# FCC REPORT
## (WIFI)

| | |
|---|---|
| **Applicant:** | TCL Communication Ltd. |
| **Address of Applicant:** | 7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052 |

**Equipment Under Test (EUT)**

| | |
|---|---|
| Product Name: | LTE/UMTS/GSM mobile phone |
| Model No.: | 5048A |
| Trade mark: | alcatel |
| **FCC ID:** | 2ACCJH107 |
| **Applicable standards:** | FCC CFR Title 47 Part 15 Subpart C Section 15.247 |
| **Date of sample receipt:** | 17 Jan., 2022 |
| **Date of Test:** | 18 Jan., to 01 Mar., 2022 |
| **Date of report issued:** | 04 Mar., 2022 |
| **Test Result:** | PASS* |

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

# 2 Version

| Version No. | Date | Description |
|---|---|---|
| *00* | *04 Mar., 2022* | *Original* |
| | | |
| | | |
| | | |
| | | |

***Tested by:*** Mike.ou ***Date:*** *04 Mar., 2022*

***Test Engineer***

***Reviewed by:*** Winner Zhang ***Date:*** *04 Mar., 2022*

***Project Engineer***

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# 4 Test Summary

| Test Items | Section in CFR 47 | Result |
|---|---|---|
| Antenna requirement | 15.203 & 15.247 (b) | Pass |
| AC Power Line Conducted Emission | 15.207 | Pass[1] |
| Conducted Peak Output Power | 15.247 (b)(3) | Pass[2] |
| 6dB Emission Bandwidth<br>99% Occupied Bandwidth | 15.247 (a)(2) | Pass[1] |
| Power Spectral Density | 15.247 (e) | Pass[1] |
| Band Edge | 15.247 (d) | Pass[1] |
| Emissions in Restricted Frequency Bands | 15.205 & 15.209 | Pass[2] |
| Conducted Spurious Emission | 15.247 (d) | Pass[1] |
| Radiated Spurious Emission | 15.205 & 15.209 | Pass[2] |

***Remark:***

1. *Pass[1]: Items data are refer from the original report issued by SGS-CSTC Standards Technical Services, Co., Ltd.Shenzhen Branch.(Date of Test: 2019/8/2-2019/8/21).The detailed data refer to Appendix- 2.4G WLAN*
2. *Pass[2]: These items are tested by JianYan Testing Group Shenzhen Co., Ltd.*
3. *The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).*

| | |
|---|---|
| ***Test Method:*** | *ANSI C63.10-2013*<br>*KDB 558074 D01 15.247 Meas Guidance v05r02* |

# 5 General Information

## 5.1 Client Information

| | |
|---|---|
| Applicant: | TCL Communication Ltd. |
| Address: | 7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052 |
| Manufacturer: | TCL Communication Ltd. |
| Address: | 7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052 |
| Factory: | Huizhou TCL Mobile Communication Co, Ltd |
| Address: | No. 86, Hechang 7th West Road, Zhongkai Hi-Tech Development District, Huizhou, Guangdong |

## 5.2 General Description of E.U.T.

| | |
|---|---|
| Product Name: | LTE/UMTS/GSM mobile phone |
| Model No.: | 5048A |
| Operation Frequency: | 2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20))<br>2422MHz~2452MHz (802.11n(HT40)) |
| Channel numbers: | 11 for 802.11b/802.11g/802.11(HT20)<br>7 for 802.11n(HT40) |
| Channel separation: | 5MHz |
| Modulation technology:<br>(IEEE 802.11b) | Direct Sequence Spread Spectrum (DSSS) |
| Modulation technology:<br>(IEEE 802.11g/802.11n) | Orthogonal Frequency Division Multiplexing(OFDM) |
| Data speed (IEEE 802.11b): | 1Mbps, 2Mbps, 5.5Mbps, 11Mbps |
| Data speed (IEEE 802.11g): | 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps |
| Data speed (IEEE 802.11n): | Up to 150Mbps |
| Antenna Type: | Integrated Antenna |
| Antenna gain: | 0.25dBi |
| Power supply: | ☒ AC/DC Adapter |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

| **Operation Frequency each of channel for 802.11b/g/n(HT20)** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1 | 2412MHz | 4 | 2427MHz | 7 | 2442MHz | 10 | 2457MHz |
| 2 | 2417MHz | 5 | 2432MHz | 8 | 2447MHz | 11 | 2462MHz |
| 3 | 2422MHz | 6 | 2437MHz | 9 | 2452MHz | | |

*Note:*

1. *For 802.11n-HT40 mode, the channel number is from 3 to 9;*
2. *Channel 1, 6 & 11 selected for 802.11b/g/n-HT20 as Lowest, Middle and Highest channel. Channel 3, 6 & 9 selected for 802.11n-HT40 as Lowest, Middle and Highest Channel.*

## 5.3 Test environment and mode

| | |
|---|---|
| **Operating Environment:** | |
| Temperature: | 24.0 °C |
| Humidity: | 54 % RH |
| Atmospheric Pressure: | 1010 mbar |
| **Test mode:** | |
| Transmitting mode | Keep the EUT in continuous transmitting with modulation |

Radiated Emission: The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.
We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

**Per-scan all kind of data rate, the follow list were the worst case.**

| Mode | Data rate |
|---|---|
| 802.11b | 1Mbps |
| 802.11g | 6Mbps |
| 802.11n(HT20) | 6.5Mbps |
| 802.11n(HT40) | 13.5Mbps |

## 5.4 Description of Support Units

The EUT has been tested as an independent unit.

## 5.5 Measurement Uncertainty

| Parameters | Expanded Uncertainty |
|---|---|
| Conducted Emission (9kHz ~ 30MHz) | ±1.60 dB (k=2) |
| Radiated Emission (9kHz ~ 30MHz) | ±3.12 dB (k=2) |
| Radiated Emission (30MHz ~ 1000MHz) | ±4.32 dB (k=2) |
| Radiated Emission (1GHz ~ 18GHz) | ±5.16 dB (k=2) |
| Radiated Emission (18GHz ~ 40GHz) | ±3.20 dB (k=2) |

## 5.6 Additions to, deviations, or exclusions from the method

No

## 5.7 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

## 5.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://www.ccis-cb.com

## 5.9 Test Instruments list

| Radiated Emission: | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 3m SAC | ETS | RFD-100 | Q1984 | 04-14-2021 | 04-13-2024 |
| BiConiLog Antenna | SCHWARZBECK | VULB9163 | 9163-1246 | 03-07-2021 | 03-06-2022 |
| Biconical Antenna | SCHWARZBECK | VUBA 9117 | 9117#359 | 06-17-2021 | 06-17-2022 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 912D-916 | 03-07-2021 | 03-06-2022 |
| Broad-Band Horn Antenna | SCHWARZBECK | BBHA9170 | 1067 | 04-02-2021 | 04-01-2022 |
| Broad-Band Horn Antenna | SCHWARZBECK | BBHA9170 | 1068 | 04-02-2021 | 04-01-2022 |
| EMI Test Receiver | Rohde & Schwarz | ESRP7 | 101070 | 03-03-2021 | 03-02-2022 |
| | | | | 02-17-2022 | 02-16-2023 |
| Spectrum analyzer | Rohde & Schwarz | FSP30 | 101454 | 03-03-2021 | 03-02-2022 |
| | | | | 02-17-2022 | 02-16-2023 |
| Spectrum analyzer | Keysight | N9010B | MY60240202 | 10-27-2021 | 10-26-2022 |
| Band Reject Filter Group | Tonscend | JS0806 | 21B8060367 | 04-06-2021 | 04-05-2022 |
| Low Pre-amplifier | SCHWARZBECK | BBV9743B | 00305 | 03-07-2021 | 03-06-2022 |
| High Pre-amplifier | SKET | LNPA_0118G-50 | MF280208233 | 03-07-2021 | 03-06-2022 |
| Cable | Qualwave | JYT3M-1G-NN-8M | JYT3M-1 | 03-07-2021 | 03-06-2022 |
| Cable | Qualwave | JYT3M-18G-NN-8M | JYT3M-2 | 03-07-2021 | 03-06-2022 |
| Cable | Qualwave | JYT3M-1G-BB-5M | JYT3M-3 | 03-07-2021 | 03-06-2022 |
| Cable | Bost | JYT3M-40G-SS-8M | JYT3M-4 | 04-02-2021 | 04-01-2022 |
| EMI Test Software | Tonscend | TS+ | Version:3.0.0.1 | | |

| Conducted method: | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Date (mm-dd-yy)** | **Cal. Due date (mm-dd-yy)** |
| Spectrum Analyzer | Keysight | N9010B | MY60240202 | 10-27-2021 | 10-26-2022 |
| Power Detector Box | MWRF-test | MW100-PSB | MW201020JYT | 11-19-2021 | 11-18-2022 |
| RF Control Box | MWRF-test | MW100-RFCB | MW200927JYT | N/A | N/A |
| DC Power Supply | Keysight | E3642A | MY60296194 | 11-27-2020 | 11-26-2023 |
| Test Software | MWRF-tes | MTS 8310 | Version: 2.0.0.0 | | |

# 6 Test results and Measurement Data

## 6.1 Antenna requirement:

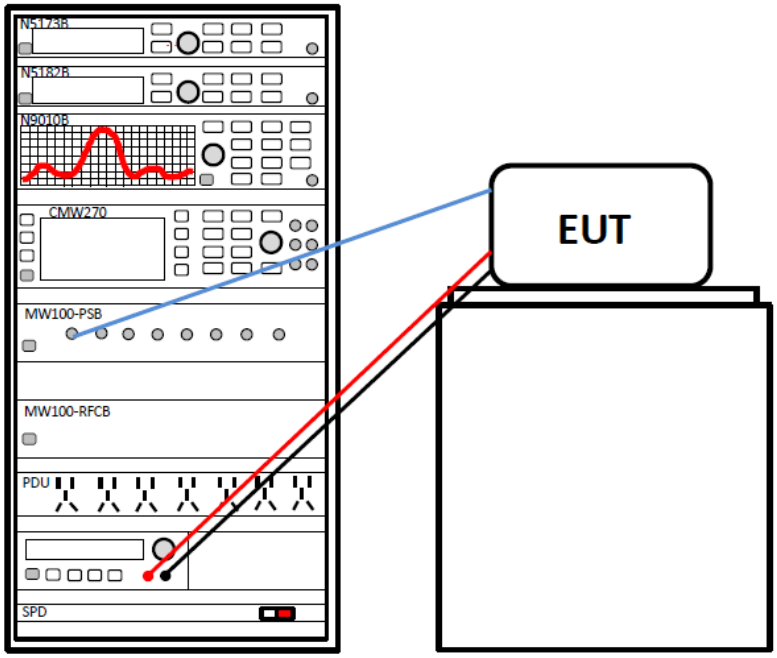
| Standard requirement: | FCC Part 15 C Section 15.203 /247(b) |
|---|---|
| 15.203 requirement:<br>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.<br>15.247(b) (4) requirement:<br>(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi. | |
| **E.U.T Antenna:** | |
| The Wi-Fi antenna is an Integrated antenna which cannot replace by end-user, the best-case gain of the antenna is 0.25 dBi. | |

# 6.2 Conducted Output Power

## 6.2.1 Re-test statement

**Re-test statement:** The EUT is operating at the same power level with the original testing of SGS-CSTC Standards Technical Services, Co Ltd. Shenzhen Branch.

## 6.2.2 Test Results

| | |
|---|---|
| Test Requirement: | FCC Part 15 C Section 15.247 (b)(3) |
| Limit: | 30dBm |
| Test setup: |  |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

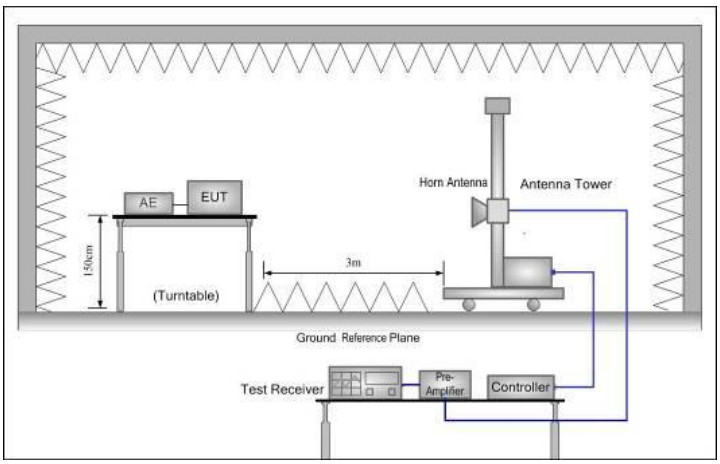
## Measurement Data:

| Mode | Test Channel | The Original Reports Level [dBm] | Re-Test Reports Level [dBm] | Power level |
|---|---|---|---|---|
| 802.11b | Lowest | 22.34 | 22.10 | 54 |
| | Middle | 22.44 | 22.13 | 54 |
| | Highest | 22.10 | 21.95 | 57 |
| 802.11g | Lowest | 20.54 | 20.38 | 58 |
| | Middle | 22.61 | 22.34 | 58 |
| | Highest | 22.21 | 22.07 | 58 |
| 802.11n20 | Lowest | 20.52 | 20.33 | 55 |
| | Middle | 21.78 | 21.56 | 55 |
| | Highest | 21.37 | 21.19 | 55 |
| 802.11n40 | Lowest | 20.34 | 20.09 | 55 |
| | Middle | 20.24 | 20.11 | 55 |
| | Highest | 19.93 | 19.62 | 55 |

## Remark:

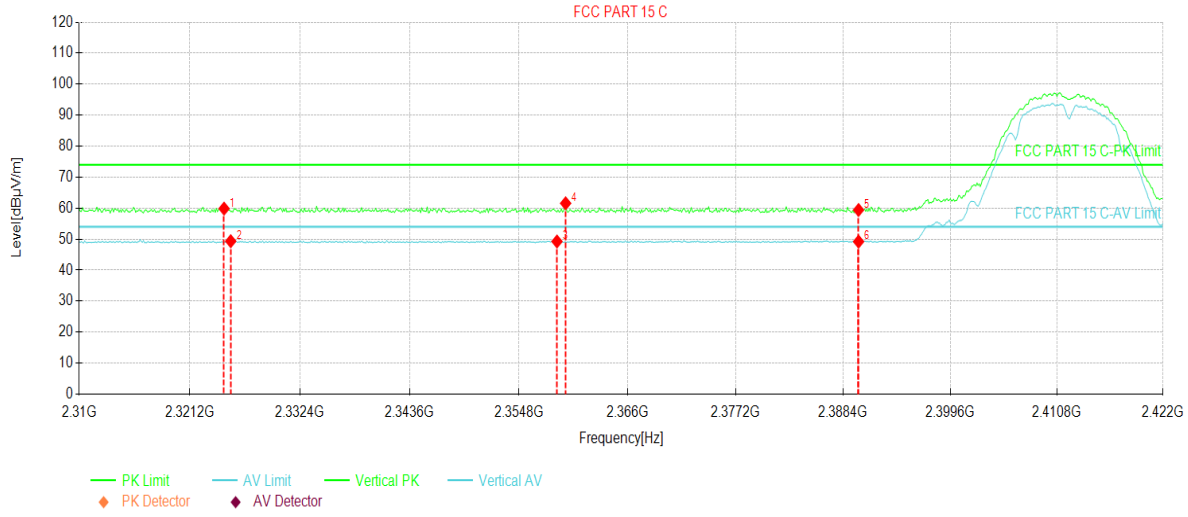
| | The Original Reports | Re-Test Reports |
|---|---|---|
| File name: | test report 2.4G WLAN | Test Report 2.4G WIFI rev1 |
| Test location: | SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch | JianYan Testing Group Shenzhen Co., Ltd. |
| The output power is re-test at JianYan Testing Group Shenzhen Co., Ltd. | | |

## 6.3 Emissions in Restricted Frequency Bands

<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part 15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">2310 MHz to 2390 MHz and 2483.5 MHz to 2500 MHz</td></tr>
<tr><td>Test Distance:</td><td colspan="5">3m</td></tr>
<tr><td rowspan="3">Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
<tr><td rowspan="3">Limit:</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td colspan="2" rowspan="2">Above 1GHz</td><td colspan="2">54.00</td><td>Average Value</td></tr>
<tr><td colspan="2">74.00</td><td>Peak Value</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
<tr><td>Test setup:</td><td colspan="5"> 
</td></tr>
<tr><td>Test Instruments:</td><td colspan="5">Refer to section 5.9 for details</td></tr>
<tr><td>Test mode:</td><td colspan="5">Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td colspan="5">Passed</td></tr>
</table>

**802.11b mode:**

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11b Tx mode |
| Test Channel: | Lowest channel | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |

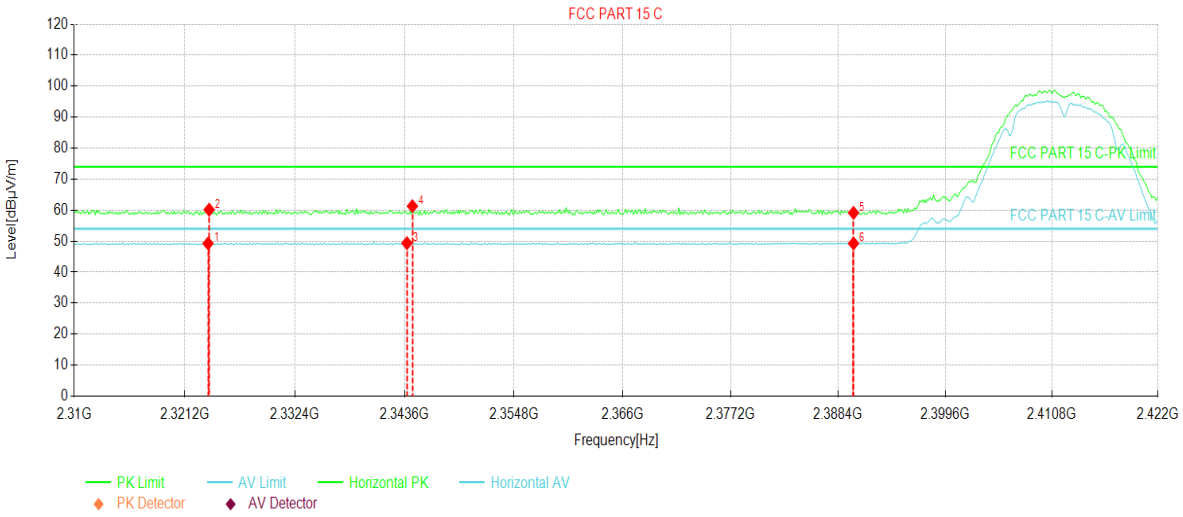



| Suspected Data List | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
| 1 | 2324.6 | 24.48 | 59.86 | 35.38 | 74.00 | 14.14 | 322 | 146 | PK | Vertical |
| 2 | 2325.3 | 13.97 | 49.35 | 35.38 | 54.00 | 4.65 | 307 | 154 | AV | Vertical |
| 3 | 2358.7 | 13.63 | 49.25 | 35.62 | 54.00 | 4.75 | 183 | 159 | AV | Vertical |
| 4 | 2359.6 | 25.94 | 61.56 | 35.62 | 74.00 | 12.44 | 174 | 155 | PK | Vertical |
| 5 | 2390.0 | 23.58 | 59.42 | 35.84 | 74.00 | 14.58 | 11 | 150 | PK | Vertical |
| 6 | 2390.0 | 13.38 | 49.22 | 35.84 | 54.00 | 4.78 | 357 | 147 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11b Tx mode |
| Test Channel: | Lowest channel | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |

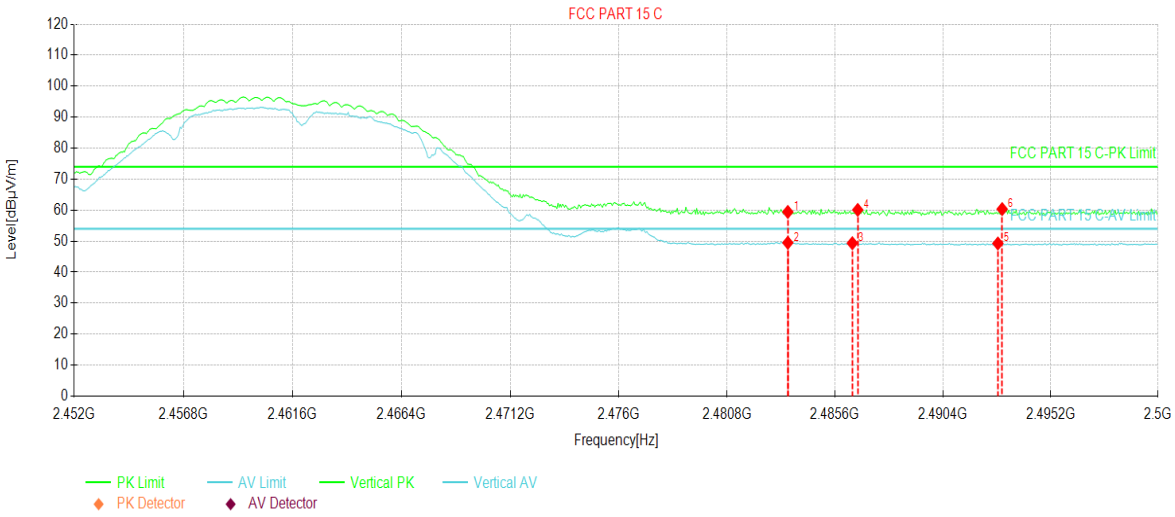



| Suspected Data List | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
| 1 | 2323.5 | 13.89 | 49.26 | 35.37 | 54.00 | 4.74 | 211 | 136 | AV | Horizontal |
| 2 | 2323.6 | 24.79 | 60.16 | 35.37 | 74.00 | 13.84 | 198 | 144 | PK | Horizontal |
| 3 | 2343.8 | 13.83 | 49.34 | 35.51 | 54.00 | 4.66 | 162 | 147 | AV | Horizontal |
| 4 | 2344.3 | 25.78 | 61.30 | 35.52 | 74.00 | 12.70 | 156 | 153 | PK | Horizontal |
| 5 | 2390.0 | 23.28 | 59.12 | 35.84 | 74.00 | 14.88 | 351 | 158 | PK | Horizontal |
| 6 | 2390.0 | 13.42 | 49.26 | 35.84 | 54.00 | 4.74 | 357 | 154 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11b Tx mode |
| Test Channel: | Highest channel | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |

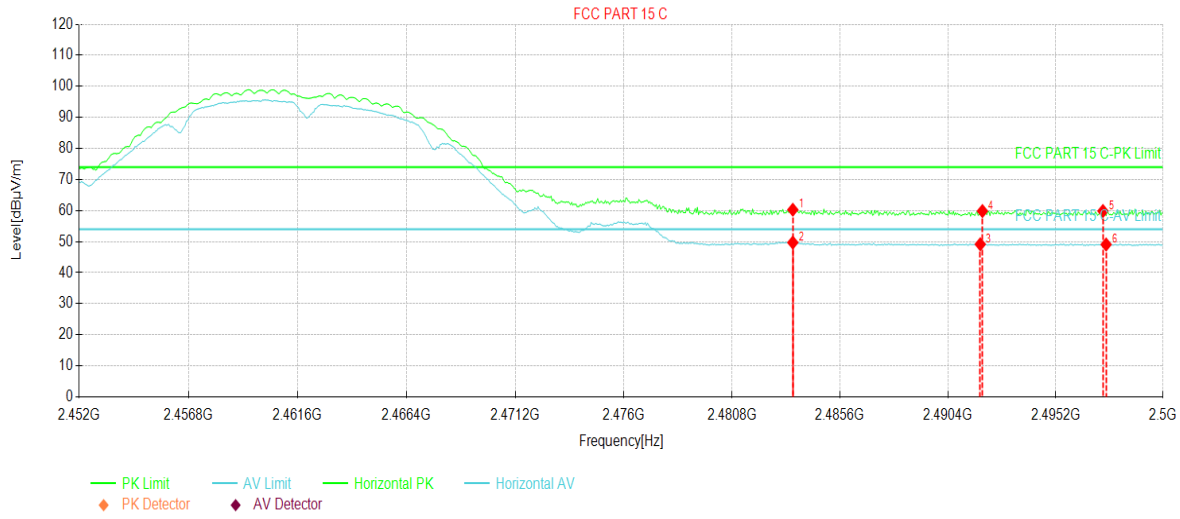



| Suspected Data List | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
| 1 | 2483.5 | 23.71 | 59.43 | 35.72 | 74.00 | 14.57 | 298 | 156 | PK | Vertical |
| 2 | 2483.5 | 13.76 | 49.48 | 35.72 | 54.00 | 4.52 | 306 | 155 | AV | Vertical |
| 3 | 2486.3 | 13.64 | 49.35 | 35.71 | 54.00 | 4.65 | 192 | 162 | AV | Vertical |
| 4 | 2486.6 | 24.39 | 60.10 | 35.71 | 74.00 | 13.90 | 189 | 158 | PK | Vertical |
| 5 | 2492.8 | 13.56 | 49.26 | 35.70 | 54.00 | 4.74 | 38 | 144 | AV | Vertical |
| 6 | 2493.0 | 24.65 | 60.35 | 35.70 | 74.00 | 13.65 | 42 | 149 | PK | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11b Tx mode |
| Test Channel: | Highest channel | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |




**Suspected Data List**

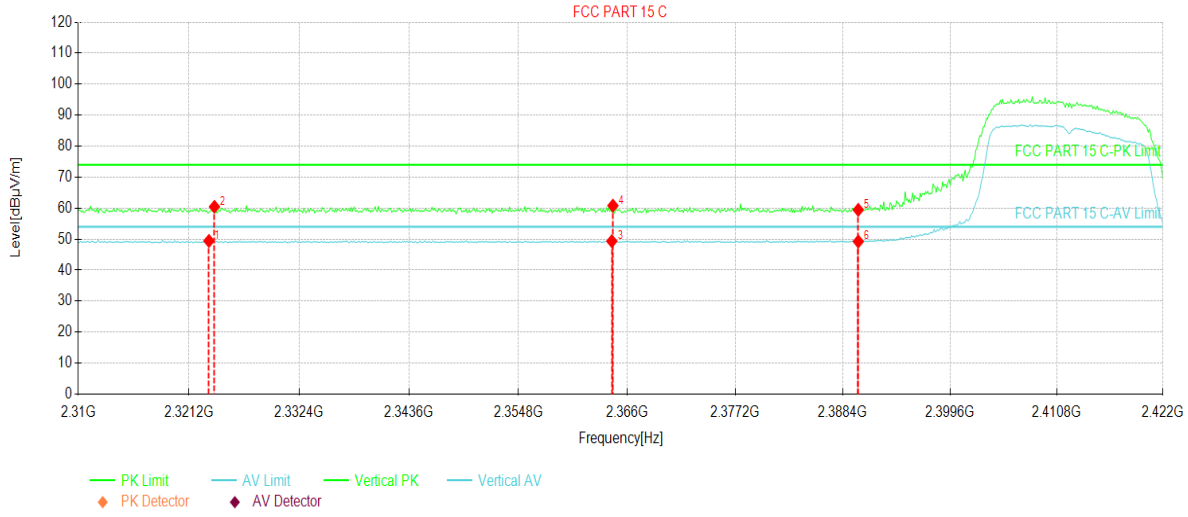
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2483.5 | 24.56 | 60.28 | 35.72 | 74.00 | 13.72 | 189 | 136 | PK | Horizontal |
| 2 | 2483.5 | 13.98 | 49.70 | 35.72 | 54.00 | 4.30 | 186 | 142 | AV | Horizontal |
| 3 | 2491.8 | 13.45 | 49.15 | 35.70 | 54.00 | 4.85 | 177 | 152 | AV | Horizontal |
| 4 | 2491.9 | 24.15 | 59.85 | 35.70 | 74.00 | 14.15 | 179 | 150 | PK | Horizontal |
| 5 | 2497.3 | 24.17 | 59.86 | 35.69 | 74.00 | 14.14 | 3 | 146 | PK | Horizontal |
| 6 | 2497.4 | 13.39 | 49.08 | 35.69 | 54.00 | 4.92 | 11 | 143 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

**802.11g mode:**

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g Tx mode |
| Test Channel: | Lowest channel | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |

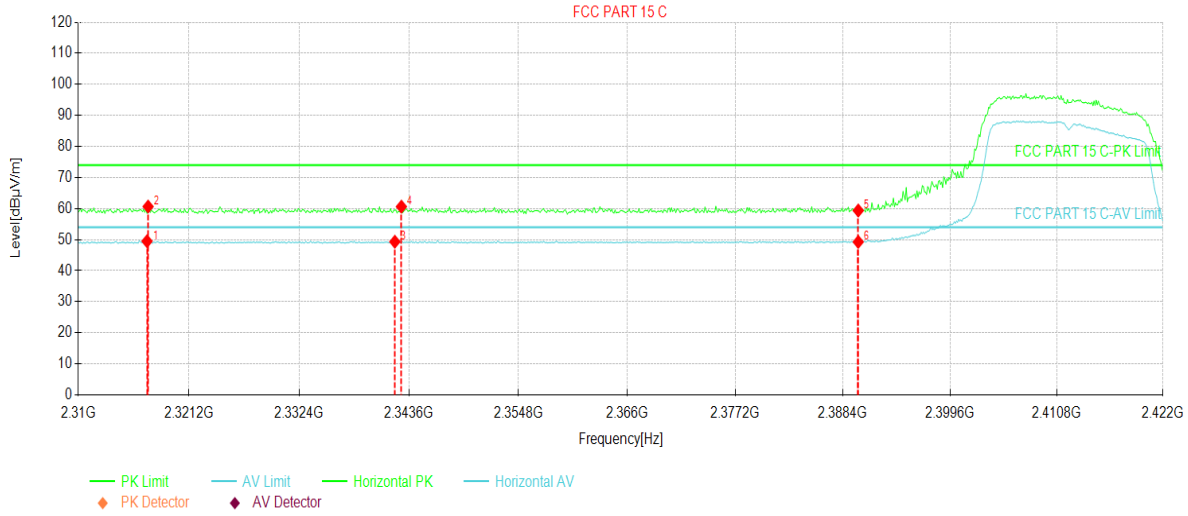



| Suspected Data List | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
| 1 | 2323.2 | 14.06 | 49.42 | 35.36 | 54.00 | 4.58 | 308 | 149 | AV | Vertical |
| 2 | 2323.7 | 25.08 | 60.45 | 35.37 | 74.00 | 13.55 | 332 | 153 | PK | Vertical |
| 3 | 2364.4 | 13.69 | 49.35 | 35.66 | 54.00 | 4.65 | 173 | 139 | AV | Vertical |
| 4 | 2364.5 | 25.14 | 60.80 | 35.66 | 74.00 | 13.20 | 167 | 141 | PK | Vertical |
| 5 | 2390.0 | 23.62 | 59.46 | 35.84 | 74.00 | 14.54 | 16 | 159 | PK | Vertical |
| 6 | 2390.0 | 13.41 | 49.25 | 35.84 | 54.00 | 4.75 | 3 | 158 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g Tx mode |
| Test Channel: | Lowest channel | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



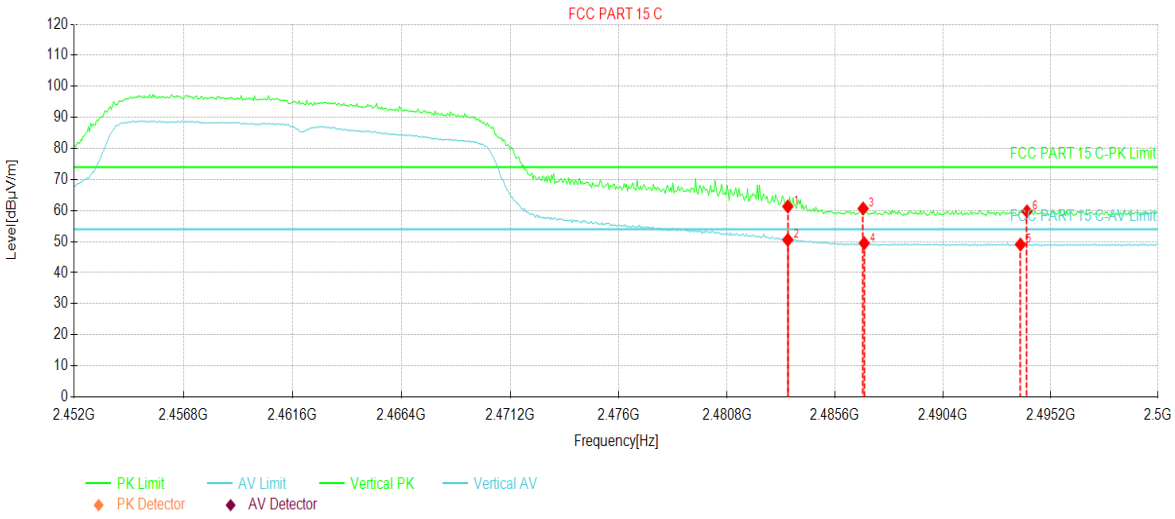

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2316.9 | 14.16 | 49.48 | 35.32 | 54.00 | 4.52 | 188 | 145 | AV | Horizontal |
| 2 | 2317.0 | 25.32 | 60.64 | 35.32 | 74.00 | 13.36 | 192 | 151 | PK | Horizontal |
| 3 | 2342.1 | 13.82 | 49.32 | 35.50 | 54.00 | 4.68 | 173 | 138 | AV | Horizontal |
| 4 | 2342.8 | 25.12 | 60.62 | 35.50 | 74.00 | 13.38 | 165 | 142 | PK | Horizontal |
| 5 | 2390.0 | 23.53 | 59.37 | 35.84 | 74.00 | 14.63 | 31 | 152 | PK | Horizontal |
| 6 | 2390.0 | 13.42 | 49.26 | 35.84 | 54.00 | 4.74 | 7 | 157 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g Tx mode |
| Test Channel: | Highest channel | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |

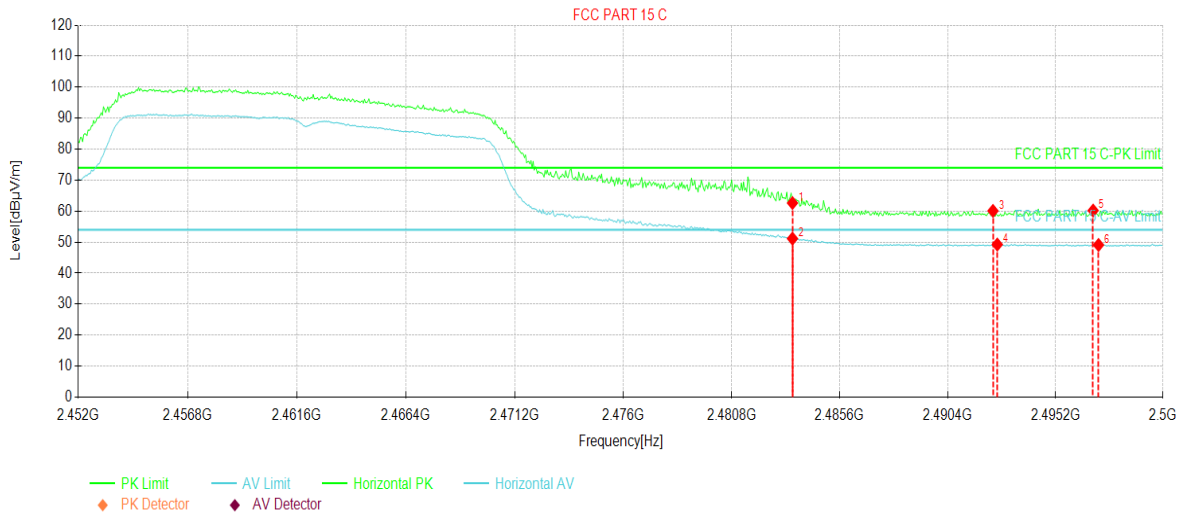



| Suspected Data List | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
| 1 | 2483.5 | 25.59 | 61.31 | 35.72 | 74.00 | 12.69 | 286 | 156 | PK | Vertical |
| 2 | 2483.5 | 14.84 | 50.56 | 35.72 | 54.00 | 3.44 | 303 | 155 | AV | Vertical |
| 3 | 2486.8 | 24.95 | 60.66 | 35.71 | 74.00 | 13.34 | 179 | 162 | PK | Vertical |
| 4 | 2486.8 | 13.78 | 49.49 | 35.71 | 54.00 | 4.51 | 180 | 158 | AV | Vertical |
| 5 | 2493.8 | 13.38 | 49.07 | 35.69 | 54.00 | 4.93 | 16 | 144 | AV | Vertical |
| 6 | 2494.1 | 24.07 | 59.76 | 35.69 | 74.00 | 14.24 | 24 | 149 | PK | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g Tx mode |
| Test Channel: | Highest channel | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |




**Suspected Data List**

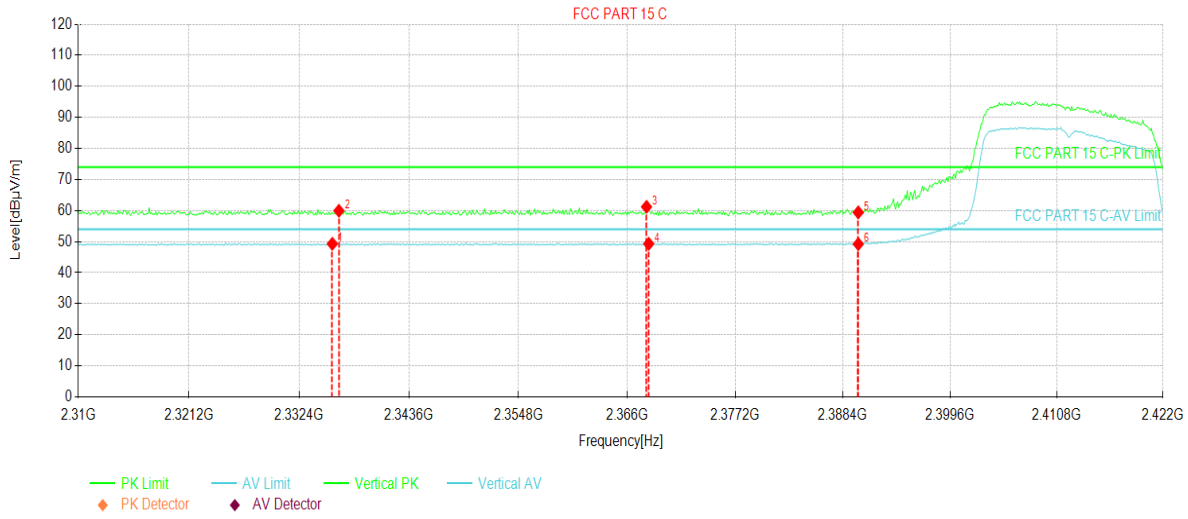
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2483.5 | 26.91 | 62.63 | 35.72 | 74.00 | 11.37 | 185 | 136 | PK | Horizontal |
| 2 | 2483.5 | 15.43 | 51.15 | 35.72 | 54.00 | 2.85 | 188 | 142 | AV | Horizontal |
| 3 | 2492.4 | 24.39 | 60.09 | 35.70 | 74.00 | 13.91 | 164 | 152 | PK | Horizontal |
| 4 | 2492.6 | 13.53 | 49.23 | 35.70 | 54.00 | 4.77 | 159 | 150 | AV | Horizontal |
| 5 | 2496.8 | 24.52 | 60.21 | 35.69 | 74.00 | 13.79 | 358 | 146 | PK | Horizontal |
| 6 | 2497.1 | 13.41 | 49.10 | 35.69 | 54.00 | 4.90 | 7 | 143 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

**802.11n(HT20):**

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n(HT20) Tx mode |
| Test Channel: | Lowest channel | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



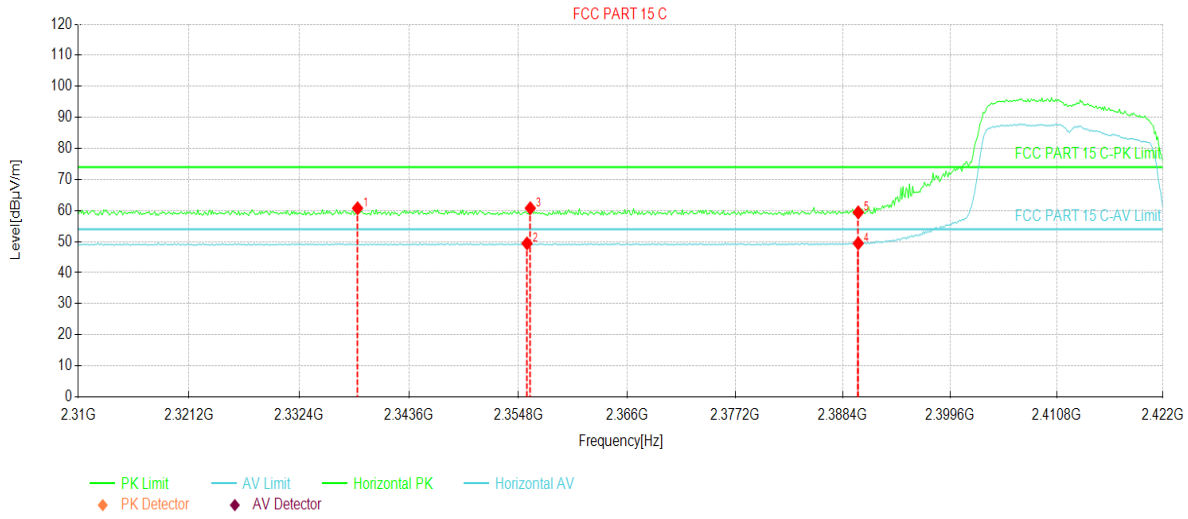

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2335.7 | 13.85 | 49.30 | 35.45 | 54.00 | 4.70 | 349 | 148 | AV | Vertical |
| 2 | 2336.4 | 24.47 | 59.93 | 35.46 | 74.00 | 14.07 | 339 | 133 | PK | Vertical |
| 3 | 2368.0 | 25.54 | 61.22 | 35.68 | 74.00 | 12.78 | 178 | 149 | PK | Vertical |
| 4 | 2368.2 | 13.63 | 49.31 | 35.68 | 54.00 | 4.69 | 169 | 146 | AV | Vertical |
| 5 | 2390.0 | 23.57 | 59.41 | 35.84 | 74.00 | 14.59 | 349 | 157 | PK | Vertical |
| 6 | 2390.0 | 13.37 | 49.21 | 35.84 | 54.00 | 4.79 | 356 | 153 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n(HT20) Tx mode |
| Test Channel: | Lowest channel | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



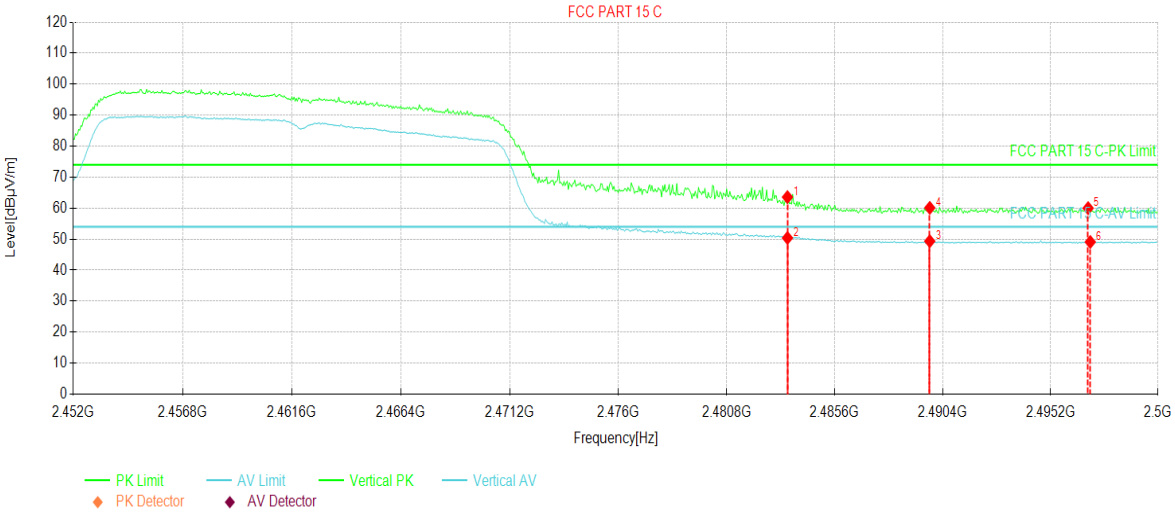

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2338.3 | 25.27 | 60.74 | 35.47 | 74.00 | 13.26 | 221 | 149 | PK | Horizontal |
| 2 | 2355.6 | 13.81 | 49.41 | 35.60 | 54.00 | 4.59 | 217 | 158 | AV | Horizontal |
| 3 | 2356.0 | 25.16 | 60.76 | 35.60 | 74.00 | 13.24 | 189 | 149 | PK | Horizontal |
| 4 | 2390.0 | 13.62 | 49.46 | 35.84 | 54.00 | 4.54 | 187 | 146 | AV | Horizontal |
| 5 | 2390.0 | 23.56 | 59.40 | 35.84 | 74.00 | 14.60 | 356 | 159 | PK | Horizontal |
| 6 | 2338.3 | 25.27 | 60.74 | 35.47 | 74.00 | 13.26 | 347 | 151 | PK | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n(HT20) Tx mode |
| Test Channel: | Highest channel | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



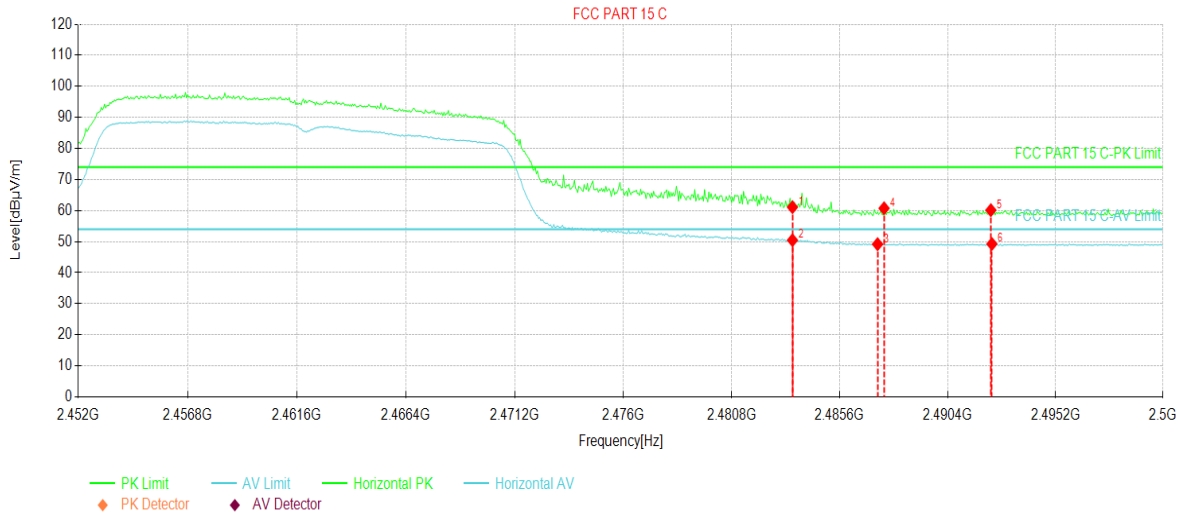

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2483.5 | 27.84 | 63.56 | 35.72 | 74.00 | 10.44 | 311 | 148 | PK | Vertical |
| 2 | 2483.5 | 14.66 | 50.38 | 35.72 | 54.00 | 3.62 | 308 | 150 | AV | Vertical |
| 3 | 2489.8 | 13.65 | 49.35 | 35.70 | 54.00 | 4.65 | 164 | 165 | AV | Vertical |
| 4 | 2489.8 | 24.40 | 60.10 | 35.70 | 74.00 | 13.90 | 159 | 159 | PK | Vertical |
| 5 | 2496.8 | 24.30 | 59.99 | 35.69 | 74.00 | 14.01 | 9 | 147 | PK | Vertical |
| 6 | 2496.9 | 13.40 | 49.09 | 35.69 | 54.00 | 4.91 | 359 | 145 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n(HT20) Tx mode |
| Test Channel: | Highest channel | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |




**Suspected Data List**

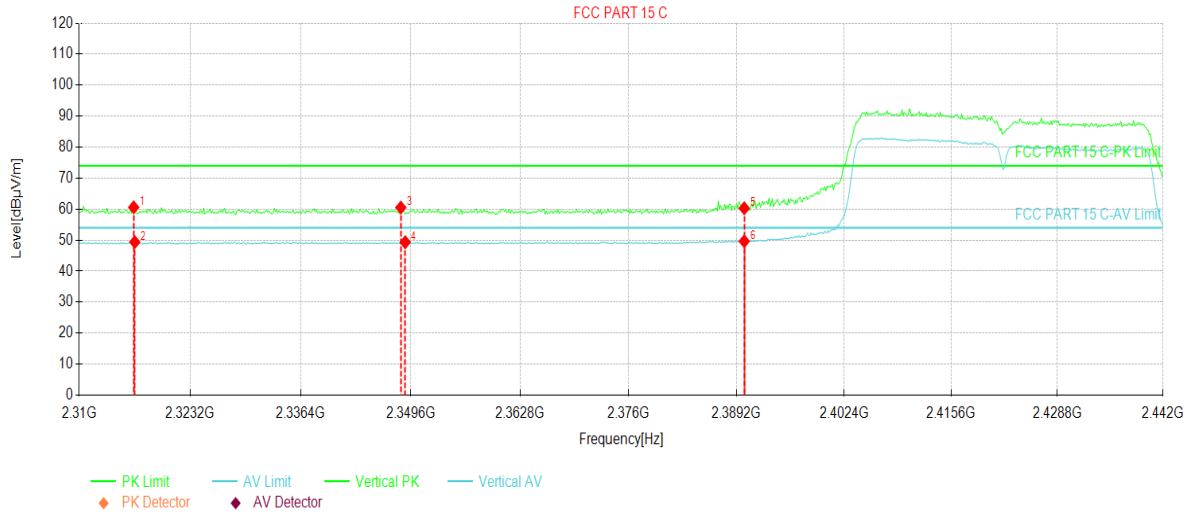
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2483.5 | 25.38 | 61.10 | 35.72 | 74.00 | 12.90 | 191 | 138 | PK | Horizontal |
| 2 | 2483.5 | 14.74 | 50.46 | 35.72 | 54.00 | 3.54 | 196 | 146 | AV | Horizontal |
| 3 | 2487.2 | 13.46 | 49.17 | 35.71 | 54.00 | 4.83 | 151 | 150 | AV | Horizontal |
| 4 | 2487.5 | 25.02 | 60.73 | 35.71 | 74.00 | 13.27 | 157 | 155 | PK | Horizontal |
| 5 | 2492.3 | 24.43 | 60.13 | 35.70 | 74.00 | 13.87 | 12 | 161 | PK | Horizontal |
| 6 | 2492.3 | 13.55 | 49.25 | 35.70 | 54.00 | 4.75 | 17 | 157 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

**802.11n(HT40):**

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n(HT40) Tx mode |
| Test Channel: | Lowest channel | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



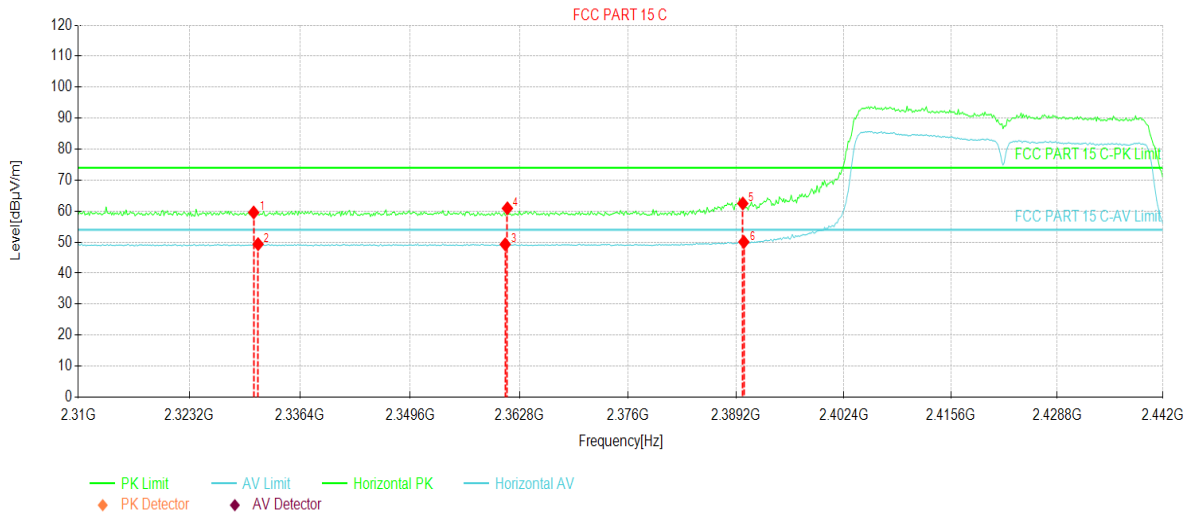

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2316.4 | 25.28 | 60.60 | 35.32 | 74.00 | 13.40 | 347 | 144 | PK | Vertical |
| 2 | 2316.6 | 14.05 | 49.37 | 35.32 | 54.00 | 4.63 | 352 | 147 | AV | Vertical |
| 3 | 2348.4 | 24.98 | 60.52 | 35.54 | 74.00 | 13.48 | 196 | 153 | PK | Vertical |
| 4 | 2348.9 | 13.77 | 49.32 | 35.55 | 54.00 | 4.68 | 187 | 151 | AV | Vertical |
| 5 | 2390.1 | 24.45 | 60.29 | 35.84 | 74.00 | 13.71 | 26 | 149 | PK | Vertical |
| 6 | 2390.1 | 13.80 | 49.64 | 35.84 | 54.00 | 4.36 | 18 | 155 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n(HT40) Tx mode |
| Test Channel: | Lowest channel | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



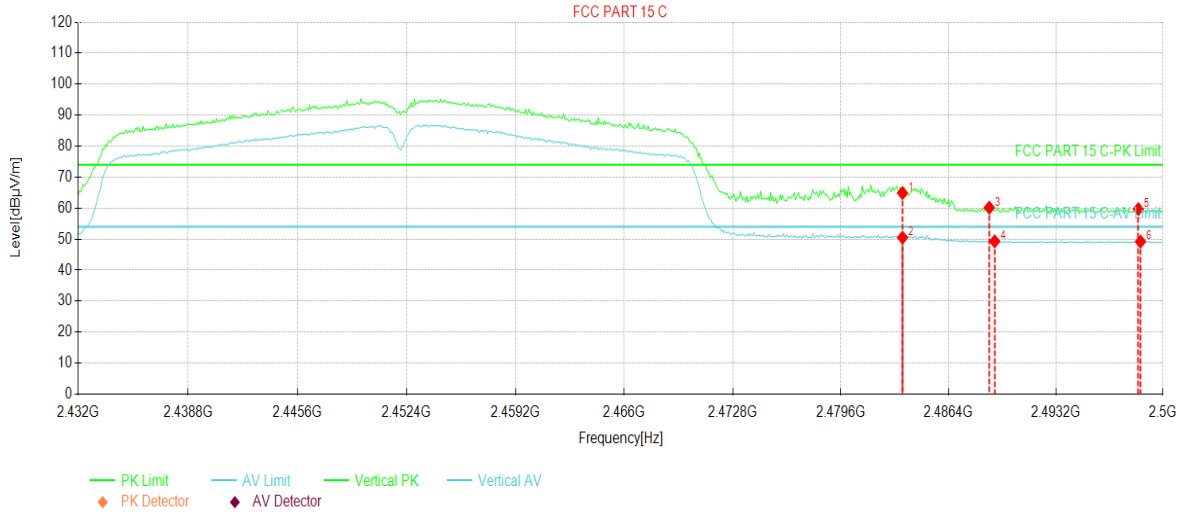

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2330.8 | 24.16 | 59.58 | 35.42 | 74.00 | 14.42 | 179 | 136 | PK | Horizontal |
| 2 | 2331.3 | 13.94 | 49.36 | 35.42 | 54.00 | 4.64 | 183 | 142 | AV | Horizontal |
| 3 | 2361.0 | 13.65 | 49.28 | 35.63 | 54.00 | 4.72 | 174 | 152 | AV | Horizontal |
| 4 | 2361.3 | 25.27 | 60.91 | 35.64 | 74.00 | 13.09 | 169 | 150 | PK | Horizontal |
| 5 | 2390.0 | 26.63 | 62.47 | 35.84 | 74.00 | 11.53 | 22 | 146 | PK | Horizontal |
| 6 | 2390.1 | 14.22 | 50.06 | 35.84 | 54.00 | 3.94 | 18 | 143 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n(HT40) Tx mode |
| Test Channel: | Highest channel | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



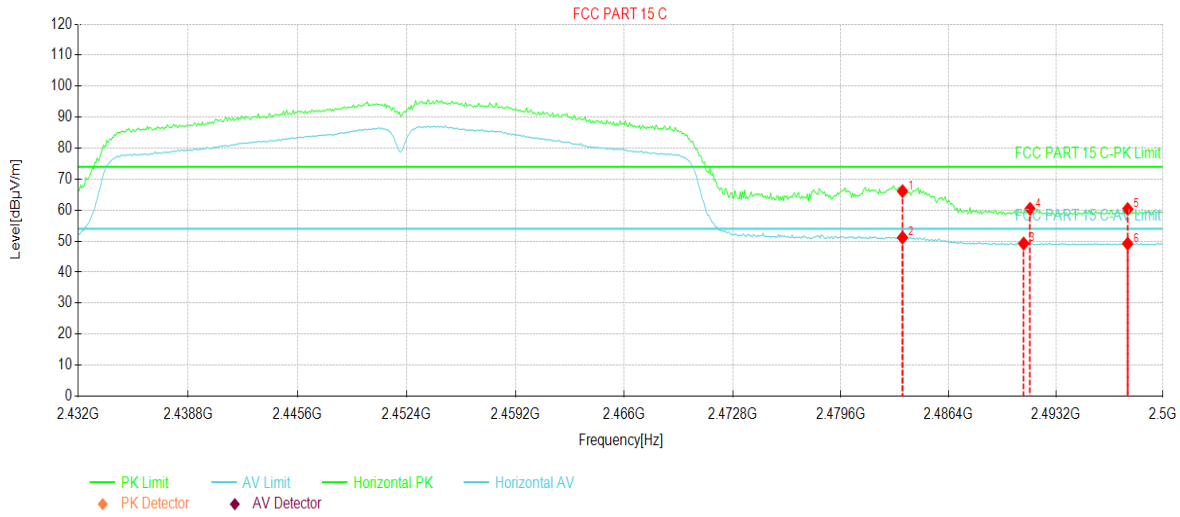

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2483.5 | 29.16 | 64.88 | 35.72 | 74.00 | 9.12 | 353 | 143 | PK | Vertical |
| 2 | 2483.5 | 14.77 | 50.49 | 35.72 | 54.00 | 3.51 | 346 | 139 | AV | Vertical |
| 3 | 2488.9 | 24.45 | 60.16 | 35.71 | 74.00 | 13.84 | 180 | 156 | PK | Vertical |
| 4 | 2489.3 | 13.59 | 49.29 | 35.70 | 54.00 | 4.71 | 186 | 160 | AV | Vertical |
| 5 | 2498.4 | 24.01 | 59.69 | 35.68 | 74.00 | 14.31 | 36 | 144 | PK | Vertical |
| 6 | 2498.5 | 13.52 | 49.20 | 35.68 | 54.00 | 4.80 | 27 | 148 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n(HT40) Tx mode |
| Test Channel: | Highest channel | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |




**Suspected Data List**

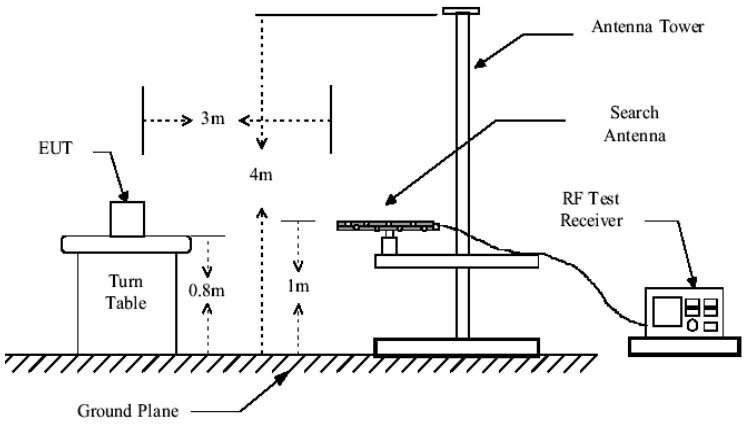
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2483.5 | 30.41 | 66.13 | 35.72 | 74.00 | 7.87 | 186 | 136 | PK | Horizontal |
| 2 | 2483.5 | 15.42 | 51.14 | 35.72 | 54.00 | 2.86 | 181 | 142 | AV | Horizontal |
| 3 | 2491.1 | 13.53 | 49.23 | 35.70 | 54.00 | 4.77 | 169 | 152 | AV | Horizontal |
| 4 | 2491.5 | 24.74 | 60.44 | 35.70 | 74.00 | 13.56 | 158 | 150 | PK | Horizontal |
| 5 | 2497.7 | 24.66 | 60.35 | 35.69 | 74.00 | 13.65 | 6 | 146 | PK | Horizontal |
| 6 | 2497.7 | 13.48 | 49.17 | 35.69 | 54.00 | 4.83 | 11 | 143 | AV | Horizontal |

*Remark:*

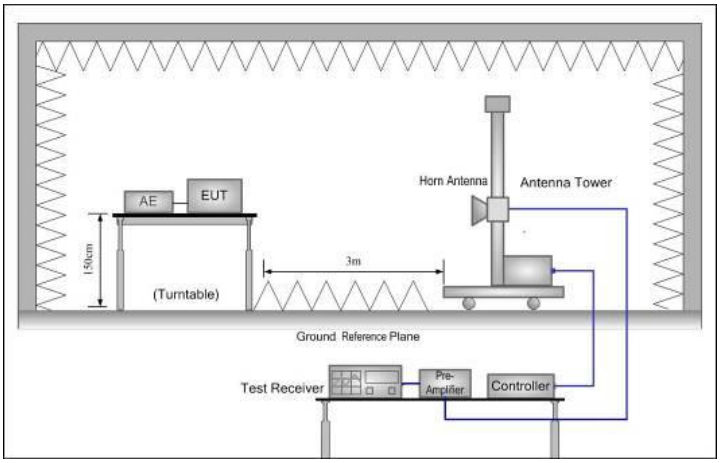
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

## 6.4 Spurious Emission

### 6.4.1 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part 15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">9kHz to 25GHz</td></tr>
<tr><td>Test Distance:</td><td colspan="5">3m</td></tr>
<tr><td>Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td></td><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td></td><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
<tr><td>Limit:</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td></td><td colspan="2">30MHz-88MHz</td><td colspan="2">40.0</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td colspan="2">88MHz-216MHz</td><td colspan="2">43.5</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td colspan="2">216MHz-960MHz</td><td colspan="2">46.0</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td colspan="2">960MHz-1GHz</td><td colspan="2">54.0</td><td>Quasi-peak Value</td></tr>
<tr><td></td><td colspan="2" rowspan="2">Above 1GHz</td><td colspan="2">54.0</td><td>Average Value</td></tr>
<tr><td></td><td colspan="2">74.0</td><td>Peak Value</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
<tr><td>Test setup:</td><td colspan="5">Below 1GHz<br> 

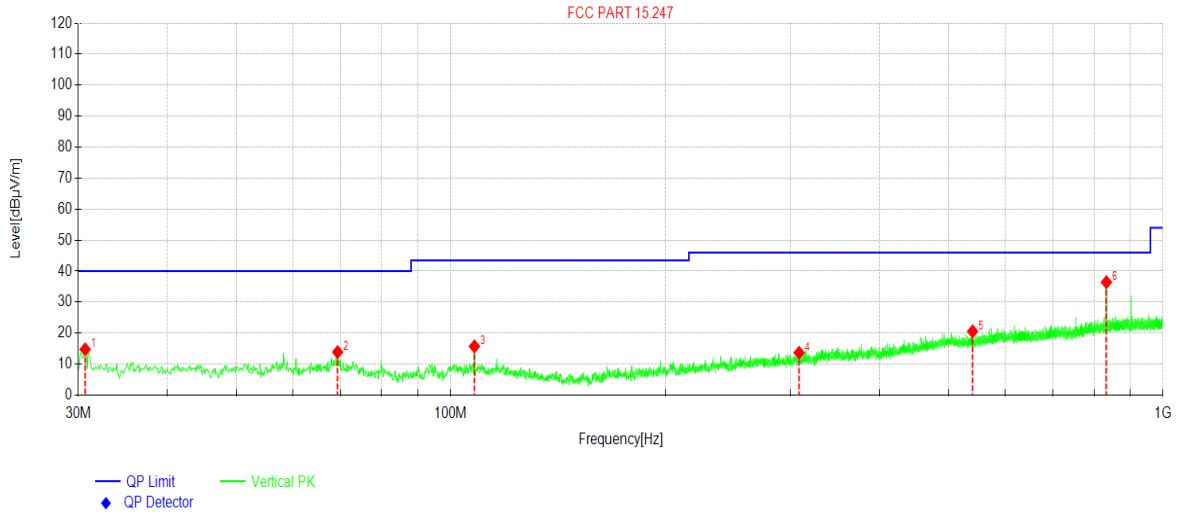
<br>Above 1GHz</td></tr>
</table>

| | |
|---|---|
| |  |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |
| Remark: | 1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.<br>2. 9 kHz to 30MHz is lower than the limit 20dB, so only shows the data of above 30MHz in this report. |

**Measurement Data (worst case):**

**Below 1GHz:**

| | | | |
|---|---|---|---|
| **Product Name:** | LTE/UMTS/GSM mobile phone | **Product Model:** | 5048A |
| **Test By:** | Mike | **Test mode:** | Wi-Fi Tx mode |
| **Test Frequency:** | 30 MHz ~ 1 GHz | **Polarization:** | Vertical |
| **Test Voltage:** | DC 3.85V | **Environment:** | Temp: 24℃ Huni: 57% |

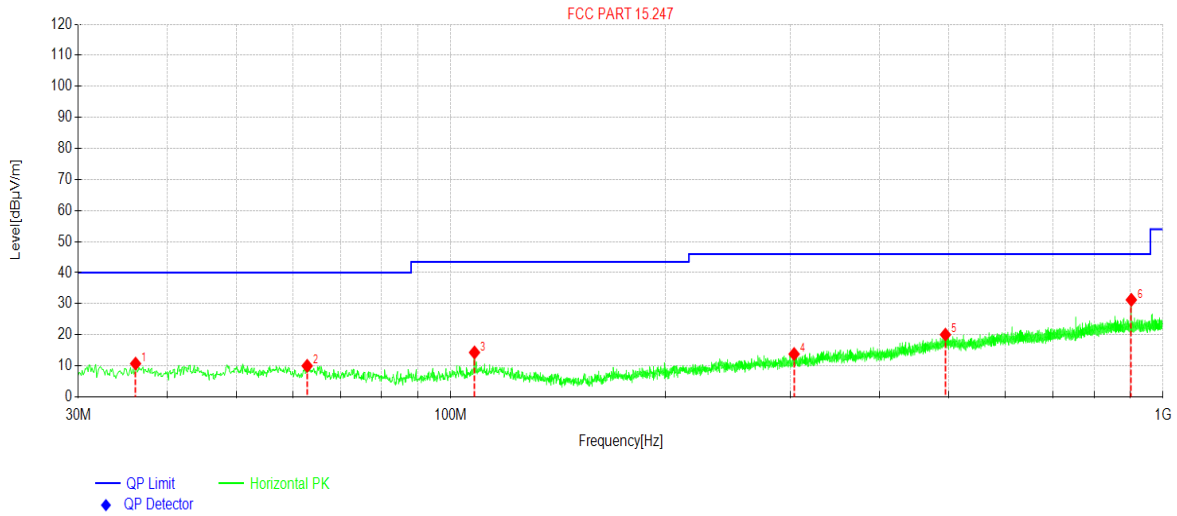



| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 30.679 | 30.77 | 14.77 | -16.00 | 40.00 | 25.23 | 159 | 103 | Vertical |
| 2 | 69.385 | 30.66 | 13.88 | -16.78 | 40.00 | 26.12 | 192 | 109 | Vertical |
| 3 | 107.99 | 31.67 | 15.73 | -15.94 | 43.50 | 27.77 | 315 | 115 | Vertical |
| 4 | 308.41 | 26.12 | 13.65 | -12.47 | 46.00 | 32.35 | 276 | 120 | Vertical |
| 5 | 540.36 | 27.36 | 20.56 | -6.80 | 46.00 | 25.44 | 46 | 133 | Vertical |
| 6 | 832.94 | 38.39 | 36.44 | -1.95 | 46.00 | 9.56 | 208 | 124 | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | Wi-Fi Tx mode |
| Test Frequency: | 30 MHz ~ 1 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |




| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Angle [° ] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 36.111 | 25.60 | 10.71 | -14.89 | 40.00 | 29.29 | 285 | 115 | Horizontal |
| 2 | 62.886 | 25.35 | 9.98 | -15.37 | 40.00 | 30.02 | 359 | 129 | Horizontal |
| 3 | 107.99 | 30.23 | 14.29 | -15.94 | 43.50 | 29.21 | 246 | 130 | Horizontal |
| 4 | 303.47 | 26.39 | 13.78 | -12.61 | 46.00 | 32.22 | 212 | 124 | Horizontal |
| 5 | 494.96 | 27.18 | 20.04 | -7.14 | 46.00 | 25.96 | 187 | 107 | Horizontal |
| 6 | 902.69 | 32.62 | 31.25 | -1.37 | 46.00 | 14.75 | 162 | 101 | Horizontal |

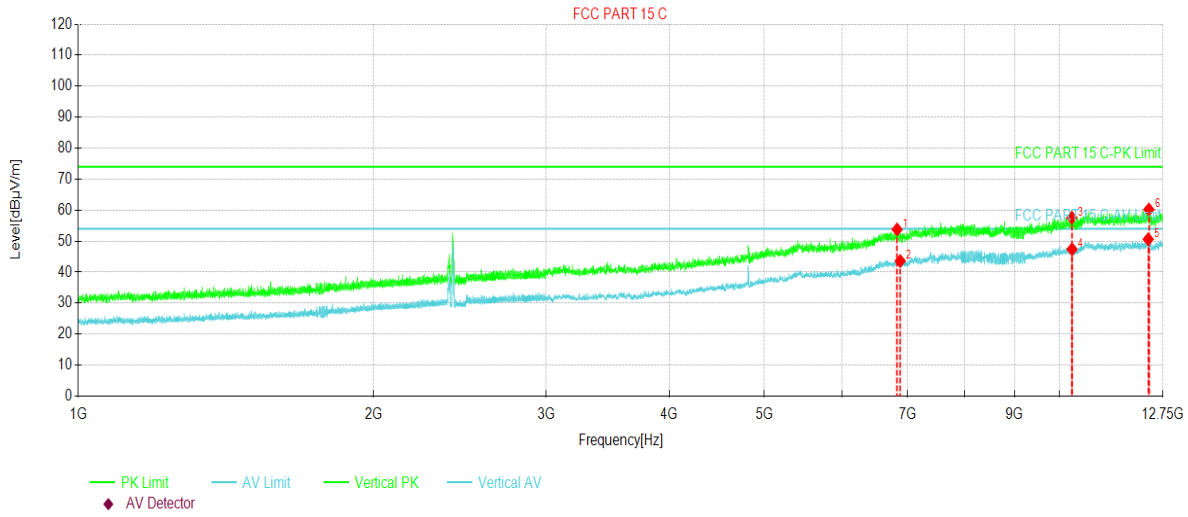
*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

**Above 1GHz**

**Remark: When testing spurs above 1GHz, use Band Reject Filter Group to filter out fundamental signal**

| | | | |
|---|---|---|---|
| **Product Name:** | LTE/UMTS/GSM mobile phone | **Product Model:** | 5048A |
| **Test By:** | Mike | **Test mode:** | 802.11b Low CH |
| **Test Frequency:** | 1 GHz ~ 25 GHz | **Polarization:** | Vertical |
| **Test Voltage:** | DC 3.85V | **Environment:** | Temp: 24℃ Huni: 57% |



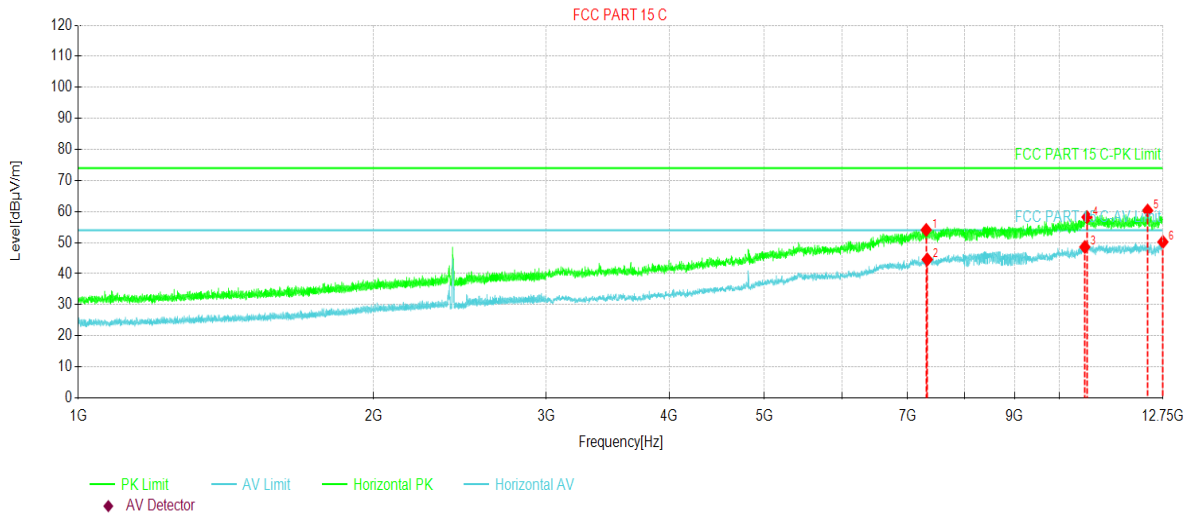

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6831.7 | 55.12 | 53.77 | -1.35 | 74.00 | 20.23 | 65 | 141 | PK | Vertical |
| 2 | 6881.7 | 44.89 | 43.60 | -1.29 | 54.00 | 10.40 | 93 | 130 | AV | Vertical |
| 3 | 10294. | 51.36 | 57.57 | 6.21 | 74.00 | 16.43 | 142 | 152 | PK | Vertical |
| 4 | 10300. | 41.13 | 47.37 | 6.24 | 54.00 | 6.63 | 170 | 162 | AV | Vertical |
| 5 | 12316. | 42.78 | 50.61 | 7.83 | 54.00 | 3.39 | 310 | 148 | AV | Vertical |
| 6 | 12334. | 52.37 | 60.20 | 7.83 | 74.00 | 13.80 | 346 | 140 | PK | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11b Low CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



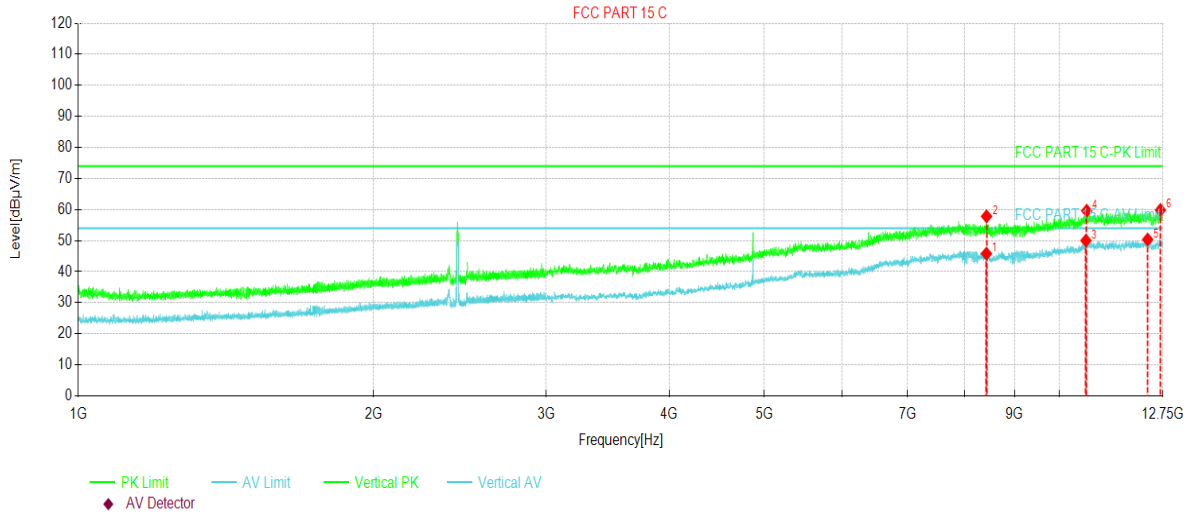

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7314.3 | 54.14 | 54.08 | -0.06 | 74.00 | 19.92 | 46 | 133 | PK | Horizontal |
| 2 | 7332.6 | 44.55 | 44.56 | 0.01 | 54.00 | 9.44 | 98 | 138 | AV | Horizontal |
| 3 | 10613. | 41.60 | 48.58 | 6.98 | 54.00 | 5.42 | 150 | 146 | AV | Horizontal |
| 4 | 10667. | 51.06 | 58.21 | 7.15 | 74.00 | 15.79 | 141 | 151 | PK | Horizontal |
| 5 | 12299. | 52.50 | 60.33 | 7.83 | 74.00 | 13.67 | 247 | 160 | PK | Horizontal |
| 6 | 12747. | 41.80 | 50.22 | 8.42 | 54.00 | 3.78 | 210 | 152 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11b Mid CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



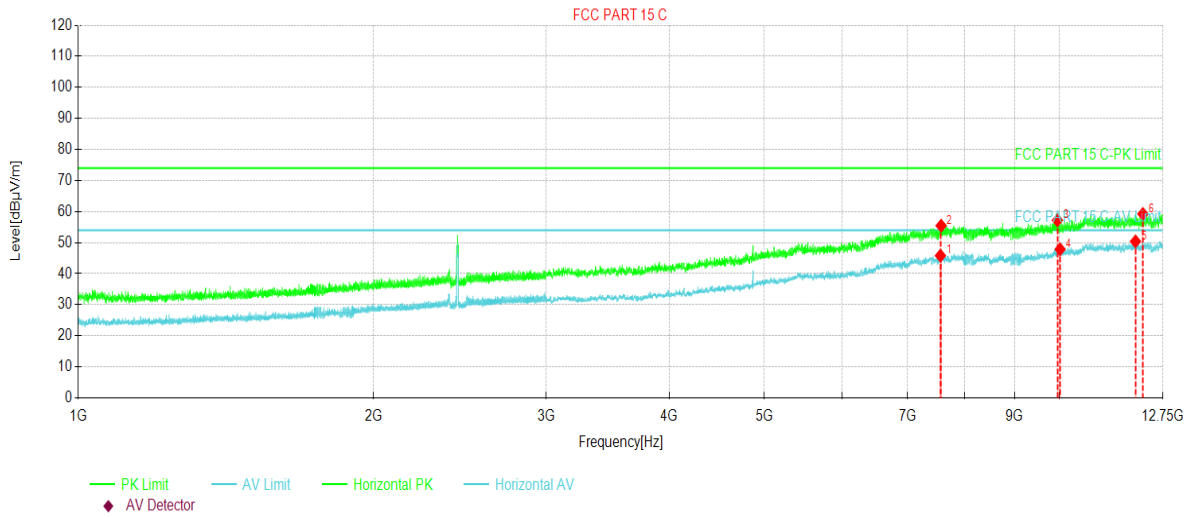

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8424.6 | 44.20 | 45.80 | 1.60 | 54.00 | 8.20 | 129 | 121 | AV | Vertical |
| 2 | 8427.0 | 56.23 | 57.82 | 1.59 | 74.00 | 16.18 | 105 | 138 | PK | Vertical |
| 3 | 10640. | 42.96 | 50.03 | 7.07 | 54.00 | 3.97 | 256 | 146 | AV | Vertical |
| 4 | 10659. | 52.48 | 59.61 | 7.13 | 74.00 | 14.39 | 241 | 155 | PK | Vertical |
| 5 | 12299. | 42.51 | 50.34 | 7.83 | 54.00 | 3.66 | 289 | 160 | AV | Vertical |
| 6 | 12673. | 51.58 | 59.87 | 8.29 | 74.00 | 14.13 | 315 | 164 | PK | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11b Mid CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



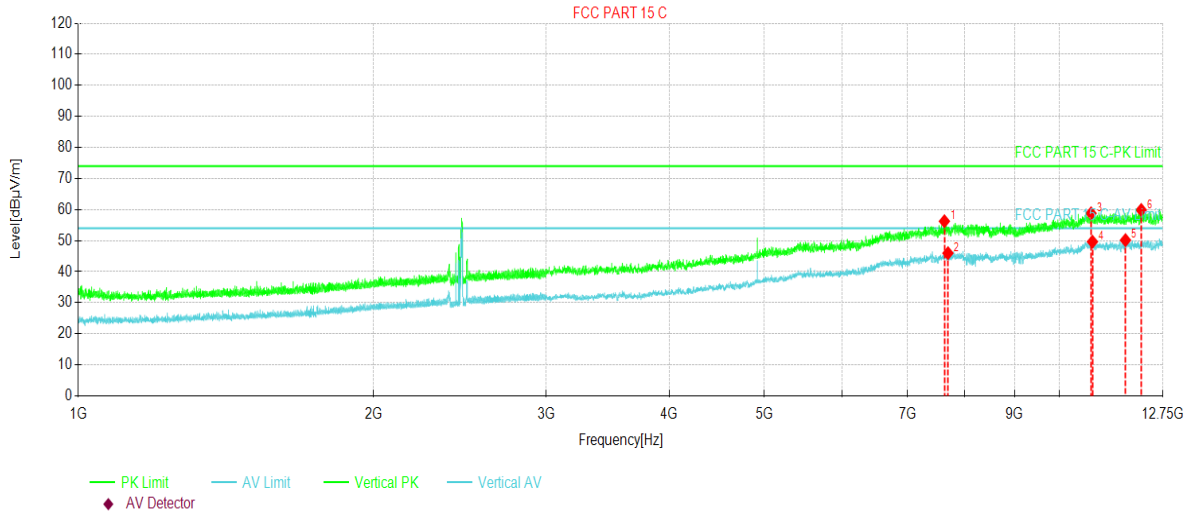

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7563.0 | 45.14 | 45.79 | 0.65 | 54.00 | 8.21 | 284 | 142 | AV | Horizontal |
| 2 | 7575.1 | 54.68 | 55.45 | 0.77 | 74.00 | 18.55 | 261 | 151 | PK | Horizontal |
| 3 | 9951.7 | 52.18 | 57.19 | 5.01 | 74.00 | 16.81 | 146 | 136 | PK | Horizontal |
| 4 | 10015. | 42.92 | 47.85 | 4.93 | 54.00 | 6.15 | 152 | 146 | AV | Horizontal |
| 5 | 11952. | 42.77 | 50.39 | 7.62 | 54.00 | 3.61 | 319 | 153 | AV | Horizontal |
| 6 | 12162. | 51.60 | 59.23 | 7.63 | 74.00 | 14.77 | 331 | 166 | PK | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11b High CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



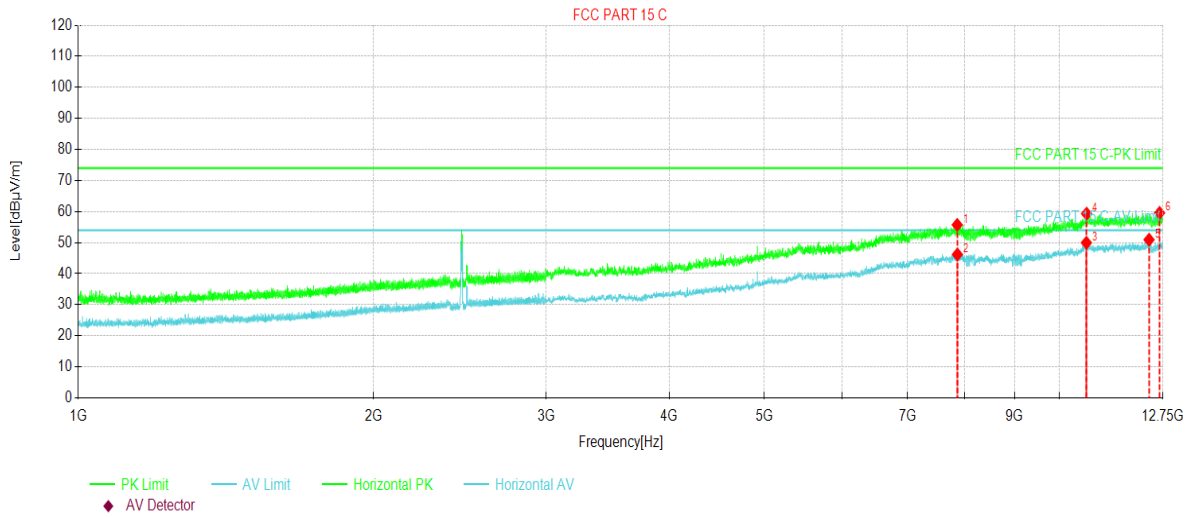

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7633.6 | 55.37 | 56.24 | 0.87 | 74.00 | 17.76 | 159 | 142 | PK | Vertical |
| 2 | 7698.2 | 45.41 | 45.97 | 0.56 | 54.00 | 8.03 | 167 | 152 | AV | Vertical |
| 3 | 10769. | 51.63 | 58.81 | 7.18 | 74.00 | 15.19 | 190 | 132 | PK | Vertical |
| 4 | 10804. | 42.50 | 49.65 | 7.15 | 54.00 | 4.35 | 203 | 150 | AV | Vertical |
| 5 | 11675. | 42.29 | 50.16 | 7.87 | 54.00 | 3.84 | 343 | 162 | AV | Vertical |
| 6 | 12115. | 52.56 | 59.86 | 7.30 | 74.00 | 14.14 | 310 | 147 | PK | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11b High CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



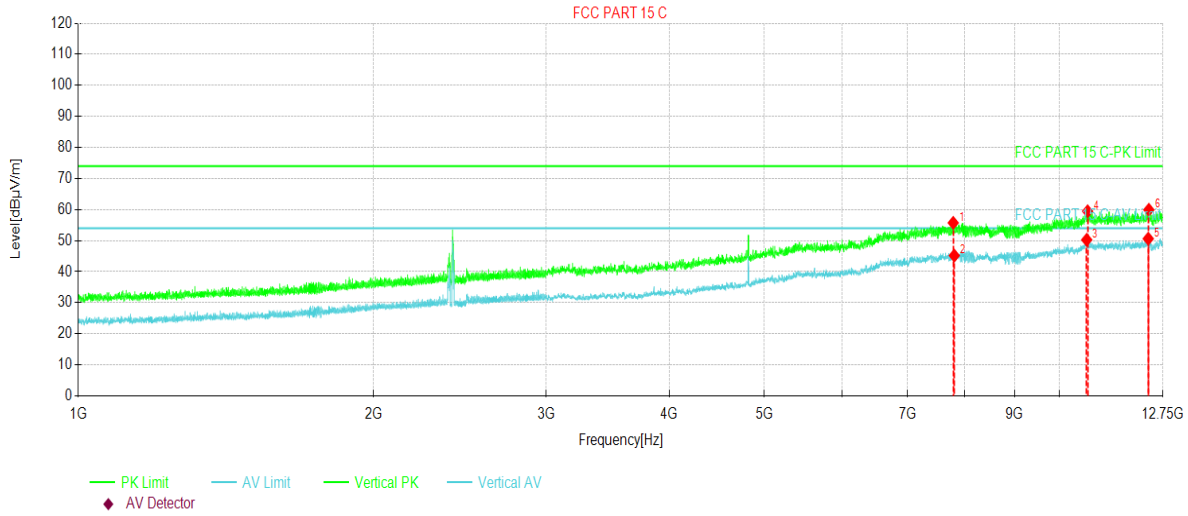

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7866.4 | 54.72 | 55.73 | 1.01 | 74.00 | 18.27 | 54 | 141 | PK | Horizontal |
| 2 | 7870.1 | 45.17 | 46.18 | 1.01 | 54.00 | 7.82 | 80 | 135 | AV | Horizontal |
| 3 | 10652. | 42.86 | 49.97 | 7.11 | 54.00 | 4.03 | 325 | 148 | AV | Horizontal |
| 4 | 10657. | 52.20 | 59.32 | 7.12 | 74.00 | 14.68 | 301 | 140 | PK | Horizontal |
| 5 | 12339. | 43.11 | 50.94 | 7.83 | 54.00 | 3.06 | 268 | 156 | AV | Horizontal |
| 6 | 12648. | 51.36 | 59.57 | 8.21 | 74.00 | 14.43 | 295 | 167 | PK | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g Low CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



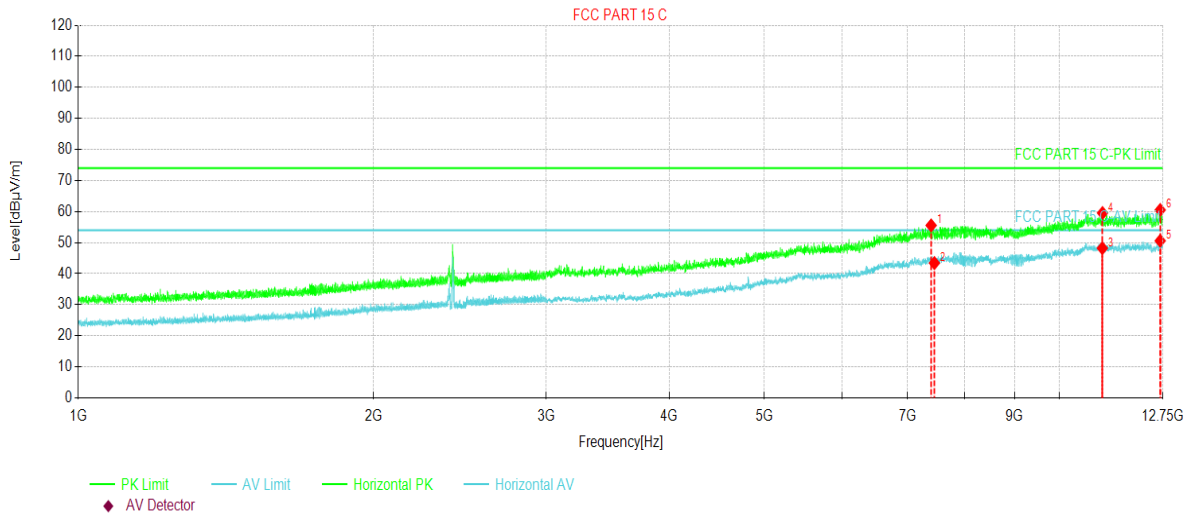

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7793.3 | 54.73 | 55.72 | 0.99 | 74.00 | 18.28 | 315 | 146 | PK | Vertical |
| 2 | 7812.8 | 44.16 | 45.18 | 1.02 | 54.00 | 8.82 | 287 | 139 | AV | Vertical |
| 3 | 10659. | 43.13 | 50.26 | 7.13 | 54.00 | 3.74 | 45 | 130 | AV | Vertical |
| 4 | 10683. | 52.23 | 59.44 | 7.21 | 74.00 | 14.56 | 70 | 145 | PK | Vertical |
| 5 | 12316. | 42.79 | 50.62 | 7.83 | 54.00 | 3.38 | 223 | 154 | AV | Vertical |
| 6 | 12333. | 52.08 | 59.91 | 7.83 | 74.00 | 14.09 | 210 | 148 | PK | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g Low CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



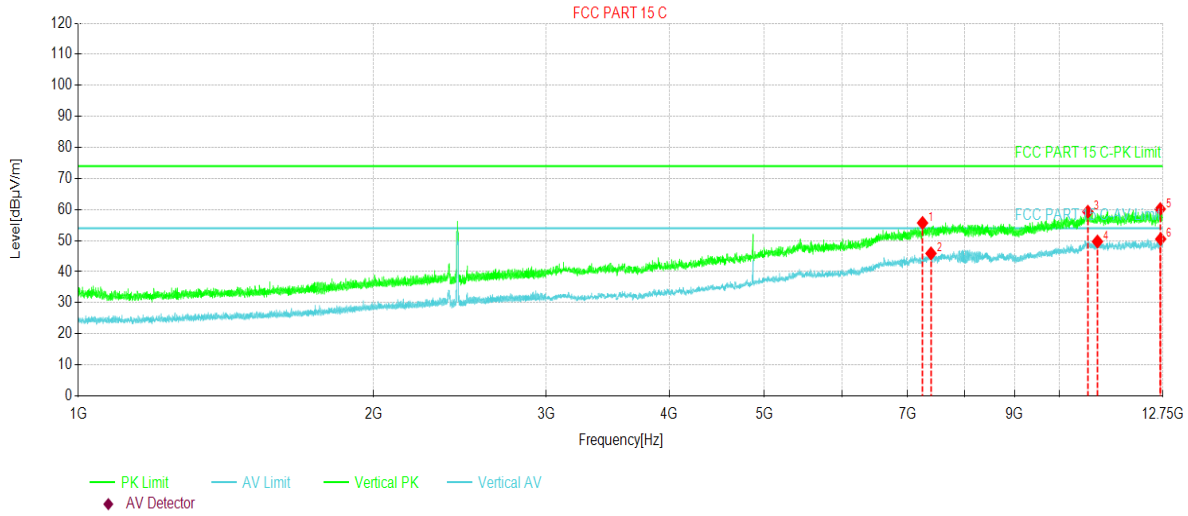

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7399.6 | 55.28 | 55.55 | 0.27 | 74.00 | 18.45 | 19 | 136 | PK | Horizontal |
| 2 | 7456.9 | 43.30 | 43.42 | 0.12 | 54.00 | 10.58 | 32 | 141 | AV | Horizontal |
| 3 | 11058. | 40.95 | 48.21 | 7.26 | 54.00 | 5.79 | 146 | 146 | AV | Horizontal |
| 4 | 11063. | 52.29 | 59.53 | 7.24 | 74.00 | 14.47 | 172 | 152 | PK | Horizontal |
| 5 | 12665. | 42.31 | 50.58 | 8.27 | 54.00 | 3.42 | 202 | 161 | AV | Horizontal |
| 6 | 12667. | 52.24 | 60.51 | 8.27 | 74.00 | 13.49 | 241 | 154 | PK | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g Mid CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



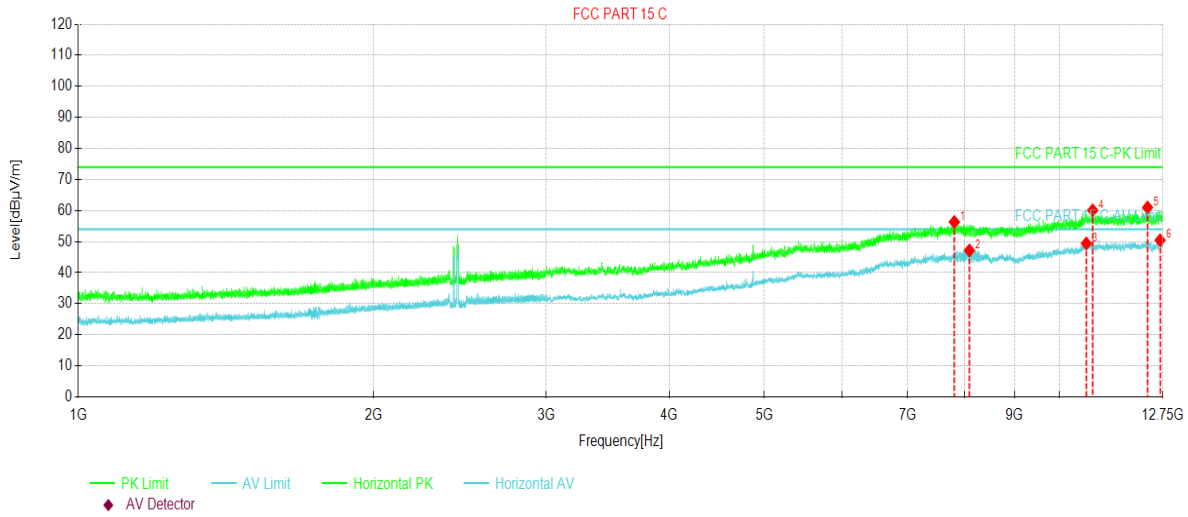

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7252.2 | 55.78 | 55.70 | -0.08 | 74.00 | 18.30 | 82 | 133 | PK | Vertical |
| 2 | 7397.2 | 45.62 | 45.88 | 0.26 | 54.00 | 8.12 | 91 | 139 | AV | Vertical |
| 3 | 10689. | 52.06 | 59.29 | 7.23 | 74.00 | 14.71 | 241 | 146 | PK | Vertical |
| 4 | 10932. | 42.34 | 49.70 | 7.36 | 54.00 | 4.30 | 263 | 151 | AV | Vertical |
| 5 | 12667. | 51.88 | 60.15 | 8.27 | 74.00 | 13.85 | 290 | 168 | PK | Vertical |
| 6 | 12681. | 42.18 | 50.50 | 8.32 | 54.00 | 3.50 | 240 | 159 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g Mid CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



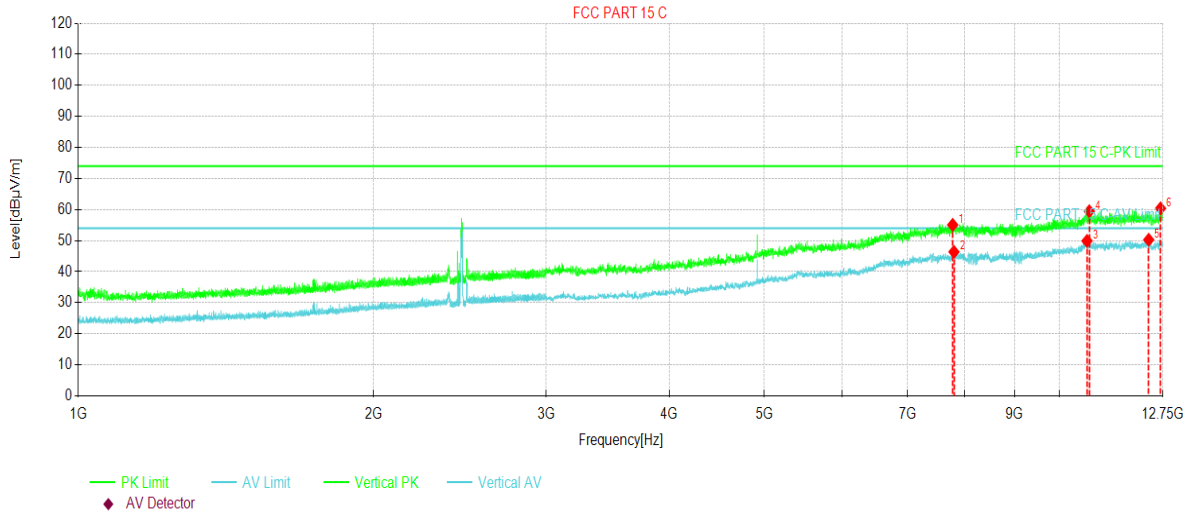

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7814.0 | 55.31 | 56.33 | 1.02 | 74.00 | 17.67 | 319 | 142 | PK | Horizontal |
| 2 | 8094.3 | 46.33 | 47.14 | 0.81 | 54.00 | 6.86 | 284 | 135 | AV | Horizontal |
| 3 | 10650. | 42.33 | 49.43 | 7.10 | 54.00 | 4.57 | 290 | 156 | AV | Horizontal |
| 4 | 10810. | 52.91 | 60.07 | 7.16 | 74.00 | 13.93 | 245 | 161 | PK | Horizontal |
| 5 | 12295. | 53.16 | 60.99 | 7.83 | 74.00 | 13.01 | 56 | 158 | PK | Horizontal |
| 6 | 12665. | 42.18 | 50.45 | 8.27 | 54.00 | 3.55 | 47 | 150 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g High CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |

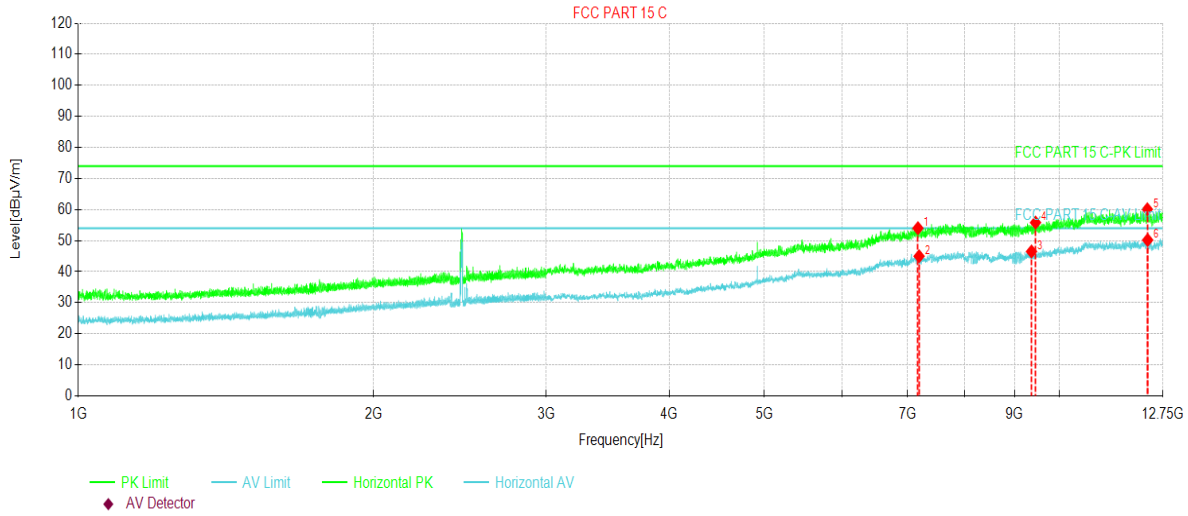



| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7783.5 | 54.12 | 55.06 | 0.94 | 74.00 | 18.94 | 95 | 132 | PK | Vertical |
| 2 | 7806.7 | 45.35 | 46.37 | 1.02 | 54.00 | 7.63 | 106 | 146 | AV | Vertical |
| 3 | 10667. | 42.75 | 49.90 | 7.15 | 54.00 | 4.10 | 128 | 151 | AV | Vertical |
| 4 | 10724. | 52.22 | 59.45 | 7.23 | 74.00 | 14.55 | 169 | 158 | PK | Vertical |
| 5 | 12329. | 42.44 | 50.27 | 7.83 | 54.00 | 3.73 | 248 | 160 | PK | Vertical |
| 6 | 12676. | 52.07 | 60.37 | 8.30 | 74.00 | 13.63 | 269 | 165 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11g High CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



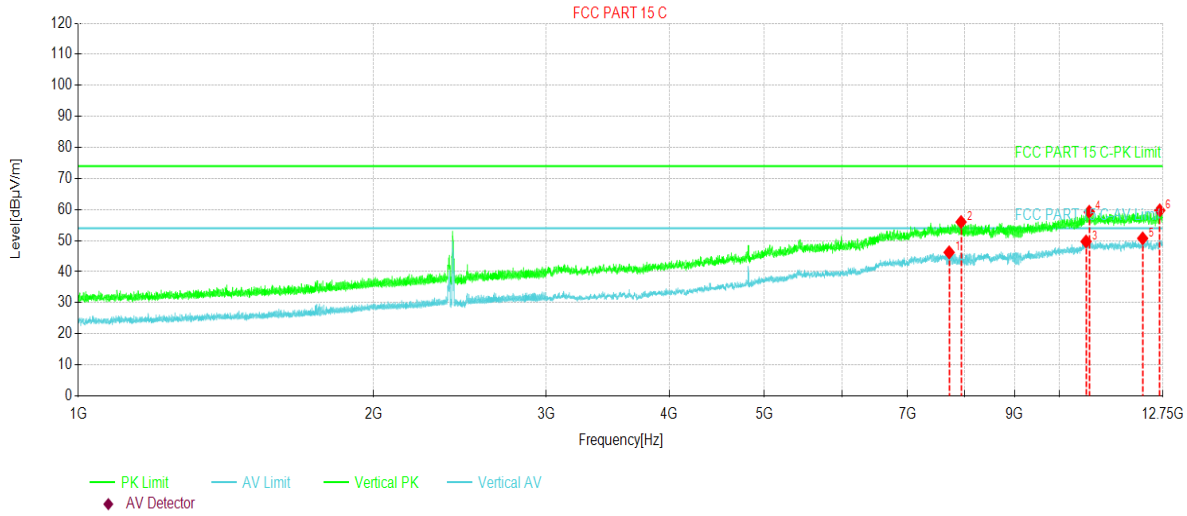

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7174.2 | 54.07 | 54.01 | -0.06 | 74.00 | 19.99 | 68 | 147 | PK | Horizontal |
| 2 | 7193.7 | 45.03 | 44.98 | -0.05 | 54.00 | 9.02 | 80 | 132 | AV | Horizontal |
| 3 | 9364.3 | 43.39 | 46.50 | 3.11 | 54.00 | 7.50 | 147 | 156 | AV | Horizontal |
| 4 | 9453.2 | 52.67 | 55.81 | 3.14 | 74.00 | 18.19 | 169 | 142 | PK | Horizontal |
| 5 | 12290. | 52.27 | 60.10 | 7.83 | 74.00 | 13.90 | 257 | 168 | PK | Horizontal |
| 6 | 12300. | 42.36 | 50.19 | 7.83 | 54.00 | 3.81 | 230 | 150 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n20 Low CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



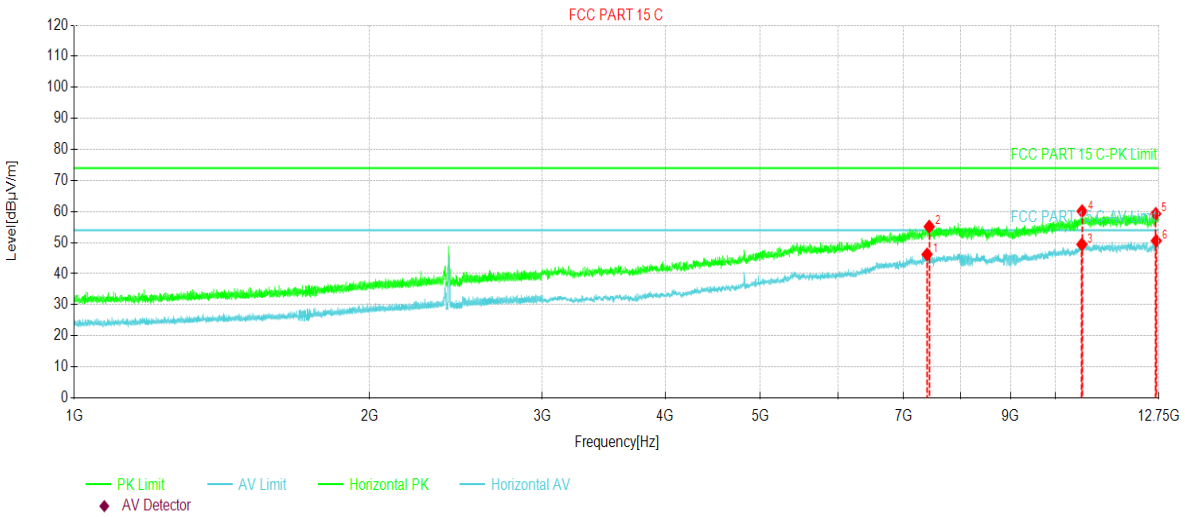

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7719.0 | 45.56 | 46.20 | 0.64 | 54.00 | 7.80 | 98 | 132 | AV | Vertical |
| 2 | 7938.3 | 55.03 | 56.00 | 0.97 | 74.00 | 18.00 | 106 | 147 | PK | Vertical |
| 3 | 10645. | 42.64 | 49.72 | 7.08 | 54.00 | 4.28 | 23 | 153 | AV | Vertical |
| 4 | 10723. | 52.04 | 59.27 | 7.23 | 74.00 | 14.73 | 356 | 159 | PK | Vertical |
| 5 | 12156. | 43.15 | 50.73 | 7.58 | 54.00 | 3.27 | 278 | 161 | AV | Vertical |
| 6 | 12652. | 51.52 | 59.74 | 8.22 | 74.00 | 14.26 | 215 | 159 | PK | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n20 Low CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



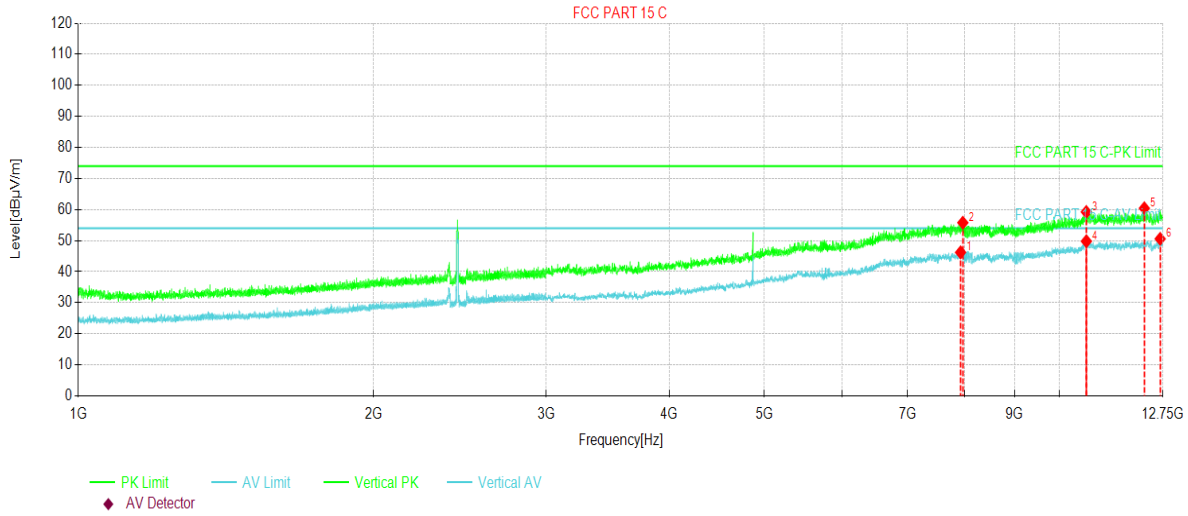

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7398.4 | 45.94 | 46.20 | 0.26 | 54.00 | 7.80 | 167 | 131 | AV | Horizontal |
| 2 | 7436.2 | 54.99 | 55.16 | 0.17 | 74.00 | 18.84 | 190 | 140 | PK | Horizontal |
| 3 | 10640. | 42.37 | 49.44 | 7.07 | 54.00 | 4.56 | 142 | 150 | AV | Horizontal |
| 4 | 10644. | 53.03 | 60.11 | 7.08 | 74.00 | 13.89 | 139 | 146 | PK | Horizontal |
| 5 | 12653. | 51.03 | 59.26 | 8.23 | 74.00 | 14.74 | 245 | 160 | PK | Horizontal |
| 6 | 12669. | 42.32 | 50.60 | 8.28 | 54.00 | 3.40 | 269 | 153 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n20 Mid CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



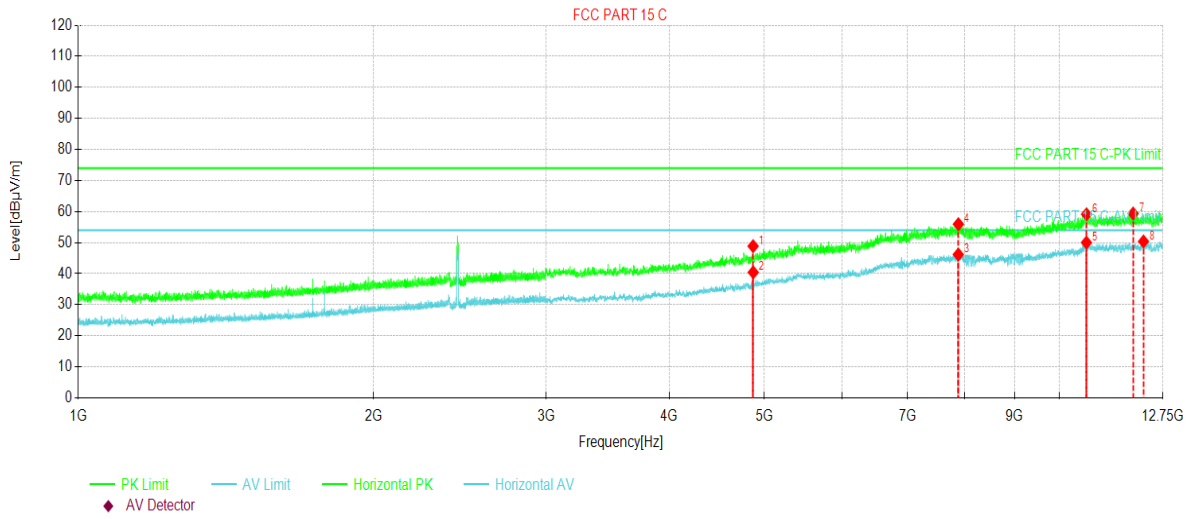

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7928.6 | 45.24 | 46.22 | 0.98 | 54.00 | 7.78 | 79 | 132 | AV | Vertical |
| 2 | 7971.2 | 54.84 | 55.77 | 0.93 | 74.00 | 18.23 | 60 | 142 | PK | Vertical |
| 3 | 10650. | 52.13 | 59.23 | 7.10 | 74.00 | 14.77 | 254 | 135 | PK | Vertical |
| 4 | 10652. | 42.69 | 49.80 | 7.11 | 54.00 | 4.20 | 269 | 149 | AV | Vertical |
| 5 | 12204. | 52.54 | 60.42 | 7.88 | 74.00 | 13.58 | 312 | 150 | PK | Vertical |
| 6 | 12665. | 42.30 | 50.57 | 8.27 | 54.00 | 3.43 | 305 | 162 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n20 Mid CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



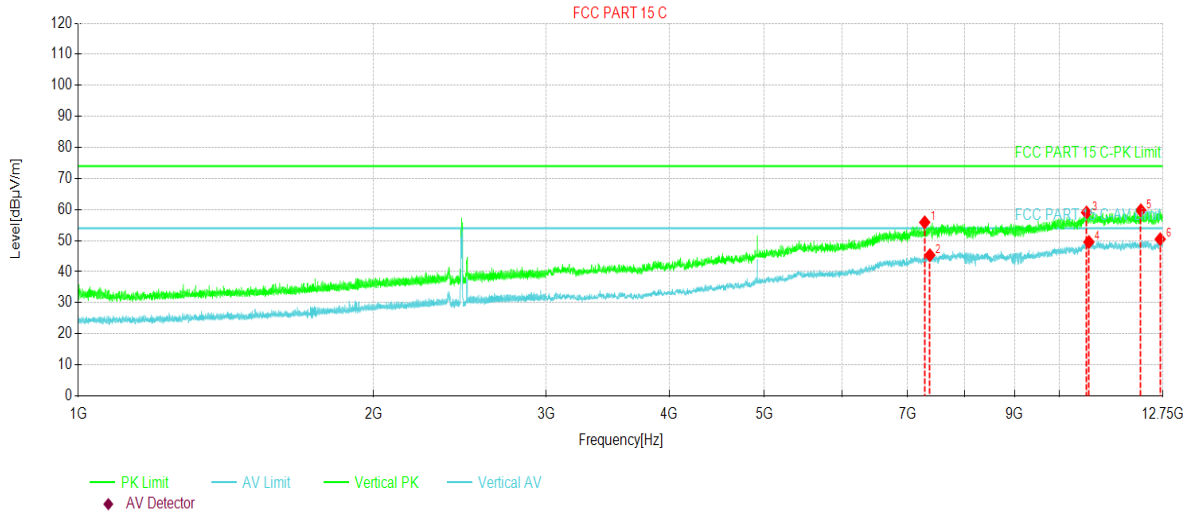

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4873.2 | 57.97 | 48.85 | -9.12 | 74.00 | 25.15 | 258 | 140 | PK | Horizontal |
| 2 | 4874.4 | 49.55 | 40.44 | -9.11 | 54.00 | 13.56 | 264 | 132 | AV | Horizontal |
| 3 | 7887.1 | 45.16 | 46.17 | 1.01 | 54.00 | 7.83 | 314 | 151 | AV | Horizontal |
| 4 | 7888.4 | 54.92 | 55.93 | 1.01 | 74.00 | 18.07 | 336 | 157 | PK | Horizontal |
| 5 | 10653. | 42.91 | 50.02 | 7.11 | 54.00 | 3.98 | 65 | 168 | AV | Horizontal |
| 6 | 10656. | 52.00 | 59.12 | 7.12 | 74.00 | 14.88 | 79 | 159 | PK | Horizontal |
| 7 | 11887. | 51.86 | 59.38 | 7.52 | 74.00 | 14.62 | 10 | 134 | PK | Horizontal |
| 8 | 12179. | 42.64 | 50.38 | 7.74 | 54.00 | 3.62 | 39 | 150 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n20 High CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



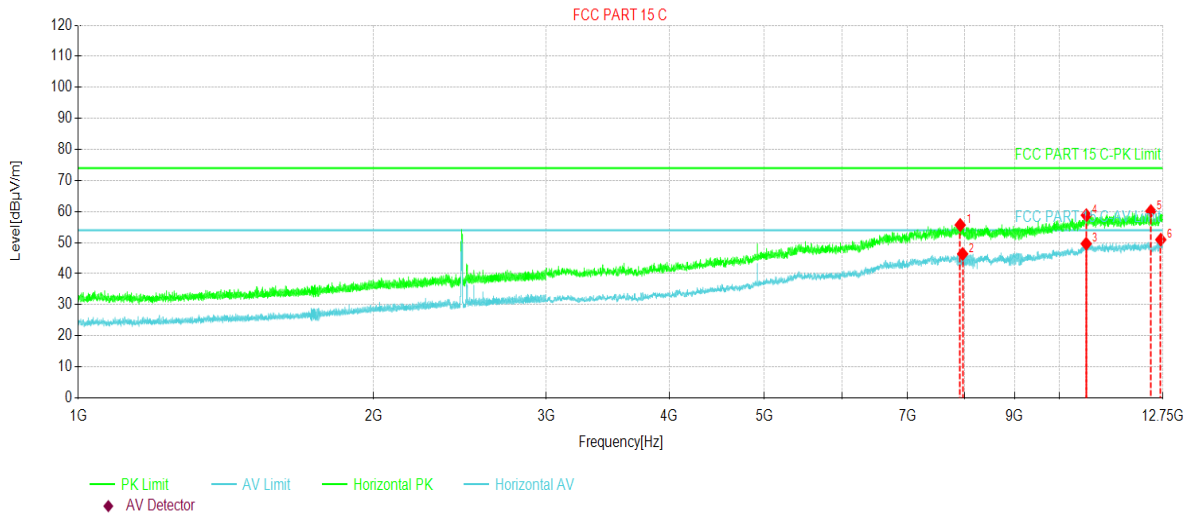

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7288.7 | 55.99 | 55.89 | -0.10 | 74.00 | 18.11 | 313 | 147 | PK | Vertical |
| 2 | 7377.7 | 45.11 | 45.30 | 0.19 | 54.00 | 8.70 | 294 | 140 | AV | Vertical |
| 3 | 10656. | 51.92 | 59.04 | 7.12 | 74.00 | 14.96 | 264 | 135 | PK | Vertical |
| 4 | 10714. | 42.32 | 49.56 | 7.24 | 54.00 | 4.44 | 239 | 132 | AV | Vertical |
| 5 | 12104. | 52.52 | 59.75 | 7.23 | 74.00 | 14.25 | 109 | 157 | PK | Vertical |
| 6 | 12667. | 42.19 | 50.46 | 8.27 | 54.00 | 3.54 | 136 | 162 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n20 High CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



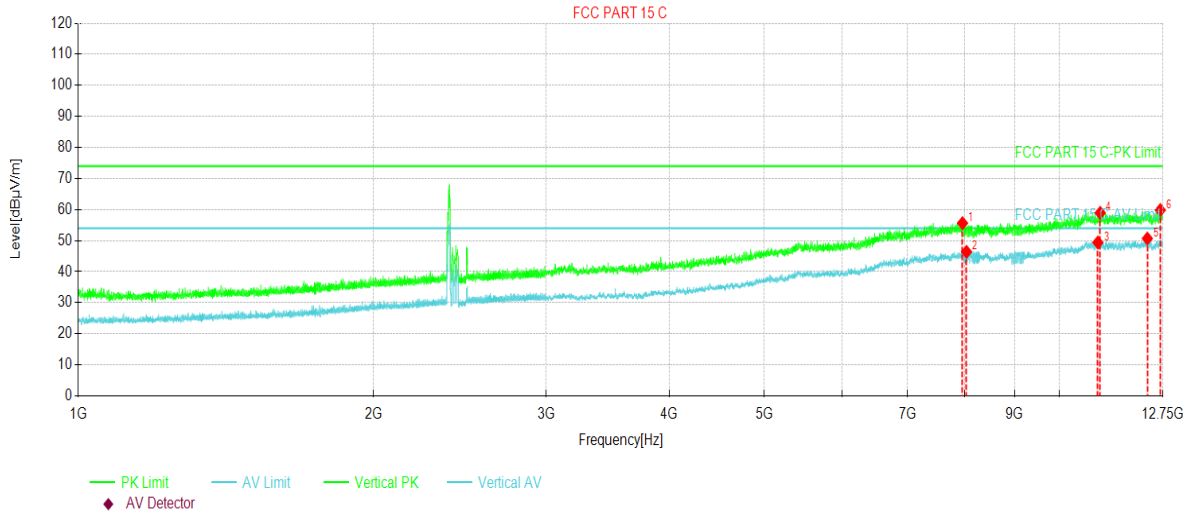

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7922.5 | 54.68 | 55.67 | 0.99 | 74.00 | 18.33 | 95 | 156 | PK | Horizontal |
| 2 | 7967.6 | 45.42 | 46.36 | 0.94 | 54.00 | 7.64 | 112 | 163 | AV | Horizontal |
| 3 | 10647. | 42.56 | 49.65 | 7.09 | 54.00 | 4.35 | 267 | 149 | AV | Horizontal |
| 4 | 10651. | 51.71 | 58.81 | 7.10 | 74.00 | 15.19 | 280 | 155 | PK | Horizontal |
| 5 | 12391. | 52.30 | 60.14 | 7.84 | 74.00 | 13.86 | 343 | 137 | PK | Horizontal |
| 6 | 12684. | 42.60 | 50.93 | 8.33 | 54.00 | 3.07 | 352 | 149 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n40 Low CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |




**Suspected Data List**

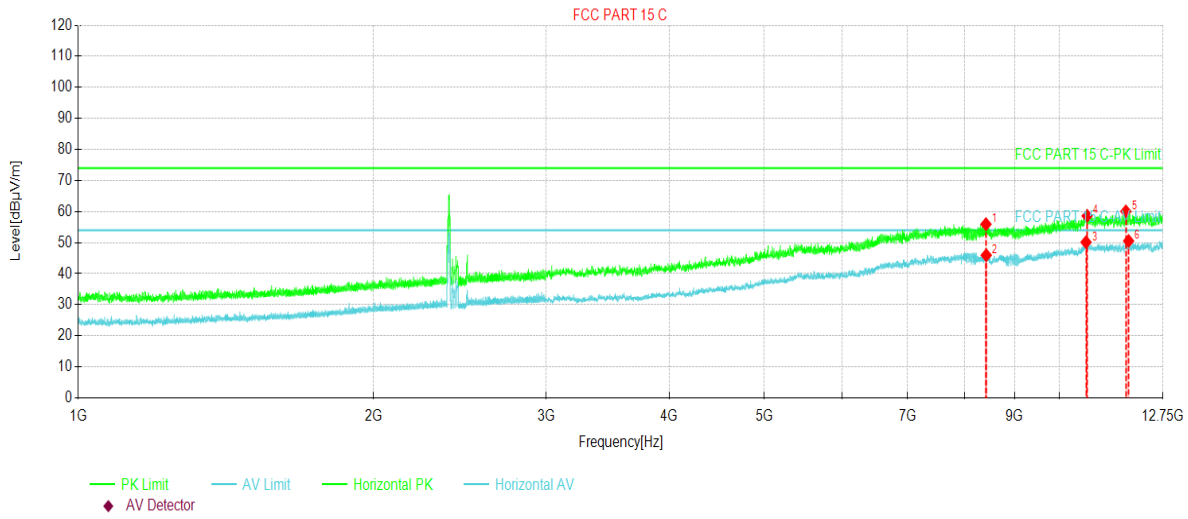
| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7965.1 | 54.69 | 55.63 | 0.94 | 74.00 | 18.37 | 267 | 149 | PK | Vertical |
| 2 | 8040.7 | 45.53 | 46.39 | 0.86 | 54.00 | 7.61 | 291 | 140 | AV | Vertical |
| 3 | 10943. | 42.02 | 49.39 | 7.37 | 54.00 | 4.61 | 64 | 131 | AV | Vertical |
| 4 | 11003. | 51.48 | 58.94 | 7.46 | 74.00 | 15.06 | 72 | 146 | PK | Vertical |
| 5 | 12290. | 42.86 | 50.69 | 7.83 | 54.00 | 3.31 | 309 | 150 | AV | Vertical |
| 6 | 12669. | 51.56 | 59.84 | 8.28 | 74.00 | 14.16 | 321 | 157 | PK | Vertical |

*Remark:*

*1. Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*

2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n40 Low CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



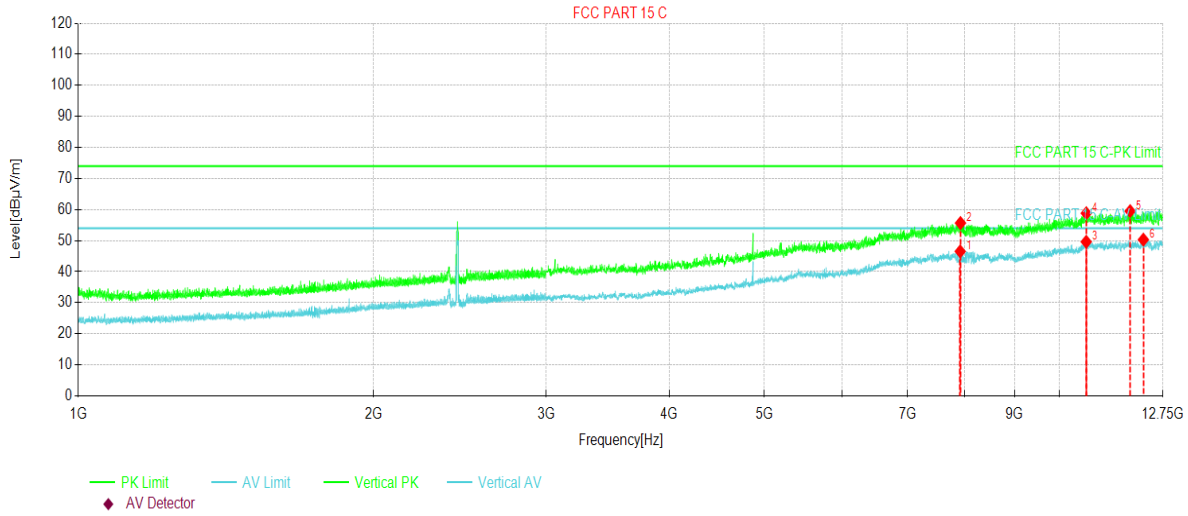

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8416.1 | 54.29 | 55.94 | 1.65 | 74.00 | 18.06 | 76 | 140 | PK | Horizontal |
| 2 | 8421.0 | 44.33 | 45.95 | 1.62 | 54.00 | 8.05 | 92 | 136 | AV | Horizontal |
| 3 | 10644. | 43.05 | 50.13 | 7.08 | 54.00 | 3.87 | 149 | 158 | AV | Horizontal |
| 4 | 10669. | 51.45 | 58.61 | 7.16 | 74.00 | 15.39 | 180 | 150 | PK | Horizontal |
| 5 | 11686. | 52.12 | 60.06 | 7.94 | 74.00 | 13.94 | 245 | 160 | PK | Horizontal |
| 6 | 11761. | 42.61 | 50.55 | 7.94 | 54.00 | 3.45 | 267 | 171 | AV | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n40 Mid CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



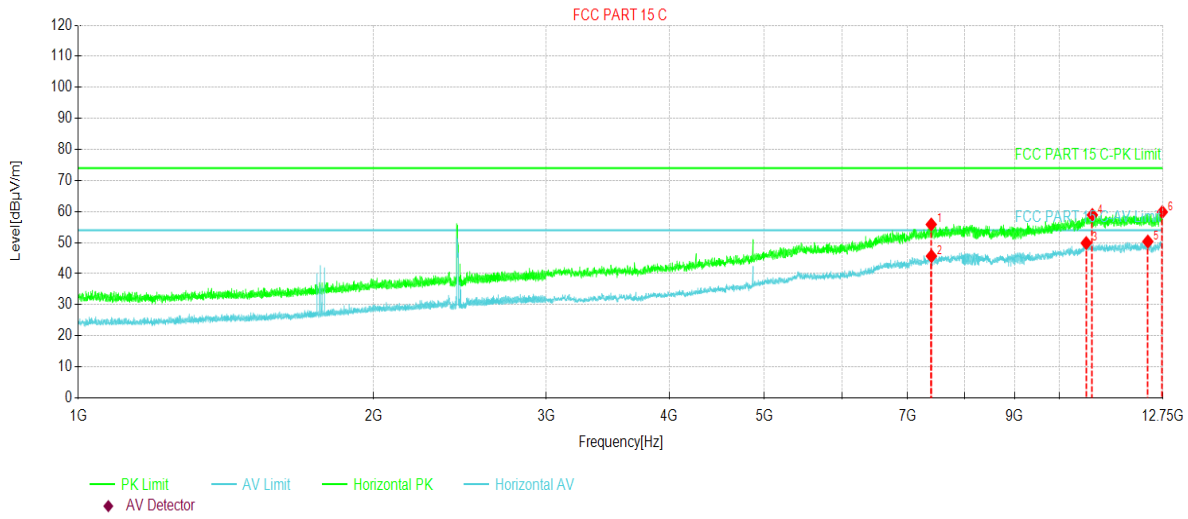

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7922.5 | 45.54 | 46.53 | 0.99 | 54.00 | 7.47 | 237 | 134 | AV | Vertical |
| 2 | 7927.4 | 54.68 | 55.66 | 0.98 | 74.00 | 18.34 | 210 | 152 | PK | Vertical |
| 3 | 10647. | 42.54 | 49.63 | 7.09 | 54.00 | 4.37 | 150 | 142 | AV | Vertical |
| 4 | 10650. | 51.72 | 58.82 | 7.10 | 74.00 | 15.18 | 168 | 158 | PK | Vertical |
| 5 | 11803. | 51.63 | 59.50 | 7.87 | 74.00 | 14.50 | 15 | 142 | PK | Vertical |
| 6 | 12177. | 42.59 | 50.31 | 7.72 | 54.00 | 3.69 | 30 | 160 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n40 Mid CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



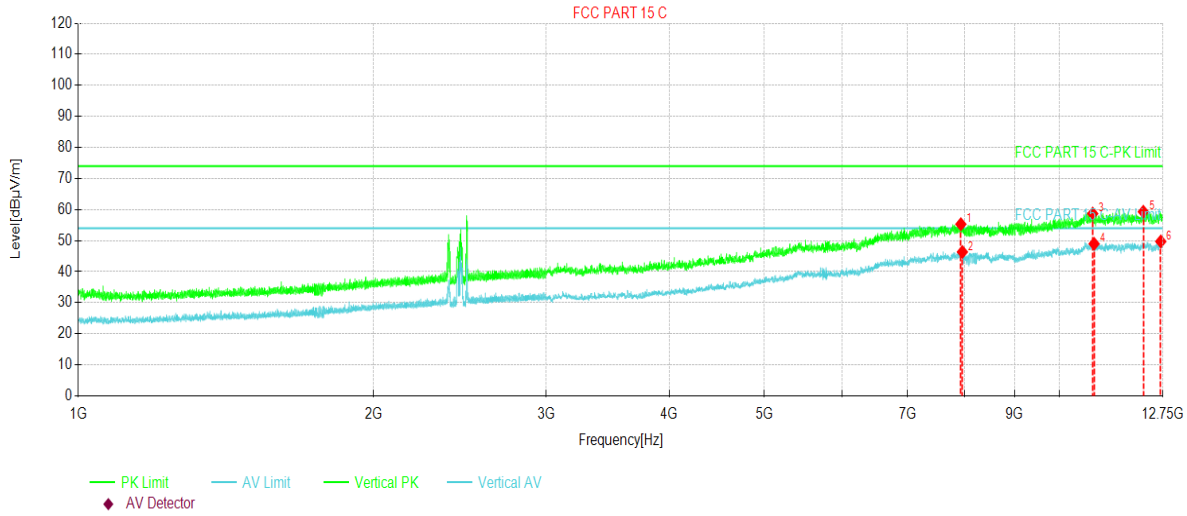

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7402.1 | 55.59 | 55.85 | 0.26 | 74.00 | 18.15 | 267 | 140 | PK | Horizontal |
| 2 | 7404.5 | 45.40 | 45.66 | 0.26 | 54.00 | 8.34 | 223 | 132 | AV | Horizontal |
| 3 | 10648. | 42.76 | 49.86 | 7.10 | 54.00 | 4.14 | 156 | 154 | AV | Horizontal |
| 4 | 10801. | 51.76 | 58.90 | 7.14 | 74.00 | 15.10 | 128 | 161 | PK | Horizontal |
| 5 | 12303. | 42.52 | 50.35 | 7.83 | 54.00 | 3.65 | 315 | 157 | AV | Horizontal |
| 6 | 12730. | 51.44 | 59.85 | 8.41 | 74.00 | 14.15 | 324 | 170 | PK | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n40 High CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Vertical |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |



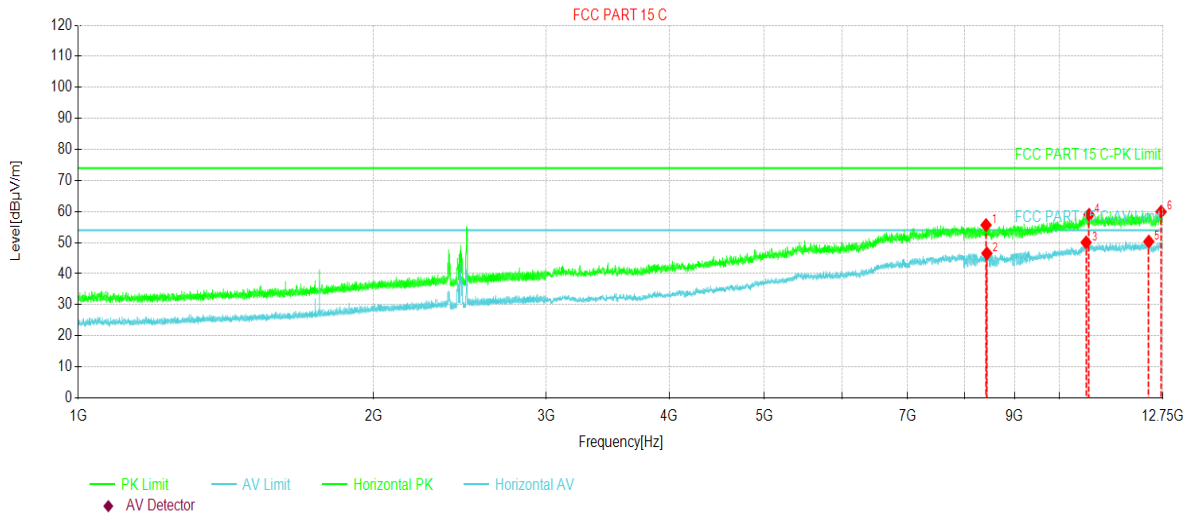

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7934.7 | 54.32 | 55.29 | 0.97 | 74.00 | 18.71 | 67 | 142 | PK | Vertical |
| 2 | 7962.7 | 45.41 | 46.35 | 0.94 | 54.00 | 7.65 | 49 | 153 | AV | Vertical |
| 3 | 10810. | 51.52 | 58.68 | 7.16 | 74.00 | 15.32 | 185 | 161 | PK | Vertical |
| 4 | 10846. | 41.77 | 48.98 | 7.21 | 54.00 | 5.02 | 106 | 154 | AV | Vertical |
| 5 | 12174. | 51.58 | 59.29 | 7.71 | 74.00 | 14.71 | 301 | 133 | PK | Vertical |
| 6 | 12682. | 41.40 | 49.72 | 8.32 | 54.00 | 4.28 | 284 | 141 | AV | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

| Product Name: | LTE/UMTS/GSM mobile phone | Product Model: | 5048A |
|---|---|---|---|
| Test By: | Mike | Test mode: | 802.11n40 High CH |
| Test Frequency: | 1 GHz ~ 25 GHz | Polarization: | Horizontal |
| Test Voltage: | DC 3.85V | Environment: | Temp: 24℃ Huni: 57% |




**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Angle [° ] | Height [cm] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8417.3 | 54.02 | 55.66 | 1.64 | 74.00 | 18.34 | 80 | 160 | PK | Horizontal |
| 2 | 8434.4 | 45.00 | 46.54 | 1.54 | 54.00 | 7.46 | 64 | 152 | AV | Horizontal |
| 3 | 10645. | 42.98 | 50.06 | 7.08 | 54.00 | 3.94 | 247 | 134 | AV | Horizontal |
| 4 | 10720. | 51.72 | 58.96 | 7.24 | 74.00 | 15.04 | 275 | 146 | PK | Horizontal |
| 5 | 12331. | 42.51 | 50.34 | 7.83 | 54.00 | 3.66 | 311 | 152 | AV | Horizontal |
| 6 | 12693. | 51.58 | 59.94 | 8.36 | 74.00 | 14.06 | 295 | 144 | PK | Horizontal |

*Remark:*

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.*

# 7 Appendix

*The below Appendix was detail result tested by SGS-CSTC Standards Technical Services, Co., Ltd.Shenzhen Branch. (Date of Test: 2019/8/2-2019/8/21)..*

| *Appendix* | *Item* |
|---|---|
| *Appendix- 2.4G WLAN* | *2.4G WIFI* |