

Report No.: TB-FCC141396 Page: 1 of 41

FCC Radio Test Report FCC ID: XMF-MID713

Original Grant

| Report No. | : | TB-FCC141396 |
|---------------------|------------|---|
| Applicant | : | Lightcomm Technology Co., Ltd. |
| Equipment Und | ler Test (| EUT) |
| EUT Name | : | MID |
| Model No. | : | MID713-L |
| Series Model No. | : | MID721-L, DL701Q, DL701Q(B) |
| Brand Name | : | N/A |
| Receipt Date | : | 2014-07-25 |
| Test Date | : | 2014-07-28 to 2014-08-05 |
| Issue Date | : | 2014-08-13 |
| Standards | : | FCC Part 15, Subpart C (15.247:2012) |
| Test Method | : | ANSI C63.4:2003 |
| Conclusions | : | PASS |
| | | In the configuration tested, the FLIT complied with the standards specified abo |

In the configuration tested, the EUT complied with the standards specified above, The EUT technically complies with the FCC and IC requirements

Test/Witness Engineer

Approved& Authorized



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 the report.



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1. General Information about EUT

1.1 Client Information

| Applicant | : | Lightcomm Technology Co., Ltd. |
|--------------|---|--|
| Address | : | RM 1708-10, 17/F, PROSPERITY CENTRE, 25 CHONG YIP STREET, KWUN TONG, KOWLOON, HONG KONG |
| Manufacturer | : | Huizhou Hengdu Electronics Co., Ltd. |
| Address | : | DIP South Area, Huiao Highway, Huizhou, Guangdong, China |

1.2 General Description of EUT (Equipment Under Test)

| EUT Name | : | MID | | |
|------------------------|-----|---|--|--|
| Models No. | : | MID713-L, MID721-L, DL701Q, DL701Q(B) | | |
| Model Difference | : | MID721-L with different shells of the same material, the other models are identical in the same PCB layout, interior structure and electrical circuits, The only difference is model name for commercial purpose. | | |
| | | Operation Frequency: 2402MHz~2480MHz | | |
| | | Number of Channel: | Bluetooth 4.0 (BLE): 40 channels see note(3) | |
| Product Description | | RF Output Power: | -2.7 dBm Conducted Power | |
| Description | • | Antenna Gain: | 0 dBi FPC Antenna | |
| | | Modulation Type: GFSK | | |
| | | Bit Rate of Transmitter: | 1Mbps(GFSK) | |
| Power Supply | : | DC power supplied by AC/DC Adapter | | |
| | | DC Voltage supplied from Li-Polymer battery. | | |
| Power Rating | : | USB DC 5V form PC. | | |
| | | AC/DC Adapter(TEKA00 | 6-0501500UKU): | |
| | | Input: AC 100~240V 50/60Hz 0.35A Max. Output: DC 5V 1.5A | | |
| | | DC 3.7V 2100mAh from Li-Polymer battery | | |
| Connecting | : | The equipent have USB port for link with PC, so the equipment is | | |
| I/O Port(S) | | considered as a Computing Device Peripheral. | | |
| | | Please refer to the User's Manual | | |
| Note: The equipme | ent | with Bluetooth and Wifi(802.1 | 1b/g/n) function, WiFi(802.11b/g/n) have test comply | |
| | | | es description, please refer to the manufacturer's | |
| | | | | |

specifications or the User's Manual.

- (1) This Test Report is FCC Part 15.247 for Bluetooth BLE, the test procedure follows the FCC KDB 558074 D01 DTS Meas Guidance v03r02.
- (2) For a more detailed features description, please refer to the manufacturer's specifications or



the User's Manual.

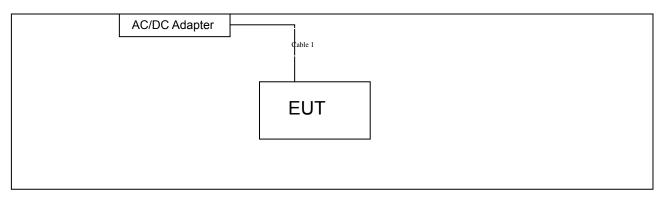
(3) Antenna information provided by the applicant.

(4) Channel List:

| 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 Cable 1 | 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 Information | | | | | | |
|-----------------------|-----------------------------------|--|--|--|--|--|
| Name | NameModelS/NManufacturerUsed "\/" | | | | | |
| | | | | | | |
| Cable Information | | | | | | |



| Number | Shielded Type | Ferrite Core | Length | Note |
|---------|---------------|--------------|--------|-------------|
| Cable 1 | NO | NO | 1.0M | Accessories |
| | | | | |

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 Conducted Test | | | |
|---------------------------------|--|--|--|
| Final Test Mode Description | | | |
| Mode 1 AC Charging with TX Mode | | | |

| For Radiated Test | | | |
|-----------------------------|--|--|--|
| Final Test Mode Description | | | |
| Mode 2 | AC Charging with TX Mode | | |
| Mode 3 | AC Charging with TX Mode (Channel 01/20/39) | | |

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 C63.4 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

Bluetooth 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 mobile 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.

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 | Test Program: Mediatek Connectivity Combo Tool. apk | | | | |
|-----------------------|---|-------|-------|--|--|
| Channel | CH 01 | CH 20 | СН 39 | | |
| BLE Mode | DEF | DEF | DEF | | |

1.7 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.



2. Test Summary

| FCC Part 15 Subpart C(15.247)/RSS-210: 2010 | | | | |
|--|---------------------|------------------------|----------|---------|
| Standard Section | | Test Item | | Remark |
| FCC | IC | rest item | Judgment | Rellark |
| 15.203 | / | Antenna Requirement | PASS | N/A |
| 15.207 | RSS-GEN 7.2.4 | Conducted Emission | PASS | N/A |
| 15.205 | RSS-GEN 7.2.2 | Restricted Bands | PASS | N/A |
| 15.247(a)(2) | RSS-210 A.8.2(a) | 6dB Bandwidth | PASS | N/A |
| 15.247(b) | RSS-210 A.8.4(4) | Peak Output Power | PASS | N/A |
| 15.247(e) RSS-210 A.8.2(b) | | Power Spectral Density | PASS | N/A |
| 15.247(d)RSS-210 Annex 8 (A8.5)Transmitter Radiated Spurious EmissionPASSN/A | | | | N/A |
| Note: "/" for no requirement for this test item. N/A is an abbreviation for Not Applicable. | | | | |



3. Conducted Emission Test

- 3.1 Test Standard and Limit
 - 3.1.1Test Standard FCC Part 15.207
 - 3.1.2 Test Limit

| Frequency | 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 | | | | |

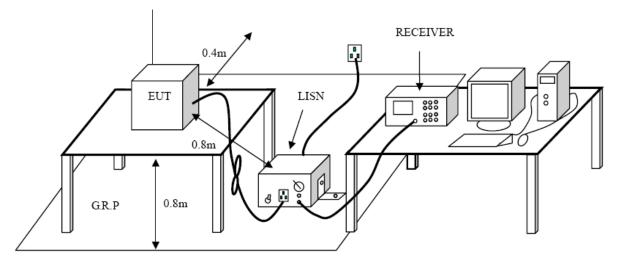
Notes:

(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.

3.2 Test Setup



3.3 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.



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 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

3.4 Test Equipment Used

| Description | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Due Date | |
|-------------|-----------------|-------------|------------|------------|------------------|--|
| EMI Test | ROHDE& | | 100321 | 2013-08-10 | 2014-08-09 | |
| Receiver | SCHWARZ | ESCI | 100321 | 2013-00-10 | 2014-00-09 | |
| 50ΩCoaxial | Anritsu | MP59B | X10321 | 2013-08-10 | 2014-08-09 | |
| Switch | Annisu | WF 39B | ×10321 | 2013-00-10 | 2014-00-09 | |
| L.I.S.N | Rohde & Schwarz | ENV216 | 101131 | 2013-08-10 | 2014-08-09 | |
| L.I.S.N | SCHWARZBECK | NNBL 8226-2 | 8226-2/164 | 2013-08-10 | 2014-08-09 | |

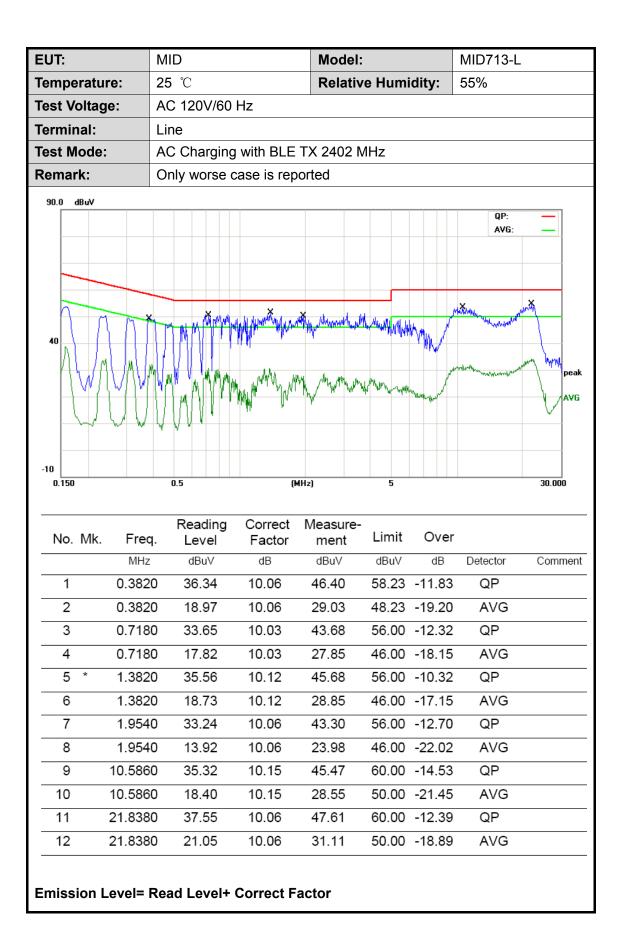
3.5 EUT Operating Mode

Please refer to the description of test mode.

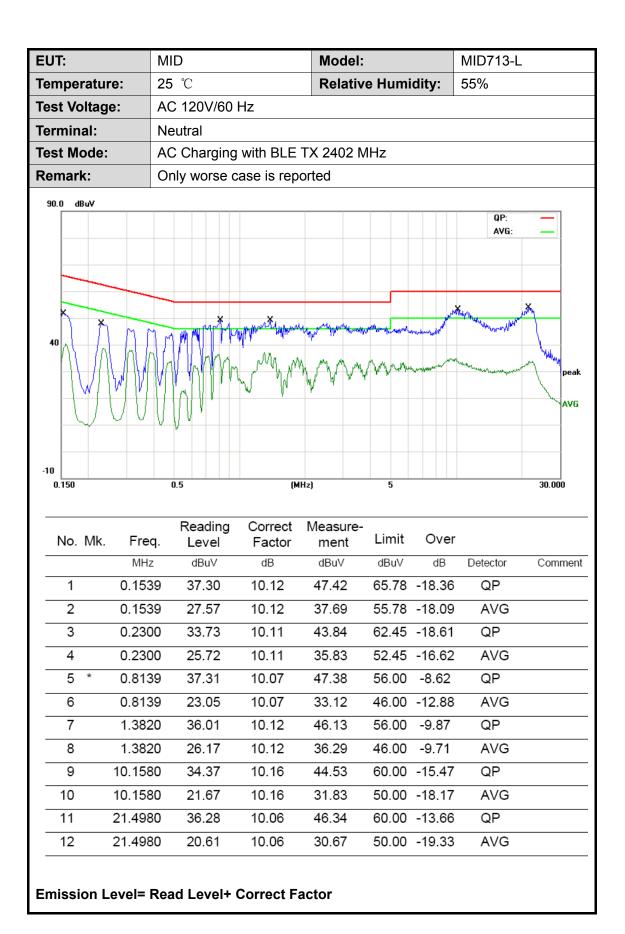
3.6 Test Data

Please see the next page.











4. Radiated Emission Test

- 4.1 Test Standard and Limit
 - 4.1.1 Test Standard
 - FCC Part 15.209
 - 4.1.2 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 | equency Class A (dBuV/m)(at 3 M) | | | //m)(at 3 M) |
|------------|----------------------------------|---------|------|--------------|
| (MHz) | Peak | Average | Peak | Average |
| Above 1000 | 80 | 60 | 74 | 54 |

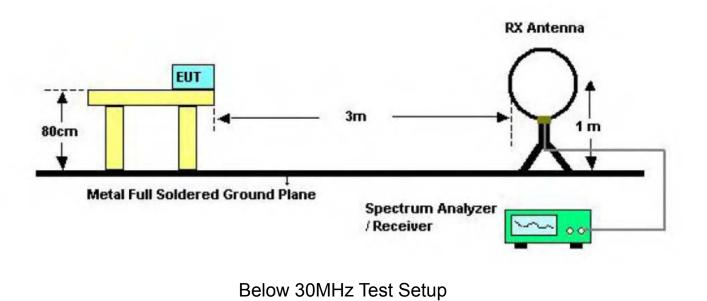
Note:

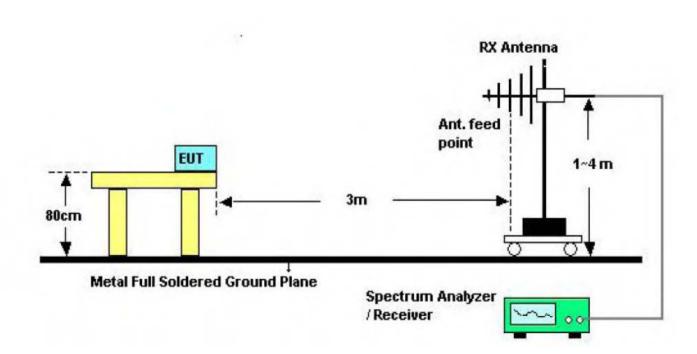
(1) The tighter limit applies at the band edges.

(2) Emission Level(dBuV/m)=20log Emission Level(uV/m)



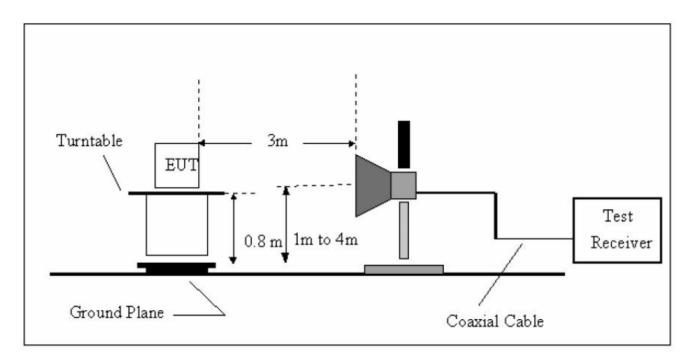
4.2 Test Setup

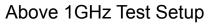




Below 1000MHz Test Setup







4.3 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 the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (3) 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.
- (4) 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.
- (5) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (6) 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.
- (7) For the actual test configuration, please see the test setup photo.

4.4 EUT Operating Condition

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



4.5 Test Equipment

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
|---------------------------|------------------|-----------|------------|---------------|------------------|
| Spectrum Analyzer | Agilent | E4407B | MY45106456 | Mar. 20, 2014 | Mar. 19, 2015 |
| Spectrum Analyzer | Rohde & Schwarz | FSP30 | DE25181 | Aug. 10, 2013 | Aug.09, 2014 |
| EMI Test Receiver | Rohde & Schwarz | ESCI | 101165 | Aug. 10, 2013 | Aug.09, 2014 |
| Bilog Antenna | ETS-LINDGREN | 3142E | 00117537 | Mar. 07, 2014 | Mar.06, 2015 |
| Bilog Antenna | ETS-LINDGREN | 3142E | 00117542 | Mar. 07, 2014 | Mar.06, 2015 |
| Horn Antenna | ETS-LINDGREN | 3117 | 00143207 | Mar. 07, 2014 | Mar.06, 2015 |
| Horn Antenna | ETS-LINDGREN | 3117 | 00143209 | Mar. 07, 2014 | Mar.06, 2015 |
| Pre-amplifier | HP | 11909A | 185903 | Mar. 07, 2014 | Mar.06, 2015 |
| Pre-amplifier | HP | 8447B | 3008A00849 | Mar. 07, 2014 | Mar.06, 2015 |
| Cable | HUBER+SUHNE R | 100 | SUCOFLEX | Mar. 07, 2014 | Mar.06, 2015 |
| Signal Generator | Rohde & Schwarz | SML03 | IKW682-054 | Feb. 11, 2014 | Feb.10, 2015 |
| Positioning Controller | ETS-LINDGREN | 2090 | N/A | N/A | N/A |

4.6 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.



| EUT: | MID | Model: | | MID713-L | |
|---------------------|-----------------------|-----------------------------|---------------------|---------------------------------|----------|
| emperature: | 25 ℃ | Relative H | Humidity: | 55% | |
| est Voltage: | AC 120V/60 Hz | L | | | |
| Ant. Pol. | Horizontal | | | | |
| est Mode: | BLE TX 2402 Mo | de | | | |
| Remark: | Only worse case | is reported | | | |
| 80.0 dBu∀/m | | | | | |
| 30 | | M M M | (RF)F(| C 15C 3M Radiatio Margin - E | - I d |
| -20 30.000 40 50 | 60 70 80 | (MHz) | 300 400 | 500 600 700 | 1000.00 |
| | Reading req. Level | Correct Measu Factor men | _{it} Limit | Over | |
| | /Hz dBuV | dB/m dBuV | | | Detector |
| 1 ! 30.8 | 5305 50.89 | -14.28 36.6 | 61 40.0 | 0 -3.39 | peak |
| 2 * 69.1 | 1140 60.44 | -23.69 36.7 | ⁷ 5 40.0 | 0 -3.25 | peak |
| 3 108. | .2667 56.01 | -21.86 34.1 | 5 43.5 | 0 -9.35 | peak |
| 4 ! 149. | .4857 61.46 | -21.22 40.2 | 4 43.5 | 0 -3.26 | peak |
| 5 280. | .0237 55.91 | -17.48 38.4 | 3 46.0 | 0 -7.57 | peak |
| | | -15.54 42.2 | .8 46.0 | 0 -3.72 | peak |

Emission Level= Read Level+ Correct Factor



| EUT: | MID | Model: | | MID713-L | | | | | | | | | |
|--|--|--|--|---|--|--|--|--|--|--|--|--|--|
| Temperature: | 25 ℃ | Relative Hun | Relative Humidity: 55 | | | | | | | | | | |
| Test Voltage: | AC 120V/60 Hz | AC 120V/60 Hz | | | | | | | | | | | |
| Ant. Pol. | /ertical | | | | | | | | | | | | |
| Test Mode: | BLE TX 2402 Mode | | | | | | | | | | | | |
| Remark: | Only worse case is re | ported | | | | | | | | | | | |
| 80.0 dBuV/m | | 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | Z X MMMMMM | C 15C 3M Radiation Margin -6 | dB pertyanethalt | | | | | | | | |
| | 00 70 00 | (1112) 300 | U 4UU | 300 000 100 | 1000.00 | | | | | | | | |
| | Reading Co | orrect Measure actor ment | | Over | 1000.000 | | | | | | | | |
| No. Mk. Fr | Reading Co eq. Level F | prrect Measure | - | Over | 1000.000 Detector | | | | | | | | |
| No. Mk. Fr | Reading Co eq. Level F ^{Hz dBuV} d | orrect Measure actor ment | - Limit | Over m dB | | | | | | | | | |
| No. Mk. Fr | Reading Co eq. Level F ^{Hz dBuV} d 304 51.32 -1 | orrect Measure actor ment _{B/m} dBuV/m | - Limit dBuV/i | Over m dB 0 -2.96 | Detector | | | | | | | | |
| No. Mk. Fr Mi 1 * 30.5 | Reading Co eq. Level F Hz dBuV d 304 51.32 -1 000 56.97 -2 | orrect Measure actor ment _{B/m} dBuV/m 4.28 37.04 | Limit dBuV/i 40.00 | Over m dB 0 -2.96 0 -4.29 | Detector peak peak | | | | | | | | |
| No. Mk. Fr Mi 1 * 30.5 2 ! 42.6 | Reading Co eq. Level F Hz dBuV d 304 51.32 -1 000 56.97 -2 711 58.03 -2 | orrect Measure- actor ment B/m dBuV/m 4.28 37.04 1.26 35.71 | Limit dBuV/i 40.00 | Over m dB 0 -2.96 0 -4.29 0 -6.42 | Detector peak | | | | | | | | |
| No. Mk. Fr Mi 1 * 30.5 2 ! 42.6 3 54.0 | Reading Level Co F Hz dBuV d 304 51.32 -1 000 56.97 -2 711 58.03 -2 568 60.30 -2 | Dirrect actor Measurement B/m dBuV/m 4.28 37.04 1.26 35.71 4.45 33.58 | - Limit dBuV/r 40.00 40.00 | Over m dB 0 -2.96 0 -4.29 0 -6.42 0 -3.37 | Detector peak peak peak | | | | | | | | |
| No. Mk. Fr Mi 1 * 30.5 2 ! 42.6 3 54.0 4 ! 69.3 | Reading Level Co F Hz dBuV d 304 51.32 -1 000 56.97 -2 711 58.03 -2 568 60.30 -2 0882 56.05 -2 | Dirrect actor Measurement B/m dBuV/m 4.28 37.04 1.26 35.71 4.45 33.58 3.67 36.63 | Limit dBuV/i 40.00 40.00 40.00 | Over m dB 0 -2.96 0 -4.29 0 -6.42 0 -3.37 0 -9.54 | Detector peak peak peak peak | | | | | | | | |

Emission Level= Read Level+ Correct Factor



| EUT | • | | MID | | | | Мо | del: | | | MID | 713-L | | | |
|------|---|-------------|--------|----------------------------|------|----------|-------|---------|--------|----------|---------|-----------|-------------|--|--|
| ſem | peratu | e: | 25 °C | 25 °CRelative Humidity:55% | | | | | | | | | | | |
| est | t Voltag | e: | AC 1 | 20V/60 | Hz | | | | | | | | | | |
| ۹nt. | Pol. | | Horiz | lorizontal | | | | | | | | | | | |
| fest | at Mode:BLE Mode TX 2402 MHzmark:No report for the emission which more than 10 dB below the | | | | | | | | | | | | | | |
| Ren | nark: | | | eport for cribed li | | emissic | n wh | ich mo | ore th | an 10 d | IB bel | ow the | | | |
| 90.0 |) dBu¥/m | | | | | | | | | | | | | | |
| | | | | | | | | | | (RF) FC | C PART | 15C (PEAK |) | | |
| | | | | | | | | | | | | | | | |
| | | 1 X 2 | | | | | | | | (RF) F | CC PART | 15C (AVG | i) | | |
| | | × | | | | | | | | | _ | | | | |
| 40 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| -10 | | | | | | | | | | | | | | | |
| 10 | 00.000 355 | 0.00 6 | 100.00 | 8650.00 | 1120 | 0.00 137 | 50.00 | 16300.0 | 0 188 | 50.00 21 | 400.00 | 2 | 6500.00 MHz | | |
| | | | | Read | | Corre | | Vleas | | Linait | | | | | |
| | lo. Mk | | · | Leve | | Fact | or | mer | | Limit | | Dver | | | |
| | | Mł | | dBu\ | | dB/m | | dBu∖ | | dBuV/ | | dB | Detector | | |
| 1 | | 4959 | 838 | 43.9 | 6 | 14.36 | 5 | 58.3 | 32 | 74.0 | 0 - | 15.68 | peak | | |
| 2 | * | 4959 | 889 | 34.5 | 2 | 14.36 | 3 | 48.8 | 38 | 54.0 | 0 - | 5.12 | AVG | | |
| -mi | ssion l | مرماء | Read | l evel+ | Cor | rect Fac | tor | | | | | | | | |



| Ant. Pol. Ver Test Mode: BLE Remark: No pres 90.0 dBuV/m 90.0 dBuV/m 2 2 × 1 40 -10 1000.000 3550.00 6100.00 No. Mk. Freq. | 5 ℃ C 120V/60 Hz ertical LE Mode TX 2402 MHz o report for the emissio rescribed limit. | n which more than 10 o | dB below the |
|---|---|---------------------------|--------------------|
| Ant. Pol. Ver Test Mode: BLE Remark: No 90.0 dBuV/m 90.0 dBuV/m 2 2 × 1 40 -10 1000.000 3550.00 6100.00 No. Mk. Freq. | ertical LE Mode TX 2402 MHz o report for the emissio | n which more than 10 o | CC PART 15C (PEAK) |
| Test Mode: BLE Remark: No 90.0 dBuV/m 90.0 dBuV/m 2 2 2 X 1 X 40 1 -10 1000.000 3550.00 6100.00 No. Mk. Freq. | LE Mode TX 2402 MHz o report for the emissio | n which more than 10 o | CC PART 15C (PEAK) |
| Remark: No pres 90.0 dBuV/m 2 | o report for the emissio | n which more than 10 o | CC PART 15C (PEAK) |
| 90.0 dBuV/m 90.0 dBuV/m 2 2 × 1 40 -10 1000.000 3550.00 6100.00 No. Mk. Freq. | • | (RF) 1 | CC PART 15C (PEAK) |
| 40 -10 1000.000 3550.00 6100.00 No. Mk. Freq. | | | |
| 40 -10 1000.000 3550.00 6100.00 No. Mk. Freq. | | | |
| 40 -10 1000.000 3550.00 6100.00 No. Mk. Freq. | | (RF) | FCC PART 15C (AVG) |
| 40 -10 1000.000 3550.00 6100.00 No. Mk. Freq. | | | |
| 1000.000 3550.00 6100.00 No. Mk. Freq. | | | |
| 1000.000 3550.00 6100.00 No. Mk. Freq. | | | |
| 1000.000 3550.00 6100.00 No. Mk. Freq. | | | |
| No. Mk. Freq. | | | |
| · · · · · · | 00 8650.00 11200.00 137 | 50.00 16300.00 18850.00 2 | 26500.00 MHz |
| | Reading Corre Level Fact | | t Over |
| MHz | dBuV dB/m | dBuV/m dBu∨ | //m dB Detector |
| 1 * 4959.877 | 7 34.07 14.36 | 6 48.43 54.0 | 00 -5.57 AVG |
| 2 4959.995 | 95 43.51 14.30 | 6 57.87 74.0 | 00 -16.13 peak |
| Emission Level= Read | | | |



| EUT | | | MID | | | Mode | : | | MID713-L | | | |
|----------------------|-------------|----------|--------------|------------------------------|----------------|----------|----------------|----------|-------------------|--------------|--|--|
| Tem | peratur | e: | 25 °C | 25 °C Relative Humidity: 55% | | | | | | | | |
| Tes | t Voltage | : | AC 12 | 0V/60 Hz | | | | | | | | |
| Ant. Pol. Horizontal | | | | | | | | | | | | |
| Test | t Mode: | | BLE M | lode TX 24 | 142 MHz | | | | | | | |
| Ren | nark: | | | oort for the ibed limit. | emissio | n which | more t | han 10 d | dB below the | Э | | |
| 90.0 |) dBuV/m | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | (RF) | FCC PART 15C (P | EAK) | | |
| | | | | | | | | | | | | |
| | | 1 X | | | | | | (BF | F) FCC PART 15C (| AVG) | | |
| | | 2 X | | | | | | | | | | |
| 40 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| -10 10 | 00.000 3550 | 00 6 | 100.00 | 8650.00 112 | 200.00 137 | 50.00 10 | 300.00 | 18850.00 | 21400.00 | 26500.00 MHz | | |
| | | | | | | | | | | | | |
| ١ | lo. Mk. | Fre | | Reading Level | Corre Facto | | asure- ient | Limit | Over | | | |
| | | MF | lz | dBuV | dB/m | dl | BuV/m | dBuV | /m dB | Detector | | |
| 1 | | 4883. | 998 | 43.46 | 13.92 | 5 | 7.38 | 74.0 | 0 -16.62 | peak | | |
| 2 | * | 4884. | 275 | 34.02 | 13.92 | 4 | 7.94 | 54.0 | -6.06 | AVG | | |
| Emi | ssion Lo | evel= | Read L | evel+ Cor | rect Fac | tor | | | | | | |



| EU | Г: | | MID | | | Mode | l: | | MID713-L | |
|---|-----------|--------|-------------|-----------------------------|---------|---------|-----------------|----------|--------------------|-------------|
| Ten | nperature |): | 25 ℃ | | | Relat | ive Hum | idity: | 55% | |
| Tes | t Voltage | : | AC 12 | 0V/60 HZ | | | | | | |
| Ant | . Pol. | | Vertica | al | | | | | | |
| Test Mode: BLE Mode TX 2442 MHz | | | | | | | | | | |
| Rer | nark: | | | oort for the ibed limit. | emissio | n which | n more th | ian 10 c | B below the | 9 |
| 90.0 |) dBu∀/m | | | | | | | | | |
| | | | | | | | | (RF) | FCC PART 15C (P | EAK) |
| | | 2 X | | | | | | (RF |) FCC PART 15C (| AVG) |
| 40 | | 1 X | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| -10 | | | | | | | | | | |
| | | | eq. | Reading Level | Corre | ct M | easure- ment | Limit | 21400.00 t Over | 26500.00 MH |
| | | Μ | Hz | dBuV | dB/m | (| lBuV/m | dBuV | /m dB | Detector |
| 1 | * | 4883 | .847 | 33.66 | 13.92 | 2 | 47.58 | 54.0 | 0 -6.42 | AVG |
| 2 | | 4884 | .269 | 43.10 | 13.92 | 2 | 57.02 | 74.0 | 0 -16.98 | b peak |
| Em | ission Le | vel= | Read L | evel+ Corı | ect Fac | tor | | | | |



| EUT | : | | MID | | | Model | | | MID713- | L | | |
|-----------|--------------|------------|--------------|---------------------------|-----------|-----------|----------|----------|----------------|--------------|--|--|
| Tem | perature | : : | 25 °C | | | Relativ | /e Hum | idity: | 55% | | | |
| Test | t Voltage | : | AC 12 | AC 120V/60 HZ | | | | | | | | |
| Ant. | Pol. | | Horizo | ontal | | | | | | | | |
| Test | Mode: | | BLE N | /lode TX 24 | 80 MHz | | | | | | | |
| Ren | nark: | | | oort for the ribed limit. | emissio | n which | more th | ian 10 d | IB below t | he | | |
| 90.0 |) dBuV/m | | | | | | | | | | | |
| | | | | | | | | (RF) F | TCC PART 15C (| PEAK) | | |
| | | | | | | | | | | | | |
| | | 2 X | | | | | | (RF) | FCC PART 15C | (AVG) | | |
| | | 1 X | | | | | | | | | | |
| 40 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | _ | | | | | | | | | |
| -10 10 | 00.000 3550. | 00 6 | 100.00 | 8650.00 112 | 00.00 137 | 50.00 163 | 00.00 18 | 850.00 2 | 1400.00 | 26500.00 MHz | | |
| | | | | Reading | Corre | | asure- | Limit | Ove | | | |
| | No. Mk. | | eq. | Level | Facto | | nent | | | | | |
| | | M | | dBuV | dB/m | | BuV/m | dBuV/ | | Detector | | |
| 1 | | 4803 | | 33.73 | 13.44 | | 7.17 | 54.0 | | | | |
| 2 | | 4804 | .103 | 43.17 | 13.44 | 5 | 6.61 | 74.0 | 0 -17.3 | 39 peak | | |
| Emi | ssion Le | evel= | Read L | .evel+ Cor | rect Fac | tor | | | | | | |



| EUT | Г: | MID | | | Model: | | | MID713-L | |
|------|-----------------|-------------|---------------------------|----------------|------------|----------------|---------|-----------------|--------------|
| Tem | nperature: | 25 ℃ | l , | | Relativ | e Humic | dity: | 55% | |
| Tes | t Voltage: | AC 12 | 20V/60 HZ | | | | | | |
| Ant | . Pol. | Vertic | al | | | | | | |
| Tes | t Mode: | BLE | Mode TX 24 | 480 MHz | | | | | |
| Ren | nark: | | port for the ribed limit. | emissio | n which i | more tha | ın 10 d | B below th | е |
| 90.0 |) dBuV/m | | | 1 | | | | | |
| | | | | | | | (RF) F | CC PART 15C (PE | AK) |
| | 1 | < | | | | | (RF) | FCC PART 15C (A | VG) |
| 40 | > | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| -10 | 000.000 3550.00 | 6100.00 | 8650.00 112 | 00.00 1375 | 50.00 1630 | 0.00 1885 | 0.00 21 | 400.00 | 26500.00 MHz |
| | 5550.00 | 0100.00 | 0000.00 112 | 00.00 131 | 0.00 1030 | 0.00 1003 | 0.00 21 | 400.00 | 20300.00 MH2 |
| | No. Mk. | Freq. | Reading Level | Corre Facto | | asure- ient | Limit | Over | |
| | | MHz | dBuV | dB/m | dB | 3uV/m | dBuV/ | 'm dB | Detector |
| 1 | 48 | 03.825 | 44.14 | 13.44 | 5 | 7.58 | 74.0 | 0 -16.42 | 2 peak |
| 2 | * 48 | 03.867 | 34.70 | 13.44 | 4 | 8.14 | 54.0 | 0 -5.86 | AVG |
| | | | | | | | | | |
| Emi | ission Leve | I= Read I | _evel+ Cor | rect Fac | tor | | | | |



5. Restricted Bands Requirement

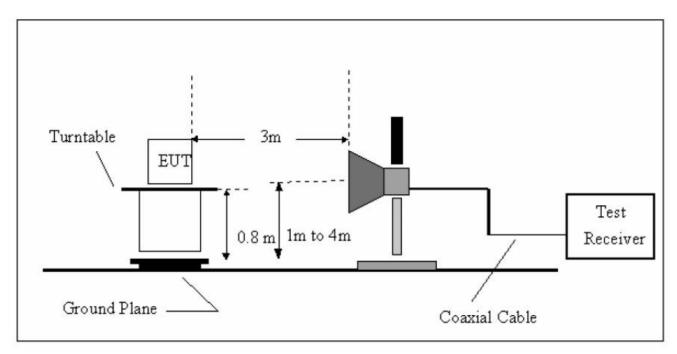
- 5.1 Test Standard and Limit
 - 5.1.1 Test Standard

FCC Part 15.209 FCC Part 15.205

5.1.2 Test Limit

| Restricted Frequency | Class B (dBu | ιV/m)(at 3 M) |
|----------------------|--------------|---------------|
| Band (MHz) | Peak | Average |
| 2310 ~2390 | 74 | 54 |
| 2483.5 ~2500 | 74 | 54 |

5.2 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) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (3) 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.
- (4) 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.

- (5) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (6) 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.
- (7) For the actual test configuration, please see the test setup photo.

5.4 EUT Operating Condition

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

5.5 Test Equipment

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
|---------------------------|-----------------|-----------|------------|---------------|------------------|
| Spectrum Analyzer | Agilent | E4407B | MY45106456 | Mar. 20, 2014 | Mar. 19, 2015 |
| Spectrum Analyzer | Rohde & Schwarz | FSP30 | DE25181 | Aug. 10, 2013 | Aug.09, 2014 |
| EMI Test Receiver | Rohde & Schwarz | ESCI | 101165 | Aug. 10, 2013 | Aug.09, 2014 |
| Bilog Antenna | ETS-LINDGREN | 3142E | 00117537 | Mar. 07, 2014 | Mar.06, 2015 |
| Bilog Antenna | ETS-LINDGREN | 3142E | 00117542 | Mar. 07, 2014 | Mar.06, 2015 |
| Horn Antenna | ETS-LINDGREN | 3117 | 00143207 | Mar. 07, 2014 | Mar.06, 2015 |
| Horn Antenna | ETS-LINDGREN | 3117 | 00143209 | Mar. 07, 2014 | Mar.06, 2015 |
| Pre-amplifier | HP | 11909A | 185903 | Mar. 07, 2014 | Mar.06, 2015 |
| Pre-amplifier | HP | 8447B | 3008A00849 | Mar. 07, 2014 | Mar.06, 2015 |
| Cable | HUBER+SUHNER | 100 | SUCOFLEX | Mar. 07, 2014 | Mar.06, 2015 |
| Signal Generator | Rohde & Schwarz | SML03 | IKW682-054 | Feb. 11, 2014 | Feb.10, 2015 |
| Positioning Controller | ETS-LINDGREN | 2090 | N/A | N/A | N/A |

5.6 Test Data

Please see the next page.



(1) Radiation Test

| EUT | : | | | MID | | | | | | Mo | odel: | | | | ſ | MID | 713- | -L | | |
|------|----------------|----------|----------------|------------------|-------------|---|---|------------|---------------|----------|-----------|------------------------|----------------|----------------------|----------|------|--------|-------|-----------|-----|
| Tem | perat | ure: | 2 | 25 °C | 2 | | | | | Re | lativ | e Hu | umio | dity | 5 | 55% | | | | |
| Test | Volta | age: | | AC 1 | 20V/ | 60 F | ΙZ | | | | | | | | | | | | | |
| Ant. | Pol. | | I | Horiz | onta | I | | | | | | | | | | | | | | |
| Test | Mod | e: | | BLE | Mode | e TX | 24 | 02 N | ЛНz | | | | | | | | | | | |
| Rem | nark: | | | N/A | | | | | | | | | | | | | | | | |
| 100. | 0 dBu\ | //m | | | | | | | | | | | | | | | | | | 1 |
| | | | | | | | | | | | | | | | | | 3 X | | | |
| | | | | | | | | | | | | | | (8 | F) FCC | PART | | PEAK) | | |
| 50 | 1 | | | | | | | | | | | | | 1 | RF) FC | | T 15C | | | |
| | Marilal-yanyin | hiptophy | beleghendelsen | unior deservices | proceedides | et we have a feature of the second | en an | normality) | WARNEN | -winew-1 | ward a da | rhyne d han | Jupan New York | د. درساریارا ۲ | ennure.H | Mart | | hulu. | waantaati | |
| | | | | | | | | | | | | | | | | | | | | |
| 0.0 | 315.000 | 2225.00 | | 35.00 | 2345 | 00 | 2355 | - 00 | 236 | - 00 | 237 | - 00 | 2385 | - 00 | 2200 | - 00 | | | 15.00 | |
| 2. | 313.000 | 2323.00 | J 23. | 33.00 | 2343 | .00 | 233: | J. UU | 236 | | 231 | 5.00 | 2303 | | 239 | J.UU | | 24 | 15.00 | MUS |
| 1 | No. N | Лk. | Fre | q. | | adir eve | - | | orre | | | asur ient | e- | Lir | nit | (| Ove | er | | |
| | | | MH | z | c | lBuV | | d | IB/m | | dE | 3uV/n | n | dB | uV/m | I | dB | | Deteo | tor |
| 1 | | 2 | 390.0 | 000 | 4 | 2.75 | 5 | 0 |).77 | | 4 | 3.52 |) | 74 | 1.00 | _ | 30.4 | 48 | pea | ak |
| 2 | | 2 | 390.0 | 000 | 3 | 3.3′ | 1 | 0 |).77 | | 3 | 4.08 | } | 54 | .00 | - | 19.9 | 92 | AV | G |
| 3 | Х | (2 | 402.2 | 200 | 8 | 4.22 | 2 | 0 | .82 | | 8 | 5.04 | ŀ | 74 | .00 | | 11.0 |)4 | pea | ak |
| 4 | * | 2 | 402.2 | 200 | 7 | 4.78 | 3 | 0 | .82 | | 7 | 5.60 |) | 54 | 1.00 | | 21.6 | 60 | AV | G |
| Emi | ssion | Lev | el= R | ead | Leve | el+ C | orr | ect | Fac | tor | | | | | | | | | | |



| EUT: | MID | | М | odel: | | MID7 | 13-L | |
|---|--|---------------------------------|---|--|-----------|-------------|-----------|------------|
| Temperature: | 25 ℃ | | Re | elative H | umidity: | 55% | | |
| Test Voltage: | AC 120V/6 | 60 HZ | | | | | | |
| Ant. Pol. | Vertical | | | | | | | |
| Test Mode: | BLE Mode | e TX 2480 I | MHz | | | | | |
| Remark: | N/A | | | | | | | |
| 100.0 dBu∀/m | | | | | | | | |
| | | | | | | | 3 | |
| | | | | | | | Å. | |
| | | | | | (RF) I | CC PART | SC (PEAK) | |
| | | | | | | | | |
| | | | | | (RF) | FCC PART | 15C (AVG) | |
| 50 | | | | | 1 | | | |
| sentencing-differentiations and | when when the short of the state of the stat | elydrosonau saeteddolyn daenola | havar eta eratza era | rangeled son the test de la la serie de la serie d | 2 | sharry have | 11 erge | annanderen |
| | | | | | × | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 0.0 2315.000 2325.00 | 2335.00 2345 | .00 2355.00 | 2365.00 | 2375.00 | 2385.00 2 | 2395.00 | 24 | 15.00 MHz |
| | | | | | | | | |
| | Rea | ading C | orrect | Measur | e- | | | |
| No. Mk. Fr | | - | actor | ment | 1 | t O | ver | |
| M | Hz d | BuV (| dB/m | dBuV/r | n dBuV | //m | dB | Detector |
| 1 2390 | .000 44 | 4.62 (| 0.77 | 45.39 |) 74.(| 00 -2 | 28.61 | peak |
| 2 2390 | .000 35 | 5.18 (|).77 | 35.95 | 5 54.0 | 00 -1 | 8.05 | AVG |
| 3 X 2402 | .300 87 | 7.39 (|).82 | 88.21 | 74.0 | 00 1 | 4.21 | peak |
| 4 * 2402 | .300 77 | 7.95 (| 0.82 | 78.77 | 7 54.0 | 00 2 | 4.77 | AVG |
| | | | | | | | | |
| | Pood Lovo | L+ Correct | Factor | | | | | |
| Emission Level= | Reau Leve | IT Correct | Factor | | | | | |



| EUT: | MID | | Model: | | MID713- | L |
|-----------------|-----------------|---------------|--------------|-----------|----------------------------------|----------|
| Temperature: | 25 ℃ | | Relative | Humidity: | 55% | |
| Test Voltage: | AC 120V/60 |) HZ | | | | |
| Ant. Pol. | Horizontal | | | | | |
| Test Mode: | BLE Mode | TX 2480 MHz | | | | |
| Remark: | N/A | | | | | |
| 100.0 dBu∀/m | | | | | | |
| 0.0 | 2487.00 2497.00 | | 7.00 2527.00 | (RF | FCC PART 15C () FCC PART 15C | (AVG) |
| No. Mk. Fr | Read eq. Lev | - | | 1 : | it Ove | r |
| M | Hz dBu | uV dB/m | dBu∖ | //m dBu\ | √/m dB | Detector |
| 1 X 2480 | .200 86. | 87 1.15 | 88.0 | 02 74. | 00 14.0 |)2 peak |
| 2 * 2480 | .200 74. | 43 1.15 | 75.5 | 58 54. | 00 21.5 | 58 AVG |
| 3 2483 | .500 50. | 62 1.17 | 51.7 | 79 74. | 00 -22. | 21 peak |
| 4 2483 | .500 41. | 18 1.17 | 42.3 | 35 54. | 00 -11. | 65 AVG |
| Emission Level= | Read Level+ | - Correct Fac | tor | | | |



| EUT: | MID | | Model: | | N | 11D713-L | _ |
|-----------------|----------------|----------------------|---------|-----------------|----------------|----------|----------|
| Temperature: | 25 °C | | Relativ | e Humidi | i ty: 5 | 5% | |
| Test Voltage: | AC 120V/6 | 60 HZ | | | | | |
| Ant. Pol. | Vertical | | | | | | |
| Test Mode: | BLE Mode | TX 2480 Mł | łz | | | | |
| Remark: | N/A | | | | | | |
| 100.0 dBuV/m | | | | | | | |
| mounannan | 2487.00 2497.0 | | | 7.00 2537.0 | (RF) FCC | | |
| No. Mk. Fr | | iding Con vel Fac | | asure- ent l | Limit | Over | |
| М | Hz dB | BuV dB/ | m dB | uV/m (| dBuV/m | dB | Detector |
| 1 X 2480 | .000 85 | .01 1.1 | 5 86 | 6.16 | 74.00 | 12.16 | b peak |
| 2 * 2480 | .000 75 | .57 1.1 | 5 76 | 6.72 | 54.00 | 22.72 | 2 AVG |
| 3 2483 | .500 48 | .56 1.1 | 7 49 | 9.73 | 74.00 | -24.2 | 7 peak |
| 4 2483 | .500 39 | .12 1.1 | 7 40 | 0.29 | 54.00 | -13.7 | 1 AVG |
| Emission Level= | Read Level | + Correct Fa | actor | | | | |



(2) Conducted Test

| EUT: | MID | | Model: | | MID713-L |
|--|--|--|---|--|-------------------------------|
| Temperature: | 25 ℃ | | Relative H | lumidity: | 55% |
| Fest Voltage: | AC 120V/60 | Hz | | | - |
| fest Mode: | BLE Mode T | X 2402MHz | / BLE Mode | TX 2480 | MHz |
| Remark: | The EUT is p | programed ir | continuous | ly transmi | itting mode |
| ∦ Agile | ent 17:08:14 Jul 31, | 2014 | | | |
| Ref 20 d | Bm | Atten 30 dB | | MI | kr1 2.40200 GHz -3.204 dBm |
| Peak Log | | | | | 1 |
| 10 dB/ | | | | | |
| | Display Line 23.20 dBm | | | | |
| DI | 23.20 UBIII | | 4 | 2 | 3 |
| -23.2 dBm | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ••••• | no hanna |
| | | | | | |
| | .366 GHz | #\/D\M | | 0 | Span 100 MHz |
| | / 100 kHz | | 300 kHz | Sweep 10. nplitude | 36 ms (401 pts) |
| Marker | Trace Type | X Axis | | | |
| | Trace Type (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq | X Axis 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz | -3.2 -48. -48. | 49 dBm 49 dBm 25 dBm 52 dBm | |
| Marker 1 2 3 4 | (1) Freq (1) Freq (1) Freq (1) Freq | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz | -3.2 -48. -48. | 04 dBm 49 dBm 25 dBm | |
| Marker 1 2 3 | (1) Freq (1) Freq (1) Freq (1) Freq | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz | -3.2 -48. -48. | 04 dBm 49 dBm 52 dBm 52 dBm | <pre>kr1 2.48000 GHz</pre> |
| Marker 1 2 3 4 4 k Agila Ref 20 d | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq mf 17:09:31 Jul 31, | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz | -3.2 -48. -48. | 04 dBm 49 dBm 52 dBm 52 dBm | kr1 2.48000 GHz -3.546 dBm |
| Marker 1 2 3 4 | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq mf 17:09:31 Jul 31, | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz 2.37400 GHz | -3.2 -48. -48. | 04 dBm 49 dBm 52 dBm 52 dBm | |
| Marker 1 2 3 4 | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq ent 17:09:31 Jul 31, Bm | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz 2.37400 GHz | -3.2 -48. -48. | 04 dBm 49 dBm 52 dBm 52 dBm | |
| Marker 1 2 3 4 | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq enf 17:09:31 Jul 31, | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz 2.37400 GHz | -3.2 -48. -48. | 04 dBm 49 dBm 52 dBm 52 dBm | |
| Marker 1 2 3 4 | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq Display Line | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz 2.37400 GHz | -3.2 -48. -48. | 04 dBm 49 dBm 52 dBm 52 dBm | |
| Marker 1 2 3 4 Xef 20 d Peak Log 10 dB/ | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq 23.55 dBm | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz | -3.2 -48. -48. | 04 dBm 49 dBm 52 dBm 52 dBm | |
| Marker 1 2 3 4 | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq 23.55 dBm 23.55 dBm 23.55 dBm 23.55 dBm | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz | -3.2 -48. -48. | 04 dBm 49 dBm 52 dBm 52 dBm | -3.546 dBm |
| Marker 1 2 3 4 Ref 20 d Peak Log 10 dB/ DI -23.5 dBm Center 2 | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq 23.55 dBm | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHZ 2.3740 | -3.2 -48. -48. | 04 dBm 49 dBm 52 | |
| Marker 1 2 3 4 | (1) Freq (1) Fr | 2.40200 GHz 2.39000 GHz 2.40000 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz 2014 Atten 30 dB | -3.2 -48. -48. -47. | 04 dBm 49 dBm 52 dBm 50 | -3.546 dBm |
| Marker 1 2 3 4 Ref 20 d Peak Log 10 dB/ DI -23.5 dBm Center 2 #Res BW Marker 1 2 3 | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq 23.55 dBm ³ ³ ³ ³ ³ ³ ³ ³ | 2.40200 GHz 2.39000 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz 2.48000 GHz 2.48000 GHz 2.48300 GHz 2.48300 GHz 2.48300 GHz 2.48300 GHz 2.48300 GHz | -3.2 -48. -48. -47. | 04 dBm 49 dBm 52 dBm 52 dBm 52 dBm 52 dBm 52 dBm 52 dBm 52 dBm 79 dBm 52 dBm | -3.546 dBm |
| Marker 1 2 3 4 | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq 23.55 dBm 2 4 2 4 516 GHz ✓ 100 kHz Trace Type (1) Freq (1) Freq | 2.40200 GHz 2.39000 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz 2.4000 GHz 2.48000 GHz 2.48000 GHz 2.48000 GHz 2.48300 GHz | -3.2 -48. -48. -47. | 04 dBm 49 dBm 52 dBm 52 dBm 52 dBm 52 dBm 52 dBm 70 dBm 70 dBm | -3.546 dBm |
| Marker 1 2 3 4 Ref 20 d Peak Log 10 dB/ DI -23.5 dBm Center 2 #Res BW Marker 1 2 3 | (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq 23.55 dBm ³ ³ ³ ³ ³ ³ ³ ³ | 2.40200 GHz 2.39000 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz 2.37400 GHz 2.48000 GHz 2.48000 GHz 2.48300 GHz 2.48300 GHz 2.48300 GHz 2.48300 GHz 2.48300 GHz | -3.2 -48. -48. -47. | 04 dBm 49 dBm 52 dBm 52 dBm 52 dBm 52 dBm 52 dBm 52 dBm 52 dBm 79 dBm 52 dBm | -3.546 dBm |

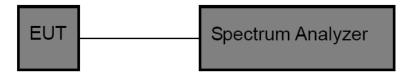


6. Bandwidth Test

- 6.1 Test Standard and Limit
 - 6.1.1 Test Standard
 - FCC Part 15.247 (a)(2)
 - 6.1.2 Test Limit

| FCC P | FCC Part 15 Subpart C(15.247)/RSS-210 | | | | | | | | |
|-----------|---------------------------------------|-------------|--|--|--|--|--|--|--|
| Test Item | Test Item Limit Frequency Range(MHz) | | | | | | | | |
| Bandwidth | >=500 KHz (6dB bandwidth) | 2400~2483.5 | | | | | | | |

6.2 Test Setup



6.3 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.

6.4 EUT Operating Condition

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

6.5 Test Equipment

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
|----------------------|-----------------|-----------|------------|---------------|------------------|
| Spectrum Analyzer | Rohde & Schwarz | FSP30 | DE25181 | Aug. 10, 2013 | Aug.09, 2014 |



6.6 Test Data

| EUT: | MID | Model: | MID713-L |
|---|--------------------|--------------------|-----------------------------------|
| Temperature: | 25 ℃ | Relative Humidity: | 55% |
| Test Voltage: | AC 120V/60 Hz | | |
| Test Mode: | BLE TX Mode | | |
| Channel frequen | cy 6dB Bandwidth | 99% Bandwidth | Limit |
| (MHz) | (kHz) | (kHz) | (kHz) |
| 2402 | 682.077 | 1059.00 | _ |
| 2442 | 682.553 | 1058.50 | >=500 |
| 2480 | 682.266 | 1058.90 | |
| | BLE | Mode | |
| | 54:25 Jul 31, 2014 | | |
| Ref 20 dBm #Peak Log 10 dB/ Center 2.4020 | Atten 30 dB | ¢ | |
| | | | |
| Center 2.402 GHz #Res BW 100 kHz | | 300 kHz S | Span 3 MHz weep 5 ms (401 pts) |
| Occupied I Transmit Freq Et x dB Bandwidth | 1.0590 MHz | Occ BW | / % Pwr 99.00 % x dB -6.00 dB |
| | | | |





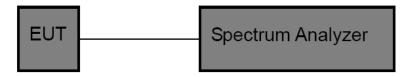


7. Peak Output Power Test

- 7.1 Test Standard and Limit
 - 7.1.1 Test Standard
 - FCC Part 15.247 (b)
 - 7.1.2 Test Limit

| FCC Part 15 Subpart C(15.247)/RSS-210 | | | |
|---------------------------------------|------------------|----------------------|--|
| Test Item | Limit | Frequency Range(MHz) | |
| Peak Output Power | 1 Watt or 30 dBm | 2400~2483.5 | |

7.2 Test Setup



7.3 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 v03r02.

- (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.

7.4 EUT Operating Condition

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

7.5 Test Equipment

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
|-----------|-----------------|-----------|------------|---------------|------------------|
| Spectrum | Rohde & Schwarz | FSP30 | DE25181 | Aug. 10, 2013 | Aug.09, 2014 |

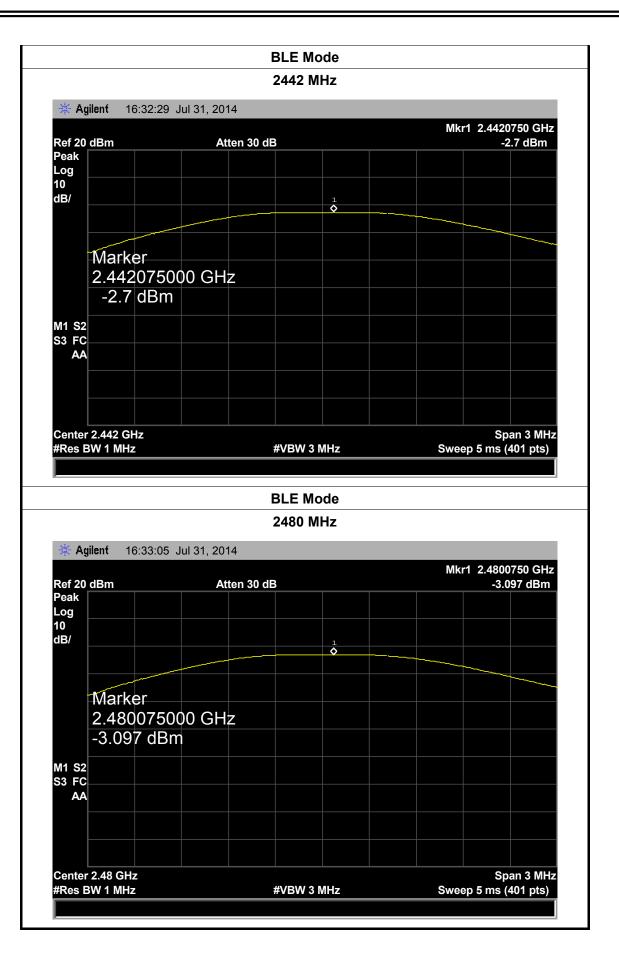


| Δnalvzer | | | |
|----------|--|--|--|
| Analyzei | | | |
| | | | |

7.6 Test Data

| UT: | MID | | Model: | | MID713-L | |
|---------------------------|----------------|-------------|------------|---------|-----------------------------------|--|
| emperature: | 25 ℃ | 25 ℃ | | nidity: | 55% | |
| est Voltage: | AC 120 | V/60 HZ | | | | |
| est Mode: | BLE TX | Mode | | | | |
| hannel freq | uency (MHz) | Test Res | sult (dBm) | | Limit (dBm) | |
| 24 | 02 | -2 | .756 | | | |
| 24 | 42 | -2 | .700 | 30 | | |
| 24 | 80 | -3 | .097 | | | |
| | | BLE | Mode | | | |
| | | 2402 | 2 MHz | | | |
| | | | | | | |
| | | | | | | |
| 🔆 Agilent | 16:31:41 Jul 3 | 1, 2014 | | | Mkr1 2.4021051 GHz | |
| Ref 20 dBm | | Atten 30 dB | | | -2.756 dBm | |
| Peak Log | | | | | | |
| 10 dB/ | | | | | | |
| | | | | | | |
| | | | | | | |
| | rker | | | | | |
| | 02105050 | GHz | | | | |
| -2.1 | 756 dBm | | | | | |
| M1 S2 S3 FC AA | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Center 2.402 #Res BW 1 | | #VBV | V 3 MHz | s | Span 3 MHz weep 5 ms (401 pts) | |
| | | | | | | |





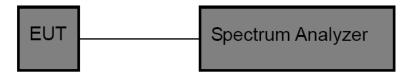


8. Power Spectral Density Test

- 8.1 Test Standard and Limit
 - 8.1.1 Test Standard
 - FCC Part 15.247 (e)
 - 8.1.2 Test Limit

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

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 according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v03r02.

- (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 frequenyc.
- (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.

8.4 EUT Operating Condition

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

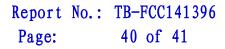


8.5 Test Equipment

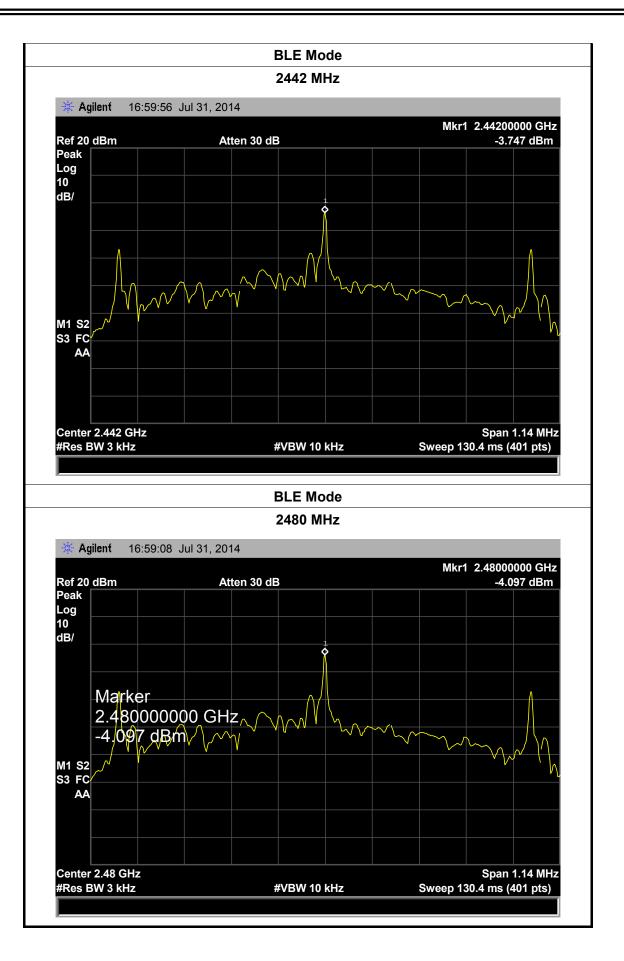
| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
|----------------------|-----------------|-----------|------------|---------------|------------------|
| Spectrum Analyzer | Rohde & Schwarz | FSP30 | DE25181 | Aug. 10, 2013 | Aug.09, 2014 |

8.6 Test Data

| 25 °C AC 120V/6 BLE TX M ency | ode Power (3 kH -3. -3. -4. BLE 2402 | Relative Hu Density z/dBm) 834 747 097 Mode 2 MHz | | 55% Limit (dBm) 8 8 kr1 2.40200000 GHz -3.834 dBm |
|--|---|---|-------------|--|
| BLE TX M | ode Power (3 kH -3. -3. -4. BLE 2402 2014 | z/dBm) 834 747 097 Mode | | 8 kr1 2.40200000 GHz |
| ency | Power (3 kH -3. -3. -4. BLE 2402 | z/dBm) 834 747 097 Mode | MH | 8 kr1 2.40200000 GHz |
| | (3 kH -3. -3. -4. BLE 2402 | z/dBm) 834 747 097 Mode | MH | 8 kr1 2.40200000 GHz |
| :32 Jul 31, : | -3. -3. -4. BLE 2402 2014 | 834 747 097 Mode | | kr1 2.40200000 GHz |
| :32 Jul 31, 3 | -3. -4. BLE 2402 | 747 097 Mode | | kr1 2.40200000 GHz |
| :32 Jul 31, : | -4. BLE 2402 | 097 Mode | | kr1 2.40200000 GHz |
| :32 Jul 31, : | BLE 2402 2014 | Mode | M | |
| :32 Jul 31, : | 2402 2014 | | Mł | |
| :32 Jul 31, : | 2014 | 2 MHz | Mł | |
| :32 Jul 31, : | | | Mi | |
| 00000 G | Hz | | | |
| | | | | |
| | #VBW | / 10 kHz | Sweep | Span 1.14 MHz 130.4 ms (401 pts) |
| | Bm/ / | | #VBW 10 kHz | |









9. Antenna Requirement

9.1 Standard Requirement

9.1.1 Standard

FCC Part 15.203

9.1.2 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.

9.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 0 dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

9.3 Result

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