

# Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCISE190908004

# FCC REPORT (BLE)

Applicant: General Procurement, Inc

Address of Applicant: 800 E Dyer Road Santa Ana, CA 92705 United States

**Equipment Under Test (EUT)** 

Product Name: 6.0 inch smartphone

Model No.: Eternity G60

Trade mark: Hyundai

FCC ID: 2AIOHHT3G60

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 20 Aug., 2019

**Date of Test:** 21 Aug., to 17 Oct., 2019

Date of report issued: 22 Oct., 2019

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 CCIS 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.

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## Version

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 00          | 22 Oct., 2019 | Original    |
|             |               |             |
|             |               |             |
|             |               |             |
|             |               |             |

Tanet Wei Date:
Test Engineer

Winner Thang Date: Tested by: 22 Oct., 2019

Reviewed by: 22 Oct., 2019

**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   |
| Conducted Peak Output Power                   | 15.247 (b)(3)       | Pass   |
| 6dB Emission Bandwidth 99% Occupied Bandwidth | 15.247 (a)(2)       | Pass   |
| Power Spectral Density                        | 15.247 (e)          | Pass   |
| Band Edge                                     | 15.247 (d)          | Pass   |
| Spurious Emission                             | 15.205 & 15.209     | Pass   |

#### Remark.

- 1. Pass: The EUT complies with the essential requirements in the standard.
- 2. N/A: Not Applicable.
- 3. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).

ANSI C63.4-2014
ANSI C63.10-2013

KDB 558074 D01 15.247 Meas Guidance v05r02



## 5 General Information

## 5.1 Client Information

| Applicant:             | General Procurement, Inc   |
|------------------------|--|
| Address:               | 800 E Dyer Road Santa Ana, CA 92705 United States                                      |
| Manufacturer/ Factory: | Shen Zhen Cheng Fong Digital-Tech Limited  |
| Address:               | Building A, ChengFong Industrial Area, Huaxing road, Dalang, Longhua, Shen Zhen, China |

# 5.2 General Description of E.U.T.

| Product Name:          | 6.0 inch smartphone   |
|------------------------|---|
| Model No.:             | Eternity G60  |
| Operation Frequency:   | 2402-2480 MHz   |
| Channel numbers:       | 40  |
| Channel separation:    | 2 MHz   |
| Modulation technology: | GFSK  |
| Data speed :           | 1Mbps   |
| Antenna Type:          | Internal Antenna  |
| Antenna gain:          | 1.0 dBi   |
| Power supply:          | Rechargeable Li-ion Battery DC3.8V, 3000mAh                                   |
| AC adapter:            | Model: K-T100501500U  |
|                        | Input: AC100-240V, 50/60Hz, 0.25A   |
|                        | Output: DC 5.0V, 1500mA   |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

| Operation Frequency each of channel |           |         |           |         |           |         |           |
|-------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                             | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 0                                   | 2402MHz   | 10      | 2422MHz   | 20      | 2442MHz   | 30      | 2462MHz   |
| 1                                   | 2404MHz   | 11      | 2424MHz   | 21      | 2444MHz   | 31      | 2464MHz   |
| 2                                   | 2406MHz   | 12      | 2426MHz   | 22      | 2446MHz   | 32      | 2466MHz   |
| 3                                   | 2408MHz   | 13      | 2428MHz   | 23      | 2448MHz   | 33      | 2468MHz   |
| 4                                   | 2410MHz   | 14      | 2430MHz   | 24      | 2450MHz   | 34      | 2470MHz   |
| 5                                   | 2412MHz   | 15      | 2432MHz   | 25      | 2452MHz   | 35      | 2472MHz   |
| 6                                   | 2414MHz   | 16      | 2434MHz   | 26      | 2454MHz   | 36      | 2474MHz   |
| 7                                   | 2416MHz   | 17      | 2436MHz   | 27      | 2456MHz   | 37      | 2476MHz   |
| 8                                   | 2418MHz   | 18      | 2438MHz   | 28      | 2458MHz   | 38      | 2478MHz   |
| 9                                   | 2420MHz   | 19      | 2440MHz   | 29      | 2460MHz   | 39      | 2480MHz   |

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test. Channel No. 0, 20 & 39 were selected as Lowest, Middle and Highest channel.

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#### 5.3 Test environment and test 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 |  |  |

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. Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.

## 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)    | ±5.38 dB (k=2)       |
| Radiated Emission (18GHz ~ 40GHz)   | ±3.36 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

Shenzhen Zhongjian Nanfang Testing 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 Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

#### • CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

#### A2LA - Registration No.: 4346.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 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

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

Shenzhen Zhongjian Nanfang Testing Co., Ltd. No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366



# 5.9 Test Instruments list

| Radiated Emission: |                 |               |                    |                         |                             |
|--------------------|-----------------|---------------|--------------------|-------------------------|-----------------------------|
| Test Equipment     | Manufacturer    | Model No.     | Serial No.         | Cal. Date<br>(mm-dd-yy) | Cal. Due date<br>(mm-dd-yy) |
| 3m SAC             | SAEMC           | 9m*6m*6m      | 966                | 07-22-2017              | 07-21-2020                  |
| Loop Antenna       | SCHWARZBECK     | FMZB1519B     | 00044              | 03-18-2019              | 03-17-2020                  |
| BiConiLog Antenna  | SCHWARZBECK     | VULB9163      | 497                | 03-18-2019              | 03-17-2020                  |
| Horn Antenna       | SCHWARZBECK     | BBHA9120D     | 916                | 03-18-2019              | 03-17-2020                  |
| Horn Antenna       | SCHWARZBECK     | BBHA9120D     | 1805               | 06-22-2017              | 06-21-2020                  |
| Horn Antenna       | SCHWARZBECK     | BBHA 9170     | BBHA9170582        | 11-21-2018              | 11-20-2019                  |
| EMI Test Software  | AUDIX           | E3            | Version: 6.110919b |                         | b                           |
| Pre-amplifier      | HP              | 8447D         | 2944A09358         | 03-18-2019              | 03-17-2020                  |
| Pre-amplifier      | CD              | PAP-1G18      | 11804              | 03-18-2019              | 03-17-2020                  |
| Spectrum analyzer  | Rohde & Schwarz | FSP30         | 101454             | 03-18-2019              | 03-17-2020                  |
| Spectrum analyzer  | Rohde & Schwarz | FSP40         | 100363             | 11-21-2018              | 11-20-2019                  |
| EMI Test Receiver  | Rohde & Schwarz | ESRP7         | 101070             | 03-18-2019              | 03-17-2020                  |
| Cable              | ZDECL           | Z108-NJ-NJ-81 | 1608458            | 03-18-2019              | 03-17-2020                  |
| Cable              | MICRO-COAX      | MFR64639      | K10742-5           | 03-18-2019              | 03-17-2020                  |
| Cable              | SUHNER          | SUCOFLEX100   | 58193/4PE          | 03-18-2019              | 03-17-2020                  |
| RF Switch Unit     | MWRFTEST        | MW200         | N/A                | N/A                     | N/A                         |
| Test Software      | MWRFTEST        | MTS8200       | Version: 2.0.0.0   |                         |                             |

| Conducted Emission: |                 |            |                    |                         |                             |
|---------------------|-----------------|------------|--------------------|-------------------------|-----------------------------|
| Test Equipment      | Manufacturer    | Model No.  | Serial No.         | Cal. Date<br>(mm-dd-yy) | Cal. Due date<br>(mm-dd-yy) |
| EMI Test Receiver   | Rohde & Schwarz | ESCI       | 101189             | 03-18-2019              | 03-17-2020                  |
| Pulse Limiter       | SCHWARZBECK     | OSRAM 2306 | 9731               | 03-18-2019              | 03-17-2020                  |
| LISN                | CHASE           | MN2050D    | 1447               | 03-18-2019              | 03-17-2020                  |
| LISN                | Rohde & Schwarz | ESH3-Z5    | 8438621/010        | 07-21-2019              | 07-20-2020                  |
| Cable               | HP              | 10503A     | N/A                | 03-18-2019              | 03-17-2020                  |
| EMI Test Software   | AUDIX           | E3         | Version: 6.110919b |                         |                             |



## 6 Test results and Measurement Data

## 6.1 Antenna requirement:

#### **Standard requirement:** FCC Part 15 C Section 15.203 /247(b)

15.203 requirement:

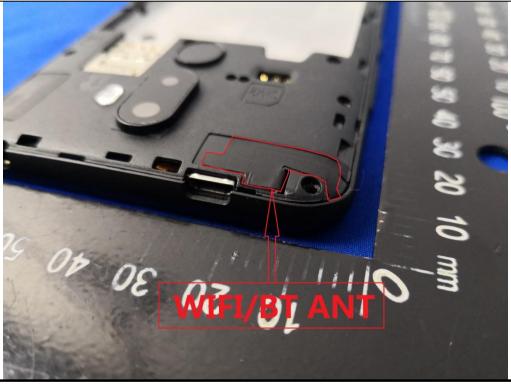
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

(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 BLE antenna is an Internal antenna which cannot replace by end-user, the best-case gain of the antenna is 1.0 dBi.





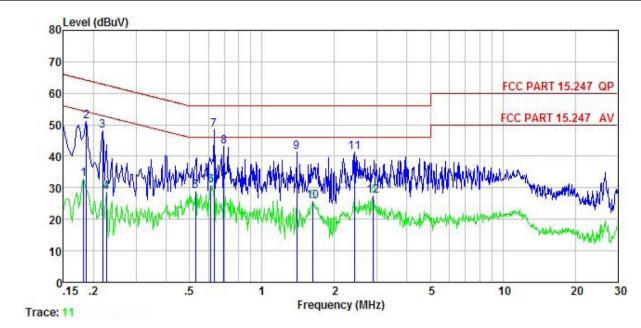
# 6.2 Conducted Emission

| Test Requirement:     | FCC Part 15 C Section 15  | 207        |           |  |
|-----------------------|---|------------|-----------|--|
| Test Frequency Range: | 150 kHz to 30 MHz   |            |           |  |
| , , ,                 |   |            |           |  |
| Class / Severity:     | Class B   |            |           |  |
| Receiver setup:       | RBW=9kHz, VBW=30kHz   |            |           |  |
| Limit:                | Frequency range (MHz)   |            | dBuV)     |  |
|                       | , , ,   | Quasi-peak | Average   |  |
|                       | 0.15-0.5  | 66 to 56*  | 56 to 46* |  |
|                       | 0.5-5<br>5-30   | 56<br>60   | 46<br>50  |  |
|                       | * Decreases with the logar  |            | 50        |  |
| Test procedure        | <ol> <li>The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4-2014 on conducted measurement.</li> </ol> |            |           |  |
| Test setup:           | Reference Plane  LISN 40cm 80cm Filter AC power  Equipment Test table/Insulation plane  Remark E.U.T. Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m  |            |           |  |
| Test Instruments:     | Refer to section 5.9 for de   | tails      |           |  |
| Test mode:            | Refer to section 5.3 for de   | tails      |           |  |
| Test results:         | Passed  |            |           |  |



#### **Measurement Data:**

| Product name:   | 6.0 inch smartphone | Product model: | Eternity G60          |
|-----------------|---------------------|----------------|-----------------------|
| Test by:        | Janet               | Test mode:     | BLE Tx mode           |
| Test frequency: | 150 kHz ~ 30 MHz    | Phase:         | Line                  |
| Test voltage:   | AC 120 V/60 Hz      | Environment:   | Temp: 22.5℃ Huni: 55% |



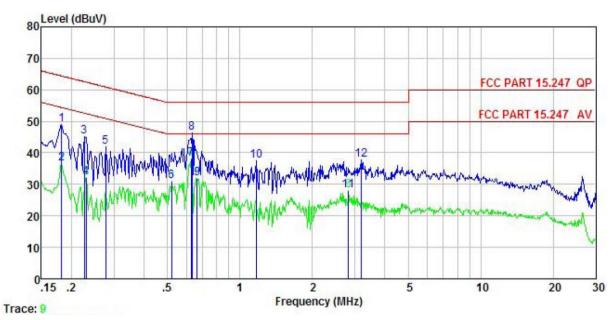
|                            | Freq  | Read<br>Level | LISN<br>Factor | Cable<br>Loss | Level | Limit<br>Line | Over<br>Limit | Remark  |
|----------------------------|-------|---------------|----------------|---------------|-------|---------------|---------------|---------|
| -                          | MHz   | dBu₹          | ₫B             | ₫B            | dBu₹  | dBu∜          | <u>d</u> B    |         |
| 1                          | 0.182 | 22.47         | -0.42          | 10.77         | 32.82 | 54.42         | -21.60        | Average |
| 1<br>2<br>3                | 0.186 | 40.88         | -0.42          | 10.76         | 51.22 | 64.20         | -12.98        | QP      |
| 3                          | 0.219 | 37.77         | -0.40          | 10.76         | 48.13 | 62.88         | -14.75        | QP      |
| 4                          | 0.226 | 18.31         | -0.40          | 10.75         | 28.66 | 52.61         | -23.95        | Average |
| 4<br>5<br>6<br>7<br>8<br>9 | 0.529 | 18.42         | -0.39          | 10.76         | 28.79 | 46.00         | -17.21        | Average |
| 6                          | 0.614 | 20.22         | -0.38          | 10.77         | 30.61 | 46.00         | -15.39        | Average |
| 7                          | 0.634 | 38.04         | -0.38          | 10.77         | 48.43 | 56.00         | -7.57         | QP      |
| 8                          | 0.694 | 32.58         | -0.38          | 10.77         | 42.97 | 56.00         | -13.03        | QP      |
| 9                          | 1.396 | 30.89         | -0.39          | 10.91         | 41.41 | 56.00         | -14.59        | QP      |
| 10                         | 1.628 | 15.10         | -0.40          | 10.93         | 25.63 | 46.00         | -20.37        | Average |
| 11                         | 2.422 | 30.91         | -0.42          | 10.94         | 41.43 |               | -14.57        |         |
| 12                         | 2.900 | 17.03         | -0.44          | 10.92         | 27.51 |               |               | Average |

#### Notes:

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss.



| Product name:   | 6.0 inch smartphone | Product model: | Eternity G60          |
|-----------------|---------------------|----------------|-----------------------|
| Test by:        | Janet               | Test mode:     | BLE Tx mode           |
| Test frequency: | 150 kHz ~ 30 MHz    | Phase:         | Neutral               |
| Test voltage:   | AC 120 V/60 Hz      | Environment:   | Temp: 22.5℃ Huni: 55% |



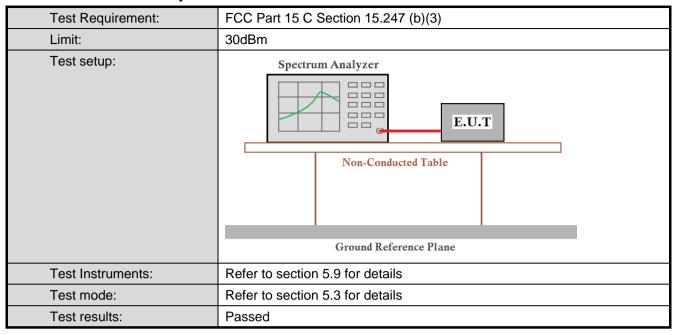
|                  | Freq  | Read<br>Level | LISN<br>Factor | Cable<br>Loss | Level | Limit<br>Line | Over<br>Limit | Remark  |
|------------------|-------|---------------|----------------|---------------|-------|---------------|---------------|---------|
|                  | MHz   | dBu₹          | ₫B             | ₫B            | dBu₹  | dBu₹          | <u>d</u> B    |         |
| 1                | 0.182 | 38.79         | -0.69          | 10.77         | 48.87 | 64.42         | -15.55        | QP      |
| 2                | 0.182 | 26.49         | -0.69          | 10.77         | 36.57 | 54.42         | -17.85        | Average |
| 2                | 0.226 | 34.94         | -0.67          | 10.75         | 45.02 | 62.61         | -17.59        | QP      |
| 4<br>5<br>6<br>7 | 0.230 | 22.10         | -0.67          | 10.75         | 32.18 | 52.44         | -20.26        | Average |
| 5                | 0.277 | 31.76         | -0.64          | 10.74         | 41.86 | 60.90         | -19.04        | QP      |
| 6                | 0.521 | 20.82         | -0.65          | 10.76         | 30.93 | 46.00         | -15.07        | Average |
| 7                | 0.627 | 27.81         | -0.64          | 10.77         | 37.94 | 46.00         | -8.06         | Average |
| 8                | 0.634 | 36.16         | -0.64          | 10.77         | 46.29 | 56.00         | -9.71         | QP      |
| 9                | 0.665 | 21.69         | -0.64          | 10.77         | 31.82 | 46.00         | -14.18        | Average |
| 10               | 1.172 | 27.39         | -0.64          | 10.89         | 37.64 | 56.00         | -18.36        | QP      |
| 11               | 2.824 | 17.76         | -0.67          | 10.93         | 28.02 | 46.00         | -17.98        | Average |
| 12               | 3.190 | 27.44         | -0.68          | 10.91         | 37.67 |               | -18.33        |         |

#### Notes:

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss.



# **6.3 Conducted Output Power**

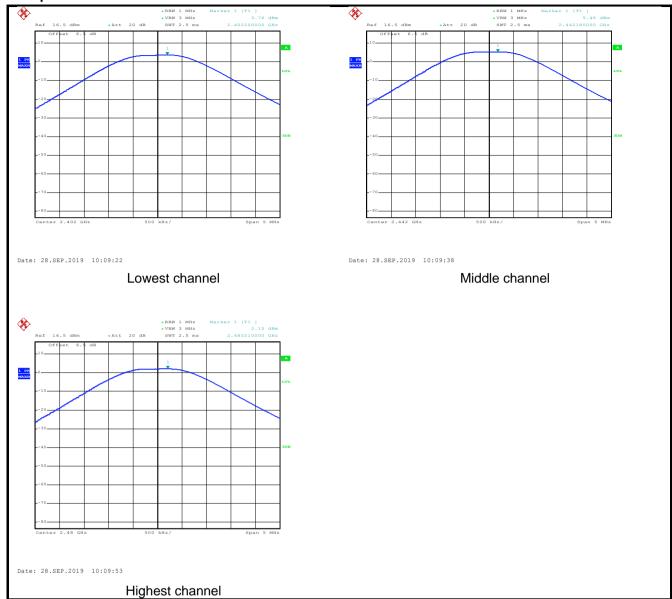


#### **Measurement Data:**

| Test CH | Maximum Conducted Output Power (dBm) | Limit(dBm) | Result |
|---------|--------------------------------------|------------|--------|
| Lowest  | 3.76                                 |            |        |
| Middle  | 5.46                                 | 30.00      | Pass   |
| Highest | 2.15                                 |            |        |

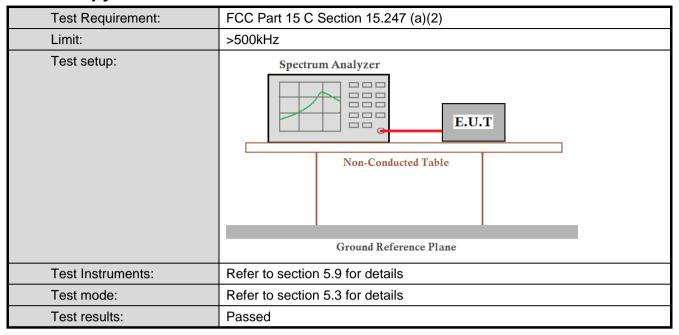


#### Test plot as follows:





# 6.4 Occupy Bandwidth

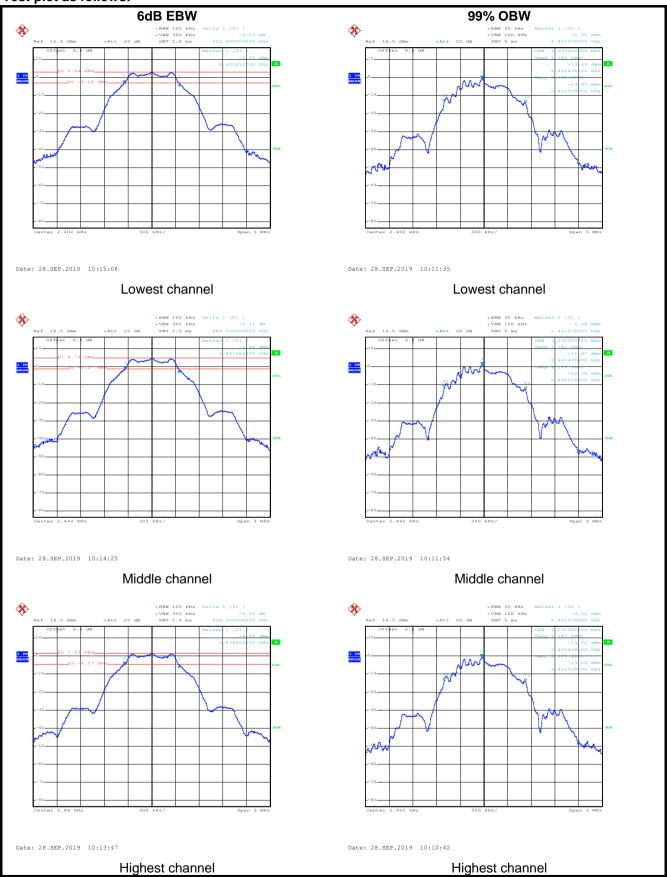


#### **Measurement Data:**

| Test CH | 6dB Emission Bandwidth (MHz) | Limit(kHz) | Result |  |
|---------|------------------------------|------------|--------|--|
| Lowest  | 0.702                        |            |        |  |
| Middle  | 0.684                        | >500       | Pass   |  |
| Highest | 0.696                        |            |        |  |
| Test CH | 99% Occupy Bandwidth (MHz)   | Limit(kHz) | Result |  |
| Lowest  | 1.032                        |            |        |  |
| Middle  | Middle 1.032                 |            | N/A    |  |
| Highest | 1.032                        |            |        |  |

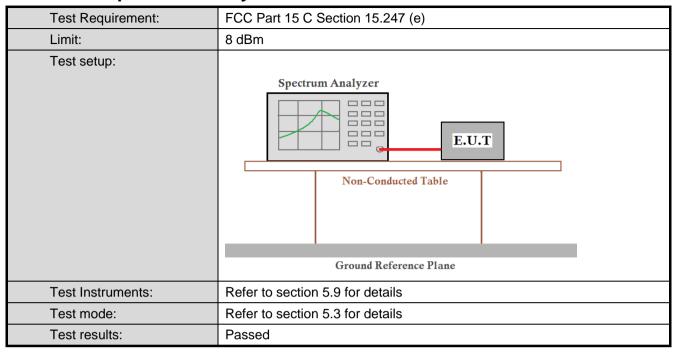


#### Test plot as follows:





# 6.5 Power Spectral Density

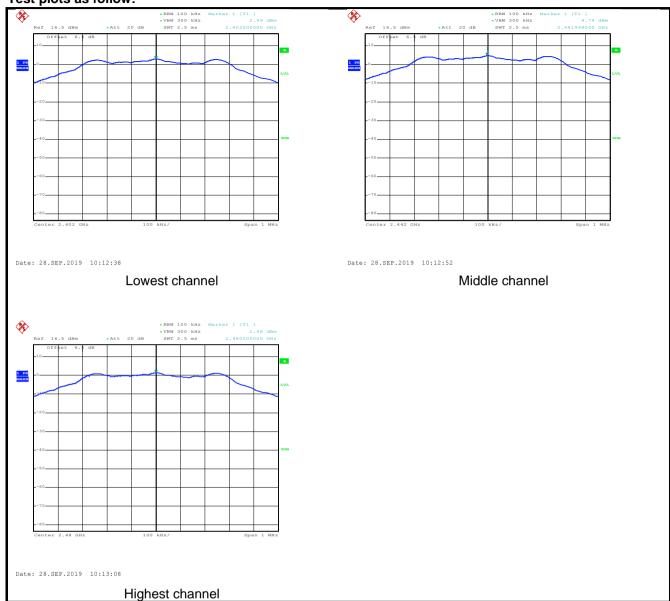


#### **Measurement Data:**

| modeum official Batar |                              |            |        |
|-----------------------|------------------------------|------------|--------|
| Test CH               | Power Spectral Density (dBm) | Limit(dBm) | Result |
| Lowest                | 2.99                         |            |        |
| Middle                | 4.74                         | 8.00       | Pass   |
| Highest               | 1.46                         |            |        |



#### Test plots as follow:





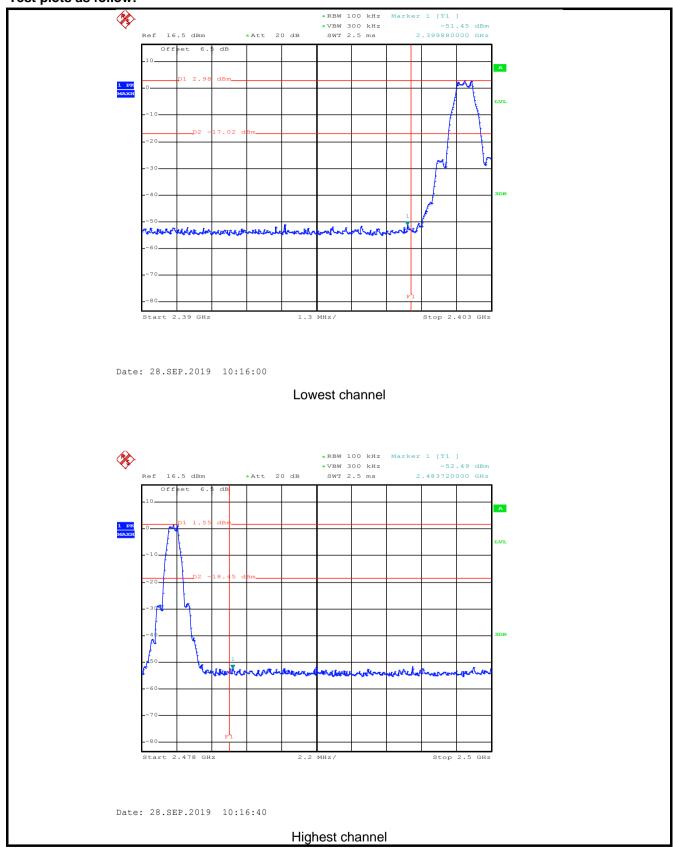
# 6.6 Band Edge

## 6.6.1 Conducted Emission Method

| Test Requirement: | FCC Part 15 C Section 15.247 (d)  |  |  |  |  |
|-------------------|---|--|--|--|--|
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. |  |  |  |  |
| Test setup:       | Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane   |  |  |  |  |
| Test Instruments: | Refer to section 5.9 for details  |  |  |  |  |
| Test mode:        | Refer to section 5.3 for details  |  |  |  |  |
| Test results:     | Passed  |  |  |  |  |



#### Test plots as follow:





## 6.6.2 Radiated Emission Method

| 0.0.2 | Radiated Ellission i  | victilou   |  |  |  |   |  |
|-------|-----------------------|--|--|--|--|---|--|
|       | Test Requirement:     | FCC Part 15 C Section 15.205 and 15.209  |  |  |  |   |  |
|       | Test Frequency Range: | 2.3GHz to 2.5  | GHz  |  |  |   |  |
|       | Test Distance:        | 3m   |  |  |  |   |  |
|       | Receiver setup:       | Frequency  | Detector   | RBW  | VBW  | Remark  |  |
|       | •                     | Above 1GHz   | Peak   | 1MHz   | 3MHz   | Peak Value  |  |
|       |                       |  | RMS  | 1MHz   | 3MHz   | Average Value   |  |
|       | Limit:                | Frequer  | Frequency Limit (dBuV/r  |  |  | Remark  |  |
|       |                       |  |  |  | verage Value Peak Value  |   |  |
|       | Test Procedure:       | the groun to determ  2. The EUT antenna, tower.  3. The anter the groun Both horize make the  4. For each case and meters are to find the Specified  6. If the emite the limits of the EU have 10 ce | ad at a 3 meterine the position was set 3 meterine which was menna height is ad to determine zontal and vertical measurement suspected enter then the anterior maximum respectively. Bandwidth wassion level of specified, them T would be red margin wo | er camber. The tacton of the highest eters away from the counted on the top waried from one rate the maximum varical polarization of the top was turned from the ending. It was set to Pearly the EUT in peak of testing could be exported. Otherwis | ble was rotal radiation. The interference of a variable meter to four value of the assort the anterest of the arrange of the a | re-height antenna meters above field strength. enna are set to ed to its worst m 1 meter to 4 is to 360 degrees inction and 10 dB lower than d the peak values ions that did not using peak, quasi- |  |
|       | Test setup:           | AE Wags  | Test Receive   | 3m 3m and Reference Plane  | Antenna Tower  |   |  |
|       | Test Instruments:     | Refer to section   | on 5.9 for deta  | ails   |  |   |  |
|       | Test mode:            | Refer to section   |  |  |  |   |  |
|       | Test results:         | Passed   |  |  |  |   |  |
|       |                       |  |  |  |  |   |  |



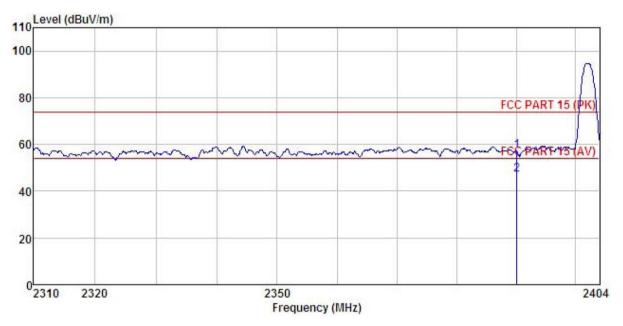
| Product Name:    | 6.0 inch smartph | 6.0 inch smartphone  Janet |             | Product Model: Test mode: |           | Eternity G60 |  |
|------------------|------------------|----------------------------|-------------|---------------------------|-----------|--------------|--|
| est By:          | Janet            |                            |             |                           |           | BLE Tx mode  |  |
| est Channel:     | Lowest channel   |                            | Polarizatio | on:                       | Vertical  |              |  |
| est Voltage:     | AC 120/60Hz      |                            | Environme   | ent:                      | Temp: 24℃ | Huni: 57%    |  |
| 110 Level (dBuV  | (m)              |                            |             |                           |           |              |  |
| 110 Level (dbdv) | in)              |                            |             |                           |           |              |  |
| 100              |                  |                            |             |                           |           |              |  |
|                  |                  |                            |             |                           |           | $\wedge$     |  |
| 80               |                  |                            |             |                           | FCC PAR   | T 15 (PK)    |  |
|                  |                  |                            |             |                           |           |              |  |
| 60               | \                | ~~~~~~~                    | mam         | man man                   | MAPCE RAP | 145 (AV)     |  |
|                  |                  |                            | V           | 7                         | 2         |              |  |
| 40               |                  |                            |             |                           |           |              |  |
|                  |                  |                            |             |                           |           |              |  |
| 20               |                  |                            |             |                           |           |              |  |
|                  |                  |                            |             |                           |           |              |  |
| 0<br>2310 232    | 20               | 2350                       |             |                           |           | 2404         |  |
| 2310 232         | .0               | Frequency                  | (MHz)       |                           |           | 2404         |  |
|                  |                  |                            |             |                           |           |              |  |
|                  |                  |                            |             |                           |           |              |  |
|                  |                  | enna Cable Pream           |             |                           | ver       |              |  |

|   | Freq     | Level | Factor       | Loss      | Factor    | Level  | Line   | Limit      | Remark  |
|---|----------|-------|--------------|-----------|-----------|--------|--------|------------|---------|
|   | MHz      | dBu∀  | <u>dB</u> /m | <u>dB</u> | <u>dB</u> | dBuV/m | dBuV/m | <u>d</u> B |         |
| 1 | 2390.000 |       |              |           |           |        |        |            |         |
| 2 | 2390.000 | 13.14 | 27.07        | 4.69      | 0.00      | 46.58  | 54.00  | -7.42      | Average |

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



| Product Name: | 6.0 inch smartphone | Product Model: | Eternity G60        |  |  |
|---------------|---------------------|----------------|---------------------|--|--|
| Test By:      | Janet               | Test mode:     | BLE Tx mode         |  |  |
| Test Channel: | Lowest channel      | Polarization:  | Horizontal          |  |  |
| Test Voltage: | AC 120/60Hz         | Environment:   | Temp: 24℃ Huni: 57% |  |  |

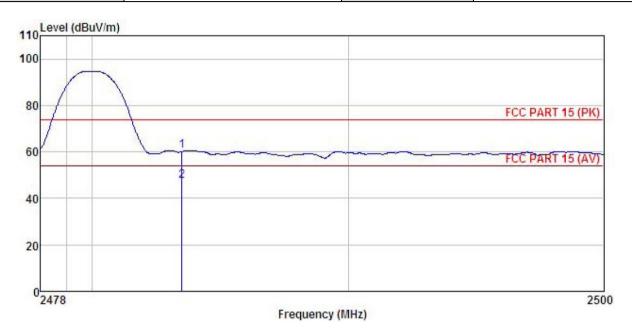


|     | Freq                 |      | Antenna<br>Factor |    |           |                     |        |           |  |
|-----|----------------------|------|-------------------|----|-----------|---------------------|--------|-----------|--|
|     | MHz                  | dBu∜ | dB/m              | dB | <u>dB</u> | $\overline{dBuV/m}$ | dBu√/m | <u>dB</u> |  |
| 1 2 | 2390.000<br>2390.000 |      |                   |    |           |                     |        |           |  |

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



| Product Name: | 6.0 inch smartphone | Product Model: | Eternity G60         |
|---------------|---------------------|----------------|----------------------|
| Test By:      | Janet               | Test mode:     | BLE Tx mode          |
| Test Channel: | Highest channel     | Polarization:  | Vertical             |
| Test Voltage: | AC 120/60Hz         | Environment:   | Temp: 24°C Huni: 57% |

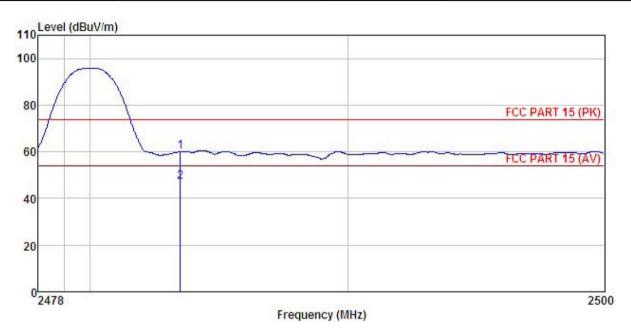


|     |                      |      |      | Cable Preamp<br>Loss Factor Level |            |                     |                     | Remark |  |
|-----|----------------------|------|------|-----------------------------------|------------|---------------------|---------------------|--------|--|
|     | MHz                  | dBu∜ | dB/m | dB                                | <u>d</u> B | $\overline{dBuV/m}$ | $\overline{dBuV/m}$ | dB     |  |
| 1 2 | 2483.500<br>2483.500 |      |      |                                   |            |                     |                     |        |  |

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



| Product Name: | 6.0 inch smartphone | Product Model: | Eternity G60        |
|---------------|---------------------|----------------|---------------------|
| Test By:      | Janet               | Test mode:     | BLE Tx mode         |
| Test Channel: | Highest channel     | Polarization:  | Horizontal          |
| Test Voltage: | AC 120/60Hz         | Environment:   | Temp: 24℃ Huni: 57% |



|     | Read<br>Freq Level   |      | Antenna<br>Factor |            |           |                     | Limit<br>Line       |    | Remark |
|-----|----------------------|------|-------------------|------------|-----------|---------------------|---------------------|----|--------|
|     | MHz                  | dBu₹ |                   | <u>d</u> B | <u>ab</u> | $\overline{dBuV/m}$ | $\overline{dBuV/m}$ | dB |        |
| 1 2 | 2483,500<br>2483,500 |      |                   |            |           |                     |                     |    |        |

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

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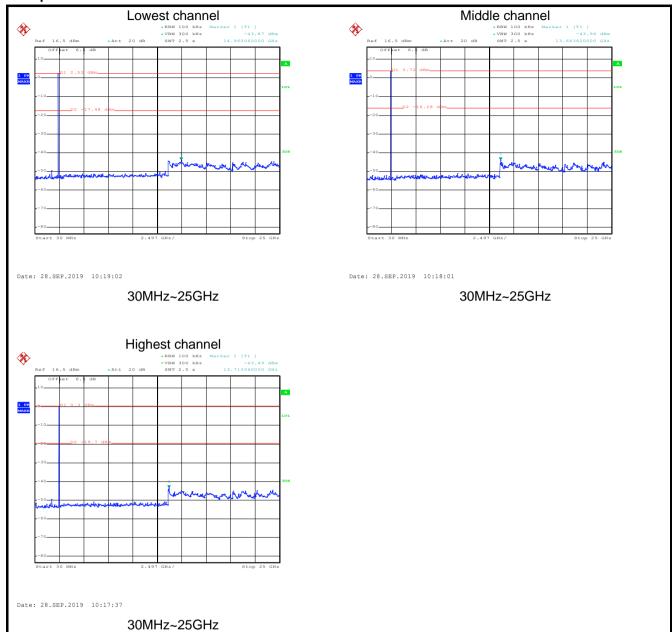
# 6.7 Spurious Emission

## 6.7.1 Conducted Emission Method

| Tost Poquiroment: | ECC Part 15 C Section 15 247 (d)  |
|-------------------|---|
| Test Requirement: | FCC Part 15 C Section 15.247 (d)  |
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. |
| Test setup:       | Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane   |
| Test Instruments: | Refer to section 5.9 for details  |
| Test instruments. | IVEIGI 10 SECTION 3.3 IOI UETANS  |
| Test mode:        | Refer to section 5.3 for details  |
| Test results:     | Passed  |



#### Test plot as follows:

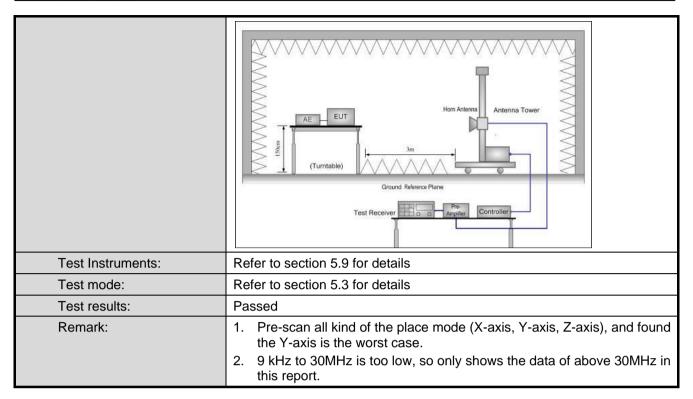




#### 6.7.2 Radiated Emission Method

| Test Requirement:     | FCC Part 15 C Section 15.205 and 15.209  |  |   |  |   |  |  |  |  |
|-----------------------|--|--|---|--|---|--|--|--|--|
| Test Frequency Range: | 9kHz to 25GHz  | 9kHz to 25GHz  |   |  |   |  |  |  |  |
| Test Distance:        | 3m   |  |   |  |   |  |  |  |  |
| Receiver setup:       | Frequency  | Detector   | RBW   | VB   | sW  | Remark   |  |  |  |
|                       | 30MHz-1GHz   | Quasi-peak   | 120KHz  | 3001   | KHz   | Quasi-peak Value   |  |  |  |
|                       | Al 4 Ol I-   | Peak   | 1MHz  | 3M   | Hz  | Peak Value   |  |  |  |
|                       | Above 1GHz   | RMS  | 1MHz  | 3M   | Hz  | Average Value  |  |  |  |
| Limit:                | Frequency  | / L  | mit (dBuV/m @   | 3m)  |   | Remark   |  |  |  |
|                       | 30MHz-88M  | Hz   | 40.0  |  | C   | Quasi-peak Value   |  |  |  |
|                       | 88MHz-216M   | 1Hz  | 43.5  |  | C   | Quasi-peak Value   |  |  |  |
|                       | 216MHz-960N  |  | 46.0  |  |   | Quasi-peak Value   |  |  |  |
|                       | 960MHz-1G  | Hz   | 54.0  |  | C   | Quasi-peak Value   |  |  |  |
|                       | Above 1GF  | lz 🖳   | 54.0  |  |   | Average Value  |  |  |  |
| Test Procedure:       |  |  | 74.0  | •  | <u> </u>  | Peak Value<br>table 0.8m(below   |  |  |  |
|                       | highest rad  The EUT antenna, w tower.  The antenr the ground Both horize make the n  For each s case and t meters and to find the r  The test-re Specified E  If the emiss the limit sp of the EUT have 10 dE | liation.  was set 3 n hich was mo  na height is n I to determin ontal and ver neasurement suspected er hen the ante I the rota tabl maximum rea eceiver syste Sandwidth wit sion level of t ecified, then would be re margin wou | neters away unted on the form of the maximutical polarization in the Enna was turned ding.  In Maximum Hore EUT in perfecting could be ported. Other lid be re-tested | from the top of a ne met um valutions of the top he from 0 to Pealold Moeak mode stop wise the done be | ne inter to the action of the | the position of the efference-receiving ble-height antenna four meters above the field strength. antenna are set to anged to its worst from 1 meter to 4 ees to 360 degrees tect Function and is 10 dB lower than and the peak values ssions that did not using peak, quasi-reported in a data |  |  |  |
| Test setup:           | EUT  | 3m 4m 4m 0.8m 1m   |   |  | Search<br>Antenn<br>Test<br>ceiver —  | 1  |  |  |  |



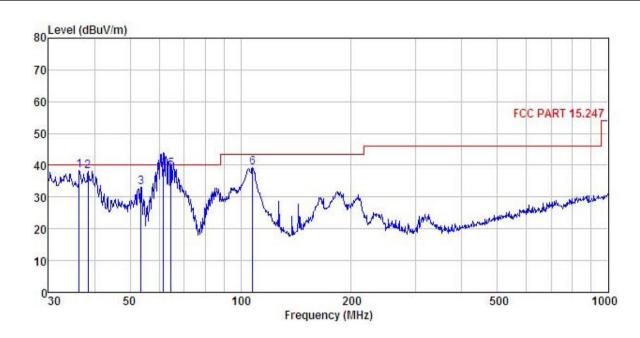




#### Measurement Data (worst case):

#### **Below 1GHz:**

| Product Name:   | 6.0 inch smartphone | Product Model: | Eternity G60        |
|-----------------|---------------------|----------------|---------------------|
| Test By:        | Janet               | Test mode:     | BLE Tx mode         |
| Test Frequency: | 30 MHz ~ 1 GHz      | Polarization:  | Vertical            |
| Test Voltage:   | AC 120/60Hz         | Environment:   | Temp: 24℃ Huni: 57% |



|                       | Freq    |       | ntenna<br>Factor |      |           |                     | Limit<br>Line       | Over<br>Limit |    |
|-----------------------|---------|-------|------------------|------|-----------|---------------------|---------------------|---------------|----|
|                       | MHz     | dBu₹  | dB/m             | dB   | <u>dB</u> | $\overline{dBuV/m}$ | $\overline{dBuV/m}$ |               |    |
| 1                     | 36.381  | 55.65 | 11.54            | 1.11 | 29.94     | 38.36               | 40.00               | -1.64         | QP |
| 2                     | 38.481  | 54.89 | 12.02            | 1.18 | 29.91     | 38.18               | 40.00               | -1.82         | QP |
| 2<br>3<br>4<br>5<br>6 | 53.505  | 49.83 | 11.74            | 1.32 | 29.81     | 33.08               | 40.00               | -6.92         | QP |
| 4                     | 61.562  | 56.55 | 10.83            | 1.38 | 29.77     | 38.99               | 40.00               | -1.01         | QP |
| 5                     | 64.659  | 57.48 | 9.69             | 1.38 | 29.76     | 38.79               | 40.00               | -1.21         | QP |
| 6                     | 107.888 | 54.78 | 11.82            | 2.03 | 29.47     | 39.16               | 43.50               | -4.34         | QP |

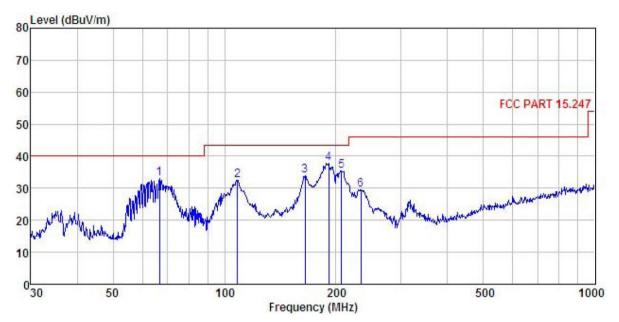
#### Remark

<sup>1.</sup> Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

<sup>2.</sup> The emission levels of other frequencies are very lower than the limit and not show in test report.



| Test By: Janet Test mode: BLE Tx mode                |          |
|--|----------|
| Test Frequency:30 MHz ~ 1 GHzPolarization:Horizontal |          |
| Test Voltage:AC 120/60HzEnvironment:Temp: 24°CHu     | ıni: 57% |



|             | Freq    |       | Antenna<br>Factor |      |            |        | Limit<br>Line |           |    |
|-------------|---------|-------|-------------------|------|------------|--------|---------------|-----------|----|
| _           | MHz     | dBu∜  | <u>dB</u> /m      |      | <u>d</u> B | dBuV/m | dBuV/m        | <u>dB</u> |    |
| 1           | 66.733  | 52.11 | 9.23              | 1.44 | 29.75      | 33.03  | 40.00         | -6.97     | QP |
| 1<br>2<br>3 | 108.267 | 48.27 | 11.79             | 2.03 | 29.47      | 32.62  | 43.50         | -10.88    | QP |
| 3           | 164.908 | 51.06 | 9.47              | 2.62 | 29.09      | 34.06  | 43.50         | -9.44     | QP |
| 4           | 191.074 | 53.49 | 10.33             | 2.81 | 28.89      | 37.74  | 43.50         | -5.76     | QP |
| 5           | 207.123 | 50.57 | 10.92             | 2.86 | 28.78      | 35.57  | 43.50         | -7.93     | QP |
| 4<br>5<br>6 | 233.349 | 43.38 | 12.03             | 2.83 | 28.63      | 29.61  | 46.00         | -16.39    | QP |

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



#### **Above 1GHz**

| ADOVE IGHZ                   |                         |                             |                       |                          |                   |                        |                       |              |  |  |  |  |
|------------------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|--|--|--|--|
|                              |                         |                             | Test ch               | nannel: Lowe             | est channel       |                        |                       |              |  |  |  |  |
|                              |                         |                             | De                    | tector: Peal             | v Value           |                        |                       |              |  |  |  |  |
| Frequency<br>(MHz)           | Read<br>Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit Line<br>(dBuV/m) | Over<br>Limit<br>(dB) | Polarization |  |  |  |  |
| 4804.00                      | 47.98                   | 30.85                       | 6.80                  | 41.81                    | 43.82             | 74.00                  | -30.18                | Vertical     |  |  |  |  |
| 4804.00                      | 47.92                   | 30.85                       | 6.80                  | 41.81                    | 43.76             | 74.00                  | -30.24                | Horizontal   |  |  |  |  |
|                              | Detector: Average Value |                             |                       |                          |                   |                        |                       |              |  |  |  |  |
| Frequency<br>(MHz)           | Read<br>Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit Line<br>(dBuV/m) | Over<br>Limit<br>(dB) | Polarization |  |  |  |  |
| 4804.00                      | 40.88                   | 30.85                       | 6.80                  | 41.81                    | 36.72             | 54.00                  | -17.28                | Vertical     |  |  |  |  |
| 4804.00                      | 40.92                   | 30.85                       | 6.80                  | 41.81                    | 36.76             | 54.00                  | -17.24                | Horizontal   |  |  |  |  |
|                              |                         |                             |                       |                          |                   |                        |                       |              |  |  |  |  |
| Test channel: Middle channel |                         |                             |                       |                          |                   |                        |                       |              |  |  |  |  |
|                              | Deed                    | A                           |                       | tector: Peal             | value             |                        | 0                     | 1            |  |  |  |  |
| Frequency<br>(MHz)           | Read<br>Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit Line<br>(dBuV/m) | Over<br>Limit<br>(dB) | Polarization |  |  |  |  |
| 4884.00                      | 48.37                   | 31.20                       | 6.86                  | 41.84                    | 44.59             | 74.00                  | -29.41                | Vertical     |  |  |  |  |
| 4884.00                      | 48.22                   | 31.20                       | 6.86                  | 41.84                    | 44.44             | 74.00                  | -29.56                | Horizontal   |  |  |  |  |
|                              |                         |                             | Dete                  | ector: Avera             | ge Value          |                        |                       |              |  |  |  |  |
| Frequency<br>(MHz)           | Read<br>Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit Line<br>(dBuV/m) | Over<br>Limit<br>(dB) | Polarization |  |  |  |  |
| 4884.00                      | 41.26                   | 31.20                       | 6.86                  | 41.84                    | 37.48             | 54.00                  | -16.52                | Vertical     |  |  |  |  |
| 4884.00                      | 41.82                   | 31.20                       | 6.86                  | 41.84                    | 38.04             | 54.00                  | -15.96                | Horizontal   |  |  |  |  |
|                              |                         |                             |                       |                          |                   |                        |                       |              |  |  |  |  |
|                              |                         |                             |                       | annel: High              |                   |                        |                       |              |  |  |  |  |
|                              |                         | 1                           |                       | tector: Peal             | k Value           |                        |                       |              |  |  |  |  |
| Frequency<br>(MHz)           | Read<br>Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit Line<br>(dBuV/m) | Over<br>Limit<br>(dB) | Polarization |  |  |  |  |
| 4960.00                      | 48.69                   | 31.63                       | 6.91                  | 41.87                    | 45.36             | 74.00                  | -28.64                | Vertical     |  |  |  |  |
| 4960.00                      | 48.43                   | 31.63                       | 6.91                  | 41.87                    | 45.10             | 74.00                  | -28.90                | Horizontal   |  |  |  |  |
|                              |                         |                             | Dete                  | ector: Avera             | ge Value          |                        |                       |              |  |  |  |  |
| Frequency<br>(MHz)           | Read<br>Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit Line<br>(dBuV/m) | Over<br>Limit<br>(dB) | Polarization |  |  |  |  |

#### Remark

4960.00

4960.00

41.81

41.99

6.91

6.91

41.87

41.87

38.48

38.66

54.00

54.00

-15.52

-15.34

31.63

31.63

Project No.: CCISE1909080

Vertical

Horizontal

<sup>1.</sup> Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

<sup>2.</sup> The emission levels of other frequencies are very lower than the limit and not show in test report.