emission bandwidth in the specific band 13.553~13.567MHz.

### 3.1.2 TEST PROCEDURES

1. The spectrum analyzer connected via a receive antenna placed near the EUT in peak Max hold mode.
2. The resolution bandwidth of 1 kHz and the video bandwidth of 3 kHz were used. (Since the signal being measured is CW or CW-like, it is impractical to adjust RBW according to C63.10 because the bandwidth measured will always follow RBW and the result will be approximately twice as large as RBW.)
3. Measured the spectrum width with power higher than 20dB below carrier.
4. Measured the 99% OBW.

## 3.1.3 TEST RESULT OF 20DB AND 99% BANDWIDTH

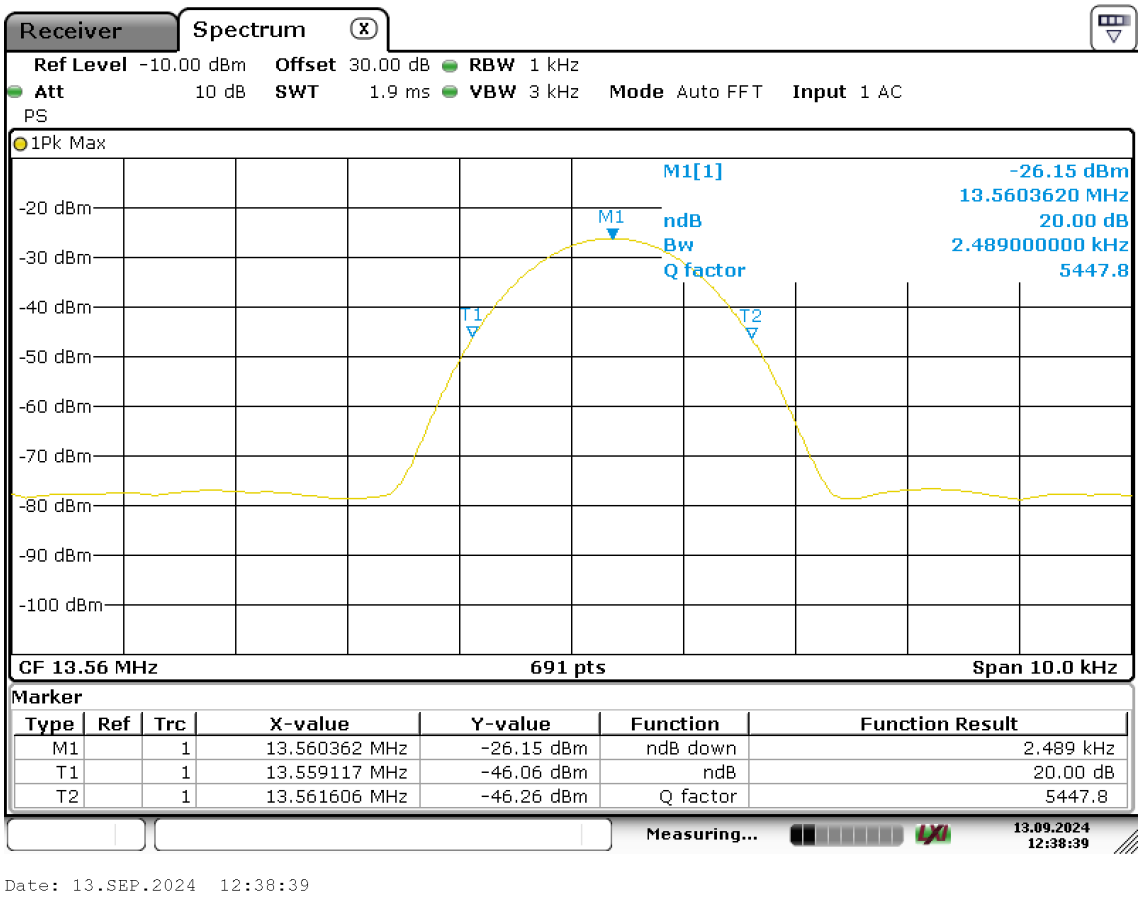
| Test Mode : | NFC | Temperature : | 23℃ |
|---|---|---|---|
| Test Engineer : | Hanwen Xu | Relative Humidity : | 50% |

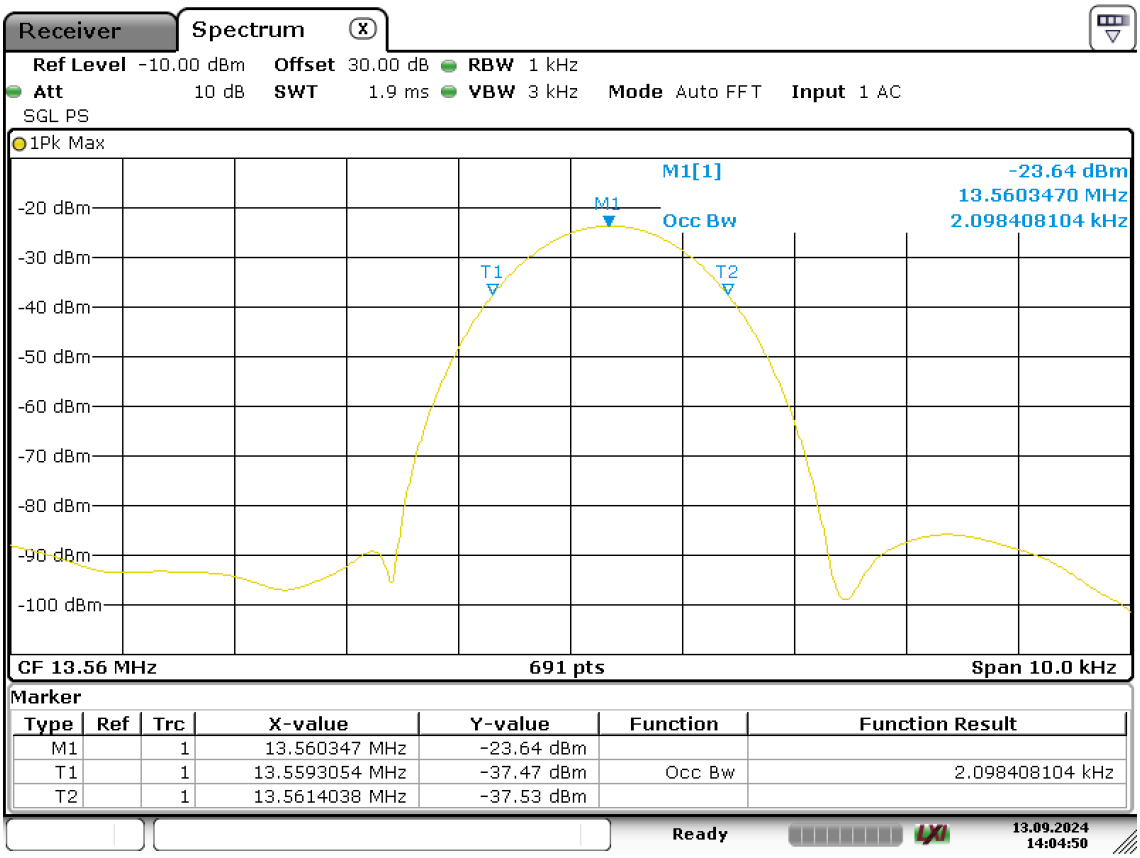
| Mode | Frequency | 20dB Bandwidth [kHz] | 99% OBW[kHz] | Verdict |
|---|---|---|---|---|
| NFC Type F_212 Kbps | 13.56MHz | 2.489 | 2.098 | PASS |

**20dB Bandwidth & 99% Bandwidth Plot**

Graphs

NFC Type F_ 212 Kbps



| Graphs | |
|---|---|
| NFC Type F_ 212 Kbps |  |

# 3.2 FREQUENCY STABILITY MEASUREMENT

## 3.2.1 LIMIT OF FREQUENCY STABILITY

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% (100ppm) of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

## 3.2.2 TEST PROCEDURES

1. The spectrum analyzer connected via a receive antenna placed near the EUT.
2. EUT have transmitted signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire emissions bandwidth.
4. Set RBW = 1 kHz, VBW = 3 kHz with peak detector and maxhold settings.
5. The fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × $10^6$ ppm and the limit is less than ±100ppm.
6. Extreme temperature rule is -20°C~50°C.

## 3.2.3 TEST RESULT OF FREQUENCY STABILITY

The NFC Type F_212 Kbps is the worst case, Only report worst mode data

NFC Type F_212 Kbps

| Voltage (Vdc) | Temperature (℃) | Measurement Frequency (MHz) | Frequency Tolerance(ppm) | Limit(ppm) | Result |
|---|---|---|---|---|---|
| 3.6 | 20 | 13.5601 | 7.37 | ±100 | Pass |
| 4.4 | | 13.56029 | 21.39 | | Pass |
| 3.85 | -20 | 13.5602 | 14.75 | | Pass |
| | -10 | 13.56005 | 3.69 | | Pass |
| | 0 | 13.55996 | -2.95 | | Pass |
| | 10 | 13.55992 | -5.90 | | Pass |
| | 20 | 13.55991 | -6.64 | | Pass |
| | 30 | 13.55992 | -5.90 | | Pass |
| | 40 | 13.55984 | -11.80 | | Pass |
| | 50 | 13.56008 | 5.90 | | Pass |

# 3.3 FIELD STRENGTH OF FUNDAMENTAL EMISSIONS AND MASK MEASUREMENT

## 3.3.1 LIMIT OF FIELD STRENGTH OF FUNDAMENTAL EMISSIONS AND MASK

| Rules and specifications | FCC CFR 47 Part 15 section 15.225<br>IC RSS-210 B.6 | | | |
|---|---|---|---|---|
| Description | Compliance with the spectrum mask is tested with RBW set to 9kHz. | | | |
| Freq. of Emission (MHz) | Field Strength (μV/m) at 30m | Field Strength (dBμV/m) at 30m | Field Strength (dBμV/m) at 10m | Field Strength (dBμV/m) at 3m |
| 1.705~13.110 | 30 | 29.5 | 48.58 | 69.5 |
| 13.110~13.410 | 106 | 40.5 | 59.58 | 80.5 |
| 13.410~13.553 | 334 | 50.5 | 69.58 | 90.5 |
| 13.553~13.567 | 15848 | 84.0 | 103.08 | 124.0 |
| 13.567~13.710 | 334 | 50.5 | 69.58 | 90.5 |
| 13.710~14.010 | 106 | 40.5 | 59.58 | 80.5 |
| 14.010~30.000 | 30 | 29.5 | 48.58 | 69.5 |

## 3.3.2 TEST PROCEDURES

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the loop receiving antenna mounted antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
4. For Fundamental emissions, use the receiver to measure QP reading.
5. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
6. Compliance with the spectrum mask is tested with RBW set to 9kHz.

   Note: Emission level (dBμV/m) = 20 log Emission level (μV/m).

### 3.3.3 TEST RESULTS OF FIELD STRENGTH OF FUNDAMENTAL EMISSIONS AND MASK (1.705 MHZ ~ 30 MHZ)

| | | | |
|---|---|---|---|
| **Test Mode :** | NFC (13.56 MHz) | **Temperature :** | 23℃ |
| **Test Engineer :** | Hanwen Xu | **Relative Humidity :** | 50% |
| **Frequency Range** | 13.11MHz~14.01MHz | **Polarization :** | Horizontal |


| Rg | Frequency [MHz] | PK+ Level [dBµV/m] | PK+: QPK Limit [dBµV/m] | PK+ Margin [dB] | Correction [dB] | Polarization | Azimuth [deg] | Antenna Height [m] |
|---|---|---|---|---|---|---|---|---|
| 3 | 13.560 | 38.48 | 124.00 | 85.52 | 20.26 | H | 4.9 | 1.50 |

# 3.4 RADIATED EMISSIONS MEASUREMENT

## 3.4.1 LIMIT

The field strength of any emissions which appear outside of 13.110 ~14.010MHz band shall not exceed the general radiated emissions limits.

| Frequencies (MHz) | Field Strength (μV/m) | 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 |

## 3.4.2 MEASURING INSTRUMENT SETTING

The following table is the setting of receiver.

| Receiver Parameter | Setting |
|---|---|
| Attenuation | Auto |
| Frequency Range: 9kHz~150kHz | RBW 200Hz for QP |
| Frequency Range: 150kHz~30MHz | RBW 9kHz for QP |
| Frequency Range: 30MHz~1000MHz | RBW 120kHz for Peak |

**Note:** The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

## 3.4.3 TEST PROCEDURES

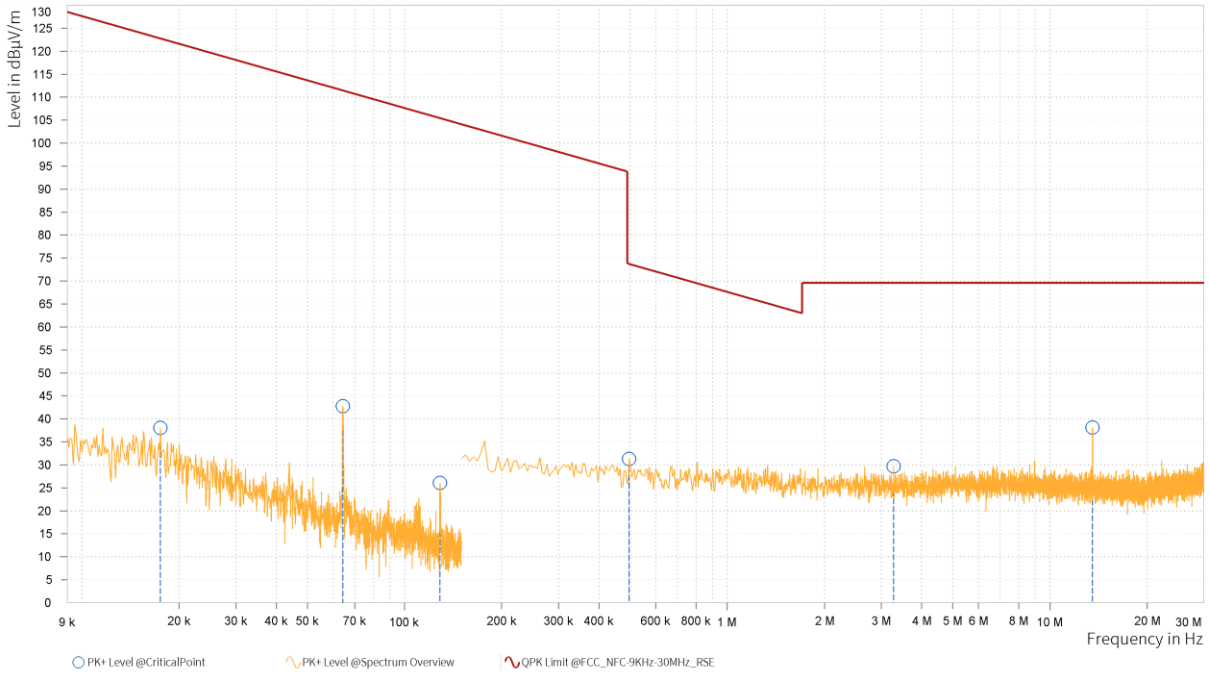
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the

turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.

5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
7. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver.

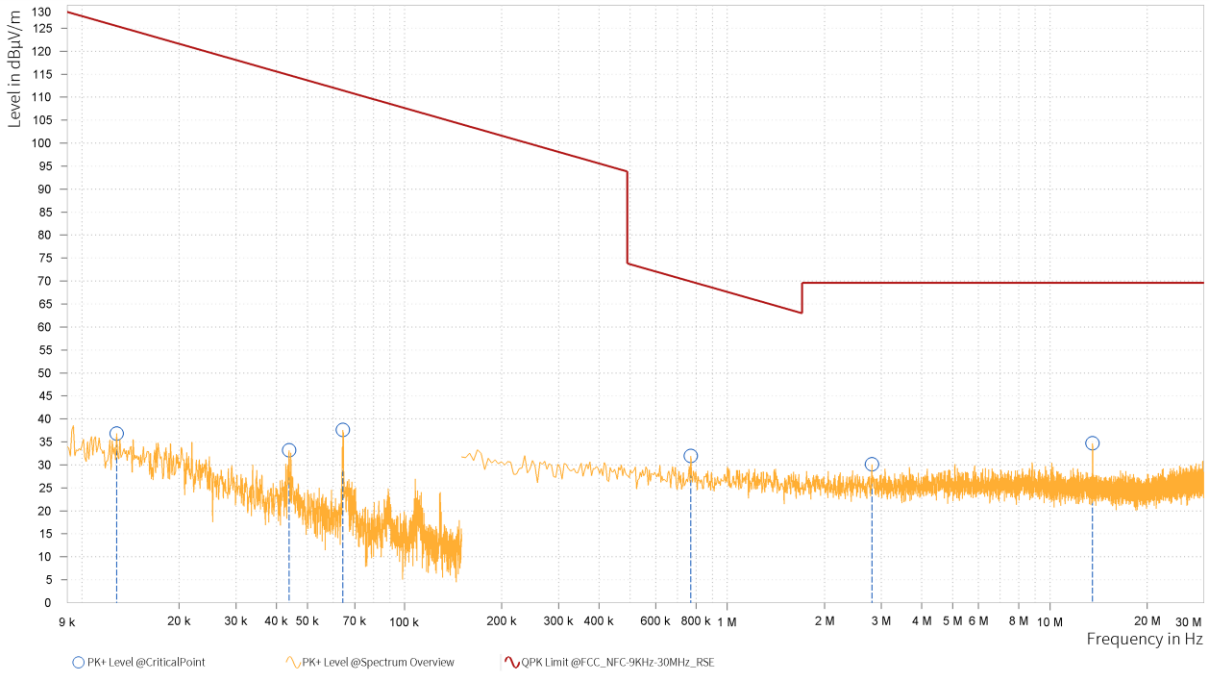
## 3.4.4 TEST RESULTS OF RADIATED EMISSIONS (9 KHZ ~ 30 MHZ)

| Test Mode : | NFC (13.56 MHz) | Temperature : | 23℃ |
|---|---|---|---|
| Test Engineer : | Hanwen Xu | Relative Humidity : | 50% |
| Frequency Range | 9 KHz ~ 30 MHz | Polarization : | Horizontal |




| Rg | Frequency [MHz] | PK+ Level [dBµV/m] | PK+: QPK Limit [dBµV/m] | PK+ Margin [dB] | Correction [dB] | Polarization | Azimuth [deg] | Antenna Height [m] |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.018 | 38.06 | 122.74 | 84.68 | 20.27 | H | 1 | 1.50 |
| 1 | 0.064 | 42.76 | 111.44 | 68.68 | 20.55 | H | 359 | 1.50 |
| 1 | 0.129 | 26.05 | 105.42 | 79.36 | 20.41 | H | 359 | 1.50 |
| 2 | 0.497 | 31.32 | 73.69 | 42.36 | 20.37 | H | 358.8 | 1.50 |
| 2 | 3.278 | 29.71 | 69.54 | 39.83 | 20.36 | H | 1 | 1.50 |
| 2 | 13.560 | 38.16 | 69.54 | 31.38 | 20.26 | H | 358.8 | 1.50 |

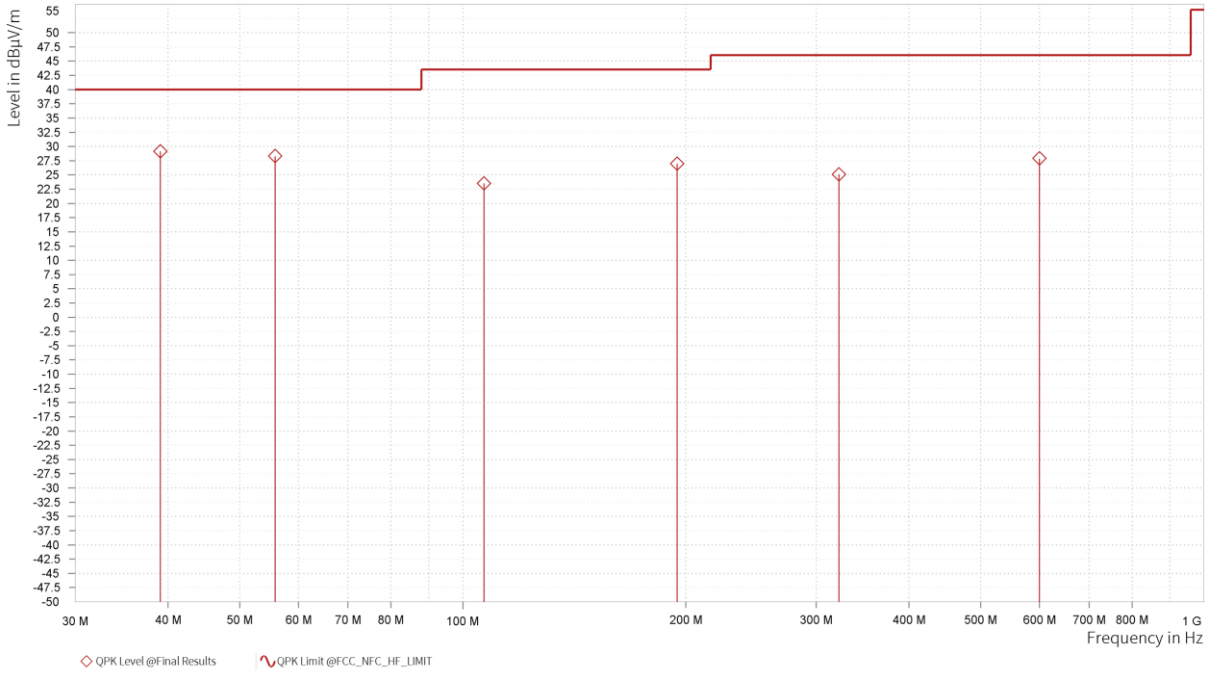
| Test Mode : | NFC (13.56 MHz) | Temperature : | 23℃ |
|---|---|---|---|
| Test Engineer : | Hanwen Xu | Relative Humidity : | 50% |
| Frequency Range | 9 KHz ~ 30 MHz | Polarization : | Vertical |




| Rg | Frequency [MHz] | PK+ Level [dBµV/m] | PK+: QPK Limit [dBµV/m] | PK+ Margin [dB] | Correction [dB] | Polarization | Azimuth [deg] | Antenna Height [m] |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.013 | 36.82 | 125.46 | 88.64 | 20.16 | V | 4.3 | 1.50 |
| 1 | 0.044 | 33.15 | 114.77 | 81.62 | 20.56 | V | 4.3 | 1.50 |
| 1 | 0.064 | 37.60 | 111.44 | 73.84 | 20.55 | V | 359 | 1.50 |
| 2 | 0.771 | 31.93 | 69.86 | 37.93 | 20.28 | V | 1 | 1.50 |
| 2 | 2.805 | 30.13 | 69.54 | 39.41 | 20.34 | V | 358.8 | 1.50 |
| 2 | 13.560 | 34.68 | 69.54 | 34.86 | 20.26 | V | 358.8 | 1.50 |

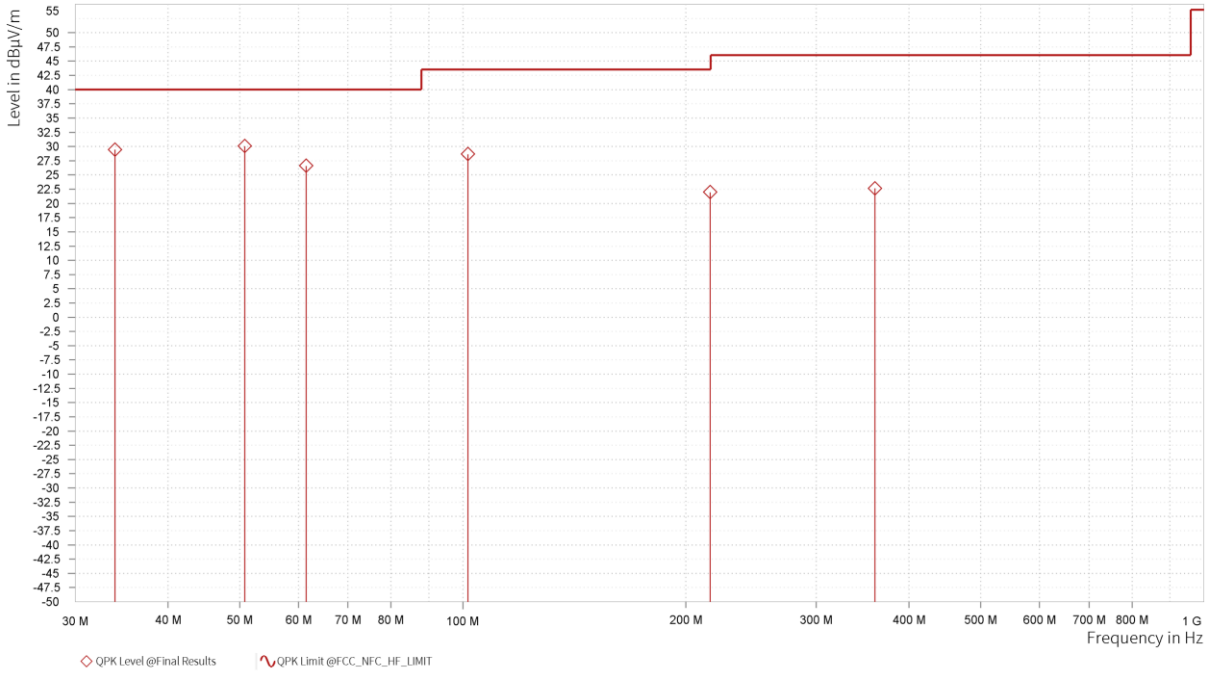
## 3.4.5 TEST RESULT OF RADIATED SPURIOUS EMISSION (30MHZ ~ 1GHZ)

| Test Mode : | NFC (13.56MHz) | Temperature : | 23℃ |
|---|---|---|---|
| Test Engineer : | Hanwen Xu | Relative Humidity : | 50% |
| Frequency Range | 30MHz~1GHz | Polarization : | Horizontal |




| Rg | Frequency [MHz] | QPK Level [dBµV/m] | QPK Limit [dBµV/m] | QPK Margin [dB] | Correction [dB] | Polarization | Azimuth [deg] | Antenna Height [m] | Meas. BW [kHz] |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 39.083 | 29.14 | 40.0 | 10.86 | -5.0 | H | 359.0 | 1.0 | 120.0 |
| 1 | 55.837 | 28.3 | 40.0 | 11.7 | -4.16 | H | 270.7 | 1.0 | 120.0 |
| 1 | 106.806 | 23.51 | 43.5 | 19.99 | -5.87 | H | 359.0 | 1.0 | 120.0 |
| 1 | 194.724 | 26.97 | 43.5 | 16.53 | -5.43 | H | 5.0 | 1.0 | 120.0 |
| 1 | 321.882 | 25.1 | 46.0 | 20.9 | -1.21 | H | 359.0 | 1.0 | 120.0 |
| 1 | 600.184 | 27.87 | 46.0 | 18.13 | 3.31 | H | 359.0 | 1.0 | 120.0 |

| Test Mode : | NFC (13.56MHz) | Temperature : | 23℃ |
|---|---|---|---|
| Test Engineer : | Hanwen Xu | Relative Humidity : | 50% |
| Frequency Range | 30MHz~1GHz | Polarization : | Vertical |




| Rg | Frequency [MHz] | QPK Level [dBµV/m] | QPK Limit [dBµV/m] | QPK Margin [dB] | Correction [dB] | Polarization | Azimuth [deg] | Antenna Height [m] | Meas. BW [kHz] |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 33.924 | 29.43 | 40.0 | 10.57 | -8.42 | V | 140.3 | 1.0 | 120.0 |
| 1 | 50.767 | 30.06 | 40.0 | 9.94 | -4.66 | V | 8.7 | 1.0 | 120.0 |
| 1 | 61.481 | 26.58 | 40.0 | 13.42 | -7.74 | V | 140.3 | 1.0 | 120.0 |
| 1 | 101.648 | 28.64 | 43.5 | 14.86 | -6.04 | V | 359.0 | 1.0 | 120.0 |
| 1 | 215.711 | 21.96 | 43.5 | 21.54 | -5.34 | V | 8.7 | 1.0 | 120.0 |
| 1 | 359.976 | 22.62 | 46.0 | 23.38 | 1.1 | V | 8.7 | 1.0 | 120.0 |

# 3.5 AC CONDUCTED EMISSION MEASUREMENT

## 3.5.1 LIMIT OF AC CONDUCTED EMISSION

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency of Emission (MHz) | Conducted Limit (dBμV) | |
|---|---|---|
| | 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.

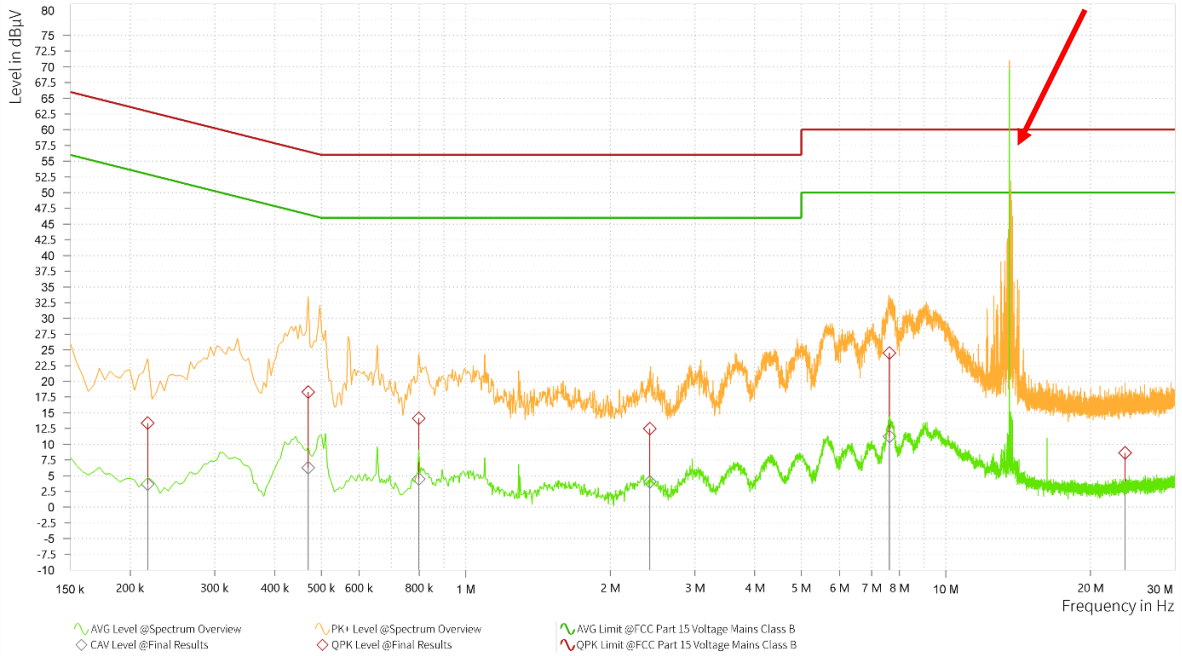
## 3.5.2 TEST PROCEDURES

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

### 3.5.3 TEST RESULT OF AC CONDUCTED EMISSION

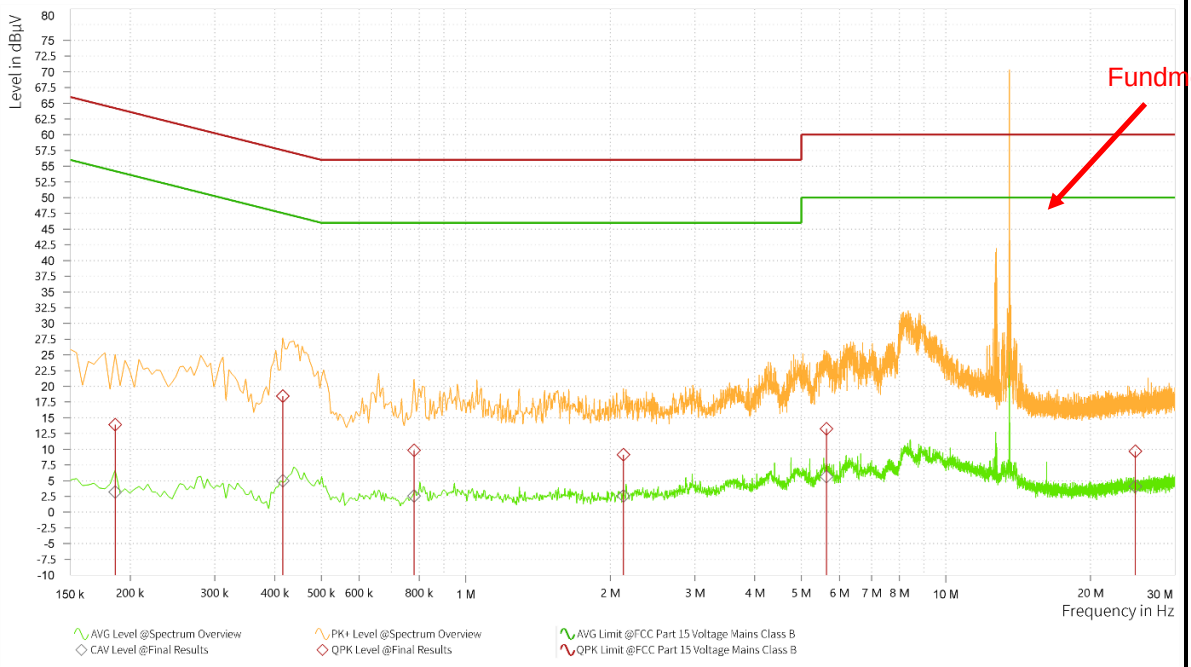
| Test Mode : | NFC | Temperature : | 26℃ |
|---|---|---|---|
| Test Engineer : | Hanwen Xu | Relative Humidity : | 51% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Line |
| Function Type : | NFC | | |

Fundmental Signal




| Rg | Frequency [MHz] | QPK Level [dBµV] | QPK Limit [dBµV] | QPK Margin [dB] | CAV Level [dBµV] | CAV: AVG Limit [dBµV] | CAV Margin [dB] | Correction [dB] | Line | Meas. BW [kHz] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.218 | 13.38 | 62.91 | 49.53 | 3.65 | 52.91 | 49.26 | 11.97 | L1 | 9.000 |
| 1 | 0.470 | 18.29 | 56.52 | 38.23 | 6.27 | 46.52 | 40.25 | 11.75 | L1 | 9.000 |
| 1 | 0.798 | 14.12 | 56.00 | 41.88 | 4.46 | 46.00 | 41.54 | 11.74 | L1 | 9.000 |
| 1 | 2.418 | 12.47 | 56.00 | 43.53 | 3.99 | 46.00 | 42.01 | 11.76 | L1 | 9.000 |
| 1 | 7.625 | 24.51 | 60.00 | 35.49 | 11.24 | 50.00 | 38.76 | 11.81 | L1 | 9.000 |
| 1 | 23.618 | 8.64 | 60.00 | 51.36 | 3.06 | 50.00 | 46.94 | 11.89 | L1 | 9.000 |

| Test Mode : | NFC | Temperature : | 26℃ |
|---|---|---|---|
| Test Engineer : | Hanwen Xu | Relative Humidity : | 51% |
| Test Voltage : | AC 120V/60Hz | Phase : | Neutral |
| Function Type : | NFC | | |




| Rg | Frequency [MHz] | QPK Level [dBµV] | QPK Limit [dBµV] | QPK Margin [dB] | CAV Level [dBµV] | CAV: AVG Limit [dBµV] | CAV Margin [dB] | Correction [dB] | Line | Meas. BW [kHz] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.186 | 13.89 | 64.21 | 50.32 | 3.19 | 54.21 | 51.02 | 12.24 | N | 9.000 |
| 1 | 0.416 | 18.44 | 57.54 | 39.10 | 4.98 | 47.54 | 42.56 | 12.81 | N | 9.000 |
| 1 | 0.780 | 9.82 | 56.00 | 46.18 | 2.56 | 46.00 | 43.44 | 12.74 | N | 9.000 |
| 1 | 2.130 | 9.13 | 56.00 | 46.87 | 2.57 | 46.00 | 43.43 | 12.74 | N | 9.000 |
| 1 | 5.640 | 13.24 | 60.00 | 46.76 | 5.66 | 50.00 | 44.34 | 12.76 | N | 9.000 |
| 1 | 24.810 | 9.67 | 60.00 | 50.33 | 4.08 | 50.00 | 45.92 | 12.87 | N | 9.000 |

# 3.6 ANTENNA REQUIREMENTS

## 3.6.1 STANDARD APPLICABLE

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. 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.

## 3.6.2 ANTENNA CONNECTED CONSTRUCTION

A LOOP Antenna design is used.

## 3.6.3 ANTENNA GAIN

The antenna peak gain of EUT is less than 6 dBi.

# 4 LIST OF MEASURING EQUIPMENT

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|---|---|---|---|---|---|
| WIDEBANDRADIO COMMUNICATION TESTER | Rohde&Schwarz | CMW500 | 169399 | Jun.19,24 | Jun.18,26 |
| 3m Semi-anechoic Chamber | TDK | 9m*6m*6m | HRSW-SZ-EMC-02Chamber | Nov.24,22 | Nov.23,25 |
| Bilog Antenna | SCHWARZBECK | VULB 9163 | 1264 | Dec.26,23 | Dec.25,25 |
| Loop Antenna | R&S | HFH2-Z2/Z2E | 100976 | Feb.22,24 | Feb.21,26 |
| Antenna Power Supply | RS | N/A | N/A | N/A | N/A |
| EMI Test Receiver | R&S | ESW44 | 101973 | Mar.28,24 | Mar.27,26 |
| Measurement Software | R&S | ELEKTRA | N/A | N/A | N/A |
| Pre-Amplifier | R&S | SCU08F1 | 101028 | Sep.16,22 | Sep.15,24 |
| Pre-Amplifier | R&S | SCU08F1 | 101028 | Sep.15,24 | Sep.14,26 |
| CABLE | R&S | W13.01 | N/A | Apr.27,24 | Apr.26,25 |
| CABLE | R&S | W13.02 | N/A | Apr.27,24 | Apr.26,25 |
| CABLE | R&S | W12.14 | N/A | Apr.27,24 | Apr.26,25 |

**NOTE:** 1. The calibration interval of the above test instruments is 12/ 24/ 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Chamber.

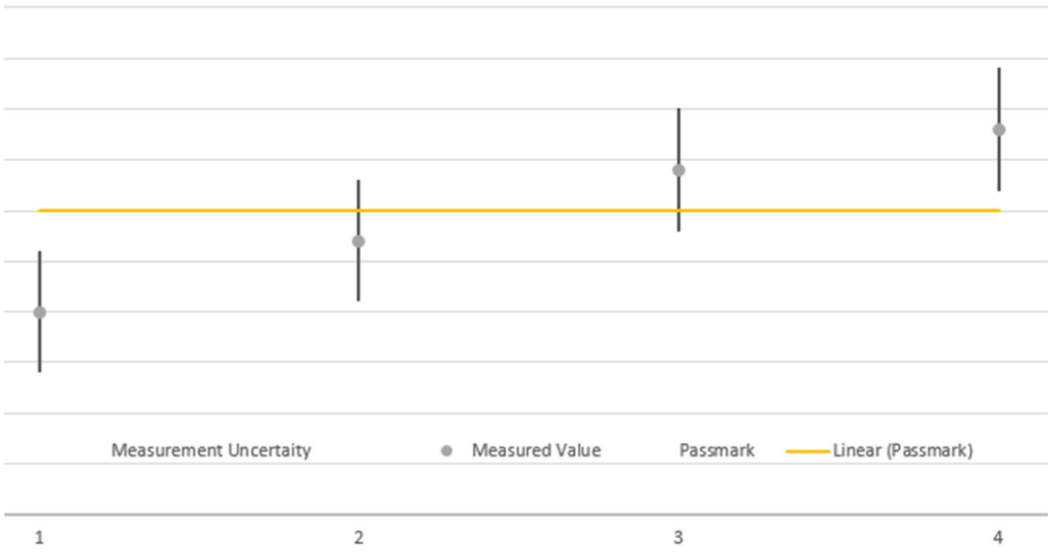
3. The FCC Site Registration No. is 434559; The Designation No. is CN1325.

# 5 UNCERTAINTY OF EVALUATION

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| MEASUREMENT | UNCERTAINTY |
|---|---|
| AC Power Conducted emissions | ±2.70dB |
| Radiated emissions (9KHz~30MHz) | ±2.68dB |
| Radiated emissions (30MHz~1GHz) | ±4.98dB |
| Occupied Channel Bandwidth | ±43.58KHz |
| Frequency Stability | ±76.97Hz |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.




The verdicts in this test report are given according the above diagram:

| Case | Measured Value | Uncertainty Range | Verdict |
|---|---|---|---|
| 1 | below pass mark | below pass mark | Passed |
| 2 | below pass mark | within pass mark | Passed |
| 3 | above pass mark | within pass mark | Failed |
| 4 | above pass mark | above pass mark | Failed |

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

----------End of the report----------