

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC155880

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FCC ID: 2ALUT-C70125

Original Grant

Report No. : TB-FCC155880

Applicant : IZZO Golf, Inc.

Equipment Under Test (EUT)

EUT Name : Bluetooth GPS band

Model No. : #C70125

Serial Model No. : #C70126, #C70152, #C70154, #A44025

Brand Name : CALLAWAY, SWAMI

Receipt Date : 2017-06-20

Test Date : 2017-06-21 to 2017-06-29

Issue Date : 2017-06-30

Standards : FCC Part 15: 2016, Subpart C(15.247)

Test Method : ANSI C63.10: 2013

Conclusions : PASS

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

Test/Witness

Engineer

Approved&

Authorized

the report.

fay tai.

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. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in

TB-RF-074-1.0



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1. General Information about EUT

1.1 Client Information

Applicant: IZZO Golf, Inc.

Address : 1635 Commons Parkway, Macedon, NY 14502, USA

Manufacturer : TSKY CO., LTD.

Address : 21F.-2, No.8, Ziqiang S. Rd., Zhubei City, Hsinchu County 302,

Taiwan

1.2 General Description of EUT (Equipment Under Test)

| EUT Name | | Bluetooth GPS band | |
|------------------------|---|---|---|
| Models No. | | #C70125, #C70126, #C | 70152, #C70154, #A44025 |
| Model Difference | 5 | electrical circuits, The or | in the same PCB layout interior structure and ally difference is #C70125, #C70126, #C70152, different logo and color. #C70125, #C70126 art Rate Sensor. |
| 33 | | Operation Frequency: | Bluetooth 4.0(BLE): 2402MHz~2480MHz |
| Product | | Number of Channel: | Bluetooth 4.0(BLE): 40 channels see note(3) |
| | 6 | RF Output Power: | -1.148dBm Conducted Power |
| Description | | Antenna Gain: | 2dBi Ceramic Antenna |
| 0.000 | 3 | Modulation Type: | GFSK |
| 0.00 | | Bit Rate of Transmitter: | 1Mbps(GFSK) |
| Power Supply | : | DC Voltage Supply from USB Cable. DC Supply by the Battery. | |
| Power Rating | | DC 5.0 V from the USB DC 3.7V by 170mAh Li-i | |
| Connecting I/O Port(S) | : | Please refer to the User | 's Manual |

Note:

This Test Report is FCC Part 15.247 for Bluetooth BLE, the test procedure follows the FCC KDB 558074 D01 DTS Means Guidance v04.

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (2) Antenna information provided by the applicant.
- (3) Channel List:



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| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|--------------------|---------|--------------------|---------|--------------------|
| 00 | 2402 | 14 | 2430 | 28 | 2458 |
| 01 | 2404 | 15 | 2432 | 29 | 2460 |
| 02 | 2406 | 16 | 2434 | 30 | 2462 |
| 03 | 2408 | 17 | 2436 | 31 | 2464 |
| 04 | 2410 | 18 | 2438 | 32 | 2466 |
| 05 | 2412 | 19 | 2440 | 33 | 2468 |
| 06 | 2414 | 20 | 2442 | 34 | 2470 |
| 07 | 2416 | 21 | 2444 | 35 | 2472 |
| 08 | 2418 | 22 | 2446 | 36 | 2474 |
| 09 | 2420 | 23 | 2448 | 37 | 2476 |
| 10 | 2422 | 24 | 2450 | 38 | 2478 |
| 11 | 2424 | 25 | 2452 | 39 | 2480 |
| 12 | 2426 | 26 | 2454 | | |
| 13 | 2428 | 27 | 2456 | | |

1.3 Block Diagram Showing the Configuration of System Tested

TX Mode



1.4 Description of Support Units

| | | Equipment Inform | nation | |
|--------|---------------|-------------------|--------------|----------|
| Name | Model | FCC ID/VOC | Manufacturer | Used "√" |
| | mn in | | | |
| | | Cable Information | | |
| Number | Shielded Type | Ferrite Core | Length | Note |
| | MARINE | | THE | |



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1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

| For | Radiated Test |
|-----------------|----------------------------|
| Final Test Mode | Description |
| Mode 2 | TX Mode |
| Mode 3 | TX Mode (Channel 00/20/39) |

Note:

(1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

BLE Mode: GFSK Modulation Transmitting mode.

- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a portable unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.



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1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of RF setting.

| Test Software Version | CAMP. | CMD.exe | |
|-----------------------|----------|---------|----------|
| Frequency | 2402 MHz | 2442MHz | 2480 MHz |
| BLE GFSK | DEF | DEF | DEF |

1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

| Test Item | Parameters | Expanded Uncertainty (U _{Lab}) |
|----------------------|-------------------|--|
| | Level Accuracy: | |
| Conducted Emission | 9kHz~150kHz | ±3.42 dB |
| | 150kHz to 30MHz | ±3.42 dB |
| Radiated Emission | Level Accuracy: | ±4.60 dB |
| Radiated Effilssion | 9kHz to 30 MHz | ±4.60 db |
| Radiated Emission | Level Accuracy: | ±4.40 dB |
| Radiated Effilssion | 30MHz to 1000 MHz | ±4.40 UB |
| Radiated Emission | Level Accuracy: | ±4,20 dB |
| Naulateu EIIIISSIOII | Above 1000MHz | ±4.20 UD |



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1.8 Test Facility

The testing was performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at:1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China.

At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.



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2. Test Summary

| Standard S | Section | Took Itam | | B |
|-----------------------------|--------------------|---|----------|--------|
| FCC | IC | Test Item | Judgment | Remark |
| 15.203 | | Antenna Requirement | PASS | N/A |
| 15.207(a) | RSS-GEN 7.2.4 | Conducted Emission | PASS | N/A |
| 15.205&15.247(d) | RSS-GEN 7.2.2 | Band-Edge & Unwanted Emissions into Restricted Frequency | PASS | N/A |
| 15.247(a)(2) | RSS 247 5.2 (1) | 6dB Bandwidth | PASS | N/A |
| 15.247(b)(3) | RSS 247 5.4 (4) | Conducted Max Output Power | PASS | N/A |
| 15.247(e) | RSS 247 5.2 (2) | Power Spectral Density | PASS | N/A |
| 15.205, 15.209&15.247(d) | RSS 247 5.5 | Transmitter Radiated Spurious &Unwanted Emissions into Restricted Frequency | PASS | N/A |

Note: N/A is an abbreviation for Not Applicable.



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3. Test Equipment

| Conducte | d Emission Te | st | | | |
|---------------------------|----------------------------------|-------------|------------|---------------|------------------|
| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
| EMI Test Receiver | Rohde & Schwarz | ESCI | 100321 | Jul. 21, 2016 | Jul. 20, 2017 |
| RF Switching Unit | Compliance Direction Systems Inc | RSU-A4 | 34403 | Jul. 21, 2016 | Jul. 20, 2017 |
| AMN | SCHWARZBECK | NNBL 8226-2 | 8226-2/164 | Jul. 21, 2016 | Jul. 20, 2017 |
| LISN | Rohde & Schwarz | ENV216 | 101131 | Jul. 21, 2016 | Jul. 20, 2017 |
| Radiation | Emission Tes | t | | | |
| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
| Spectrum Analyzer | Agilent | E4407B | MY45106456 | Jul. 21, 2016 | Jul. 20, 2017 |
| EMI Test Receiver | Rohde & Schwarz | ESPI | 100010/007 | Jul. 21, 2016 | Jul. 20, 2017 |
| Bilog Antenna | ETS-LINDGREN | 3142E | 00117537 | Mar.25, 2017 | Mar. 24, 201 |
| Bilog Antenna | ETS-LINDGREN | 3142E | 00117542 | Mar.25, 2017 | Mar. 24, 201 |
| Horn Antenna | ETS-LINDGREN | 3117 | 00143207 | Mar.24, 2017 | Mar. 23, 201 |
| Horn Antenna | ETS-LINDGREN | 3117 | 00143209 | Mar.24, 2017 | Mar. 23, 201 |
| Loop Antenna | Laplace instrument | RF300 | 0701 | Mar.24, 2017 | Mar. 23, 201 |
| Pre-amplifier | Sonoma | 310N | 185903 | Mar.24, 2017 | Mar. 23, 201 |
| Pre-amplifier | HP | 8449B | 3008A00849 | Mar.25, 2017 | Mar. 24, 201 |
| Cable | HUBER+SUHNER | 100 | SUCOFLEX | Mar.24, 2017 | Mar. 23, 201 |
| Positioning Controller | ETS-LINDGREN | 2090 | N/A | N/A | N/A |
| Antenna C | Conducted Em | ission | | | |
| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
| Spectrum Analyzer | Agilent | E4407B | MY45106456 | Jul. 21, 2016 | Jul. 20, 2017 |
| Spectrum Analyzer | Rohde & Schwarz | ESCI | 100010/007 | Jul. 21, 2016 | Jul. 20, 2017 |
| Power Meter | Anritsu | ML2495A | 25406005 | Jul. 21, 2016 | Jul. 20, 2017 |
| Power Sensor | Anritsu | ML2411B | 25406005 | Jul. 21, 2016 | Jul. 20, 2017 |



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4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard FCC Part 15.207

4.1.2 Test Limit

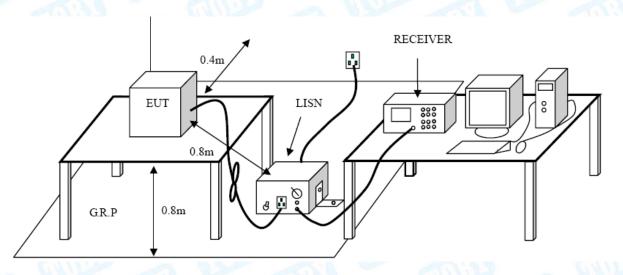
Conducted Emission Test Limit

| | Maximum RF Line Voltage (dBμV) | | |
|---------------|--------------------------------|---------------|--|
| Frequency | Quasi-peak Level | Average Level | |
| 150kHz~500kHz | 66 ~ 56 * | 56 ~ 46 * | |
| 500kHz~5MHz | 56 | 46 | |
| 5MHz~30MHz | 60 | 50 | |

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



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I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9 kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4 EUT Operating Mode

Please refer to the description of test mode.

4.5 Test Da5ta

Test data please refer the following pages.



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| UT: | DI | uetooth GPS b | ariu | Model Nan | ie . | #C70 | 123 |
|--|---|--|---|---|---|--|--|
| emperatu | re: 25 | $^{\circ}$ | (M) | Relative H | umidity: | 55% | Alle |
| est Voltag | ge: AC | 2 120V/60 Hz | | 111 | (AII) | 1130 | |
| erminal: | Lir | ne | · AMO | | J E | 100 | MILES TO |
| est Mode | : US | SB Charging M | ode | MILE | | a V | |
| Remark: | Or | nly worse case | is reported | | | 33 | |
| 80.0 dBuV | | | | | | | |
| | | | | | | QP: AVG: | |
| | | | | | | , | |
| | | | | | | | |
| | | _ | | | | | |
| × | | | | | | | |
| 30 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ |) | | | | | | |
| A A A A A A | VVIIRAAAA | Maddina | alir. alžiku attik z | X | | | |
| $\Lambda\Lambda$ | 1 / A | MANAMANANANANANANANANANANANANANANANANAN | | III A A A A A A A A A | wwwww | h/hd/hos/househollholis | MANIA MANA |
| ΑΛΛΛΛ | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | Through hinds also because | had well and delivery week to have | | MMMMA | | AV |
| | | , a coca AlbatabadAbadAbhatanllabha | didilahitataha at sa atanahat 2001 | . W M A N . A A | , a a a adomina | <i>`</i> y/4^44\ ₄ ^ ₁ \\\ ₆ 4 ₄ 4 ₄ 4- ⁴ 4\ | White was a series of the seri |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| 0.150 | | 0.5 | (MHz) | 5 | | | 30.000 |
| 0.150 | | | | | | | 30.000 |
| | Freq | Reading | (MHz) Correct Factor | Measure- ment | Limit | Over | 30.000 |
| 0.150 | Freq | Reading | Correct | Measure- | | Over | |
| 0.150 | | Reading Level | Correct Factor | Measure- ment | Limit | | |
| 0.150 No. Mk. | MHz | Reading Level dBuV 27.64 | Correct Factor dB | Measure- ment dBuV | Limit dBuV | dB | Detector QP |
| 0.150 No. Mk. | MHz 0.1660 | Reading Level dBuV 27.64 0 10.93 | Correct Factor dB 9.58 | Measure- ment dBuV 37.22 | Limit dBuV 65.15 55.15 | dB -27.93 | Detector QP |
| 0.150 No. Mk. | 0.1660 0.1660 | Reading Level dBuV 27.64 0 10.93 0 24.90 | Correct Factor dB 9.58 9.58 | Measure- ment dBuV 37.22 20.51 | Limit dBuV 65.15 55.15 63.36 | dB -27.93 -34.64 | QP AVG |
| 0.150 No. Mk. 1 * 2 3 | 0.1660 0.1660 0.2060 | Reading Level dBuV 27.64 10.93 24.90 9.19 | Correct Factor dB 9.58 9.58 9.58 | Measure- ment dBuV 37.22 20.51 34.48 | Limit dBuV 65.15 55.15 63.36 53.36 | dB -27.93 -34.64 -28.88 | Detector QP AVG |
| 0.150 No. Mk. 1 * 2 3 4 | 0.1660 0.1660 0.2060 0.2060 | Reading Level dBuV 27.64 10.93 24.90 9.19 17.35 | Correct Factor dB 9.58 9.58 9.58 | Measure- ment dBuV 37.22 20.51 34.48 18.77 | Limit dBuV 65.15 55.15 63.36 53.36 59.45 | dB -27.93 -34.64 -28.88 -34.59 | Detector QP AVG QP AVG |
| 0.150 No. Mk. 1 * 2 3 4 5 | 0.1660 0.1660 0.2060 0.2060 0.3300 | Reading Level dBuV 27.64 10.93 24.90 9.19 17.35 3.70 | Correct Factor dB 9.58 9.58 9.58 9.58 9.59 | Measure- ment dBuV 37.22 20.51 34.48 18.77 26.94 | Limit dBuV 65.15 55.15 63.36 53.36 59.45 49.45 | dB -27.93 -34.64 -28.88 -34.59 -32.51 | Detector QP AVG QP AVG |
| 0.150 No. Mk. 1 * 2 3 4 5 6 7 | 0.1660 0.1660 0.2060 0.2060 0.3300 0.6580 | Reading Level dBuV 27.64 10.93 24.90 9.19 17.35 3.70 14.49 | Correct Factor dB 9.58 9.58 9.58 9.58 9.59 9.59 | Measure- ment dBuV 37.22 20.51 34.48 18.77 26.94 13.29 24.10 | Limit dBuV 65.15 55.15 63.36 53.36 59.45 49.45 56.00 | dB -27.93 -34.64 -28.88 -34.59 -32.51 -36.16 | Detector QP AVG QP AVG QP AVG |
| 0.150 No. Mk. 1 * 2 3 4 5 6 7 8 | 0.1660 0.1660 0.2060 0.2060 0.3300 0.6580 0.6580 | Reading Level dBuV 27.64 10.93 24.90 9.19 17.35 3.70 14.49 0.23 | Correct Factor dB 9.58 9.58 9.58 9.59 9.59 9.61 9.61 | Measure- ment dBuV 37.22 20.51 34.48 18.77 26.94 13.29 24.10 9.84 | Limit dBuV 65.15 55.15 63.36 53.36 59.45 49.45 56.00 46.00 | dB -27.93 -34.64 -28.88 -34.59 -32.51 -36.16 -31.90 -36.16 | QP AVG QP AVG QP AVG |
| 0.150 No. Mk. 1 * 2 3 4 5 6 7 8 9 | MHz 0.1660 0.1660 0.2060 0.2060 0.3300 0.6580 0.6580 1.5620 | Reading Level dBuV 27.64 10.93 24.90 9.19 17.35 3.70 14.49 0.23 12.30 | Correct Factor dB 9.58 9.58 9.58 9.59 9.59 9.61 9.61 | Measure- ment dBuV 37.22 20.51 34.48 18.77 26.94 13.29 24.10 9.84 21.91 | Limit dBuV 65.15 55.15 63.36 53.36 59.45 49.45 56.00 46.00 | dB -27.93 -34.64 -28.88 -34.59 -32.51 -36.16 -31.90 -36.16 -34.09 | QP AVG QP AVG QP AVG QP AVG |
| 0.150 No. Mk. 1 * 2 3 4 5 6 7 8 9 10 | MHz 0.1660 0.1660 0.2060 0.2060 0.3300 0.6580 0.6580 1.5620 | Reading Level dBuV 27.64 10.93 24.90 9.19 17.35 3.70 14.49 0.23 12.30 0.65 | Correct Factor dB 9.58 9.58 9.58 9.59 9.59 9.61 9.61 9.61 | Measure- ment dBuV 37.22 20.51 34.48 18.77 26.94 13.29 24.10 9.84 21.91 10.26 | Limit dBuV 65.15 55.15 63.36 53.36 59.45 49.45 56.00 46.00 46.00 | dB -27.93 -34.64 -28.88 -34.59 -32.51 -36.16 -31.90 -36.16 -34.09 -35.74 | QP AVG QP AVG QP AVG QP AVG |
| 0.150 No. Mk. 1 * 2 3 4 5 6 7 8 9 | MHz 0.1660 0.1660 0.2060 0.2060 0.3300 0.6580 0.6580 1.5620 | Reading Level dBuV 27.64 10.93 24.90 9.19 17.35 3.70 14.49 0.23 12.30 0.65 11.60 | Correct Factor dB 9.58 9.58 9.58 9.59 9.59 9.61 9.61 | Measure- ment dBuV 37.22 20.51 34.48 18.77 26.94 13.29 24.10 9.84 21.91 | Limit dBuV 65.15 55.15 63.36 53.36 59.45 49.45 56.00 46.00 56.00 56.00 | dB -27.93 -34.64 -28.88 -34.59 -32.51 -36.16 -31.90 -36.16 -34.09 | QP AVG QP AVG QP AVG |



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| EUT: | Bluetooth GPS band | d M | odel Name : | | #C70125 | | | |
|--|---|----------|--|---------------------------|---------------------|---------------------------|--|--|
| Temperature: | 25℃ | | elative Humi | dity: | 55% | Mille | | |
| Test Voltage: | AC 120V/60 Hz | 3 | CHI) | | -CI 1 | | | |
| Terminal: | Neutral | | | | | | | |
| Test Mode: | USB Charging Mode | | | | | | | |
| Remark: | Only worse case is | reported | MILLER | | J 187 | | | |
| 80.0 dBuV | | | | | | | | |
| | | | | | QP: AVG: | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| X X A X X | × | | | | | | | |
| 30 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | | | | | | | | |
| LAAAAAAAW | | | Y ^\$\^}\ [#] \^\^\^\\\ | voluble object operatory. | ~ happeninded water | γν•γιν√γ••••I peak | | |
| K A A A A A A A B B A B B | | | $V^{\prime}////////////////////////////////////$ | MM | male management | AVG | | |
| | 1 | | | | | | | |
| | | | | | | | | |
| -20 | | | | | | | | |
| 0.150 | 0.5 | (MHz) | 5 | | | 30.000 | | |
| No. Mk. Fr | 9 | | Measure- | imit | Over | | | |
| | req. Level | Factor | ment | | | Detector | | |
| | Hz dBuV | dB | | dBuV | | Detector | | |
| 1 0.10 | | 9.64 | | | -27.89 | QP | | |
| 2 0.10 | 660 12.73 | 9.64 | 22.37 5 | 5.15 | -32.78 | AVG | | |
| 3 0.18 | 864 25.79 | 9.65 | 35.44 6 | 4.19 | -28.75 | QP | | |
| 4 0.18 | 864 11.63 | 9.65 | 21.28 5 | 4.19 | -32.91 | AVG | | |
| 5 0.24 | 460 23.25 | 9.61 | 32.86 6 | 1.89 | -29.03 | QP | | |
| 6 0.24 | 460 12.36 | 9.61 | 21.97 5 | 1.89 | -29.92 | AVG | | |
| 7 0.4 | 740 19.23 | 9.58 | 28.81 5 | 6.44 | -27.63 | QP | | |
| | 740 16.54 | 9.58 | | | -20.32 | AVG | | |
| | 980 13.87 | 9.59 | | | -32.54 | QP | | |
| | | | | | -26.81 | | | |
| | | 9.59 | | | | AVG | | |
| | 340 12.20 | 9.59 | | | -34.21 | QP | | |
| 12 1.23 | 340 9.42 | 9.59 | 19.01 4 | 6.00 | -26.99 | AVG | | |
| Emission Level= | Read Level+ Correct | t Factor | | | | | | |
| | | | | | | | | |



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| :UT: | Blueto | ooth GPS ba | nd | Model Nam | ie: | #C7012 | 25 |
|--------------|---|------------------|-------------------|------------------|--|--------------|---------|
| emperature: | | | | ımidity: | 55% | | |
| est Voltage: | AC 24 | 10V/60 Hz | 100 | 18 | GUI | 1130 | |
| erminal: | Line | | MAGE | | 1 63 | | MI |
| est Mode: | USB | Charging Mo | de | MILE | | 2 1 | |
| Remark: | Only | worse case i | s reported | - | | 13 | |
| 80.0 dBuV | | | | | | QP: | |
| 20 0.150 | W// | | (MHz) | 5 | ************************************** | AVG : | 30.000 |
| | | Desdies | | | | | |
| No. Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
| | MHz | dBuV | dB | dBuV | dBuV | dB | Detecto |
| 1 0. | 1620 | 24.39 | 9.58 | 33.97 | 65.36 | -31.39 | QP |
| 2 0. | 1620 | 5.58 | 9.58 | 15.16 | 55.36 | -40.20 | AVO |
| 3 0. | 2140 | 22.23 | 9.58 | 31.81 | 63.04 | -31.23 | QP |
| | 2140 | 4.95 | 9.58 | 14.53 | | -38.51 | AVO |
| | 4980 | 17.29 | 9.60 | 26.89 | | -29.14 | QP |
| | 4980 | 12.56 | 9.60 | 22.16 | | -23.87 | AVO |
| | 0980 | 12.69 | 9.60 | 22.29 | | -33.71 | QP |
| | 0980 | 1.35 | 9.60 | 10.95 | | -35.05 | AVO |
| | 8900 | | | 22.30 | | | |
| | | 12.66 | 9.64 | | | -33.70 | QP |
| 10 2. | 8900 | 2.73 | 9.64 | 12.37 | | -33.63 | AVO |
| 4.4 . | 9300 | 10.59 | 9.74 | 20.33 | 56.00 | -35.67 | QP |
| | 9300 | 3.05 | 9.74 | 12.79 | | -33.21 | AVC |



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| 1 | DV |
|------|----|
| 1000 | KY |
| | |

| EUT: | Bluetooth GPS | band | Model Nam | ne : | #C7012 | 25 | | |
|--|--|---------------|-------------|--------------|-------------|-------------|--|--|
| Temperature: | 25℃ | | Relative Hu | umidity: | 55% | | | |
| Test Voltage: | AC 240V/60 Hz | 1979 | a Will | | - | French | | |
| Terminal: | Neutral | | 13 | (41) | 11.75 | | | |
| Test Mode: | USB Charging Mode | | | | | | | |
| Remark: | Only worse cas | e is reported | WILL | | | | | |
| 80.0 dBuV | | | | | 60 | | | |
| | | | | | QP: AVG: | | | |
| | | | | | | | | |
| | 1 | | | | | | | |
| | | | | | | | | |
| × | × | | | | | | | |
| 30 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | Mr. Johnson Jan | | , M | | | | | |
| Merupaya e v | | Hilliam Wall | | $\sqrt[n]{}$ | 4AAAAAAAA | www.peak | | |
| K A A A A A A A A A A A A A A A A A A A | ¥ | | | VVV | 4.0.00 | MANAMAN AVG | | |
| | The state of the s | - 1 1 | , , , | | 00000000 | | | |
| | | | | | | | | |
| -20 | | | | | | | | |
| 0.150 | 0.5 | (MHz) | 5 | | | 30.000 | | |
| No Mk Ero | Reading | Correct | Measure- | Limit | Over | | | |
| No. Mk. Fre | • | Factor | ment | | | Detector | | |
| MH | | dB | dBuV | dBuV | dB | Detector | | |
| 1 0.16 | | 9.64 | 34.32 | 65.36 | -31.04 | QP | | |
| 2 0.16 | 20 7.39 | 9.64 | 17.03 | 55.36 | -38.33 | AVG | | |
| 3 0.21 | 40 22.44 | 9.64 | 32.08 | 63.04 | -30.96 | QP | | |
| 4 0.21 | 40 8.32 | 9.64 | 17.96 | 53.04 | -35.08 | AVG | | |
| 5 0.49 | 40 19.21 | 9.58 | 28.79 | 56.10 | -27.31 | QP | | |
| 6 * 0.49 | 40 15.18 | 9.58 | 24.76 | 46.10 | -21.34 | AVG | | |
| 7 1.29 | | 9.60 | 24.71 | | -31.29 | QP | | |
| 8 1.29 | | 9.60 | 21.00 | | -25.00 | AVG | | |
| 9 2.19 | | 9.62 | 22.94 | | -33.06 | QP | | |
| | | | | | | | | |
| 10 2.19 | | 9.62 | 17.99 | | -28.01 | AVG | | |
| 11 3.19 | 40 11.03 | 9.68 | 20.71 | 56.00 | -35.29 | QP | | |
| 12 3.19 | 40 6.13 | 9.68 | 15.81 | 46.00 | -30.19 | AVG | | |
| Fullacion I : | Dood Leavil C | was at Es at | _ | | | | | |
| Emission Level= | kead Level+ Co | rrect Factor | | | | | | |



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5. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.247(d)

5.1.2 Test Limit

Radiated Emission Limits (9kHz~1000MHz)

| Frequency (MHz | Field Strength (microvolt/meter) | Measurement Distance (meters) |
|-------------------|----------------------------------|-------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

Radiated Emission Limit (Above 1000MHz)

| Frequency | Distance Meters(at 3m) | | | | |
|------------|------------------------|---------------------|--|--|--|
| (MHz) | Peak (dBuV/m) | Average (dBuV/m) | | | |
| Above 1000 | 74 | 54 | | | |

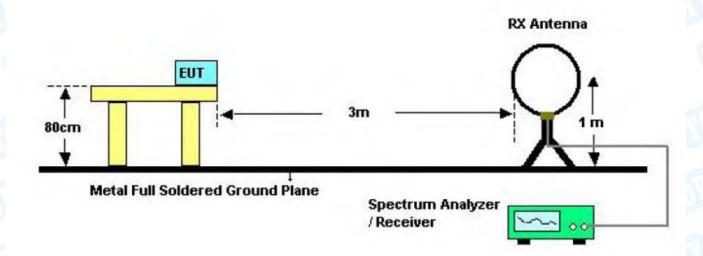
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m)

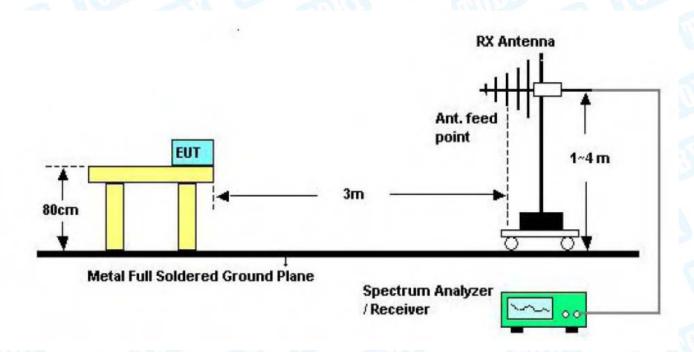


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5.2 Test Setup



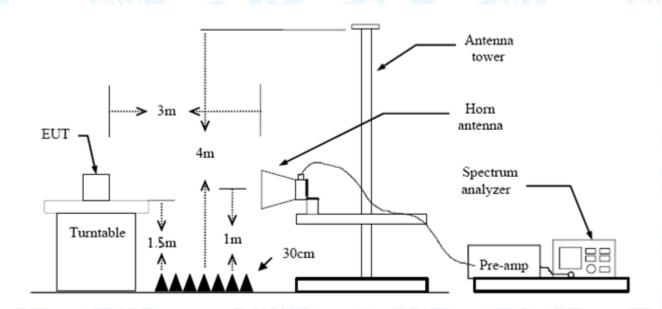
Below 30MHz Test Setup



Below 1000MHz Test Setup



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Above 1GHz Test Setup

5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.



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5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

5.5 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Test data please refer the following pages.



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9 KHz~30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB

Below the permissible value has no need to be reported.

30MHz~1GHz

| | | Blueto | ooth GPS ba | and | Model: | | #C70125 | |
|-------------|----------------|--|--|--|--|--|--|----------------|
| Гетре | erature: | 25 ℃ | 25℃ Relative Humidity: | | | nidity: | 55% | |
| Test V | oltage: | DC 3\ | / | Chin | | 163 | | 18 |
| Ant. P | ol. | Horizo | ontal | | WILL ST | | ARGE | |
| Test M | lode: | BLE T | X 2402 Mod | de | | CHO. | | (11) |
| Remai | rk: | Only v | worse case | is reported | 1 | N. Salar | The state of | 1 |
| 80.0 | dBuV/m | | | | | | | |
| 30 | Marina, Marina | 3 4 | - Vicence and Market Market Market | 5 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | Man way water from the state of | | 15C 3M Radiation Margin -6 | dB |
| -20 | 00 40 | - FO - OO - I | 70 80 | (MHz) | 300 | 400 5 | 600 600 700 | 1000.00 |
| | | | Reading | Correct | Measure- | Limit | Over | |
| | Mk. | Freq. | Reading Level | Factor | ment | Limit dBuV/m | Over | Detect |
| No. | Mk. | Freq. | Reading Level dBuV | Factor dB/m | ment dBuV/m | dBuV/m | dB | Detect |
| No. | Mk. | Freq. MHz 1.0703 | Reading Level dBuV 30.01 | Factor dB/m -14.46 | ment dBuV/m 15.55 | dBuV/m 40.00 | dB -24.45 | QP |
| No. 1 2 | Mk. 3 | Freq. MHz 1.0703 9.1613 | Reading Level dBuV 30.01 35.70 | Hactor dB/m -14.46 -19.47 | ment dBuV/m 15.55 16.23 | dBuV/m 40.00 40.00 | dB -24.45 -23.77 | QP QP |
| No. 1 2 3 | Mk. 3 * 3 | Freq. MHz 1.0703 9.1613 9.8813 | Reading Level dBuV 30.01 35.70 31.04 | Factor dB/m -14.46 -19.47 -24.17 | ment dBuV/m 15.55 16.23 6.87 | dBuV/m 40.00 40.00 40.00 | dB -24.45 -23.77 -33.13 | QP QP |
| No. 1 2 3 4 | Mk. 3 * 3 4 | Freq. MHz 1.0703 9.1613 9.8813 1.9951 | Reading Level dBuV 30.01 35.70 31.04 33.76 | Factor dB/m -14.46 -19.47 -24.17 -24.24 | ment dBuV/m 15.55 16.23 6.87 9.52 | dBuV/m 40.00 40.00 40.00 40.00 | dB -24.45 -23.77 -33.13 -30.48 | QP QP QP |
| No. 1 2 3 | Mk. 3 * 3 4 | Freq. MHz 1.0703 9.1613 9.8813 | Reading Level dBuV 30.01 35.70 31.04 | Factor dB/m -14.46 -19.47 -24.17 | ment dBuV/m 15.55 16.23 6.87 | dBuV/m 40.00 40.00 40.00 | dB -24.45 -23.77 -33.13 | QP QP |



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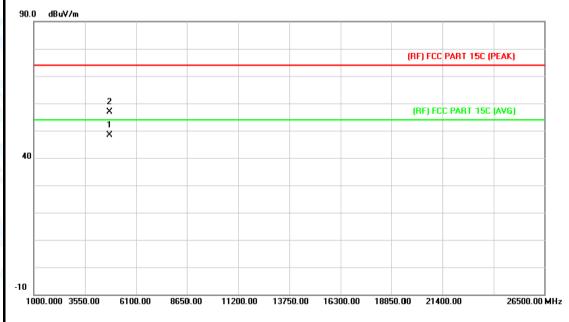
| emperature: | | h GPS ban | d M | lodel: | | #C70125 | | | |
|--|--|---|---|---|-----------------------------------|--|---------------------------|--|--|
| est Voltage: | 25℃ Relative Humidity: 55% | | | 55% | ABLE | | | | |
| oot voitage. | DC 3V | Rain | 100 | 8.0 | Cil | TOB TOB | | | |
| Ant. Pol. | Vertical | | ART | | J C | | | | |
| est Mode: | BLE TX | 2402 Mode |) | MILLE | | | | | |
| Remark: | Only wor | rse case is | reported | | | 13 | | | |
| 80.0 dBuV/m | | | | | | | | | |
| 30 1 2 2 2 2 2 2 2 2 2 2 3 2 3 3 3 3 3 3 3 | 1 w (MA) | 5 Myry X | a Congression of the The | | (RF)FCC | 15C 3M Radiatio | | | |
| - 30 1000 40 5 | n 60 70 : | 80 | (MHz) | 300 | 400 | 500 600 700 | 1000 0 | | |
| | R | _ | (MHz) Correct | Measure- | | 500 600 700 | 1000.0 | | |
| No. Mk. F | R req. | leading Level | Correct Factor | Measure- ment | Limit | Over | | | |
| No. Mk. F | R req. MHz | leading Level dBuV | Correct Factor | Measure- ment dBuV/m | Limit dBuV/m | Over | Detecto | | |
| No. Mk. F | R req. MHz 6240 | leading Level dBuV 34.70 | Correct Factor dB/m -17.29 | Measure- ment dBuV/m | Limit dBuV/m 40.00 | Over dB -22.59 | Detecto | | |
| No. Mk. F | R req. MHz 6240 | leading Level dBuV 34.70 | Correct Factor | Measure- ment dBuV/m | Limit dBuV/m | Over | Detecto | | |
| No. Mk. F M 1 35.0 2 49.5 | R req. MHz 6240 | deading Level dBuV 34.70 40.17 | Correct Factor dB/m -17.29 | Measure- ment dBuV/m | Limit dBuV/m 40.00 | Over dB -22.59 | Detecto | | |
| No. Mk. F 1 35.4 2 49.4 3 56.4 | R req. MHz 6240 5328 | deading Level dBuV 34.70 40.17 37.61 | Correct Factor dB/m -17.29 -24.02 | Measure- ment dBuV/m 17.41 16.15 | Limit dBuV/m 40.00 40.00 | Over dB -22.59 -23.85 | Detecto QP QP | | |
| No. Mk. F 1 35.4 2 49.4 3 56.4 4 74.5 | Rreq. R MHz 6240 5328 5929 | dBuV 34.70 40.17 37.61 41.04 | Correct Factor dB/m -17.29 -24.02 -24.35 | Measure- ment dBuV/m 17.41 16.15 13.26 | Limit dBuV/m 40.00 40.00 40.00 | Over dB -22.59 -23.85 -26.74 | Detecto QP QP QP | | |



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Above 1GHz

| EUT: | Bluetooth GPS band Model: #C70125 | | | | | | | |
|---------------|--|-------|--|--|--|--|--|--|
| Temperature: | 25℃ | 55% | | | | | | |
| Test Voltage: | DC 3V | DC 3V | | | | | | |
| Ant. Pol. | Horizontal | | CI C | | | | | |
| Test Mode: | BLE Mode TX 2402 MHz | W. | | | | | | |
| Remark: | No report for the emission which more than 10 dB below the prescribed limit. | | | | | | | |

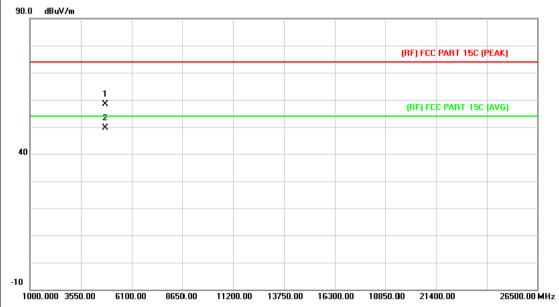


| No. | Mk | . Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
|-----|----|----------|------------------|-------------------|------------------|--------|--------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | * | 4803.901 | 34.94 | 13.44 | 48.38 | 54.00 | -5.62 | AVG |
| 2 | | 4804.210 | 43.33 | 13.44 | 56.77 | 74.00 | -17.23 | peak |



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| EUT: | Bluetooth GPS band | Model: | #C70125 | | | | | | |
|---------------|----------------------------|--|--|--|--|--|--|--|--|
| Temperature: | 25℃ | Relative Humidity: | 55% | | | | | | |
| Test Voltage: | DC 3V | DC 3V | | | | | | | |
| Ant. Pol. | Vertical | | | | | | | | |
| Test Mode: | BLE Mode TX 2402 MHz | | The same of the sa | | | | | | |
| Remark: | No report for the emission | No report for the emission which more than 10 dB below the | | | | | | | |
| | prescribed limit. | | | | | | | | |
| | | | | | | | | | |

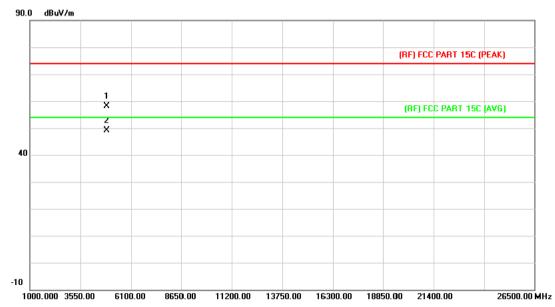


| No. | Mk. | Freq. | Reading Level | | Measure- ment | Limit | Over | |
|-----|-----|----------|------------------|-------|------------------|--------|--------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | | 4803.937 | 44.96 | 13.44 | 58.40 | 74.00 | -15.60 | peak |
| 2 | * | 4804.024 | 36.10 | 13.44 | 49.54 | 54.00 | -4.46 | AVG |



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| EUT: | Bluetooth GPS band | Model: | #C70125 | | | | | | |
|---------------|------------------------------|-----------------------|-----------|--|--|--|--|--|--|
| Temperature: | 25℃ | Relative Humidity: | 55% | | | | | | |
| Test Voltage: | DC 3V | 31 | 1133 | | | | | | |
| Ant. Pol. | Horizontal | Horizontal | | | | | | | |
| Test Mode: | BLE Mode TX 2442 MHz | | 2 Aller | | | | | | |
| Remark: | No report for the emission v | which more than 10 dB | below the | | | | | | |
| | prescribed limit. | | | | | | | | |
| | | | | | | | | | |

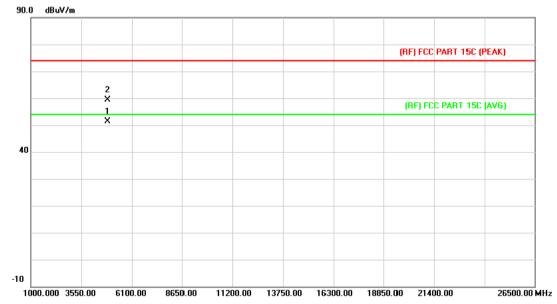


| No. | Mk. | Freq. | _ | Correct Factor | Measure- ment | Limit | Over | |
|-----|-----|----------|-------|-------------------|------------------|--------|--------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | | 4881.718 | 44.11 | 13.90 | 58.01 | 74.00 | -15.99 | peak |
| 2 | * | 4881.868 | 35.30 | 13.90 | 49.20 | 54.00 | -4.80 | AVG |



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| EUT: | Bluetooth GPS band | Model: | #C70125 |
|---------------|------------------------------|-----------------------|-----------|
| Temperature: | 25℃ | Relative Humidity: | 55% |
| Test Voltage: | DC 3V | 11 | |
| Ant. Pol. | Vertical | | |
| Test Mode: | BLE Mode TX 2442 MHz | WIID S | 2 |
| Remark: | No report for the emission v | which more than 10 dB | below the |
| | prescribed limit. | | |
| | | | Į. |

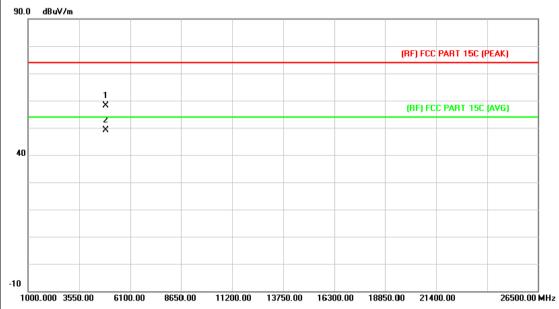


| No. | Mk. | Freq. | _ | Correct Factor | Measure- ment | Limit | Over | |
|-----|-----|----------|-------|-------------------|------------------|--------|--------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | * | 4881.988 | 37.47 | 13.90 | 51.37 | 54.00 | -2.63 | AVG |
| 2 | | 4882.204 | 45.57 | 13.90 | 59.47 | 74.00 | -14.53 | peak |



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| EUT: | Bluetooth GPS band | Model: | #C70125 |
|---------------|--|-----------------------|-----------|
| Temperature: | 25℃ | Relative Humidity: | 55% |
| Test Voltage: | DC 3V | | 133 |
| Ant. Pol. | Horizontal | U | |
| Test Mode: | BLE Mode TX 2480 MHz | WIII DE | a little |
| Remark: | No report for the emission verscribed limit. | which more than 10 dB | below the |
| | | | |

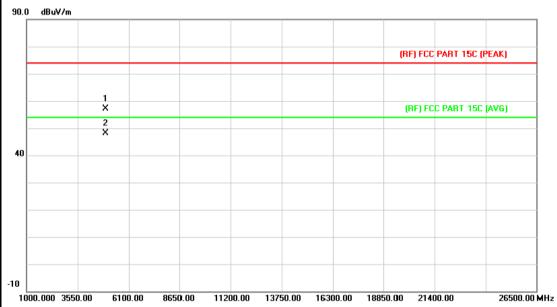


| No. | Mk. | Freq. | Reading Level | | Measure- ment | Limit | Over | |
|-----|-----|----------|------------------|-------|------------------|--------|--------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | | 4881.718 | 44.11 | 13.90 | 58.01 | 74.00 | -15.99 | peak |
| 2 | * | 4881.868 | 35.30 | 13.90 | 49.20 | 54.00 | -4.80 | AVG |



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| EUT: | Bluetooth GPS band | Model: | #C70125 |
|---------------|--|----------------------|-----------|
| Temperature: | 25℃ | Relative Humidity: | 55% |
| Test Voltage: | DC 3V | 110 | (II) |
| Ant. Pol. | Vertical | U | |
| Test Mode: | BLE Mode TX 2480 MHz | | J. Hills |
| Remark: | No report for the emission w prescribed limit. | hich more than 10 dB | below the |



| No | . Mk. | Freq. | Reading Level | | Measure- ment | Limit | Over | |
|----|-------|----------|------------------|-------|------------------|--------|--------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | | 4959.706 | 42.81 | 14.36 | 57.17 | 74.00 | -16.83 | peak |
| 2 | * | 4959.706 | 33.72 | 14.36 | 48.08 | 54.00 | -5.92 | AVG |



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6. Restricted Bands Requirement

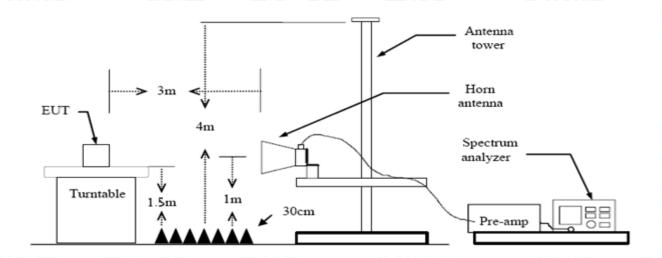
6.1 Test Standard and Limit

6.1.1 Test Standard FCC Part 15.247(d) FCC Part 15.205

6.1.2 Test Limit

| Restricted Frequency | Distance Me | eters(at 3m) |
|----------------------|------------------|---------------------|
| Band (MHz) | Peak (dBuV/m) | Average (dBuV/m) |
| 2310 ~2390 | 74 | 54 |
| 2483.5 ~2500 | 74 | 54 |

6.2 Test Setup



6.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector



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mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

6.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

6.5 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

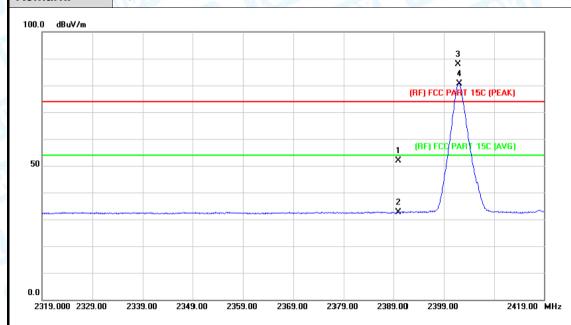
Test data please refer the following pages.



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(1) Radiation Test

| EUT: | Bluetooth GPS band | Model: | #C70125 |
|---------------|----------------------|--------------------|--|
| Temperature: | 25℃ | Relative Humidity: | 55% |
| Test Voltage: | DC 3V | | |
| Ant. Pol. | Horizontal | WILL DO | THE PARTY OF THE P |
| Test Mode: | BLE Mode TX 2402 MHz | | 33 0 |
| Remark: | N/A | JA WILL | |



| No. | Mk. | . Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
|-----|-----|----------|------------------|-------------------|------------------|---------------|-----------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | | 2390.000 | 51.05 | 0.77 | 51.82 | 74.00 | -22.18 | peak |
| 2 | | 2390.000 | 31.81 | 0.77 | 32.58 | 54.00 | -21.42 | AVG |
| 3 | Χ | 2401.900 | 86.95 | 0.82 | 87.77 | Fundamental F | reauencv | peak |
| 4 | * | 2402.100 | 79.82 | 0.82 | 80.64 | Fundamental F | Frequency | AVG |



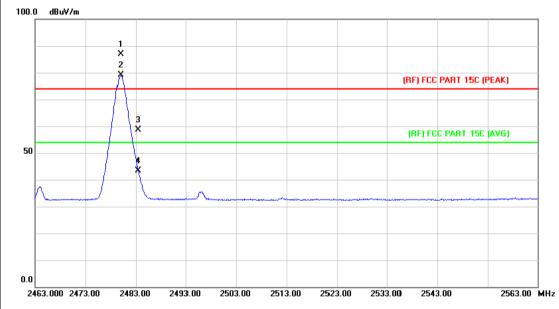
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| EUT: | | | Blue | tooth | GPS b | oand | Mod | Model: | | | | #C70125 | | |
|--------|---------|-------------|---------|-------|----------|------------|-------|--------------------|------|-----------------|----------|-----------------|----------|--|
| Temp | eratu | re: | 25℃ | | CAN I | CAN | Rela | Relative Humidity: | | | | 55% | | |
| Test \ | /oltag | e: | DC 3 | 3V | AP. | | | 1 9 | | GU | W. D. | | | |
| Ant. F | ol. | | Verti | cal | | 2 M | 11 | | | 6 | | The same | | |
| Test N | /lode: | | BLE | Mode | ∍ TX 24 | 402 MHz | | MI | WE | | 2 | MA | | |
| Rema | rk: | | N/A | N | N. Jones | | 21 | Care | | | 13 | | 1 | |
| 100.0 | dBuV/m | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | 3 X | | | |
| | | | | | | | | | | (RF) FCC | PART 15C | (PEAK) | - | |
| | | | | | | | | | | | /\ | | | |
| | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | 1 (RF) FCC X | PART 150 | C (AVG) | \dashv | |
| 30 | | | | | | | | | | J | | | | |
| | | | | | | | | | | 2 | | | | |
| - | | | | | | | | ···· | | X | | | | |
| | | | | | | | | | | | | | _ | |
| | | | | | | | | | | | | | | |
| 0.0 | | | | | | | | | | | | | | |
| 2319 | .000 23 | 29.00 | 2339.00 | 234 | 9.00 2 | 2359.00 23 | 69.00 | 2379.00 | 2389 | .00 2399 | .00 | 2419. | 00 MH | |
| | | | | | | | | | | | | | | |
| | | | | Re | ading | Corre | ct M | easur | e- | | | | | |
| No. | Mk. | Fr | eq. | | evel | Fact | or | ment | | Limit | Ove | r | | |
| | | М | Hz | C | BuV | dB/m | | dBuV/n | n | dBuV/m | dB | De | tector | |
| 1 | | 2390 | .000 | 5 | 1.09 | 0.77 | | 51.86 | 6 | 74.00 | -22. | 14 p | eak | |
| 2 | | 2390 | .000 | 3 | 1.52 | 0.77 | | 32.29 |) | 54.00 | -21. | 71 A | VG | |
| 2 | | 2404 | 000 | 8 | 5.26 | 0.82 | | 86.08 | } Fu | ndamental | Frequen | _{cy} p | eak | |
| 3 | X | 2401 | .900 | | 0.20 | | | | | | | | | |



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| EUT: | Bluetooth GPS band | Model: | #C70125 |
|---------------|----------------------|--------------------|------------|
| Temperature: | 25℃ | Relative Humidity: | 55% |
| Test Voltage: | DC 3V | | وان |
| Ant. Pol. | Horizontal | | |
| Test Mode: | BLE Mode TX 2480 MHz | WILD S | J. William |
| Remark: | N/A | | |
| | | | |

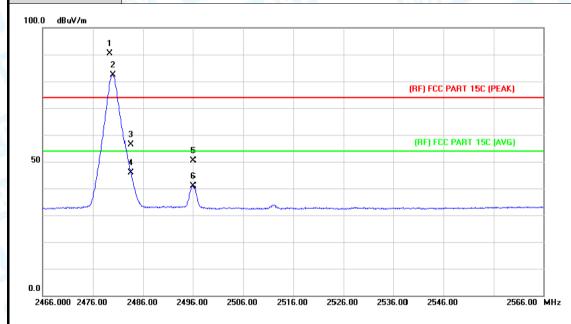


| No. | Mk. | . Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
|-----|-----|----------|------------------|-------------------|------------------|---------------|-----------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | X | 2480.000 | 85.81 | 1.15 | 86.96 | Fundamental | Frequency | peak |
| 2 | * | 2480.000 | 77.91 | 1.15 | 79.06 | Fundamental I | Freauencv | AVG |
| 3 | | 2483.500 | 57.47 | 1.17 | 58.64 | 74.00 | -15.36 | peak |
| 4 | | 2483.500 | 42.12 | 1.17 | 43.29 | 54.00 | -10.71 | AVG |



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| EUT: | Bluetooth GPS band | Model: | #C70125 |
|---------------|----------------------|--------------------|------------|
| Temperature: | 25℃ | Relative Humidity: | 55% |
| Test Voltage: | DC 3V | | The second |
| Ant. Pol. | Vertical | | |
| Test Mode: | BLE Mode TX 2480 MHz | WILD S | |
| Remark: | N/A | | 193 |

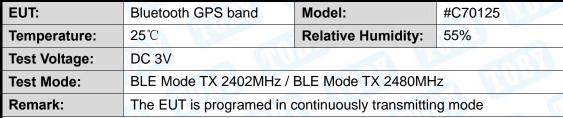


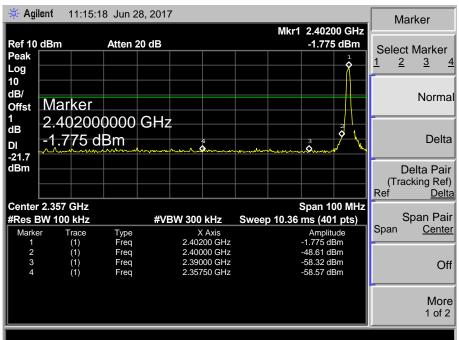
| No. | Mk. | . Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
|-----|-----|----------|------------------|-------------------|------------------|-------------|-----------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | X | 2479.400 | 89.17 | 1.15 | 90.32 | Fundamental | Frequency | peak |
| 2 | * | 2480.000 | 81.33 | 1.15 | 82.48 | Fundamental | Frequency | AVG |
| 3 | | 2483.500 | 55.20 | 1.17 | 56.37 | 74.00 | -17.63 | peak |
| 4 | | 2483.500 | 44.81 | 1.17 | 45.98 | 54.00 | -8.02 | AVG |
| 5 | | 2496.000 | 49.09 | 1.22 | 50.31 | 74.00 | -23.69 | peak |
| 6 | | 2496.000 | 39.76 | 1.22 | 40.98 | 54.00 | -13.02 | AVG |

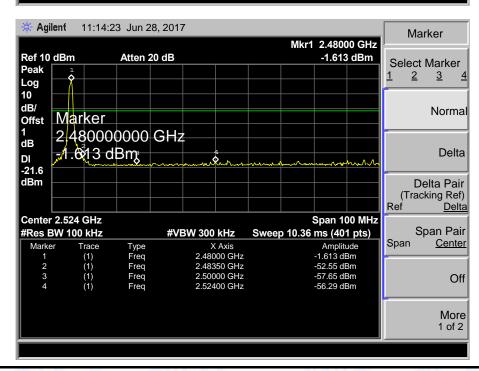


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(2) Conducted Test









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7. Bandwidth Test

7.1 Test Standard and Limit

7.1.1 Test Standard FCC Part 15.247 (a)(2)

7.1.2 Test Limit

| FCC | FCC Part 15 Subpart C(15.247)/RSS-247 | | | | | |
|-----------|---------------------------------------|-------------|--|--|--|--|
| Test Item | Test Item Limit Frequency Range(MHz) | | | | | |
| Bandwidth | >=500 KHz (6dB bandwidth) | 2400~2483.5 | | | | |

7.2 Test Setup



7.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
- (3)Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:100 kHz, and Video Bandwidth:300 kHz, Detector: Peak, Sweep Time set auto.

7.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, middle and high channel for the test.



Center 2.402 GHz #Res BW 100 kHz

Transmit Freq Error x dB Bandwidth

Occupied Bandwidth

Report No.: TB-FCC155880

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7.5 Test Data

| UT: | Bluetooth GPS band | | Model: | #C70125 | |
|---|--------------------|---|--------------------|--|--|
| emperature: | 25 ℃ | | Relative Humidity: | 55% | |
| est Voltage: | | | | | |
| est Mode: | BLE | TX Mode | an an | 13.8 | |
| Channel frequ | ency | 6dB Bandwidth | 99% Bandwidth | Limit | |
| (MHz) | | (kHz) | (kHz) | (kHz) | |
| 2402 | | 713.684 | 1083.3 | | |
| 2442 | | 716.311 | 1087.9 | >=500 | |
| 2480 | | 710.661 | 1089.5 | _ | |
| | | BLE N | Mode | | |
| ÷ | | 2402 | 2 | | |
| * Agilent | 11:11:30 | Jun 28, 2017 | 2 | Freq/Channel | |
| | Freq | | Trig Free | Freq/Channel Center Freq 2.40200000 GHz | |
| Ch Occupied Ban | Freq dwidth | Jun 28, 2017 | | Center Freq 2.40200000 GHz | |
| Center 2 Ref 10 dBm | Freq dwidth | Jun 28, 2017 2.402 GHz | | Center Freq 2.40200000 GHz | |
| Ch Occupied Ban Center 2 | Freq dwidth | Jun 28, 2017 2.402 GHz 00000 GHz | | Center Freq 2.40200000 GHz | |
| Center 2 Ref 10 dBm #Peak Log 10 dB/ Offst 1 | Freq dwidth | Jun 28, 2017 2.402 GHz 00000 GHz atten 20 dB | Trig Free | Center Freq 2.40200000 GHz Start Freq 2.40050000 GHz Stop Freq 2.40350000 GHz CF Step | |
| Center 2 Ref 10 dBm #Peak Log 10 dB/ | Freq dwidth | Jun 28, 2017 2.402 GHz 00000 GHz atten 20 dB | Trig Free | Center Freq 2.40200000 GHz Start Freq 2.40050000 GHz Stop Freq 2.40350000 GHz CF Step 300.0000000 kHz | |

#VBW 300 kHz

1.0833 MHz

-46.700 kHz 713.684 kHz

99.00 %

-6.00 dB

Signal Track

Scale Type

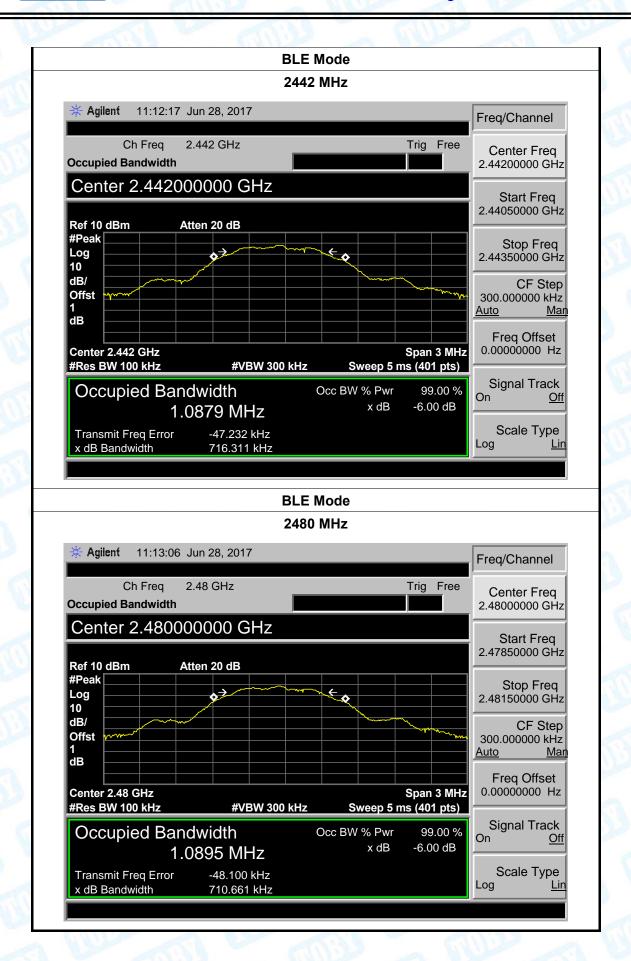
Sweep 5 ms (401 pts)

Occ BW % Pwr

x dB



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8. Peak Output Power Test

8.1 Test Standard and Limit

8.1.1 Test Standard FCC Part 15.247 (b)(3)

8.1.2 Test Limit

| FCC Part 15 Subpart C(15.247)/RSS-247 | | | | | | | |
|---------------------------------------|--------------------------------------|--|--|--|--|--|--|
| Test Item | Test Item Limit Frequency Range(MHz) | | | | | | |
| Peak Output Power | | | | | | | |

8.2 Test Setup



8.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement is according to section 9.1.1 of KDB 558074 D01 DTS Meas Guidance v04.

- (1) Set the RBW≥DTS Bandwidth
- (2) Set VBW≥3*RBW
- (3) Set Span≥3*RBW
- (4) Sweep time=auto
- (5) Detector= peak
- (6) Trace mode= maxhold.
- (7) Allow trace to fully stabilize, and then use peak marker function to determine the peak amplitude level.

8.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.



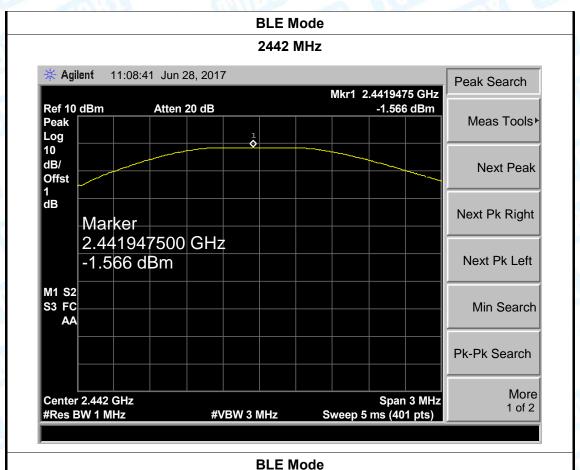
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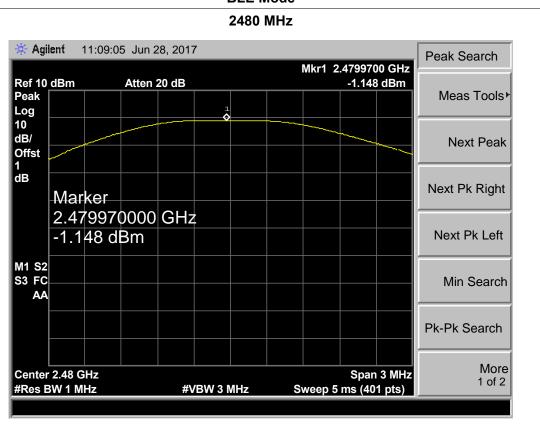
8.5 Test Data

| IT: | | Bluetoo | th GPS ban | d | Model: | | #C70125 |
|--|----------------|--------------|------------|--------|------------|---------------------------|--|
| mperati | ure: | 25℃ | | | Relative H | lumidity: | 55% |
| st Volta | ge: | DC 3V | ann's | | E 1811 | | |
| st Mode |) : | BLE TX | Mode | | | (III) | 133 |
| nannel | frequen | cy (MHz |) Test | Resu | lt (dBm) | | Limit (dBm) |
| | 2402 | | | -1.77 | 70 | | |
| | 2442 | | | -1.56 | 66 | | 30 |
| | 2480 -1.148 | | | | | | |
| | | | | BLE M | ode | | |
| | | | | 2402 N | ИHz | | |
| Ref 10 Peak | dBm | Atten | 20 dB | | MKT1 | 2.4019625 GH -1.77 dBm | |
| | dBm | Atten | 20 dB | | MKF1 | | Meas Tools |
| Peak Log 10 dB/ Offst 1 | Marke 2.401 | er 962500 | 1 | | MKF1 | | Meas Tools Next Peak Next Pk Right |
| Peak Log 10 dB/ Offst 1 dB | Marke 2.401 | ər | 1 | | MKF1 | | Meas Tools |
| Peak Log 10 dB/ Offst 1 | Marke 2.401 | er 962500 | 1 | | MKF1 | | Meas Tools Next Peak Next Pk Right |
| Peak Log 10 dB/ Offst 1 dB | Marke 2.401 | er 962500 | 1 | | MKF1 | | Meas Tools Next Peak Next Pk Right Next Pk Left |



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9. Power Spectral Density Test

9.1 Test Standard and Limit

9.1.1 Test Standard FCC Part 15.247 (e)

9.1.2 Test Limit

| FCC Part 15 Subpart C(15.247) | | | | | | |
|-------------------------------|--------------------------------------|-------------|--|--|--|--|
| Test Item | Test Item Limit Frequency Range(MHz) | | | | | |
| Power Spectral Density | 8dBm(in any 3 kHz) | 2400~2483.5 | | | | |

9.2 Test Setup



9.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v04.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyser center frequency to DTS channel center frequency.
- (3) Set the span to 1.5 times the DTS bandwidth.
- (4) Set the RBW to: 3 kHz(5) Set the VBW to: 10 kHz
- (6) Detector: peak
- (7) Sweep time: auto
- (8) Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

9.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.



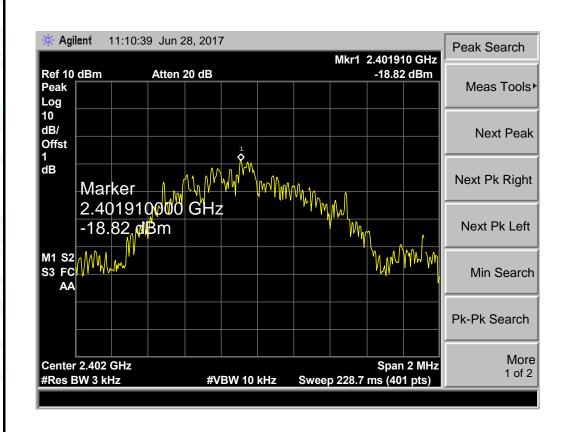
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9.5 Test Data

| EUT: | Bluetooth | GPS band Model: #C7 | | | | 125 |
|---------------|-----------|-----------------------|--------|----------|--------|--------|
| Temperature: | 25℃ | Relative Humidity: 55 | | | | |
| Test Voltage: | DC 3V | DC 3V | | | | |
| Test Mode: | BLE TX N | BLE TX Mode | | | | |
| Channel Freq | uency | Power Density Limit | | | | Result |
| (MHz) | | (dl | (dBn | 1) | Resuit | |
| 2402 | 2402 | | -18.82 | | | |
| 2442 | | -18.57 | | 8 | | PASS |
| 2480 | | -18 | 3.06 | | | |
| | | DIE | Mada | <u>'</u> | | |

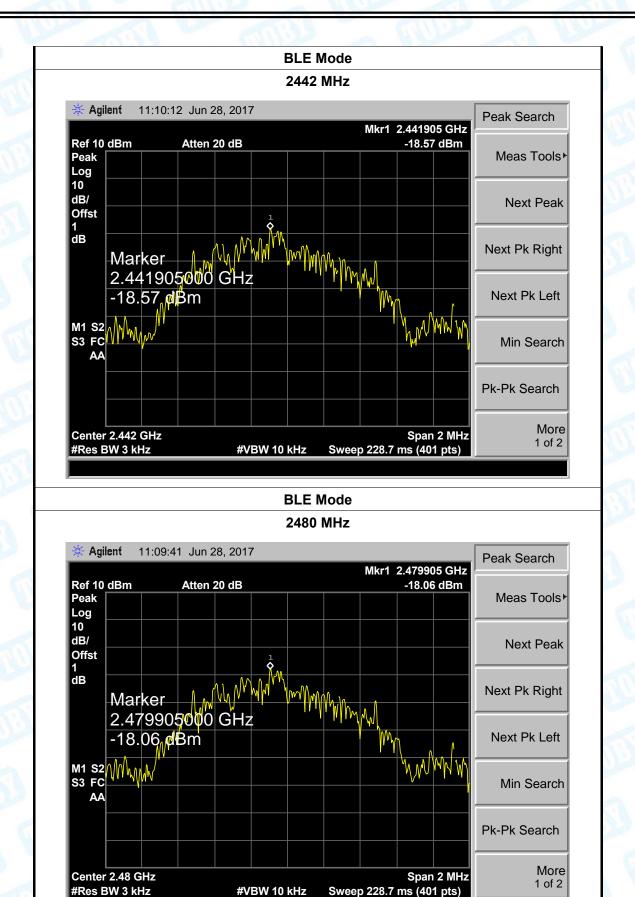
BLE Mode

2402 MHz





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10. Antenna Requirement

10.1 Standard Requirement

10.1.1 Standard FCC Part 15.203

10.1.2 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 shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

10.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 2dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

10.3 Result

The EUT antenna is a Ceramic Antenna. It complies with the standard requirement.

| Antenna Type | | | | |
|-----------------------------------|--|--|--|--|
| ⊠Permanent attached antenna | THE PERSON NAMED IN | | | |
| Unique connector antenna | U.S. | | | |
| Professional installation antenna | The state of the s | | | |

----END OF REPORT-----