REPORT No.: SZ19120149E01

# TEST REPORT

| | | |
|---|---|---|
| **APPLICANT** | : | BLU Products, Inc. |
| **PRODUCT NAME** | : | Mobile Phone |
| **MODEL NAME** | : | Z4 MUSIC |
| **BRAND NAME** | : | BLU |
| **FCC ID** | : | YHLBLUZ4MUSIC |
| **STANDARD(S)** | : | 47 CFR Part 15 Subpart B |
| **RECEIPT DATE** | : | 2020-03-12 |
| **TEST DATE** | : | 2020-03-26 to 2020-04-10 |
| **ISSUE DATE** | : | 2020-04-23 |

Edited by: He Sinuo(Rapporteur)

Checked by: Xiao Xiong(Reviewer)

Approved by: David Tang(Supervisor)

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MORLAB

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# DIRECTORY



| Change History | | |
|---|---|---|
| **Version** | **Date** | **Reason for change** |
| 1.0 | 2020-04-23 | First edition |
| | | |

# 1. Technical Information

**Note:** Provide by applicant

## 1.1. Applicant and Manufacturer Information

| | |
|---|---|
| **Applicant:** | BLU Products, Inc. |
| **Applicant Address:** | 10814 NW 33rd St # 100 Doral, FL 33172,USA |
| **Manufacturer:** | BLU Products, Inc. |
| **Manufacturer Address:** | 10814 NW 33rd St # 100 Doral, FL 33172,USA |

## 1.2. Equipment Under Test (EUT) Description

| | | |
|---|---|---|
| **Product Name:** | Mobile Phone | |
| **Serial No:** | (N/A, marked #1 by test site) | |
| **Hardware Version:** | PCBA CE61201 | |
| **Software Version:** | BLU_Z250_V03.02_GENERIC_20191123 | |
| **SIM Cards Description:** | SIM 1 and SIM 2 is a chipset unit and tested separately. The SIM 1 is the worst case. | |
| **Tx Frequency:** | GSM850: 824 MHz ~ 849 MHz<br>GSM1900: 1850 MHz ~ 1910 MHz<br>Bluetooth 4.2: 2402 MHz ~ 2480 MHz | |
| **Rx Frequency:** | GSM850: 869 MHz ~ 894 MHz<br>GSM1900: 1930 MHz ~ 1990 MHz<br>Bluetooth 4.2: 2402 MHz ~ 2480 MHz<br>GPS:1559 MHz ~ 1610 MHz<br>FM: 87.5-108MHz | |
| **Ancillary Equipment:** | **AC Adapter** | |
| | Brand Name: | BLU |
| | Model No.: | US-GL-0500 |
| | Serial No.: | (N/A, marked #1 by test site) |
| | Rated Input: | 100-240V~50/60Hz 0.2A |
| | Rated Output: | 5.0V⎓500mA |
| | Manufacturer: | Shenzhen GuangLiYuan Electronic Co., Ltd. |
| | **Battery** | |
| | Brand Name: | BLU |
| | Model No.: | N5C800T |
| | Serial No.: | (N/A, marked #1 by test site) |

| | | |
|---|---|---|
| | Capacity: | 800mAh |
| | Rated Voltage: | 3.7V |
| | Charge Limit: | 4.2V |
| | Manufacturer: | Shen Zhen JiaYuan TongDa Technology CO., Ltd. |

**Note:**

1. The Smart Phone supports GSM850MHz, 1900MHz, GPRS, Bluetooth, GPS and FM function.
2. The EUT is equipped with a T-Flash card slot, two SIM card slots and a Micro USB port which can be connected to ancillary equipments.
3. For a more detailed description, please refer to specification or user's manual supplied by the applicant and/or manufacturer.

# 2. Test Results

## 2.1. Applied Reference Documents

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

| No. | Identity | Document Title |
|---|---|---|
| 1 | 47 CFR Part 15 | Radio Frequency Devices |

Test detailed items/section required by FCC rules and results are as below:

| No. | Section | Description | Test Date | Test Engineer | Result | Method determination Remark |
|---|---|---|---|---|---|---|
| 1 | 15.107 | Conducted Emission | 2020.04.10 | Huang Zhiye | PASS | No deviation |
| 2 | 15.109 | Radiated Emission | 2020.03.26 | Yang Jie | PASS | No deviation |

NOTE 1: The tests were performed according to the method of measurements prescribed in ANSI C63.4-2014.

NOTE 2: Additions to, deviation, or exclusions from the method shall be judged in the" method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

## 2.2. EUT Setup and Operating Conditions

| **Test Mode** | |
|---|---|
| Mode 1 : | GSM850 Idle + Bluetooth Idle + Battery + Earphone + USB Cable (Charging from Adapter) + Adapter + SIM Card + GPS |
| Mode 2 : | GSM1900 Idle + Bluetooth Idle + Battery + Earphone + USB Cable(Charging from Adapter) + Adapter + SIM Card + FM |
| **Mode 3 :** | **GSM850 Idle + Bluetooth Idle + Battery + Earphone + USB Cable(Charging from Adapter) + Adapter + SIM Card + Camera** |
| Mode 4 : | GSM1900 Idle + Bluetooth Idle + Battery + Earphone + USB Cable(Charging from Adapter) + Adapter + SIM Card + MP4 |
| **Mode 5 :** | **GSM850 Idle + Bluetooth Idle + Battery + Earphone + USB Cable + SIM Card + PC** |
| **Remark:** The above test modes in boldface (Mode 5) was the worst cases of radiated emission. The above test modes in boldface (Mode 3) was the worst cases of conducted emission tests; only the test data of these modes was reported. | |

During the measurement, the environmental conditions were within the listed ranges:

| | |
|---|---|
| Temperature (°C): | 15 - 35 |
| Relative Humidity (%): | 30 - 60 |
| Atmospheric Pressure (kPa): | 86 - 106 |

# 3. 47 CFR Part 15B Requirements

## 3.1. Conducted Emission

### 3.1.1. Requirement

According to FCC section 15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

| Frequency range (MHz) | Conducted Limit (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 - 0.50 | 66 to 56 | 56 to 46 |
| 0.50 - 5 | 56 | 46 |
| 5 - 30 | 60 | 50 |

NOTE:

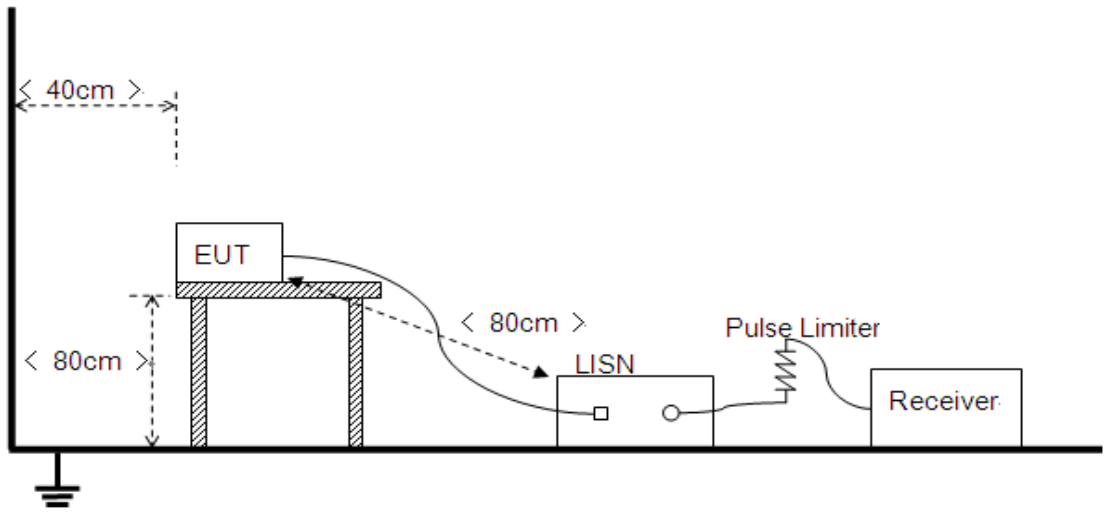
a) The limit subjects to the Class B digital device.

b) The lower limit shall apply at the band edges.

c) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

### 3.1.2. Test Setup

Please refer to Annex A for the photographs of the Test Configuration.



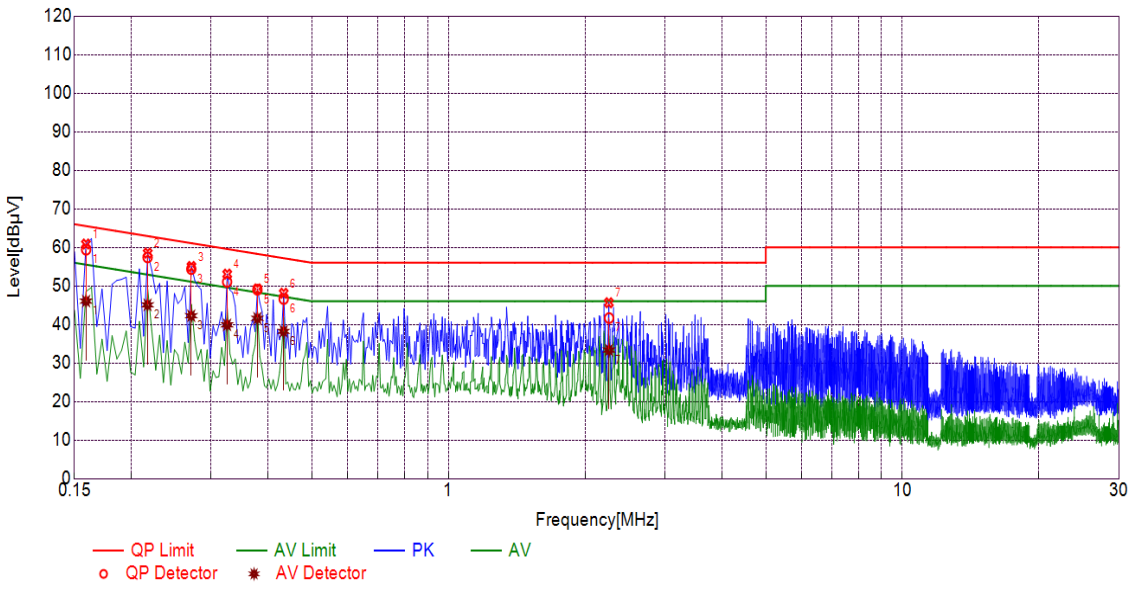
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50Ω/50μH of coupling impedance for the measuring instrument. A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

The power strip or extension cord has been investigated to make sure that the LISN integrity inma intained with respect to the impedance characteristics as prescribed in ANSI C63.4-2014 at Clause 4.3.

### 3.1.3. Test Result

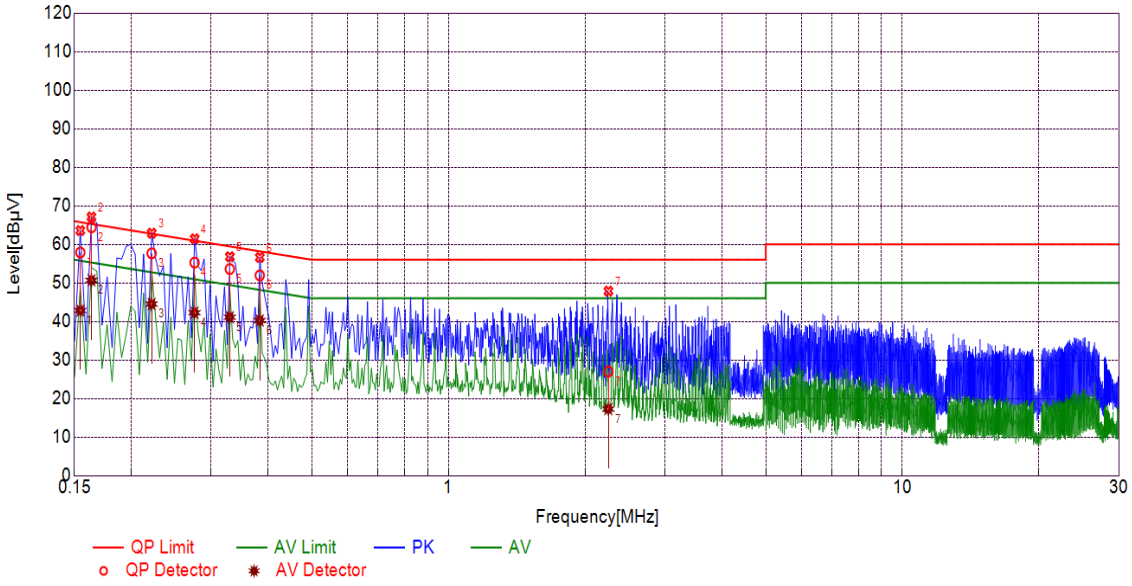
The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

## A. Test Plot and Suspicious Points:




(Plot A:L Phase)

| NO. | Fre. (MHz) | Emission Level (dBµV) | | Limit (dBµV) | | Power-line | Verdict |
|---|---|---|---|---|---|---|---|
| | | Quai-peak | Average | Quai-peak | Average | | |
| 1 | 0.1591 | 59.39 | 46.05 | 65.51 | 55.51 | Line | PASS |
| 2 | 0.2173 | 57.40 | 45.08 | 62.92 | 52.92 | | PASS |
| 3 | 0.2712 | 54.38 | 42.25 | 61.08 | 51.08 | | PASS |
| 4 | 0.3253 | 51.06 | 39.90 | 59.57 | 49.57 | | PASS |
| 5 | 0.3793 | 49.03 | 41.59 | 58.29 | 48.29 | | PASS |
| 6 | 0.4334 | 46.61 | 38.21 | 57.19 | 47.19 | | PASS |
| 7 | 2.2578 | 41.65 | 33.36 | 56.00 | 46.00 | | PASS |




(Plot B: N Phase)

| NO. | Fre. (MHz) | Emission Level (dBµV) | | Limit (dBµV) | | Power-line | Verdict |
|---|---|---|---|---|---|---|---|
| | | Quai-peak | Average | Quai-peak | Average | | |
| 1 | 0.1545 | 57.88 | 42.83 | 65.76 | 55.76 | Neutral | PASS |
| 2 | 0.1635 | 64.42 | 50.67 | 65.28 | 55.28 | | PASS |
| 3 | 0.2218 | 57.67 | 44.51 | 62.75 | 52.75 | | PASS |
| 4 | 0.2758 | 55.27 | 42.25 | 60.94 | 50.94 | | PASS |
| 5 | 0.3298 | 53.60 | 41.09 | 59.46 | 49.46 | | PASS |
| 6 | 0.3839 | 51.96 | 40.24 | 58.19 | 48.19 | | PASS |
| 7 | 2.2504 | 27.00 | 17.27 | 56.00 | 46.00 | | PASS |

# 3.2. Radiated Emission

## 3.2.1. Requirement

According to FCC section 15.109 (a), the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency range (MHz) | Field Strength Limitation at 3m Measurement Dist | |
|---|---|---|
| | (μV/m) | (dBμV/m) |
| 30.0 - 88.0 | 100 | 20log 100 |
| 88.0 - 216.0 | 150 | 20log 150 |
| 216.0 - 960.0 | 200 | 20log 200 |
| Above 960.0 | 500 | 20log 500 |

As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

Note:

1) The tighter limit shall apply at the boundary between two frequency range.
2) Limitation expressed in dBμV/m is calculated by 20log Emission Level(μV/m).

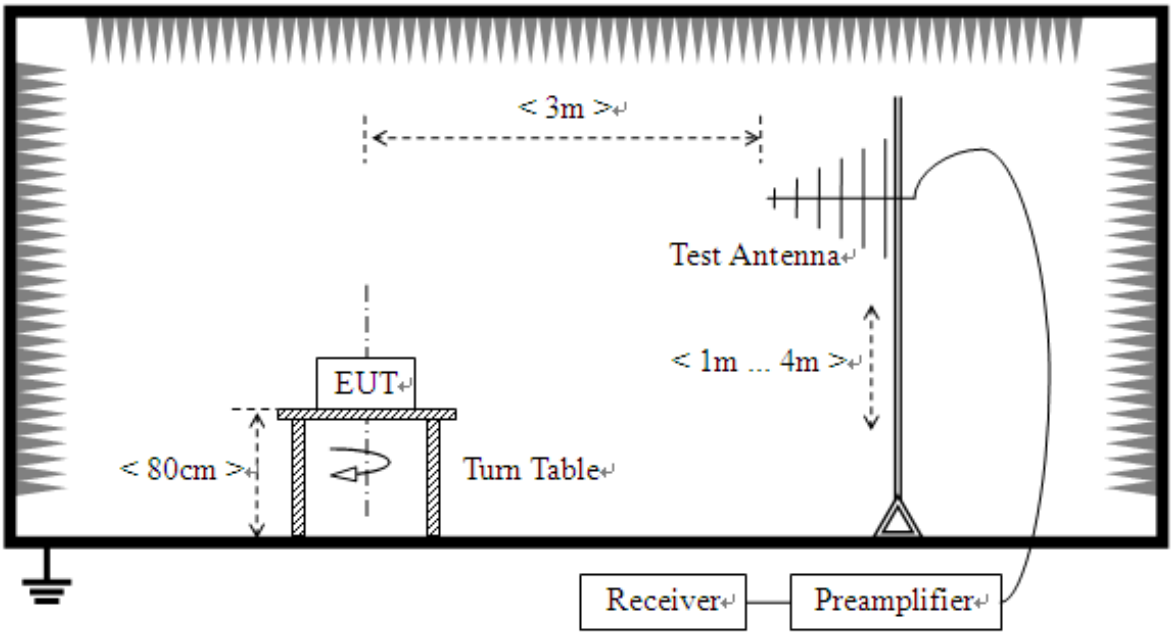
## 3.2.2. Frequency range of measurement

According to 15.33(b)(1), the frequency range of radiated measurement for the EUT is listed in the following table:

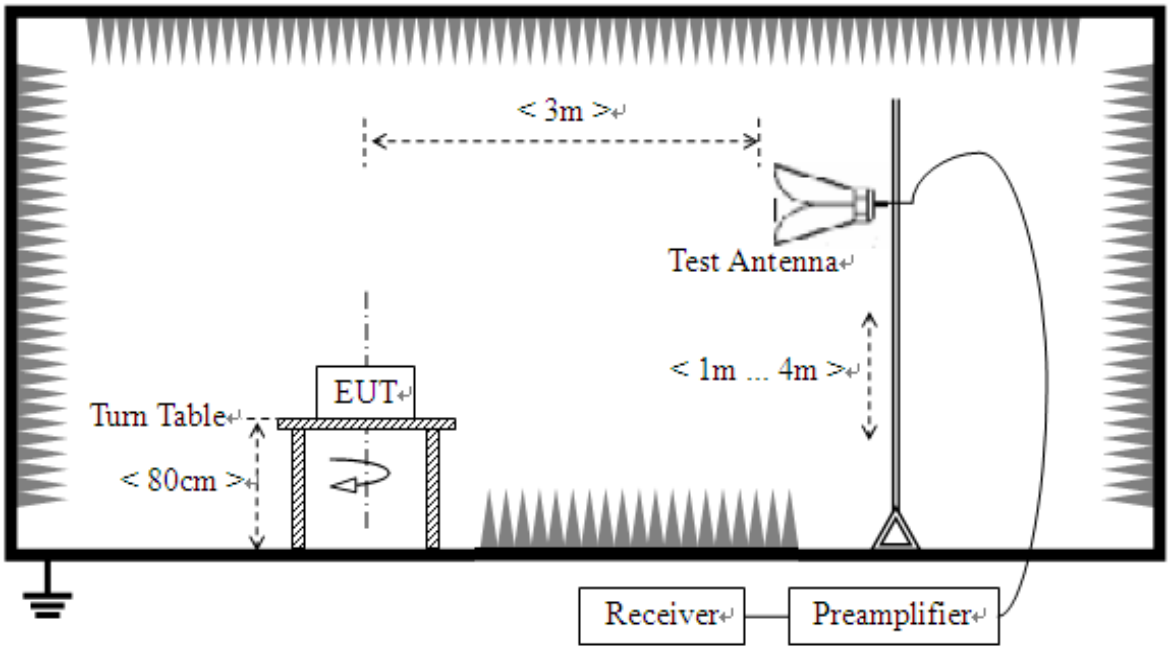
| Highest frequency generated or used in the device or on which the device operates or tunes (MHz) | Upper frequency of measurement range (MHz) |
|---|---|
| Below 1.705 | 30. |
| 1.705–108 | 1000. |
| 108–500 | 2000. |
| 500–1000 | 5000. |
| Above 1000 | 5th harmonic of the highest frequency or 40 GHz, whichever is lower. |

### 3.2.3. Test Setup

1) For radiated emissions from 30MHz to1GHz




2) For radiated emissions above 1GHz



The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on avariable-height antenna master tower.

For the test Antenna:

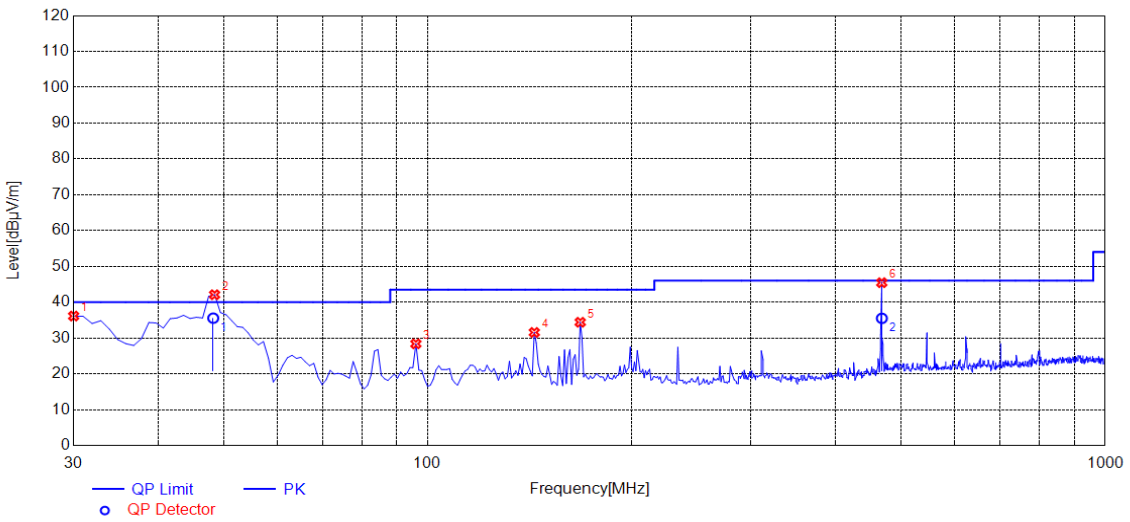
In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz)are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

### 3.2.4. Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

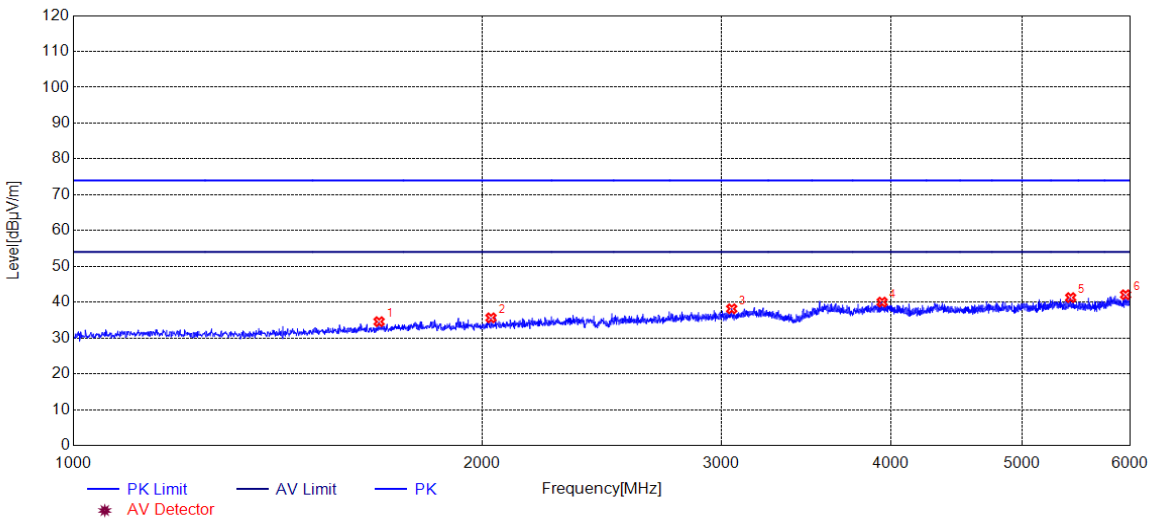
The amplitude of emissions which (6GHz-12.5GHz) are attenuated more than 20 dB below the permissible value need not be reported.

Note: All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.



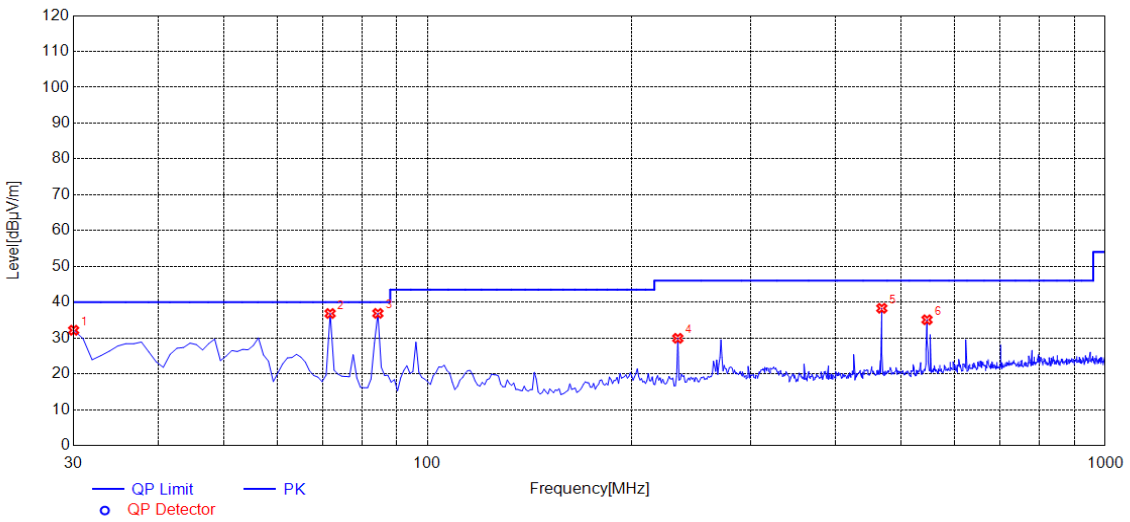

(Plot A: ANT-Vertical,30MHz - 1GHz)

| No. | Fre. MHz | Pk dBµV/m | QP dBµV/m | AV dBµV/m | Limit-PK dBµV/m | Limit-QP dBµV/m | Limit-AV dBµV/m | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 30.0000 | 36.13 | N.A | N.A | N.A | 40.00 | N.A | V | PASS |
| 2 | 48.4484 | 42.09 | 35.55 | N.A | N.A | 40.00 | N.A | V | PASS |
| 3 | 96.0260 | 28.38 | N.A | N.A | N.A | 43.50 | N.A | V | PASS |
| 4 | 143.6036 | 31.56 | N.A | N.A | N.A | 43.50 | N.A | V | PASS |
| 5 | 167.8779 | 34.40 | N.A | N.A | N.A | 43.50 | N.A | V | PASS |
| 6 | 467.9079 | 45.45 | 35.50 | N.A | N.A | 46.00 | N.A | V | PASS |



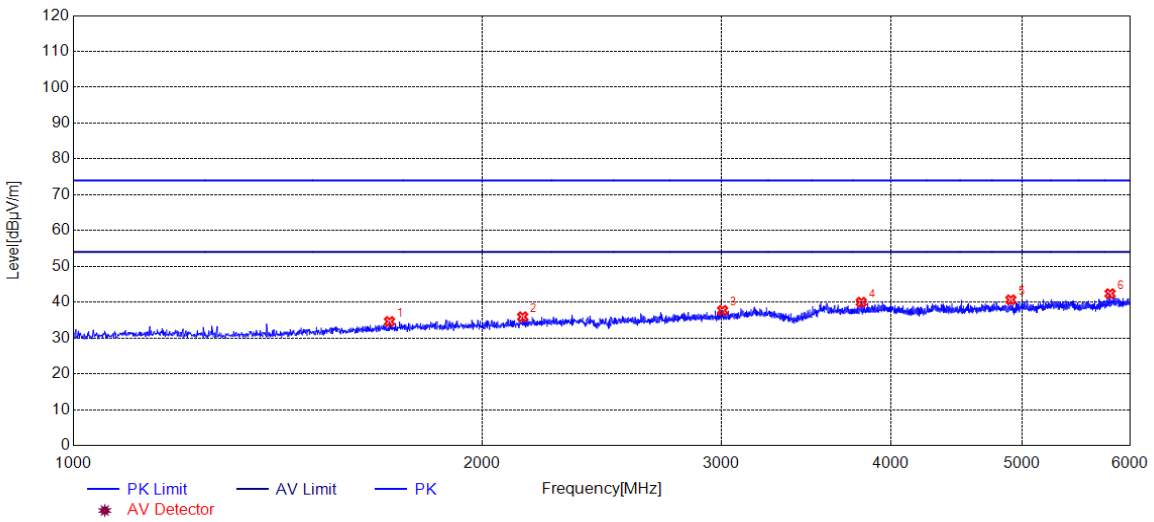

(Plot B: ANT-Vertical,1GHz - 6GHz)

| No. | Fre. MHz | Pk dBµV/m | QP dBµV/m | AV dBµV/m | Limit-PK dBµV/m | Limit-QP dBµV/m | Limit-AV dBµV/m | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1679.1358 | 34.57 | N.A | N.A | 74.00 | N.A | 54.00 | V | PASS |
| 2 | 2030.2060 | 35.64 | N.A | N.A | 74.00 | N.A | 54.00 | V | PASS |
| 3 | 3054.4109 | 38.16 | N.A | N.A | 74.00 | N.A | 54.00 | V | PASS |
| 4 | 3942.5885 | 40.03 | N.A | N.A | 74.00 | N.A | 54.00 | V | PASS |
| 5 | 5428.8858 | 41.28 | N.A | N.A | 74.00 | N.A | 54.00 | V | PASS |
| 6 | 5958.9918 | 42.08 | N.A | N.A | 74.00 | N.A | 54.00 | V | PASS |




(Plot C:ANT- Horizontal, 30MHz - 1GHz)

| No. | Fre. MHz | Pk dBµV/m | QP dBµV/m | AV dBµV/m | Limit-PK dBµV/m | Limit-QP dBµV/m | Limit-AV dBµV/m | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 30.0000 | 32.17 | N.A | N.A | N.A | 40.00 | N.A | H | PASS |
| 2 | 71.7518 | 36.85 | N.A | N.A | N.A | 40.00 | N.A | H | PASS |
| 3 | 84.3744 | 36.88 | N.A | N.A | N.A | 40.00 | N.A | H | PASS |
| 4 | 233.9039 | 29.92 | N.A | N.A | N.A | 46.00 | N.A | H | PASS |
| 5 | 467.9079 | 38.30 | N.A | N.A | N.A | 46.00 | N.A | H | PASS |
| 6 | 545.5856 | 35.10 | N.A | N.A | N.A | 46.00 | N.A | H | PASS |




(Plot D:ANT- Horizontal, 1GHz - 6GHz)

| No. | Fre. MHz | Pk dBµV/m | QP dBµV/m | AV dBµV/m | Limit-PK dBµV/m | Limit-QP dBµV/m | Limit-AV dBµV/m | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1709.1418 | 34.62 | N.A | N.A | 74.00 | N.A | 54.00 | H | PASS |
| 2 | 2142.2284 | 35.94 | N.A | N.A | 74.00 | N.A | 54.00 | H | PASS |
| 3 | 3007.4015 | 37.73 | N.A | N.A | 74.00 | N.A | 54.00 | H | PASS |
| 4 | 3805.5611 | 40.01 | N.A | N.A | 74.00 | N.A | 54.00 | H | PASS |
| 5 | 4904.7810 | 40.68 | N.A | N.A | 74.00 | N.A | 54.00 | H | PASS |
| 6 | 5803.9608 | 42.40 | N.A | N.A | 74.00 | N.A | 54.00 | H | PASS |

# Annex A Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Uncertainty of Conducted Emission Measurement

| | | |
|---|---|---|
| Measuring Uncertainty for a Level of Confidence of 95%(U=2Uc(y)) | 9kHz-150kHz | ±4.1dB |
| | 150kHz-30MHz | ±3.7dB |

Uncertainty of Radiated Emission Measurement

| | | |
|---|---|---|
| Measuring Uncertainty for a Level of Confidence of 95%(U=2Uc(y)) | 30MHz-200MHz | ±5.06dB |
| | 200MHz-1000MHz | ±5.24dB |
| | 1GHz-6GHz | ±5.18dB |
| | 6GHz-18GHz | ±5.48dB |

# Annex B Testing Laboratory Information

## 1. Identification of the Responsible Testing Laboratory

| | |
|---|---|
| **Laboratory Name:** | Shenzhen Morlab Communications Technology Co., Ltd.<br>Morlab Laboratory |
| **Laboratory Address:** | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |
| **Telephone:** | +86 755 36698555 |
| **Facsimile:** | +86 755 36698525 |

## 2. Identification of the Responsible Testing Location

| | |
|---|---|
| **Name:** | Shenzhen Morlab Communications Technology Co., Ltd.<br>Morlab Laboratory |
| **Address:** | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |

## 3. Accreditation Certificate

| | |
|---|---|
| **AccreditedTesting Laboratory:** | The FCC designation number is CN1192.<br>Test firm registration number is 226174.<br>(Shenzhen Morlab Communications Technology Co., Ltd.) |

## 4. Test Software Utilized

| Model | Version Number | Producer |
|---|---|---|
| JS32-RE | Version 2.0.2.0 | Tonscend |
| TS+ -[ JS32-CE] | Version2.5.0.0 | Tonscend |

## 5. Test Equipments Utilized

| Description | Manufacturer | Model | Serial No. | Cal. Date | Due. Date |
|---|---|---|---|---|---|
| MXE EMI Receiver | Agilent | N9038A | MY54130016 | 2019.07.29 | 2020.07.28 |
| Test Receiver | R&S | ESPI | 101052 | 2019.07.29 | 2020.07.28 |
| LISN | Schwarzbeck | NSLK 8127 | 812744 | 2020.03.26 | 2021.03.25 |
| Pulse Limiter (20dB) | VTSD | 9561D | 9537 | 2019.08.13 | 2020.08.12 |
| Test Antenna - Bi-Log | Schwarzbeck | VULB 9163 | 9163-519 | 2019.05.24 | 2022.05.23 |
| Test Antenna - Horn | Schwarzbeck | BBHA 9120D | 1774 | 2019.07.26 | 2022.07.25 |
| Radiated Disturbance Preamplifier | rflight | S020180L3203 | 61171/61172 | 2019.07.29 | 2020.07.28 |
| Radiated Disturbance Preamplifier | rflight | S10M100L3802 | 46732 | 2019.07.29 | 2020.07.28 |
| Semi-Anechoic Chamber | CRT | 9m*6m*6m | N/A | 2019.07.13 | 2022.07.12 |
| Apple Computer | Apple | N/A | C3QJJ2X2DRVD | N/A | N/A |
| Adapter | DELTA | A1436 | N/A | N/A | N/A |
| Headset | N/A | N/A | N/A | N/A | N/A |

END OF REPORT