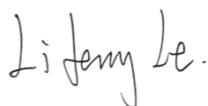


**FCC TEST REPORT**  
**For**  
**Shenzhen Geekbuy E-commerce Co.,Ltd.**  
**Portable Party Speaker**  
**Test Model: P3030**

|                                |   |                                                                                                                |
|--------------------------------|---|----------------------------------------------------------------------------------------------------------------|
| Prepared for                   | : | Shenzhen Geekbuy E-commerce Co.,Ltd.                                                                           |
| Address                        | : | Warehouse 101H, No.49 South WuHe Avenue, Wuhe Community,<br>BanTian Street, LongGang District, ShenZhen, China |
| Prepared by                    | : | Guangzhou LCS Compliance Testing Laboratory Ltd.                                                               |
| Address                        | : | No.44-1, Qianfeng North Road, Shiqi, Panyu District, Guangzhou,<br>Guangdong, China                            |
| Tel                            | : | (+86) 020-39166689                                                                                             |
| Fax                            | : | (+86) 020-39166619                                                                                             |
| Web                            | : | www.LCS-cert.com                                                                                               |
| Mail                           | : | webmaster@LCS-cert.com                                                                                         |
| Date of receipt of test sample | : | July 03, 2026                                                                                                  |
| Number of tested samples       | : | 2                                                                                                              |
| Sample No.                     | : | C260703001-1, C260703001-2                                                                                     |
| Serial number                  | : | Prototype                                                                                                      |
| Date of Test                   | : | July 03, 2026 ~ July 06, 2026                                                                                  |
| Date of Report                 | : | July 07, 2026                                                                                                  |

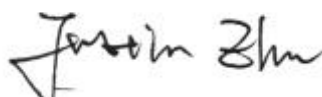
| <b>FCC TEST REPORT</b><br><b>FCC CFR 47 PART 15 C (15.247)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Report Reference No. .... : LCSC05076014EA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| Date of Issue..... : July 07, 2026                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
| <b>Testing Laboratory Name..... : Guangzhou LCS Compliance Testing Laboratory Ltd.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| Address..... : No.44-1, Qianfeng North Road, Shiqi, Panyu District, Guangzhou, Guangdong, China                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| Testing Location/ Procedure..... : Full application of Harmonised standards ■<br>Partial application of Harmonised standards □<br>Other standard testing method □                                                                                                                                                                                                                                                                                                                                                                |  |
| <b>Applicant's Name..... : Shenzhen Geekbuy E-commerce Co.,Ltd.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| Address..... : Warehouse 101H, No.49 South WuHe Avenue, Wuhe Community, BanTian Street, LongGang District, ShenZhen, China                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| <b>Test Specification</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| Standard..... : FCC CFR 47 PART 15 C (15.247)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
| Test Report Form No..... : TRF-4-E-148 A/0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| TRF Originator..... : Guangzhou LCS Compliance Testing Laboratory Ltd.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| Master TRF..... : Dated 2011-03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <b>Guangzhou LCS Compliance Testing Laboratory Ltd. All rights reserved.</b><br>This publication may be reproduced in whole or in part for non-commercial purposes as long as the Guangzhou LCS Compliance Testing Laboratory Ltd. is acknowledged as copyright owner and source of the material. Guangzhou LCS Compliance Testing Laboratory Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. |  |
| <b>Test Item Description..... : Portable Party Speaker</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| Trade Mark..... : Tronsmart                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| Test Model..... : P3030                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| Ratings..... : Please Refer to Page 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <b>Result ..... : PASS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |

Compiled by:



Lifeng Le / Administrator

Reviewed by:



Justin Zhu/ Technique Director

Approved by:



Gavin Liang/ Manager

**FCC -- TEST REPORT**

|                                         |                                       |
|-----------------------------------------|---------------------------------------|
| <b>Test Report No. :</b> LCSC05076014EA | <u>July 07, 2026</u><br>Date of issue |
|-----------------------------------------|---------------------------------------|

|                          |                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------|
| Test Model.....          | : P3030                                                                                                          |
| EUT.....                 | : Portable Party Speaker                                                                                         |
| <b>Applicant.....</b>    | <b>: Shenzhen Geekbuy E-commerce Co.,Ltd.</b>                                                                    |
| Address.....             | : Warehouse 101H, No.49 South WuHe Avenue, Wuhe Community,<br>BanTian Street, LongGang District, ShenZhen, China |
| Telephone.....           | : /                                                                                                              |
| Fax.....                 | : /                                                                                                              |
| <b>Manufacturer.....</b> | <b>: Shenzhen Geekbuy E-commerce Co.,Ltd.</b>                                                                    |
| Address.....             | : Warehouse 101H, No.49 South WuHe Avenue, Wuhe Community,<br>BanTian Street, LongGang District, ShenZhen, China |
| Telephone.....           | : /                                                                                                              |
| Fax.....                 | : /                                                                                                              |
| <b>Factory.....</b>      | <b>: /</b>                                                                                                       |
| Address.....             | : /                                                                                                              |
| Telephone.....           | : /                                                                                                              |
| Fax.....                 | : /                                                                                                              |

|                    |             |
|--------------------|-------------|
| <b>Test Result</b> | <b>PASS</b> |
|--------------------|-------------|

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.

## Revision History

| Report Version | Issue Date    | Revision Content | Revised By |
|----------------|---------------|------------------|------------|
| 000            | July 07, 2026 | Initial Issue    | ---        |
|                |               |                  |            |
|                |               |                  |            |

## TABLE OF CONTENTS

| Description                                        | Page      |
|----------------------------------------------------|-----------|
| <b>1. GENERAL INFORMATION .....</b>                | <b>6</b>  |
| 1.1 Description of Device (EUT) .....              | 6         |
| 1.2 Support equipment List .....                   | 7         |
| 1.3 External I/O Cable .....                       | 7         |
| 1.4 Description of Test Facility .....             | 7         |
| 1.5 Statement of the Measurement Uncertainty ..... | 7         |
| 1.6 Measurement Uncertainty .....                  | 8         |
| 1.7 Description of Test Modes .....                | 8         |
| <b>2. TEST METHODOLOGY .....</b>                   | <b>9</b>  |
| 2.1 EUT Configuration .....                        | 9         |
| 2.2 EUT Exercise .....                             | 9         |
| 2.3 General Test Procedures .....                  | 9         |
| 2.4. Test Sample .....                             | 9         |
| <b>3. SYSTEM TEST CONFIGURATION .....</b>          | <b>10</b> |
| 3.1 Justification .....                            | 10        |
| 3.2 EUT Exercise Software .....                    | 10        |
| 3.3 Special Accessories .....                      | 10        |
| 3.4 Block Diagram/Schematics .....                 | 10        |
| 3.5 Equipment Modifications .....                  | 10        |
| 3.6 Test Setup .....                               | 10        |
| <b>4. SUMMARY OF TEST RESULTS .....</b>            | <b>11</b> |
| <b>5. SUMMARY OF TEST EQUIPMENT .....</b>          | <b>12</b> |
| <b>6. MEASUREMENT RESULTS .....</b>                | <b>13</b> |
| 6.1. Radiated Emissions Measurement .....          | 13        |
| 6.2. AC Power Line Conducted Emissions .....       | 22        |
| 6.3. Antenna Requirement .....                     | 25        |
| <b>7. TEST SETUP PHOTOGRAPHS OF EUT .....</b>      | <b>26</b> |
| <b>8. EXTERIOR PHOTOGRAPHS OF THE EUT .....</b>    | <b>26</b> |
| <b>9. INTERIOR PHOTOGRAPHS OF THE EUT .....</b>    | <b>26</b> |

## 1. GENERAL INFORMATION

### 1.1 Description of Device (EUT)

|                     |                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------|
| EUT                 | : Portable Party Speaker                                                                   |
| Test Model          | : P3030                                                                                    |
| Ratings             | : Input: AC 100-240V~, 50/60Hz, 140W<br>Output: 5V=1A<br>Battery: DC14.8V, 4500mAh, 66.6Wh |
| Hardware Version    | : /                                                                                        |
| Software Version    | : /                                                                                        |
| Bluetooth           | :                                                                                          |
| Frequency Range     | : 2402MHz~2480MHz                                                                          |
| Channel Number      | : 79 channels for Bluetooth V6.0(DSS)<br>40 channels for Bluetooth V6.0 (DTS)              |
| Channel Spacing     | : 1MHz for Bluetooth V6.0 (DSS)<br>2MHz for Bluetooth V6.0 (DTS)                           |
| Modulation Type     | : GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V6.0(DSS)<br>GFSK for Bluetooth V6.0 (DTS)    |
| Bluetooth Version   | : V6.0                                                                                     |
| Antenna Description | : FPC Antenna, 1.98dBi(Max.)                                                               |

Note: For a more detailed antenna description, please refer to the antenna specifications or the antenna report provided by the customer.

## 1.2 Support equipment List

| Manufacturer | Description | Model | Serial Number | Certificate |
|--------------|-------------|-------|---------------|-------------|
| --           | --          | --    | --            | --          |

## 1.3 External I/O Cable

| I/O Port Description | Quantity | Cable |
|----------------------|----------|-------|
| AC charging Port     | 1        | N/A   |
| USB Port             | 1        | N/A   |
| AUX Port             | 1        | N/A   |
| MIC Port             | 2        | N/A   |

## 1.4 Description of Test Facility

### Site Description

EMC Lab. : CNAS Registration Number is L11555  
A2LA Certificate Number: 5099.01  
FCC Designation Number is CN1379  
Test Firm Registration Number: 729882

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10-2020 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

## 1.5 Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

## 1.6 Measurement Uncertainty

| Test Item                      | Frequency Range | Uncertainty | Note |
|--------------------------------|-----------------|-------------|------|
| Radiation Uncertainty          | 9KHz~30MHz      | ±3.10dB     | (1)  |
|                                | 30MHz~200MHz    | ±2.96dB     | (1)  |
|                                | 200MHz~1000MHz  | ±3.10dB     | (1)  |
|                                | 1GHz~26.5GHz    | ±3.80dB     | (1)  |
|                                | 26.5GHz~40GHz   | ±3.90dB     | (1)  |
| Conduction Uncertainty         | 150kHz~30MHz    | ±1.63dB     | (1)  |
| Power disturbance              | 30MHz~300MHz    | ±1.60dB     | (1)  |
| Output power                   | 1GHz-40GHz      | ±0.57dB     | (1)  |
| Occupied Channel Bandwidth     | 1GHz-40GHz      | ±5%         | (1)  |
| Conducted RF Spurious Emission | 9kHz-40GHz      | ±1.80dB     | (1)  |
| Emissions in Restricted Bands  | 1GHz-40GHz      | ±2.47dB     | (1)  |
| Dwell time                     | 1GHz-40GHz      | 2.3%        | (1)  |

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

## 1.7 Description of Test Modes

Bluetooth operates in the unlicensed ISM Band at 2.4GHz. With basic data rate feature, the data rates can be up to 1 Mb/s by modulating the RF carrier using GFSK techniques. The EUT works in the X-axis, Y-axis, Z-axis. The following operating modes were applied for the related test items. All test modes were tested, only the result of the worst case was recorded in the report.

| Mode of Operations     | Frequency Range (MHz) | Data Rate (Mbps) |
|------------------------|-----------------------|------------------|
| BT                     | 2402                  | 1/2/3            |
|                        | 2441                  | 1/2/3            |
|                        | 2480                  | 1/2/3            |
| For Conducted Emission |                       |                  |
| Test Mode              | TX Mode/Hopping Mode  |                  |
| For Radiated Emission  |                       |                  |
| Test Mode              | TX Mode/Hopping Mode  |                  |

Worst-case mode and channel used for 150 KHz-30 MHz power line conducted emissions was determined to be TX (1Mbps-High Channel).

Worst-case mode and channel used for 9 KHz-1000 MHz radiated emissions was determined to be TX (1Mbps-High Channel).

Pre-test AC conducted emission at charge from 1Mbps-High Channel mode, recorded worst case.

Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/60Hz, recorded worst case.

AC conducted emission pre-test at power adapter modes, recorded worst case;

This is a Class II permissive change report for FCCID: 2AV3Z-P3030(Report No.: LCSC05076011EA)

Based on the original sample, the EUT input has changed.

So we tested and recorded the results for Conducted Emissions and Radiated Emission(Sequence of testing 30 MHz to 1 GHz) test item.

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2020, FCC CFR PART 15C 15.207, 15.209 and 15.247.

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The EUT was operated in the normal operating mode for Hopping Numbers and Dwell Time test and a continuous transmits mode for other tests.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209, 15.247 under the FCC Rules Part 15 Subpart C.

### 2.3 General Test Procedures

#### 2.3.1 Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.1.1 of ANSI C63.10-2020 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

#### 2.3.2 Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1GHz and 1.5 m above ground plane above 1GHz. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 6.4 of ANSI C63.10-2020.

### 2.4. Test Sample

The application provides 2 samples to meet requirement;

| Sample Number          | Description                           |
|------------------------|---------------------------------------|
| Sample 1(C260703001-1) | Engineer sample – continuous transmit |
| Sample 2(C260703001-2) | Normal sample – Intermittent transmit |

### 3. SYSTEM TEST CONFIGURATION

#### 3.1 Justification

The system was configured for testing in a continuous transmits condition.

#### 3.2 EUT Exercise Software

The system was configured for testing in a continuous transmits condition and change test channels by software provided by application.

#### 3.3 Special Accessories

| Manufacturer | Description | Model | Serial Number | Certificate |
|--------------|-------------|-------|---------------|-------------|
| --           | --          | --    | --            | --          |

#### 3.4 Block Diagram/Schematics

Please refer to the related document.

#### 3.5 Equipment Modifications

Guangzhou LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

#### 3.6 Test Setup

Please refer to the test setup photo.

#### 4. SUMMARY OF TEST RESULTS

| Applied Standard: FCC Part 15 Subpart C |                              |                      |           |        |
|-----------------------------------------|------------------------------|----------------------|-----------|--------|
| FCC Rules                               | Description of Test          | Test Sample          | Result    | Remark |
| §15.209(a)                              | Radiated Spurious Emissions  | Sample 1<br>Sample 2 | Compliant | Note 1 |
| §15.207(a)                              | AC Mains Conducted Emissions | Sample 2             | Compliant | Note 1 |
| §15.203                                 | Antenna Requirements         | Sample 1             | Compliant | Note 1 |
| §15.247(i)§1.1310<br>§15.247(i)§2.1093  | RF Exposure                  | N/A                  | Compliant | Note 2 |

*Remark:*

1. Note 1 – Test results inside test report;
2. Note 2 – Test results in other test report (RF Exposure Evaluation);

## 5. SUMMARY OF TEST EQUIPMENT

| Item | Equipment                           | Manufacturer       | Model No.                | Equipment No. | Cal Date   | Due Date   |
|------|-------------------------------------|--------------------|--------------------------|---------------|------------|------------|
| 1    | Power Meter                         | Keysight           | E4417A                   | GLCS-E-279    | 2026-04-07 | 2027-04-06 |
| 2    | Power Sensor                        | Keysight           | E9304A                   | GLCS-E-280    | 2026-04-07 | 2027-04-06 |
| 3    | Power Sensor                        | Keysight           | E9304A                   | GLCS-E-281    | 2026-04-07 | 2027-04-06 |
| 4    | Spread Spectrum Unit                | Tonscend           | TS-WF7U2                 | GLCS-E-364    | N/A        | N/A        |
| 5    | Test Software                       | Tonscend           | JS1120-3                 | GLCS-E-366    | N/A        | N/A        |
| 6    | RF Control Unit                     | Tonscend           | JS0806-2                 | GLCS-E-365    | 2025-09-01 | 2026-08-31 |
| 7    | MXA Signal Analyzer                 | Keysight           | N9020A                   | GLCS-E-356    | 2025-08-18 | 2026-08-17 |
| 8    | DC Power Supply                     | Keysight           | E3642A                   | GLCS-E-357    | 2025-08-18 | 2026-08-17 |
| 9    | Signal Analyzer                     | Keysight           | N5172B                   | GLCS-E-353    | 2025-08-18 | 2026-08-17 |
| 10   | Signal Analyzer                     | Keysight           | N5181A                   | GLCS-E-354    | 2025-08-18 | 2026-08-17 |
| 11   | WIDEBAND RADIO COMMUNICATION TESTER | Rohde & Schwarz    | CMW500                   | GLCS-E-355    | 2025-08-18 | 2026-08-17 |
| 12   | EMI Test Software                   | Farad              | EZ-EMC(Ver.FA-03 A2 RE+) | GLCS-E-012    | N/A        | N/A        |
| 13   | Semi Anechoic Chamber#1             | Maorui             | 966                      | GLCS-E-001    | 2024-04-21 | 2027-04-20 |
| 14   | Positioning Controller              | Max-Full           | MF-7802                  | GLCS-E-015    | N/A        | N/A        |
| 15   | Active Loop Antenna                 | TESEQ              | HLA 6121                 | GLCS-E-155    | 2025-07-19 | 2026-07-18 |
| 16   | By-log Antenna                      | SCHWARZBECK        | VULB9163                 | GLCS-E-352    | 2025-08-16 | 2028-08-15 |
| 17   | Low-frequency amplifier             | Sonoma             | 310N                     | GLCS-E-036    | 2026-04-07 | 2027-04-06 |
| 18   | Horn Antenna                        | SCHWARZBECK        | BBHA 9120D               | GLCS-E-060    | 2025-07-19 | 2026-07-18 |
| 19   | Broadband Horn Antenna              | SCHWARZBECK        | BBHA 9170                | GLCS-E-348    | 2025-08-18 | 2028-08-17 |
| 20   | Broadband Preamplifier              | Cesheng Technology | LNPA_30M06G-40(18GHz)    | GLCS-E-286    | 2026-04-07 | 2027-04-06 |
| 21   | Broadband Preamplifier              | Cesheng Technology | LNPA 30M06G-40(40GHz)    | GLCS-E-287    | 2026-04-10 | 2027-04-09 |
| 22   | EMI Test Receiver                   | R&S                | ESR 7                    | GLCS-E-192    | 2026-04-07 | 2027-04-06 |
| 23   | RS SPECTRUM ANALYZER                | R&S                | FSP40                    | GLCS-E-349    | 2025-08-16 | 2026-08-15 |
| 24   | 6dB Attenuator                      | /                  | 100W/6dB                 | GLCS-E-350    | 2025-08-13 | 2026-08-12 |
| 25   | 3dB Attenuator                      | /                  | 2N-3dB                   | GLCS-E-351    | 2025-08-13 | 2026-08-12 |
| 26   | EMI Test Receiver                   | ROHDE & SCHWARZ    | ESR7                     | GLCS-E-158    | 2026-04-07 | 2027-04-06 |
| 27   | Artificial Mains Network            | ROHDE & SCHWARZ    | ESH2-Z5                  | GLCS-E-011    | 2026-01-14 | 2027-01-13 |
| 28   | EMI Test Software                   | Farad              | EZ-EMC(Ver.FA-03 A2 RE+) | GLCS-E-017    | N/A        | N/A        |
| 29   | Antenna Mast                        | Maorui             | BK-4AT-BS                | GLCS-E-249    | N/A        | N/A        |
| 30   | Pulse Limiter                       | SCHWARZBECK        | VTSD 9561-F              | GLCS-E-080    | 2026-04-07 | 2027-04-06 |

## 6. MEASUREMENT RESULTS

### 6.1. Radiated Emissions Measurement

#### 6.1.1. Standard Applicable

15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| 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       |                     |               |             |

\1\ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

\2\ Above 38.6

According to §15.247 (d): 20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies (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                             |

#### 6.1.2. Measuring Instruments and Setting

Please refer to of equipment list in this report. The following table is the setting of spectrum analyzer and receiver.

| Spectrum Parameter                        | Setting                                           |
|-------------------------------------------|---------------------------------------------------|
| Attenuation                               | Auto                                              |
| Start Frequency                           | 1000 MHz                                          |
| Stop Frequency                            | 10 <sup>th</sup> carrier harmonic                 |
| RB / VB (Emission in restricted band)     | 1MHz / 1MHz for Peak, 1 MHz / 1/T kHz for Average |
| RB / VB (Emission in non-restricted band) | 1MHz / 1MHz for Peak, 1 MHz / 1/T kHz for Average |

| Receiver Parameter     | Setting                                    |
|------------------------|--------------------------------------------|
| Attenuation            | Auto                                       |
| Start ~ Stop Frequency | 9kHz~150kHz / RB/VB 200Hz/1KHz for QP/AVG  |
| Start ~ Stop Frequency | 150kHz~30MHz / RB/VB 9kHz/30KHz for QP/AVG |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB/VB 120kHz/1MHz for QP   |

### 6.1.3. Test Procedures

#### 1) Sequence of testing 9 kHz to 30 MHz

##### Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.
- If the EUT is a floor standing device, it is placed on the ground.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

##### Premeasurement:

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna height is 1.0 meter.
- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

##### Final measurement:

- Identified emissions during the premeasurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).
- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

## 2) Sequence of testing 30 MHz to 1 GHz

### Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

### Premeasurement:

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1 to 4 meter.
- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

### Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position ( $\pm 45^\circ$ ) and antenna movement between 1 and 4 meter.
- The final measurement will be done with QP detector with an EMI receiver.
- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

### 3) Sequence of testing 1 GHz to 18 GHz

#### Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

#### Premeasurement:

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 4 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

#### Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position ( $\pm 45^\circ$ ) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

#### 4) Sequence of testing above 18 GHz

##### Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 1 meter.
- The EUT was set into operation.

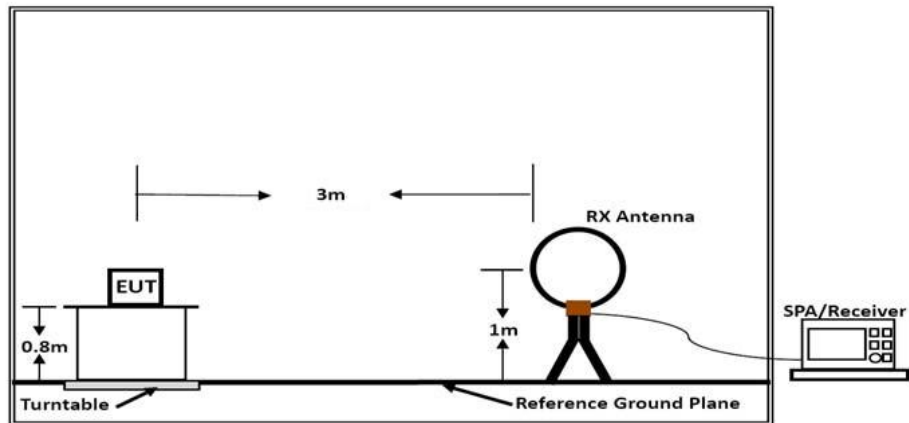
##### Premeasurement:

- The antenna is moved spherical over the EUT in different polarizations of the antenna.

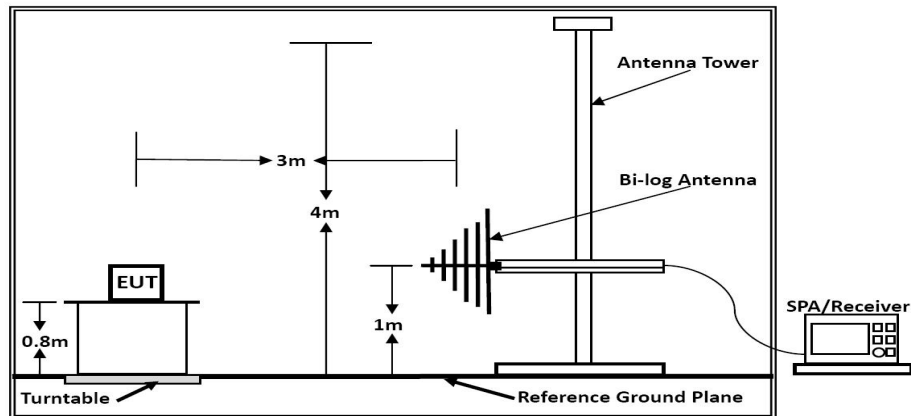
##### Final measurement:

- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

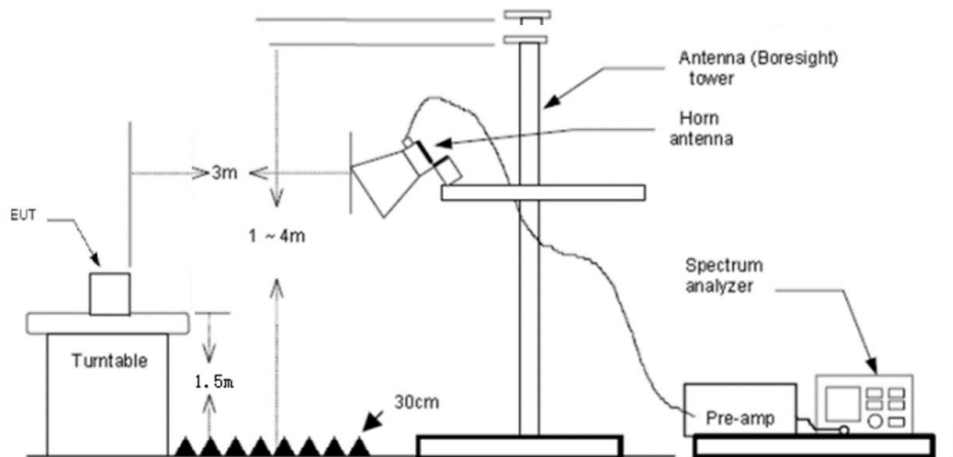
## 6.1.4. Test Setup Layout



Below 30MHz



Below 1GHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1.5m.

## 6.1.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

## 6.1.6. 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:

$$\text{FS (dBuV/m)} = \text{RA (dBuV)} + \text{AF (dB/m)} + \text{CL (dB)} - \text{AG (dB)}$$

|                           |                                            |
|---------------------------|--------------------------------------------|
| Where FS = Field Strength | CL = Cable Attenuation Factor (Cable Loss) |
| RA = Reading Amplitude    | AG = Amplifier Gain                        |
| AF = Antenna Factor       |                                            |

## 6.1.7. Results of Radiated Emissions (9 KHz~30MHz)

|               |           |                |       |
|---------------|-----------|----------------|-------|
| Temperature   | 23.7℃     | Humidity       | 51.9% |
| Test Engineer | Zhang hai | Configurations | BT    |

| Freq.<br>(MHz) | Level<br>(dBuV) | Over Limit<br>(dB) | Over Limit<br>(dBuV) | Remark   |
|----------------|-----------------|--------------------|----------------------|----------|
| -              | -               | -                  | -                    | See Note |

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $40 \log (\text{specific distance} / \text{test distance})$  (dB);

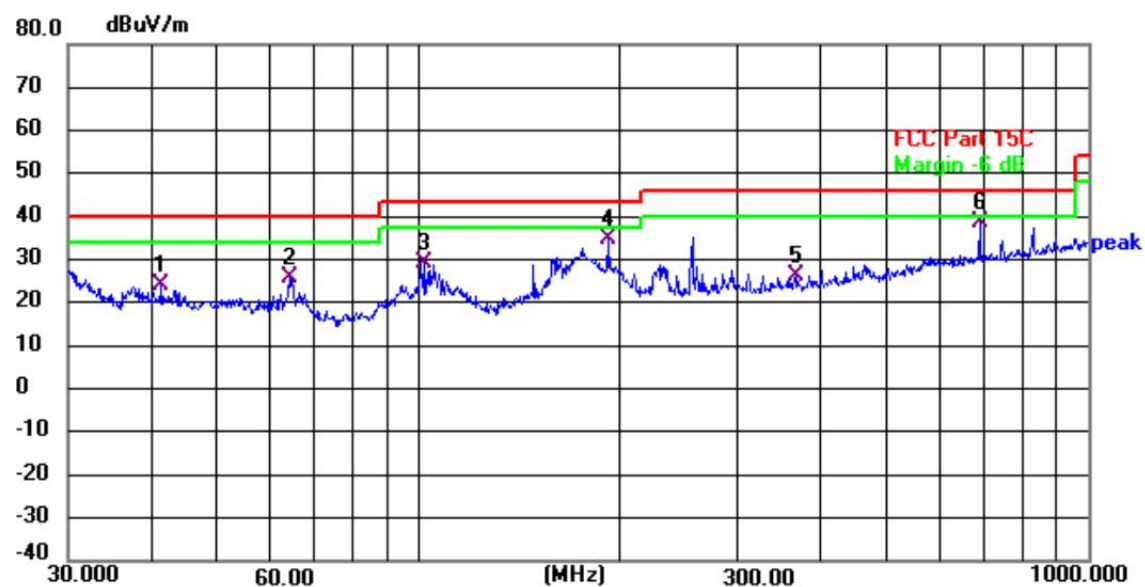
Limit line = specific limits (dBuV) + distance extrapolation factor.

## 6.1.8. Results of Radiated Emissions (30 MHz~1000 MHz)

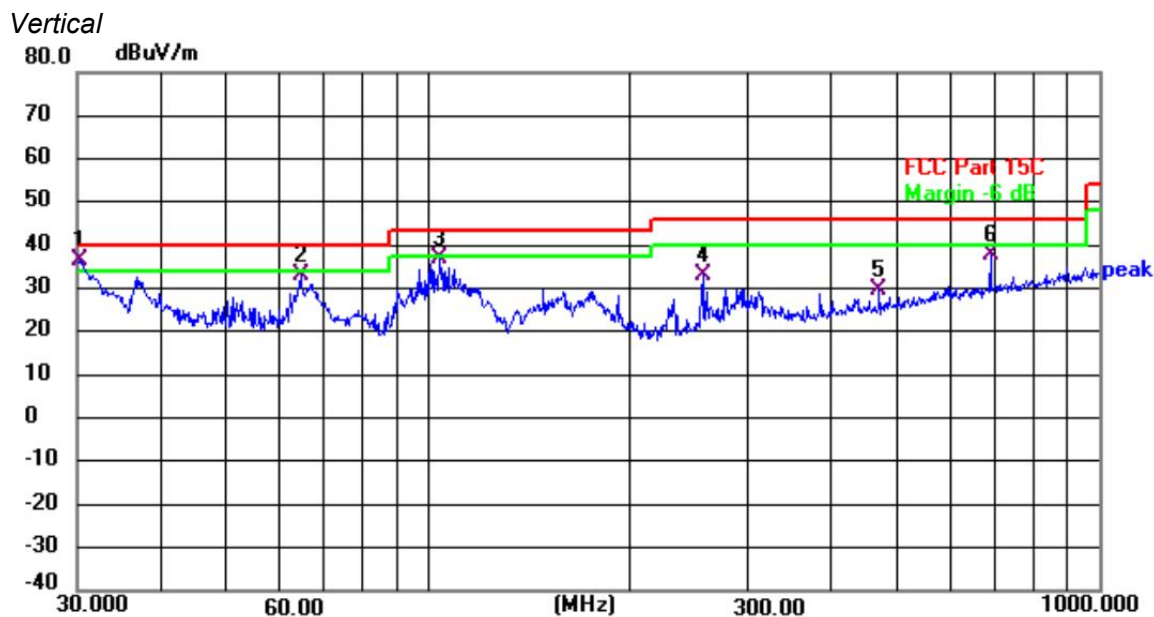
|               |           |                |       |
|---------------|-----------|----------------|-------|
| Temperature   | 23.7℃     | Humidity       | 51.9% |
| Test Engineer | Zhang hai | Configurations | BT    |

**PASS.**

The test data please refer to following page.

*Horizontal*

| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit | Over   |          |         |
|-----|-----|----------|---------|---------|----------|-------|--------|----------|---------|
|     |     | MHz      | Level   | Factor  | ment     |       |        | Detector | Comment |
| 1   |     | 41.4215  | 3.91    | 20.24   | 24.15    | 40.00 | -15.85 | QP       |         |
| 2   |     | 64.4330  | 7.11    | 18.78   | 25.89    | 40.00 | -14.11 | QP       |         |
| 3   |     | 102.3596 | 9.96    | 19.11   | 29.07    | 43.50 | -14.43 | QP       |         |
| 4   |     | 191.7450 | 16.13   | 18.55   | 34.68    | 43.50 | -8.82  | QP       |         |
| 5   |     | 366.8231 | 2.56    | 23.69   | 26.25    | 46.00 | -19.75 | QP       |         |
| 6   | *   | 689.5644 | 8.99    | 29.74   | 38.73    | 46.00 | -7.27  | QP       |         |



| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit  | Over   |          |         |
|-----|-----|----------|---------|---------|----------|--------|--------|----------|---------|
|     |     | MHz      | Level   | Factor  | ment     |        |        | Detector | Comment |
|     |     |          | dBuV    | dB      | dBuV/m   | dBuV/m | dB     |          |         |
| 1   | *   | 30.2111  | 18.78   | 17.70   | 36.48    | 40.00  | -3.52  | QP       |         |
| 2   |     | 64.6594  | 14.22   | 18.70   | 32.92    | 40.00  | -7.08  | QP       |         |
| 3   |     | 103.8054 | 17.81   | 19.20   | 37.01    | 43.50  | -6.49  | QP       |         |
| 4   |     | 256.5210 | 12.06   | 20.87   | 32.93    | 46.00  | -13.07 | QP       |         |
| 5   |     | 470.5232 | 3.99    | 25.67   | 29.66    | 46.00  | -16.34 | QP       |         |
| 6   |     | 689.5644 | 8.00    | 29.74   | 37.74    | 46.00  | -8.26  | QP       |         |

Note:

- 1). Pre-scan all modes and recorded the worst case results in this report (1Mbps-High Channel).
- 2). Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 3). Level = Reading + Factor, Margin = Level-Limit, Factor = Antenna Factor + Cable Loss - Preamp Factor.

## 6.2. AC Power Line Conducted Emissions

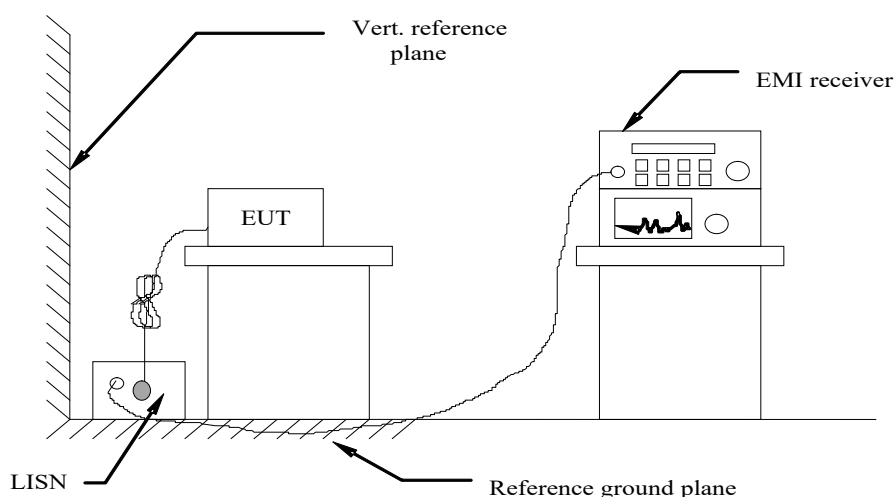
### 6.2.1 Standard Applicable

According to §15.207 (a): For an intentional radiator which 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 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

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

\* Decreasing linearly with the logarithm of the frequency

### 6.2.2 Block Diagram of Test Setup



### 6.2.3 Disturbance Calculation

The AC mains conducted disturbance is calculated by adding the 10dB Pulse Limiter and Cable Factor and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$CD \text{ (dB}\mu\text{V)} = RA \text{ (dB}\mu\text{V)} + PL \text{ (dB)} + CL \text{ (dB)}$$

|                                  |                                            |
|----------------------------------|--------------------------------------------|
| Where CD = Conducted Disturbance | CL = Cable Attenuation Factor (Cable Loss) |
| RA = Reading Amplitude           | PL = 10 dB Pulse Limiter Factor            |

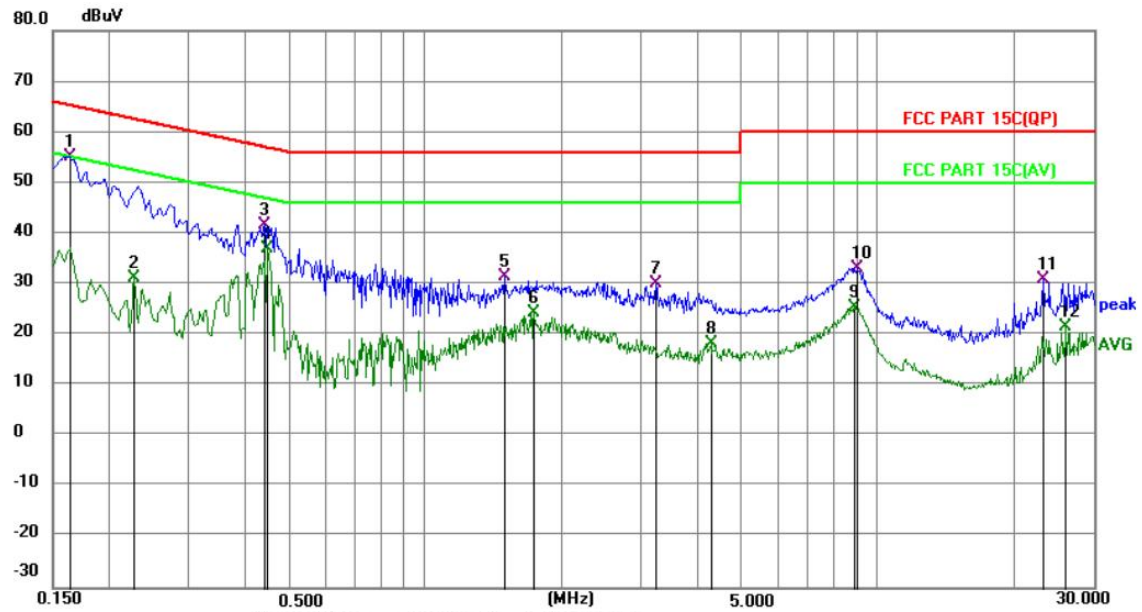
### 6.2.4 Test Results

|               |           |                |       |
|---------------|-----------|----------------|-------|
| Temperature   | 24.2°C    | Humidity       | 55.1% |
| Test Engineer | Zhang hai | Configurations | BT    |

**PASS.**

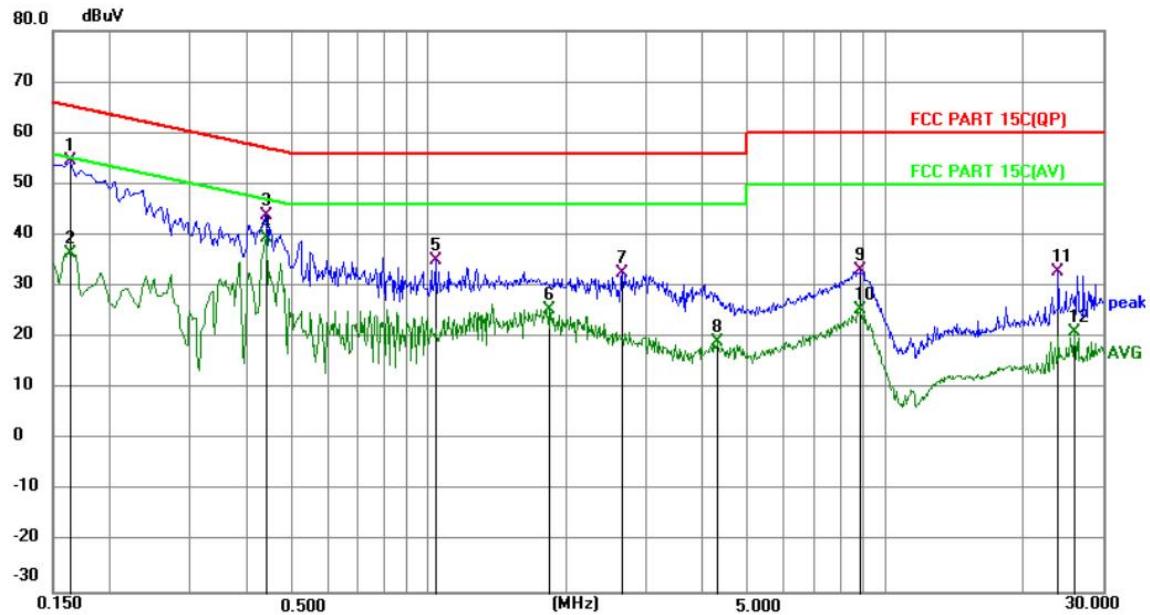
The test data please refer to following page.

Line



| No. | Mk. | Freq.<br>MHz | Reading<br>Level | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   |     | 0.1635       | 44.87            | 10.15                   | 55.02                    | 65.28         | -10.26     | QP       |         |
| 2   |     | 0.2265       | 21.03            | 10.10                   | 31.13                    | 52.58         | -21.45     | AVG      |         |
| 3   |     | 0.4380       | 31.57            | 10.08                   | 41.65                    | 57.10         | -15.45     | QP       |         |
| 4   | *   | 0.4470       | 27.01            | 10.08                   | 37.09                    | 46.93         | -9.84      | AVG      |         |
| 5   |     | 1.4955       | 21.19            | 10.23                   | 31.42                    | 56.00         | -24.58     | QP       |         |
| 6   |     | 1.7384       | 14.15            | 10.23                   | 24.38                    | 46.00         | -21.62     | AVG      |         |
| 7   |     | 3.2280       | 20.04            | 10.18                   | 30.22                    | 56.00         | -25.78     | QP       |         |
| 8   |     | 4.2765       | 8.16             | 10.17                   | 18.33                    | 46.00         | -27.67     | AVG      |         |
| 9   |     | 8.8844       | 15.20            | 10.34                   | 25.54                    | 50.00         | -24.46     | AVG      |         |
| 10  |     | 8.9924       | 22.86            | 10.34                   | 33.20                    | 60.00         | -26.80     | QP       |         |
| 11  |     | 23.1990      | 20.65            | 10.34                   | 30.99                    | 60.00         | -29.01     | QP       |         |
| 12  |     | 26.0115      | 11.16            | 10.30                   | 21.46                    | 50.00         | -28.54     | AVG      |         |

Neutral



| No. | Mk. | Freq.<br>MHz | Reading<br>Level | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   |     | 0.1635       | 44.37            | 10.10                   | 54.47                    | 65.28         | -10.81     | QP       |         |
| 2   |     | 0.1635       | 26.25            | 10.10                   | 36.35                    | 55.28         | -18.93     | AVG      |         |
| 3   |     | 0.4380       | 33.91            | 10.06                   | 43.97                    | 57.10         | -13.13     | QP       |         |
| 4   | *   | 0.4380       | 29.39            | 10.06                   | 39.45                    | 47.10         | -7.65      | AVG      |         |
| 5   |     | 1.0320       | 24.97            | 10.16                   | 35.13                    | 56.00         | -20.87     | QP       |         |
| 6   |     | 1.8330       | 15.34            | 10.20                   | 25.54                    | 46.00         | -20.46     | AVG      |         |
| 7   |     | 2.6610       | 22.22            | 10.24                   | 32.46                    | 56.00         | -23.54     | QP       |         |
| 8   |     | 4.2945       | 8.73             | 10.23                   | 18.96                    | 46.00         | -27.04     | AVG      |         |
| 9   |     | 8.8440       | 22.94            | 10.26                   | 33.20                    | 60.00         | -26.80     | QP       |         |
| 10  |     | 8.8440       | 15.14            | 10.26                   | 25.40                    | 50.00         | -24.60     | AVG      |         |
| 11  |     | 24.0000      | 22.64            | 10.31                   | 32.95                    | 60.00         | -27.05     | QP       |         |
| 12  |     | 26.0115      | 10.66            | 10.30                   | 20.96                    | 50.00         | -29.04     | AVG      |         |

\*\*\*Note: Pre-scan all modes and recorded the worst case results in this report (1Mbps-High Channel).

Measurement = Reading + Correct Factor, Margin = Measurement – Limit,

Correct Factor=Lisn Factor+Cable Factor+Insertion loss of Pulse Limiter.

### 6.3. Antenna Requirement

#### 6.3.1 Standard Applicable

According to antenna requirement of §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. 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 a broken antenna can be re-placed by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

And according to §15.247(4)(1), system operating in the 2400-2483.5MHz bands that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

#### 6.3.2 Antenna Connected Construction

##### 6.3.2.1. Standard Applicable

According to § 15.203 & RSS-Gen, 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.

##### 6.3.2.2. Antenna Connector Construction

The directional gains of antenna used for transmitting is 1.98dBi(Max), and the antenna is an FPC Antenna connect to PCB board and no consideration of replacement. Please see EUT photo for details.

#### 6.10.2.3. Results: Compliance.

## **7. TEST SETUP PHOTOGRAPHS OF EUT**

Please refer to separated files for Test Setup Photos of the EUT.

## **8. EXTERIOR PHOTOGRAPHS OF THE EUT**

Please refer to separated files for External Photos of the EUT.

## **9. INTERIOR PHOTOGRAPHS OF THE EUT**

Please refer to separated files for Internal Photos of the EUT.

-----THE END OF TEST REPORT-----