

FCC Part 15C

Measurement And Test Report For

HongKong Tide Technology Co., Ltd.

FLAT/RM H 15/F SIU KING BLDG 6 ON WAH ST NGAU TAU KOK KLN HK.

**Model: IPKB250FUSK, IPKB250LUSK,
KB250FDEK, KB250LDEK, KB250FUSK,
KB250LUSK, IPKB250LDKK, IPKB250FDKK,
Magic-Pro ProMini BT-Touch 2**

Mar. 3, 2011

| | |
|---|--|
| This Report Concerns: <input checked="" type="checkbox"/> Original Report | Equipment Type: Bluetooth Wireless Micro Keyboard with touchpad |
| Report Number: | MTI110222001RF |
| Test Engineer: | <i>Bill Chen</i> |
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| Test Date: | Feb. 28-Mar. 3, 2011 |
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of MTI Technology Laboratory Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

| | |
|--|---|
| Applicant: | HongKong Tide Technology Co., Ltd. |
| Address of applicant: | FLAT/RM H 15/F SIU KING BLDG 6 ON WAH ST NGAU TAU KOK KLN HK |
| Manufacturer: | HongKong Tide Technology Co., Ltd. |
| Address of manufacturer: | FLAT/RM H 15/F SIU KING BLDG 6 ON WAH ST NGAU TAU KOK KLN HK |
| Equipment Under Test: | Bluetooth Wireless Micro Keyboard with touchpad |
| Tested Model No.: | IPKB250FUSK |
| Supplementary Models No: | IPKB250LUSK, KB250FDEK, KB250LDEK, KB250FUSK, KB250LUSK, IPKB250LDKK, IPKB250FDKK, Magic-Pro ProMini BT-Touch 2 |
| Remark: supplementary models are only different in exterior with tested Model and with the same circuit construction | |
| FCC ID: | ZBYTIDE-BT250 |
| Type of Modulation: | FHSS |
| Frequency Band: | 2402 MHz ~ 2480MHz |
| Number of Channels: | 79 |
| Channel Separation: | 1MHz |
| Max. output power: | -6~4 dBm |
| Type of Antenna: | Integral Antenna |
| Power Supply: | DC 3.7V Battery |

Remark: * The test data gathered are from the production sample provided by the manufacturer.

1.2 Related Submittal(s) / Grant (s)

This submittal(s) is a test report based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 - 2003.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.207, and 15.247 rules.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 - 2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Test Facility

All measurement required was performed at laboratory of MTI Technology Laboratory Ltd. at 10F, Yinxing Business Building, Xixiang Road, Bao'an District, Shenzhen, P.R.China.

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

FCC – Registration No.: 167003

MTI Technology Laboratory Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 167003, May 04, 2009.

2. SYSTEM TEST CONFIGURATION

The tests documented in this report were performed in accordance with ANSI C63.4-2003 and FCC CFR 47 Part 15 Subpart C.

2.1 EUT Configuration

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

2.2 EUT Exercise

The calibrated antennas used to sample the radiated field strength are mounted on a non-conductive, motorized antenna mast 3 or 10 meters from the leading edge of the turntable.

2.3 General Test Procedures

Conducted Emissions The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 7.1 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak detector mode.

Radiated Emissions The EUT is placed on as turntable, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

2.4 List of Measuring Equipments Used

| Items | Equipment | Manufacturer | Model No. | Serial No. | Last Cal | Calibration Period |
|-------|-----------------------------|-----------------|-----------|-------------|----------|--------------------|
| 1 | EMI Test Receiver | ROHDE & SCHWARZ | ESI 26 | 100079 | 2010/11 | 1 year |
| 2 | Horn Antenna | R/S | CH14-H052 | 1091698 | 2010/11 | 1 year |
| 3 | 3m Semi- Anechoic Chamber | ETS | N/A | N/A | 2010/11 | 1 year |
| 4 | LISN | ROHDE&SCHWARZ | ESH3-Z5 | 100305 | 2010/11 | 1 year |
| 5 | Pulse Limiter | ROHDE&SCHWARZ | ESH3-Z2 | 100305 | 2010/11 | 1 year |
| | | | | | | |
| 1 | EMI Test Receiver | ROHDE & SCHWARZ | ESCS30 | 100038 | 2010/11 | 1 year |
| 2 | EMI Test Receiver | ROHDE & SCHWARZ | ESI 26 | 100009 | 2010/11 | 1 year |
| 3 | Receiver/ Spectrum Analyzer | ROHDE & SCHWARZ | ESCI | 100106 | 2010/11 | 1 year |
| 4 | Spectrum Analyzer | Agilent | E7405A | US41160415 | 2010/11 | 1 year |
| 5 | Artificial Mains | ROHDE & SCHWARZ | ESH2-Z5 | 100028 | 2010/11 | 1 year |
| 6 | Pulse Limiter | ROHDE & SCHWARZ | ESHSZ2 | 100044 | 2010/11 | 1 year |
| 7 | LISN | COM Power | LI-200 | 12212 | 2010/11 | 1 year |
| 8 | LISN | COM Power | LI-200 | 12019 | 2010/11 | 1 year |
| 9 | 3m/5m Semi-Anechoic Chamber | ETS | N/A | N/A | 2010/11 | 1 year |
| 10 | Ultra-Broadband Antenna | R/S | HL562 | 100015 | 2010/11 | 1 year |
| 11 | Horn Antenna | R/S | HF906 | 100039 | 2010/11 | 1 year |
| 12 | RF Test Panel | R/S | TS / RSP | 335015/0017 | N/A | N/A |
| 13 | Turntable | ETS | 2088 | 2149 | N/A | N/A |
| 14 | Antenna Mast | ETS | 2075 | 2346 | N/A | N/A |

3. SUMMARY OF TEST RESULTS

| FCC Rules | Description of Test | Result |
|----------------------|--------------------------------|--------|
| 15.203/15.247(b)/(c) | Antenna Requirement | Pass |
| 15.207 | Conduction Emission | Pass |
| 15.247(a)(1)(iii) | Quantity of Hopping Channel | Pass |
| 15.247(a)(1) | Channel Separation | Pass |
| 15.247(a)(1)(iii) | Time of Occupancy (Dwell time) | Pass |
| 15.247(a) | 20dB Bandwidth | Pass |
| 15.247(b)(1) | Power Output | Pass |
| 15.209(a)(f) | Radiated Emission | Pass |
| 15.247(c) | Band edge | Pass |

4. ANTENNA REQUIREMENT

4.1 Standard Applicable

Section 15.203:

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

Section 15.247(b)/(c):

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

If the intentional radiator is used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

4.2 Antenna Connected Construction

This product has a permanent antenna, fulfill the requirement of this section.

5. CONDUCTED DISTURBANCES

5.1. Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is +2.4 dB.

5.2. Limit of Conducted Disturbances (Class B)

| Frequency Range (MHz) | Limits (dBuV) | |
|-----------------------|----------------|---------|
| | Quasi-Peak | Average |
| 0.150~0.500 | 66~56 | 56~46 |
| 0.500~5.000 | 56 | 46 |
| 5.000~30.00 | 60 | 50 |

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

5.3. EUT Setup

The setup of EUT is according with CISPR 16-1: 2002, CISPR16-2: 2002 measurement procedure.

The EUT was placed center and the back edge of the test table.

The cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

5.4. Instrument Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range.....150 KHz to 30 MHz

Detector.....Peak & Quasi-Peak & Average

Sweep Speed.....Auto

IF Band Width.....9 KHz

5.5. Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dB μ V of specification limits).

Quasi-peak readings are distinguished with a "QP". Average readings are distinguished with a "AV".

5.6. Summary of Test Results

According to the data in section 3.6, the worst margin reading of:

EUT Configuration on Test

Bluetooth Wireless Micro Keyboard with touchpad
Model Number : IPKB250FUSK
Serial Number : N/A
Applicant : HongKong Tide Technology Co., Ltd.

5.7. Test Result

Detailed information, Please refer to the following pages.

According to the data in section 3.8, the EUT complied with the FCC 15B Conducted margin for a Class B device, with the worst margin reading of:

-8.30 dB μ V at 17.489 MHz in the Line mode, Pk detector, 0.15-30MHz

Plot of Conducted Emissions Test Data

Conducted Disturbance

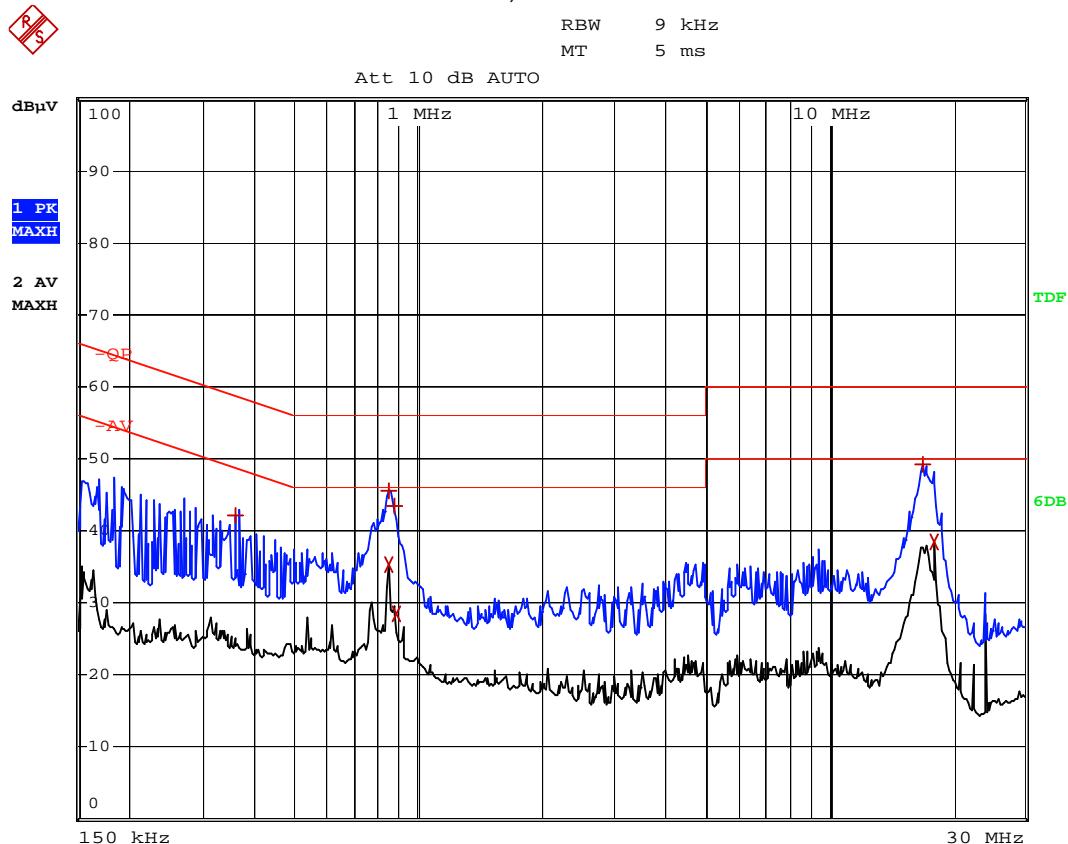
EUT: Bluetooth Wireless Micro Keyboard with touchpad

M/N: IPKB250FUSK

Operating Condition: Charging

Test Specification: N

Comment: AC 120V/60Hz connect to PC, USB 5V



| EDIT PEAK LIST (Prescan Results) | | | | |
|----------------------------------|------------|------------------|-------|----------|
| Trace1: | -QP | | | |
| Trace2: | -AV | | | |
| Trace3: | --- | | | |
| TRACE | FREQUENCY | LEVEL dB μ V | DELTA | LIMIT dB |
| 1 Max Peak | 358 kHz | 42.02 | - | -16.74 |
| 1 Max Peak | 846 kHz | 45.48 | - | -10.51 |
| 2 Average | 846 kHz | 35.29 | - | -10.70 |
| 1 Max Peak | 878 kHz | 43.33 | - | -12.66 |
| 2 Average | 882 kHz | 28.52 | - | -17.47 |
| 1 Max Peak | 16.998 MHz | 49.31 | - | -10.68 |
| 2 Average | 17.99 MHz | 38.35 | - | -11.64 |

Plot of Conducted Emissions Test Data

Conducted Disturbance

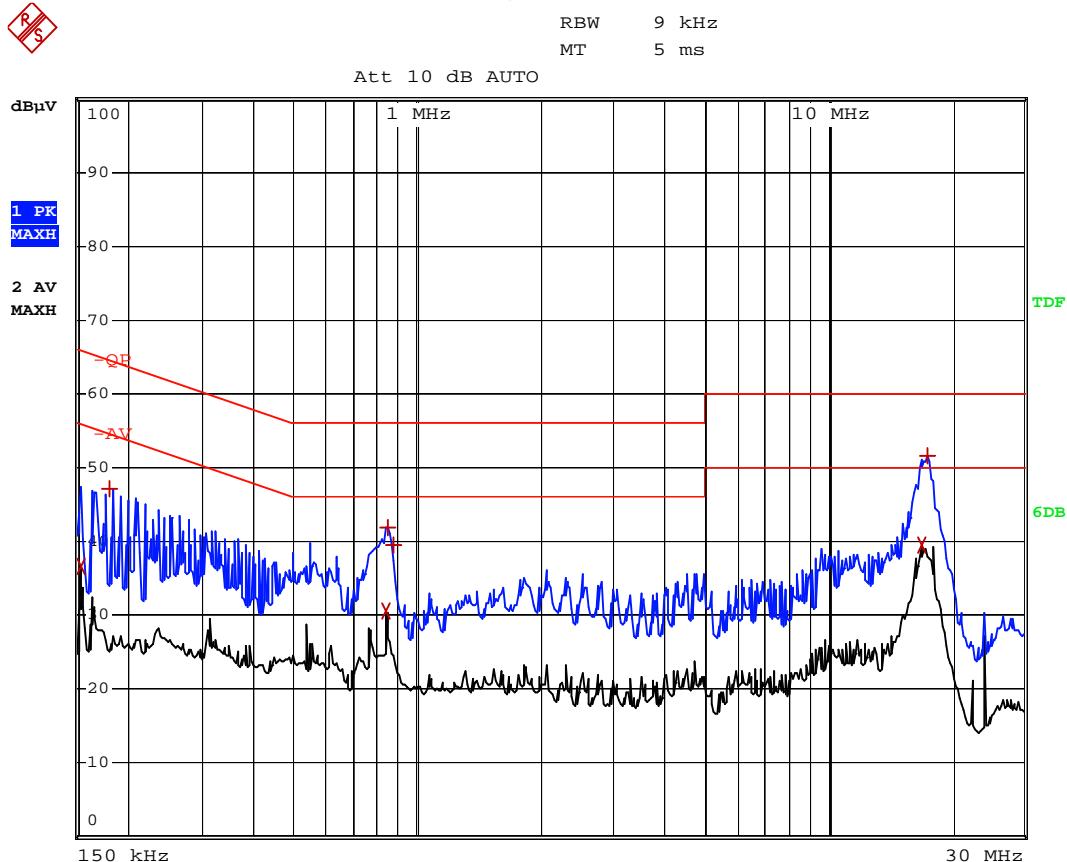
EUT: Bluetooth Wireless Micro Keyboard with touchpad

M/N: IPKB250FUSK

Operating Condition: Charging

Test Specification: L

Comment: AC 120V/60Hz connect to PC, USB 5V



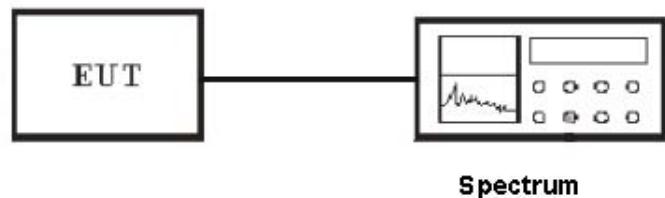
| EDIT PEAK LIST (Prescan Results) | | | | |
|----------------------------------|------------|------------------|--------|----------|
| Trace1: | -QP | | | |
| Trace2: | -AV | | | |
| Trace3: | --- | | | |
| TRACE | FREQUENCY | LEVEL dB μ V | DELTA | LIMIT dB |
| 2 Average | 154 kHz | 36.67 | -19.10 | |
| 1 Max Peak | 182 kHz | 47.17 | -17.21 | |
| 2 Average | 842 kHz | 30.45 | -15.54 | |
| 1 Max Peak | 850 kHz | 41.94 | -14.05 | |
| 1 Max Peak | 878 kHz | 39.38 | -16.61 | |
| 2 Average | 16.998 MHz | 39.62 | -10.37 | |
| 1 Max Peak | 17.498 MHz | 51.69 | -8.30 | |

6. NUMBER OF HOPPING CHANNELS AND CHANNEL SPACING

6.1 Standard Applicable

According to FCC 15.247(a)(1), frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, and frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

6.2 EUT Setup



6.3 Test Equipment List and Details

See section 2.4.

6.4 Test Procedure

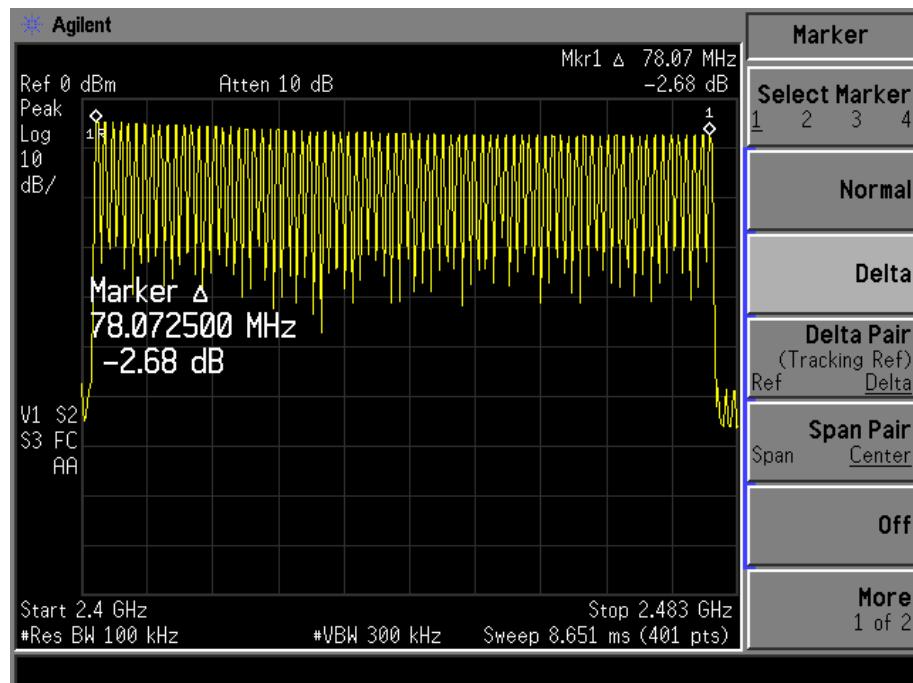
Set the Lowest channel to the Highest Channel, observed the band of 2400MHz to 2438.5MHz, than count it out the number of channels for comparing with the FCC rules. Adjust channel spacing can be read by adjusting the Analyzer SPAN.

6.5 Test Result

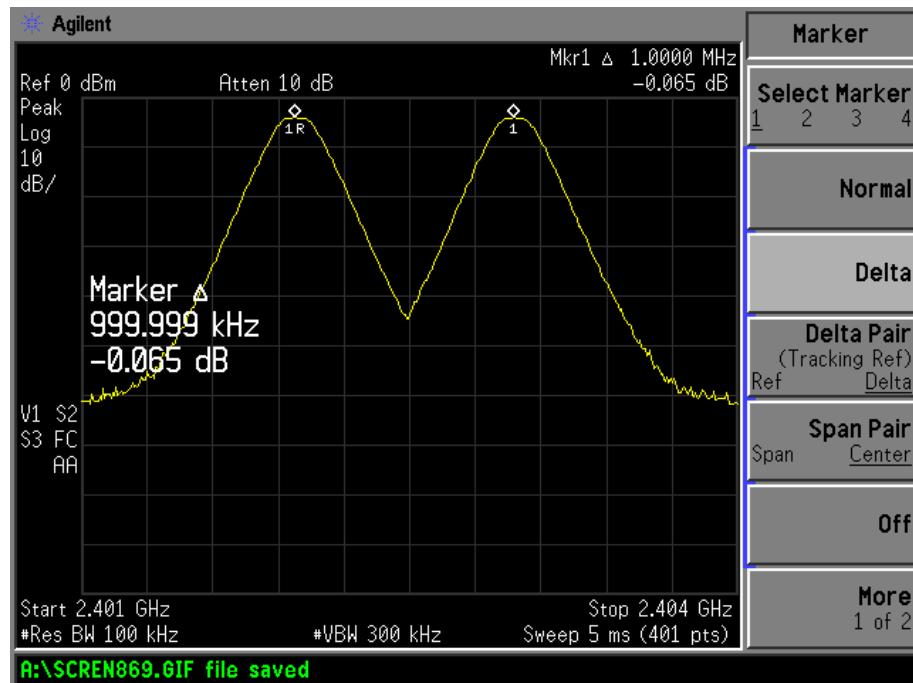
PASS

Detailed information, Please refer to the following pages.

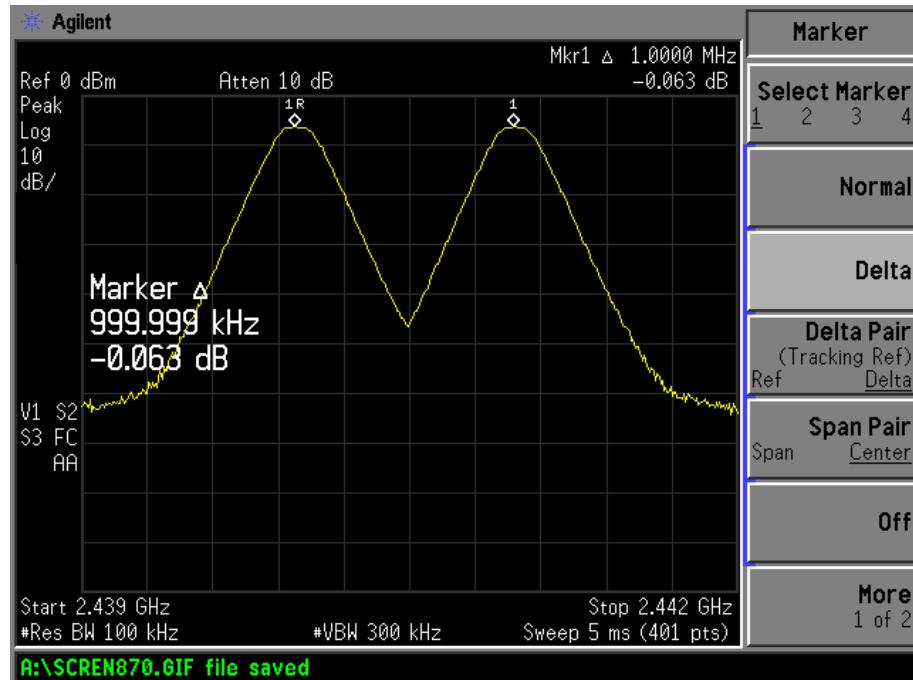
No. of Channel=79



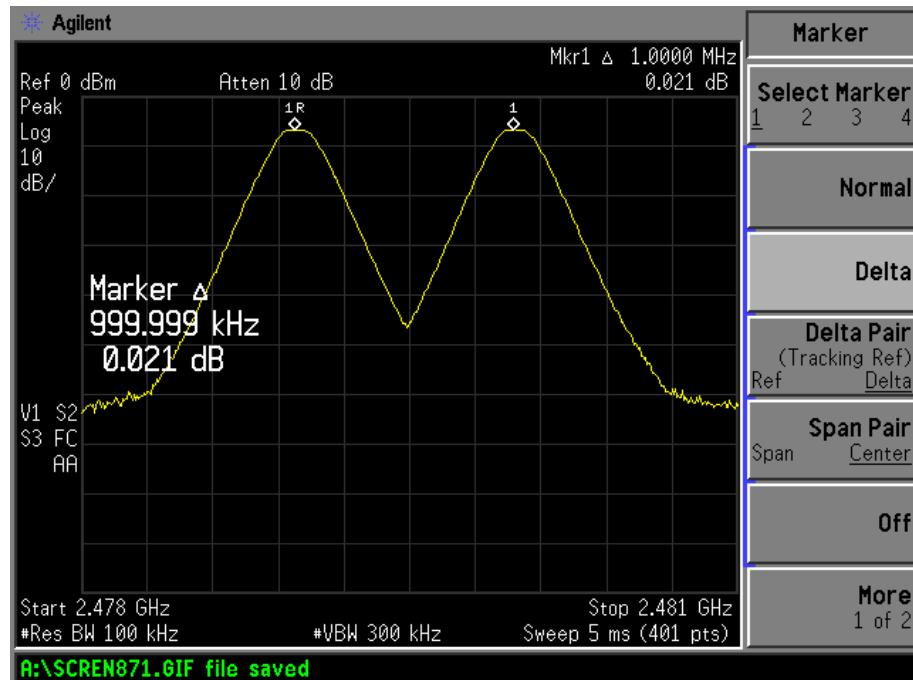
Channel Spacing (Low CH=1MHz)



Channel Spacing (Mid CH=1MHz)



Channel Spacing (High CH=1MHz)

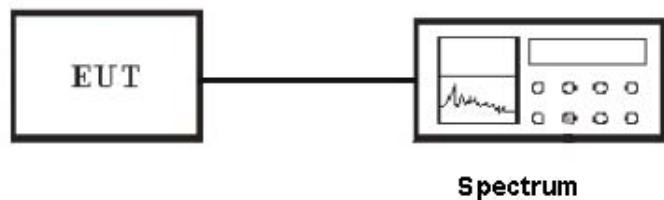


7. DWELL TIME OF A HOPPING CHANNEL

7.1 Limits of Dwell Time Measurement

According to 15.247(a)(1)(iii), Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

7.2 EUT Setup



7.3 Test Equipment List and Details

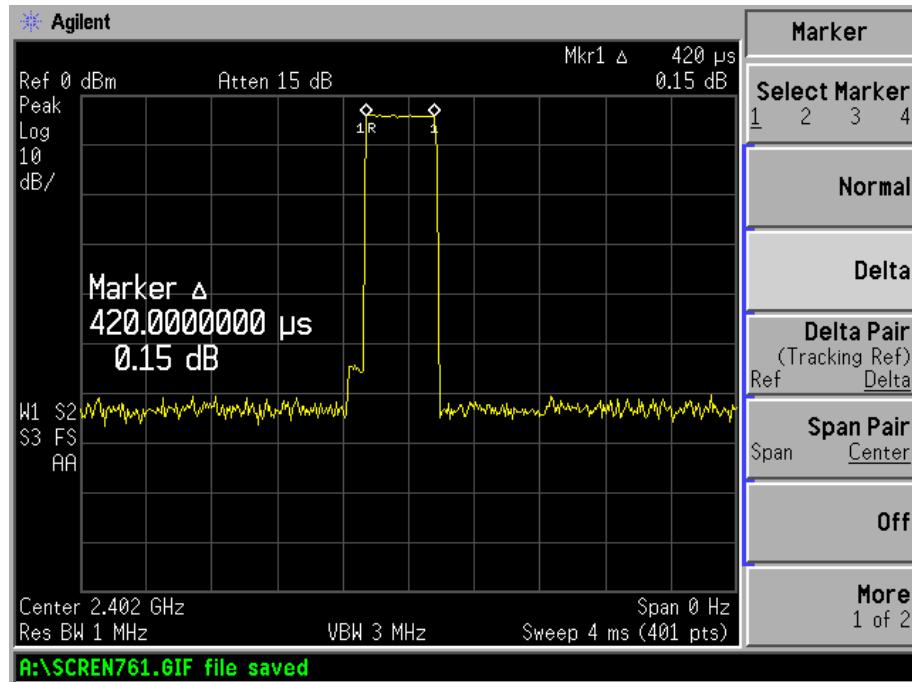
See section 2.4.

7.4 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. Set the spectrum analyzer as RBW, VBW=1000 kHz, Span = 0Hz.
4. Repeat above procedures until all frequency measured was complete.

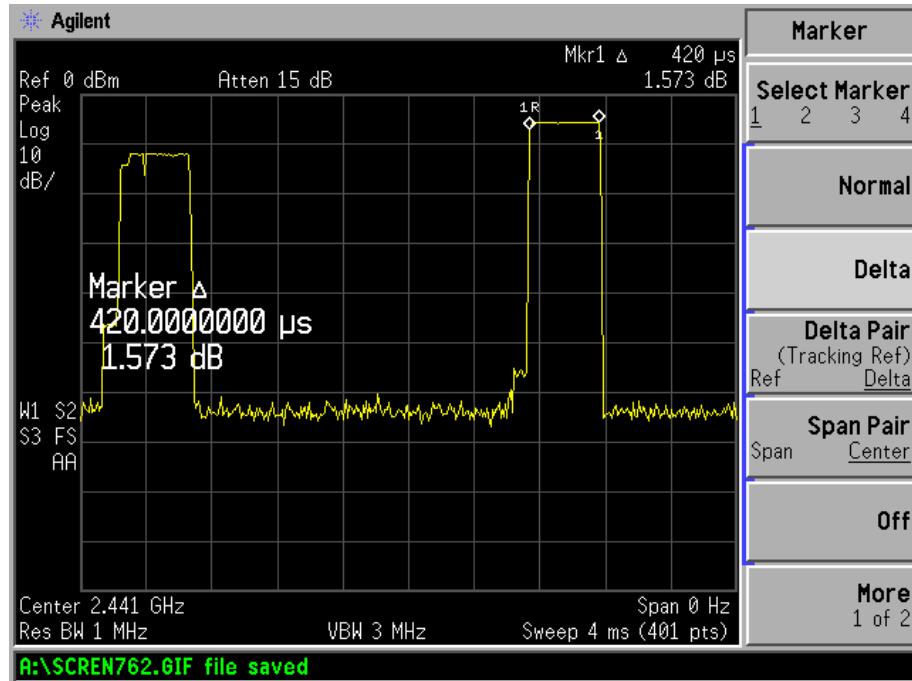
7.5 Test Result /Plots

Low CH



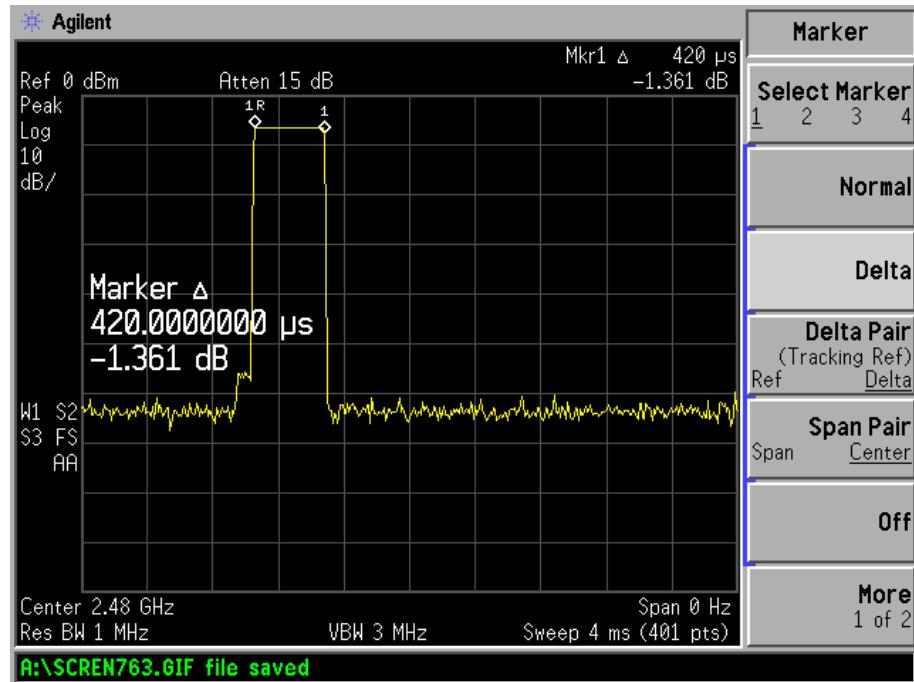
$$DH1 \text{ time slot} = 0.42 \text{ (ms)} * (1600/(79)) * 31.6 = 268.8 / \text{(ms)} < 400 \text{ (ms)}$$

Mid CH



$$DH1 \text{ time slot} = 0.42 \text{ (ms)} * (1600/(79)) * 31.6 = 268.8 / \text{(ms)} < 400 \text{ (ms)}$$

High CH



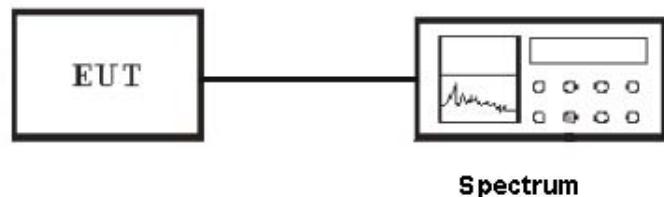
DH1 time slot = 0.42 (ms) * (1600/(79)) * 31.6 = 268.8/ (ms) < 400 (ms)

8. 20-dB BANDWIDTH

8.1 Limits of 20-dB Bandwidth Measurement

According to 15.247(a)(1)(iii). For frequency hopping systems operating in the 2400MHz-2483.5 MHz no limit for 20dB bandwidth.

8.2 EUT Setup



8.3 Test Equipment List and Details

See section 2.4.

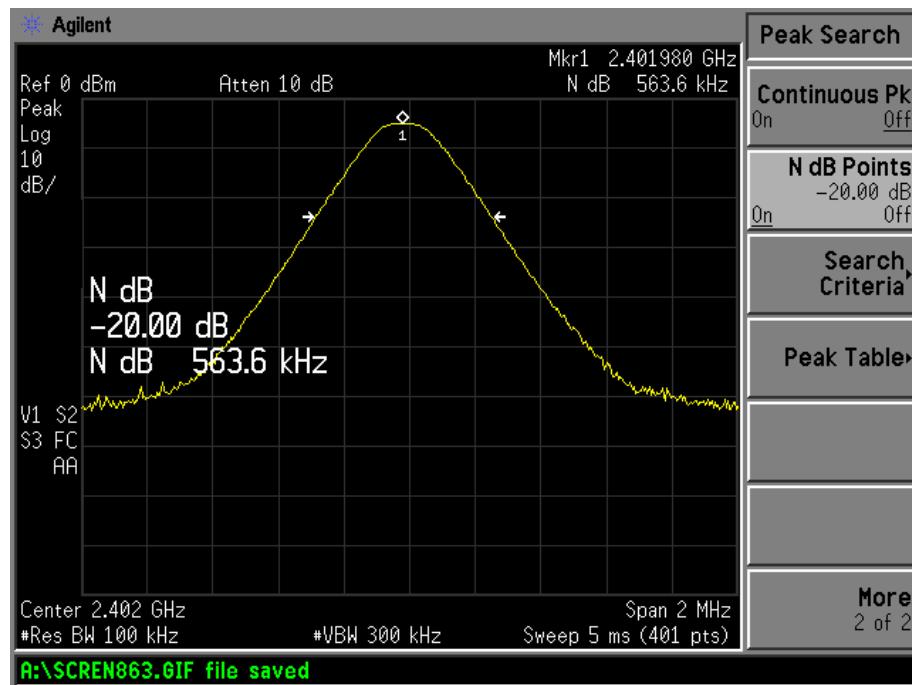
8.4 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. The spectrum analyzer as RBW=10 kHz (1 % of Bandwidth.), Sweep=auto
4. Mark the peak frequency and –20dB (upper and lower) frequency.

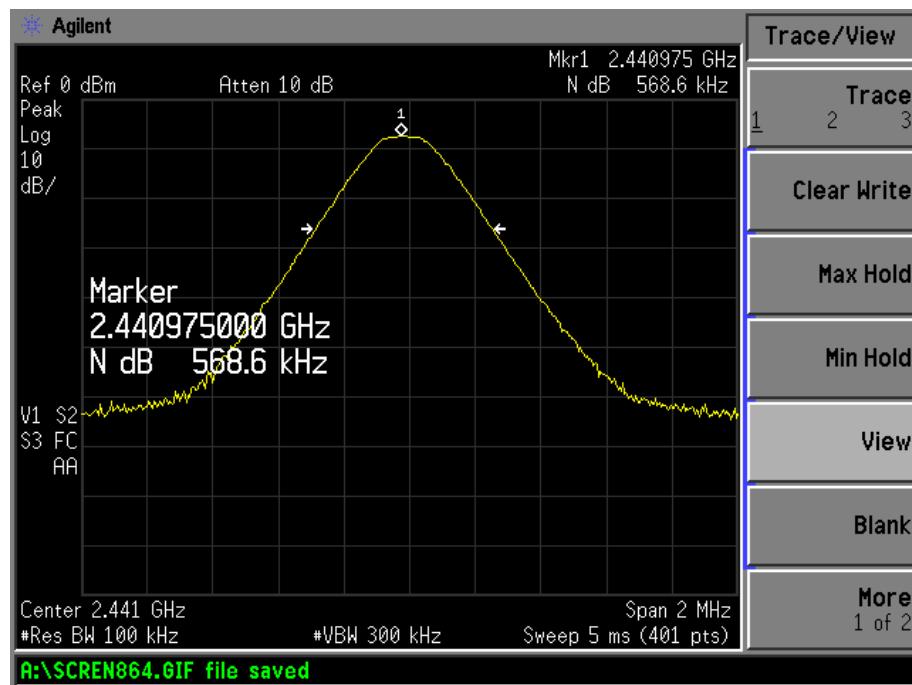
8.5 Test Result /Plots

| Frequency MHz | 20 dB Bandwidth kHz | Limit dB |
|------------------|------------------------|-------------|
| 2402 | 563.6 | / |
| 2441 | 568.6 | / |
| 2480 | 568.6 | / |

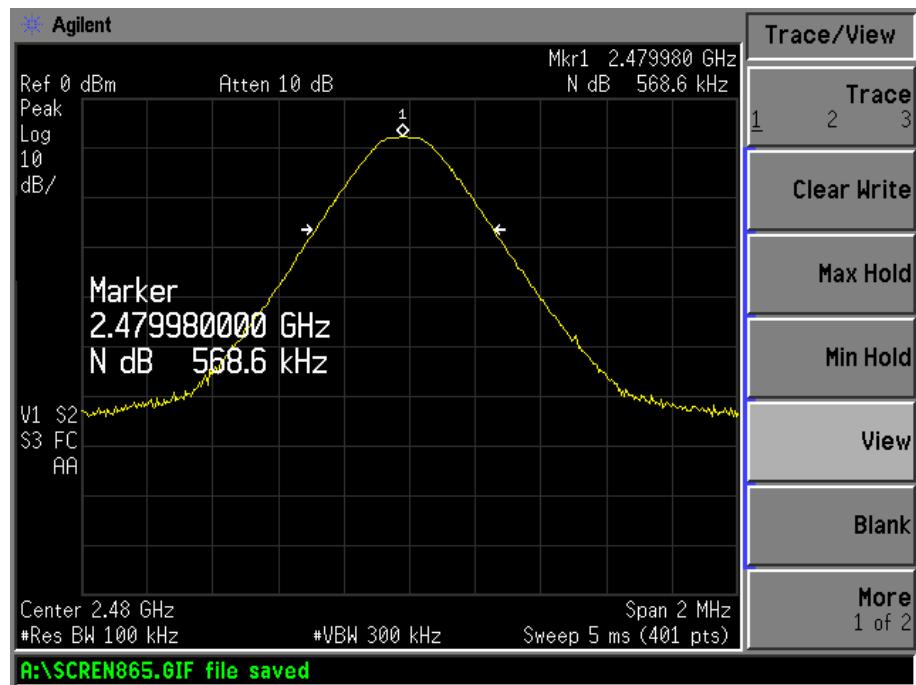
CH Low



Mid CH



High CH



9. POWER OUTPUT

9.1 Limits of Power Measurement

According to 15.247(b)(1). For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

9.2 Test Equipment List and Details

See section 2.4.

9.3 Test Procedure

The device under test has an integral antenna and the power was measured on a radiated basis.

9.4 Test Result of Peak Power

2402 MHz 0.5180 mW

2441 MHz 0.5593 mW

2480 MHz 0.5010 mW

Note: The Antenna Gain is under considering.

10. FIELD STRENGTH OF SPURIOUS EMISSIONS

10.1 Limits of Radiated Emission Measurement

According to §15.247(c), 15.205 15.209(b) &15.35 (b), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Section 15.209:

30 - 88 MHz 40 dBuV/m @3M
88 -216 MHz 43.5 dBuV/m @3M
216 -960 MHz 46 dBuV/m @3M
Above 960 MHz 54dBuV/m @3M

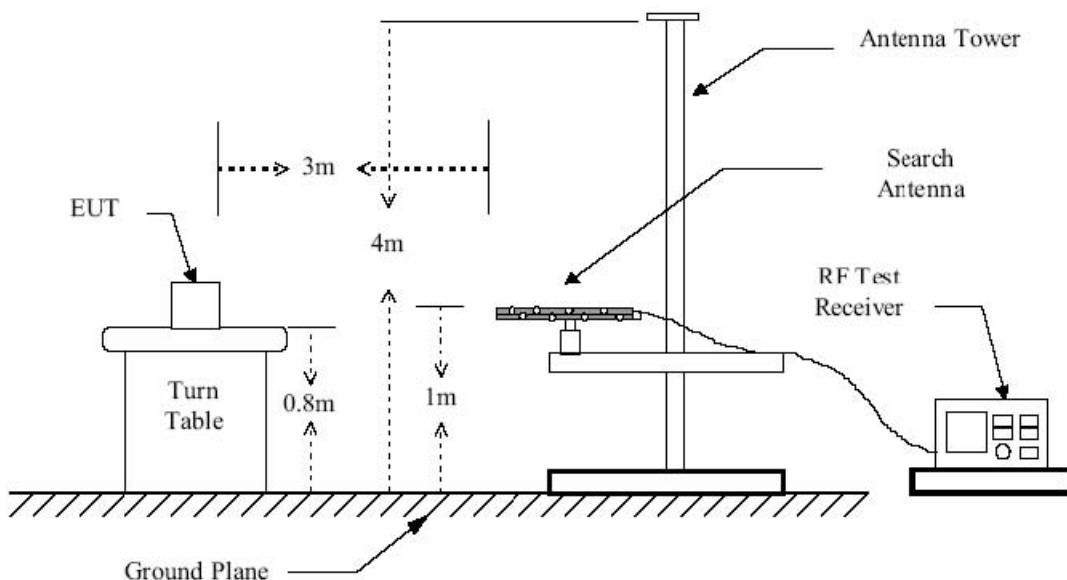
The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

Emissions Radiated Outside Of The Specified Frequency Bands, Except For Harmonics, Shall Be Attenuated By At Least 20 Db Below The Level Of The Fundamental Or To The General Radiated Emission Limits In 15.209, Whichever Is The Lesser Attenuation.

Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

10.2 EUT Setup

Radiated Measurement Setup



10.3 Test Equipment List and Details

See section 2.4.

10.4 Test Procedure

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.

10.5 Test Result

According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst margin of:

-4.2 dB μ V at **7323.0** MHz in the **Horizontal** polarization for Middle Channel, 30 MHz to 25 GHz, 3 Meters, Transmitting mode

-4.76 dB μ V at **499.42** MHz in the **Horizontal** polarization for Middle Channel, 30 MHz to 1 GHz, 3 Meters, Charging mode

Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

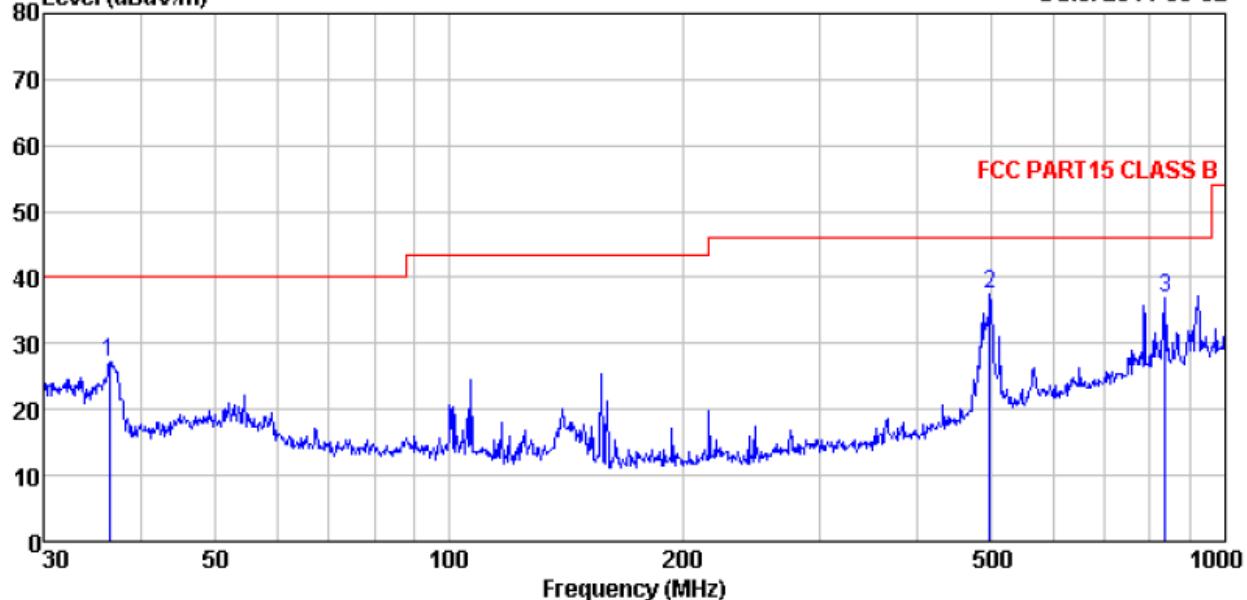
From 30 MHz to 1 GHz

Test Mode: Transmitting-Low channel

Horizontal

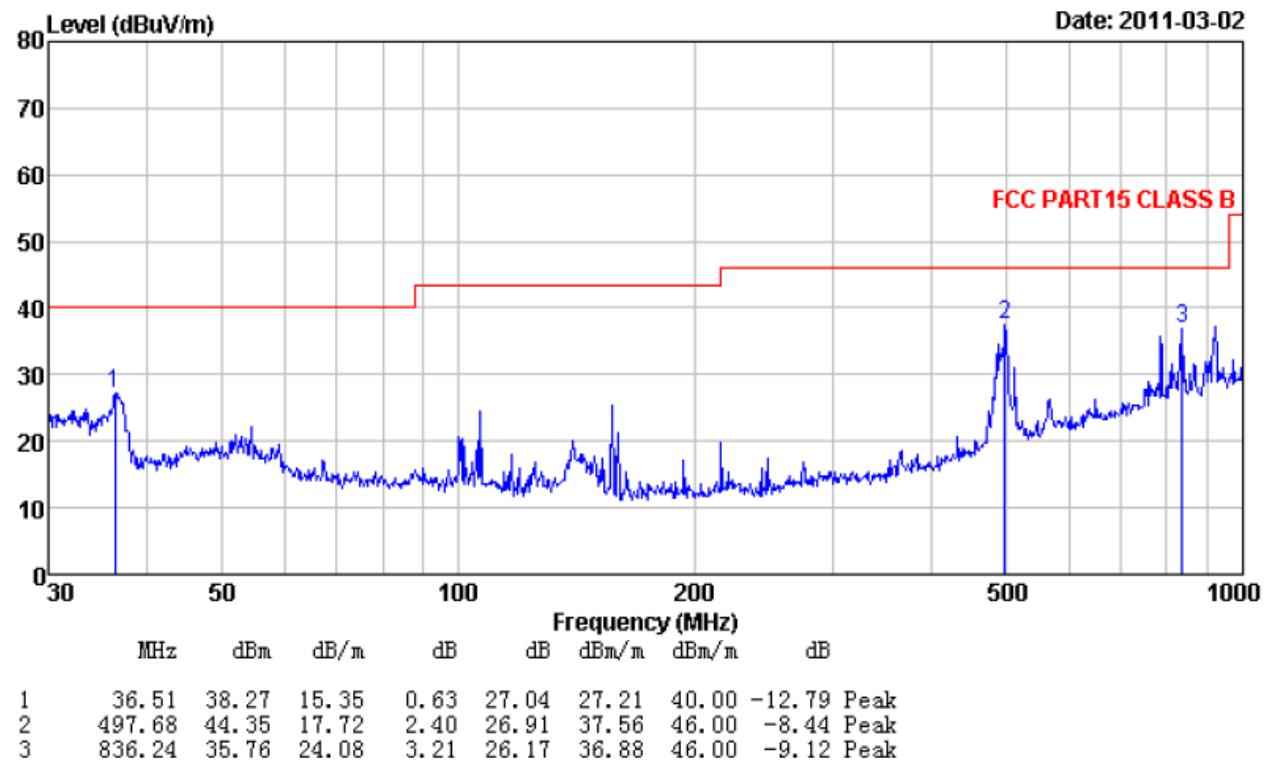
Level (dBuV/m)

Date: 2011-03-02



| | MHz | dBm | dB/m | dB | dB | dBm/m | dBm/m | dB |
|---|--------|-------|-------|------|-------|-------|-------|-------------|
| 1 | 36.51 | 38.27 | 15.35 | 0.63 | 27.04 | 27.21 | 40.00 | -12.79 Peak |
| 2 | 497.68 | 44.35 | 17.72 | 2.40 | 26.91 | 37.56 | 46.00 | -8.44 Peak |
| 3 | 836.24 | 35.76 | 24.08 | 3.21 | 26.17 | 36.88 | 46.00 | -9.12 Peak |

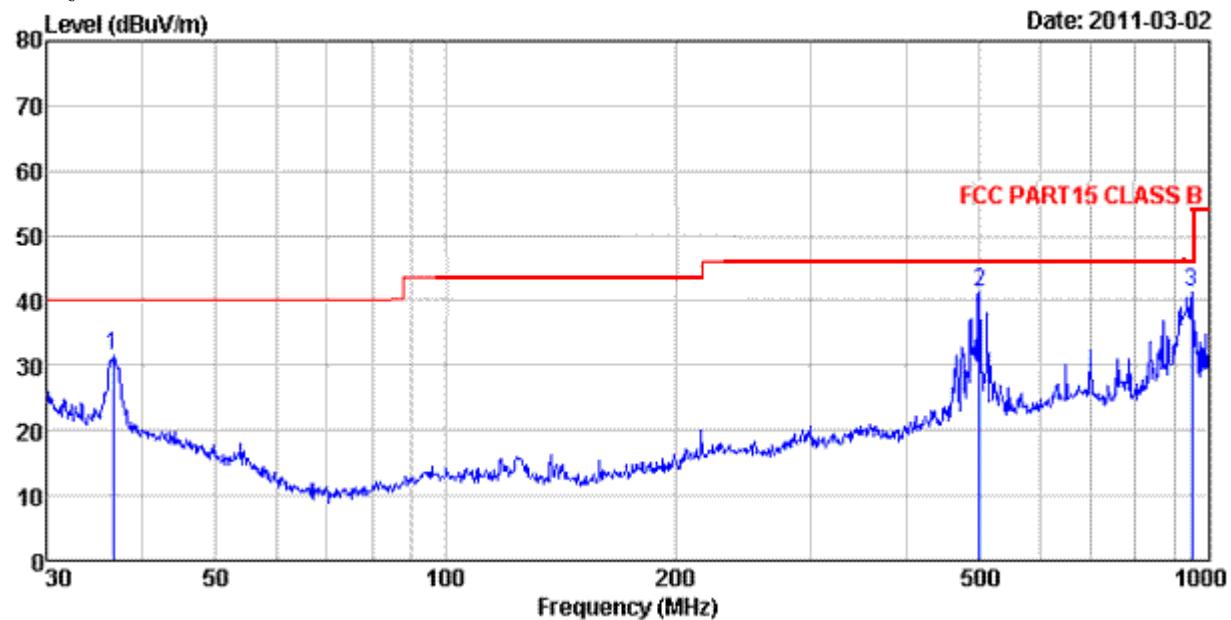
Vertical



From 30 MHz to 1 GHz

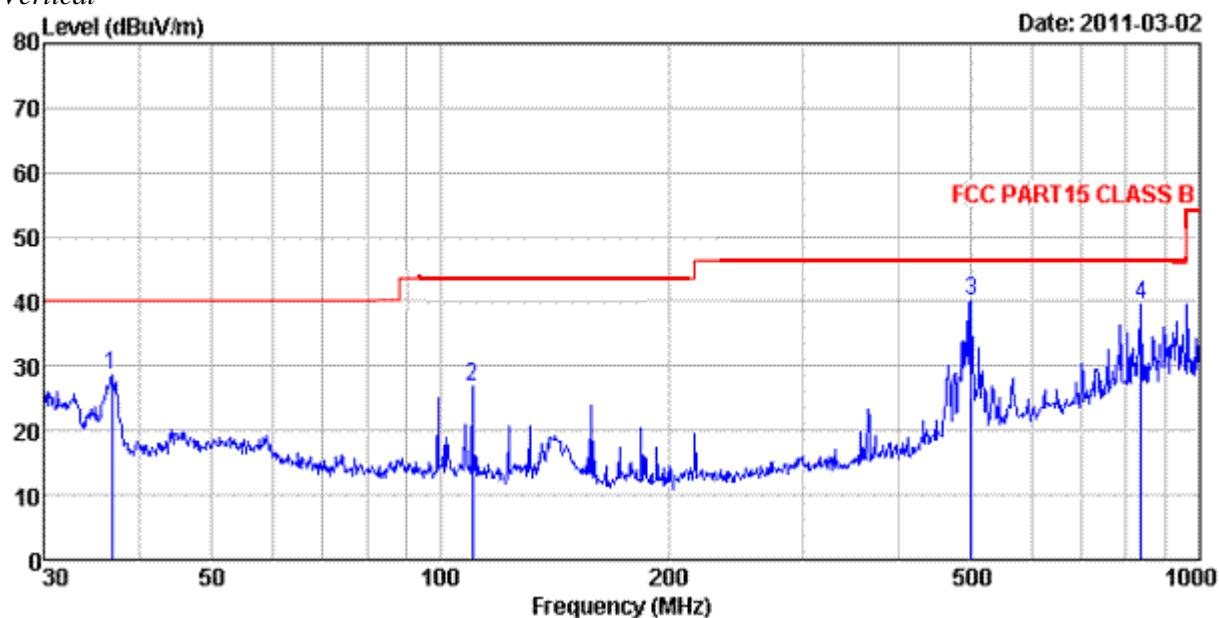
Test Mode: Charging

Horizontal



| | ReadAntenna Freq | Level Factor | Cable Loss Factor | Preamp Factor | Limit Level | Line Level | Over Limit | Over Remark |
|---|---------------------|--------------|----------------------|------------------|----------------|---------------|---------------|----------------|
| | MHz | dBm | dB/m | dB | dB | dBm/m | dBm/m | dB |
| 1 | 36.64 | 39.40 | 18.64 | 0.63 | 27.04 | 31.63 | 40.00 | -8.37 Peak |
| 2 | 499.42 | 44.55 | 21.19 | 2.40 | 26.90 | 41.24 | 46.00 | -4.76 Peak |
| 3 | 948.76 | 36.46 | 27.64 | 3.42 | 26.32 | 41.20 | 54.00 | -4.80 Peak |

Vertical



| Freq | ReadAntenna | | Cable Preamp | | Limit Level | Over Line | Over Limit | Remark |
|------|-------------|-------|--------------|------|-------------|-----------|------------|-------------|
| | MHz | dBm | dB/m | dB | | | | |
| 1 | 36.90 | 39.60 | 15.38 | 0.63 | 27.04 | 28.57 | 40.00 | -11.43 Peak |
| 2 | 110.18 | 40.47 | 12.14 | 1.24 | 26.87 | 26.98 | 43.50 | -16.52 Peak |
| 3 | 499.42 | 46.50 | 18.02 | 2.40 | 26.90 | 40.02 | 46.00 | -5.98 Peak |
| 4 | 836.24 | 38.33 | 24.08 | 3.21 | 26.17 | 39.45 | 46.00 | -6.55 Peak |

Spurious emission above 1G

| Frequency MHz | Detector | Meter Reading dBuV | Direction Degree | Polar H / V | Antenna Loss dB | Cable loss dB | Amplifier dB | Correction Amplitude dBuV/m | Limit dBuV/m | Margin dB |
|------------------------------|----------|--------------------------|---------------------|----------------|-----------------------|------------------|-----------------|-----------------------------------|-----------------|--------------|
| Low Channel (1G to 25GHz) | | | | | | | | | | |
| 4804.0 | AV | 42.3 | 57 | H | 34.1 | 5.2 | 33.0 | 48.6 | 54 | -5.4 |
| 4804.0 | AV | 36.8 | 35 | V | 34.1 | 5.2 | 33.0 | 43.1 | 54 | -10.9 |
| 7206.0 | AV | 39.4 | 60 | H | 37.4 | 6.1 | 33.5 | 49.4 | 54 | -4.6 |
| 7206.0 | AV | 32.9 | 79 | V | 37.4 | 6.1 | 33.5 | 42.9 | 54 | -11.1 |
| 2402.0 | AV | 98.7 | 45 | H | 29.1 | 3.7 | 34.0 | 97.5 | | (Fund.) |
| 2402.0 | AV | 93.5 | 359 | V | 29.1 | 3.7 | 34.0 | 92.3 | | (Fund.) |
| 4804.0 | PK | 47.2 | 57 | H | 34.1 | 5.2 | 33.0 | 53.5 | 74 | -20.5 |
| 4804.0 | PK | 40.5 | 35 | V | 34.1 | 5.2 | 33.0 | 46.8 | 74 | -27.2 |
| 7206.0 | PK | 42.4 | 60 | H | 37.4 | 6.1 | 33.5 | 52.4 | 74 | -21.6 |
| 7206.0 | PK | 35.6 | 79 | V | 37.4 | 6.1 | 33.5 | 45.6 | 74 | -28.4 |
| 2402.0 | PK | 99.0 | 45 | H | 29.1 | 3.7 | 34.0 | 97.8 | | (Fund.) |
| 2402.0 | PK | 94.7 | 359 | V | 29.1 | 3.7 | 34.0 | 93.5 | | (Fund.) |
| Middle Channel (1G to 25GHz) | | | | | | | | | | |
| 4882.0 | AV | 41.3 | 21 | H | 34.1 | 5.2 | 33.0 | 47.6 | 54 | -6.4 |
| 4882.0 | AV | 37.1 | 34 | V | 34.1 | 5.2 | 33.0 | 43.4 | 54 | -10.6 |
| 7323.0 | AV | 39.8 | 342 | H | 37.4 | 6.1 | 33.5 | 49.8 | 54 | -4.2 |
| 7323.0 | AV | 31.7 | 30 | V | 37.4 | 6.1 | 33.5 | 41.7 | 54 | -12.3 |
| 2441.0 | AV | 97.3 | 98 | H | 29.1 | 3.7 | 34.0 | 96.1 | | (Fund.) |
| 2441.0 | AV | 92.5 | 72 | V | 29.1 | 3.7 | 34.0 | 91.3 | | (Fund.) |
| 4882.0 | PK | 47.1 | 21 | H | 34.1 | 5.2 | 33.0 | 53.4 | 74 | -20.6 |
| 4882.0 | PK | 40.8 | 34 | V | 34.1 | 5.2 | 33.0 | 47.1 | 74 | -26.9 |
| 7323.0 | PK | 44.3 | 342 | H | 37.4 | 6.1 | 33.5 | 54.3 | 74 | -19.7 |
| 7323.0 | PK | 35.4 | 30 | V | 37.4 | 6.1 | 33.5 | 45.4 | 74 | -28.6 |
| 2441.0 | PK | 98.0 | 98 | H | 29.1 | 3.7 | 34.0 | 96.8 | | (Fund.) |
| 2441.0 | PK | 93.6 | 72 | V | 29.1 | 3.7 | 34.0 | 92.4 | | (Fund.) |

| High Channel (1G to 25GHz) | | | | | | | | | | |
|----------------------------|----|------|-----|---|------|-----|------|------|----|---------|
| 4960.0 | AV | 42.1 | 17 | H | 34.1 | 5.2 | 33.0 | 48.4 | 54 | -5.6 |
| 4960.0 | AV | 38.4 | 13 | V | 34.1 | 5.2 | 33.0 | 44.7 | 54 | -9.3 |
| 7440.0 | AV | 38.5 | 355 | H | 37.4 | 6.1 | 33.5 | 48.5 | 54 | -5.5 |
| 7440.0 | AV | 31.0 | 66 | V | 37.4 | 6.1 | 33.5 | 41.0 | 54 | -13.0 |
| 2480.0 | AV | 96.4 | 63 | H | 29.1 | 3.7 | 34.0 | 95.2 | | (Fund.) |
| 2480.0 | AV | 91.5 | 85 | V | 29.1 | 3.7 | 34.0 | 90.3 | | (Fund.) |
| 4960.0 | PK | 45.9 | 17 | H | 34.1 | 5.2 | 33.0 | 52.2 | 74 | -21.8 |
| 4960.0 | PK | 40.0 | 13 | V | 34.1 | 5.2 | 33.0 | 46.3 | 74 | -27.7 |
| 7440.0 | PK | 44.0 | 355 | H | 37.4 | 6.1 | 33.5 | 54.0 | 74 | -20.0 |
| 7440.0 | PK | 36.4 | 66 | V | 37.4 | 6.1 | 33.5 | 46.4 | 74 | -27.6 |
| 2480.0 | PK | 97.0 | 63 | H | 29.1 | 3.7 | 34.0 | 95.8 | | (Fund.) |
| 2480.0 | PK | 93.3 | 85 | V | 29.1 | 3.7 | 34.0 | 92.1 | | (Fund.) |

Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 4th Harmonics is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

11. Band Edges Measurement

11.1 Limits of Band Edges Measurement

According to §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak radiated power limits.

11.2 Test Equipment List and Details

See section 2.4.

11.3 Test Procedure

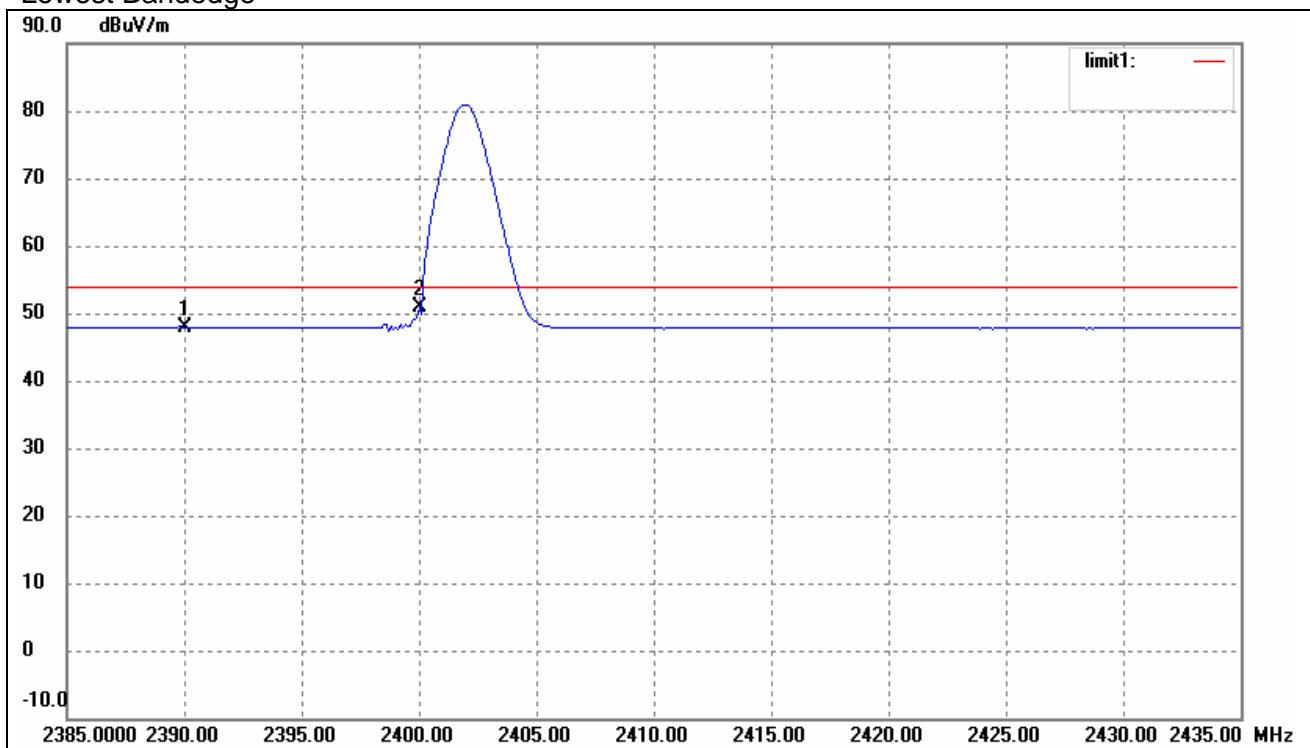
Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded. The spectrum plots (Peak RBW=VBW=100 kHz; Average RBW=1 MHz, VBW=10 Hz) are attached on the following pages.

11.4 Test Result

| Test mode | Frequency MHz | Limit dBuV /dB | Result |
|-----------|------------------|-------------------|--------|
| Lowest | 2390.00 | <54dBuv | PASS |
| | 2400.00 | >20dB | PASS |
| Highest | 2483.50 | <54DBUV | PASS |

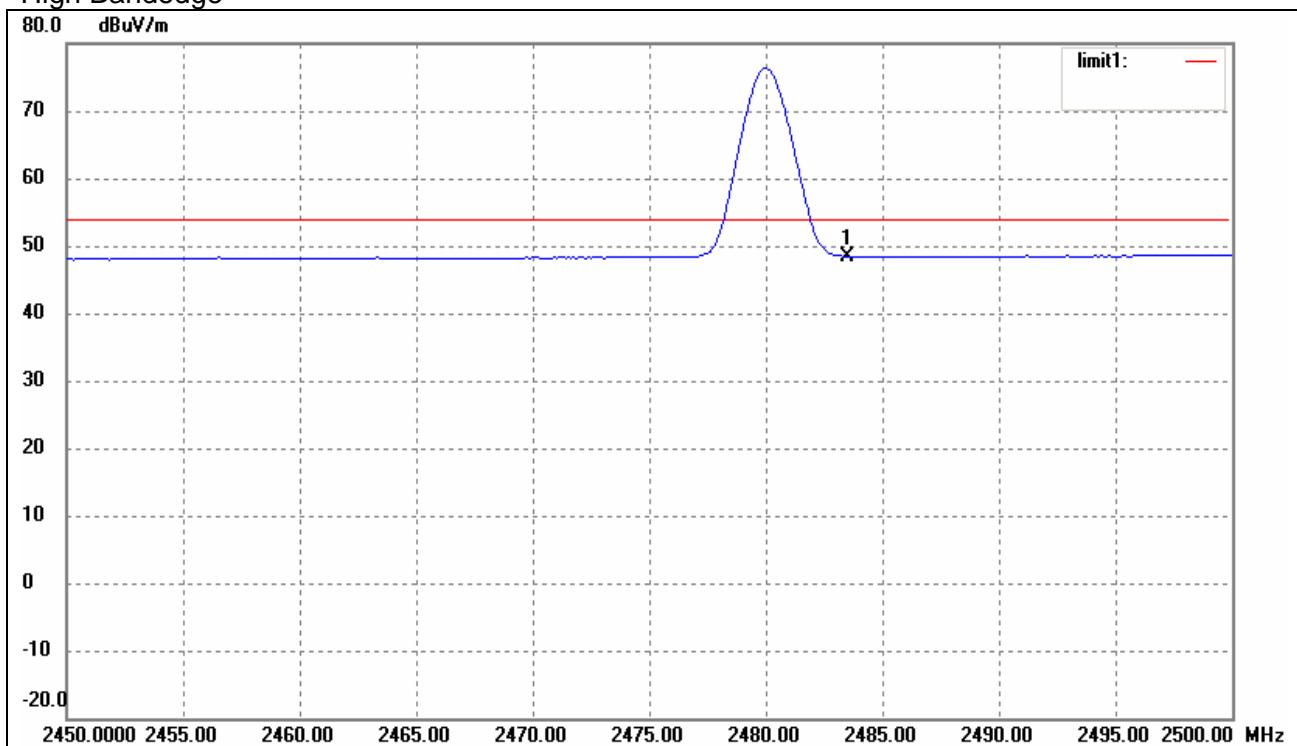
The edge emissions are below the FCC 15.209 Limits. Please refer to the test plots below.

Lowest Bandedge



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct dB/m | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|------------------|
| 1 | 2390.000 | 12.30 | 35.59 | 47.89 | 54.00 | -6.11 | Peak Detector |
| | 2390.000 | 15.47 | 35.59 | 51.06 | 74.00 | -22.94 | Average Detector |
| 2 | 2400.000 | 15.28 | 35.68 | 50.96 | 54.00 | -3.04 | Peak Detector |
| | 2400.000 | 19.17 | 35.68 | 54.85 | 74.00 | -19.15 | Average Detector |

High Bandedge



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct dB/m | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|------------------|
| 1 | 2483.500 | 12.45 | 35.97 | 48.42 | 54.00 | -5.58 | Peak Detector |
| | 2483.500 | 17.98 | 35.97 | 53.95 | 74.00 | -20.05 | Average Detector |

APPENDIX A - PRODUCT LABELING

ID Label Specification

FCC ID: ZBYTIDE-BT250

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Specification: Text is Black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.

Proposed Label Location on EUT

Proposed ID Label Location on the EUT



APPENDIX B - EUT PHOTOGRAPHS

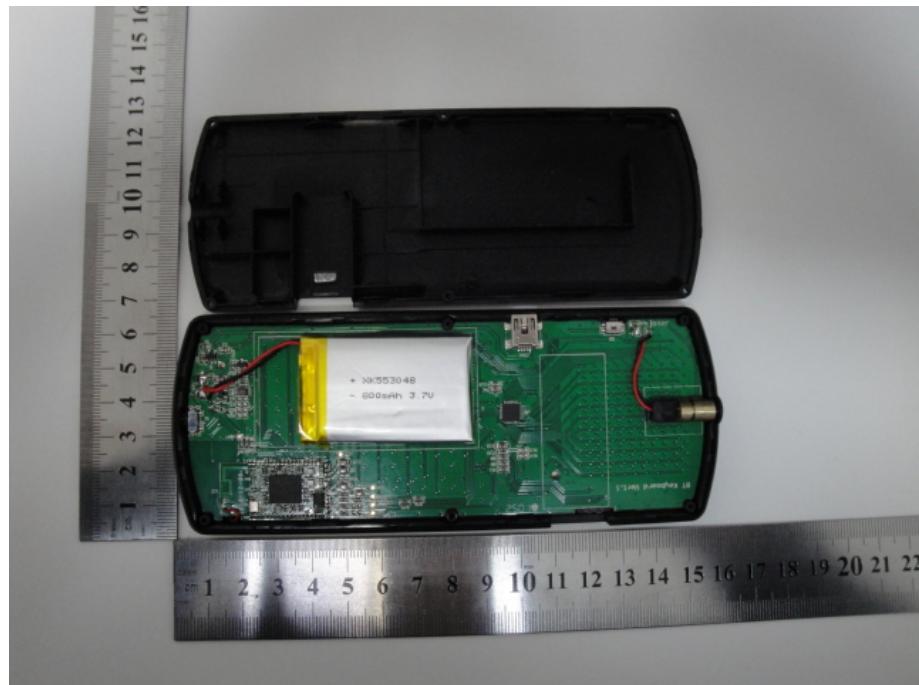
EUT - Front View



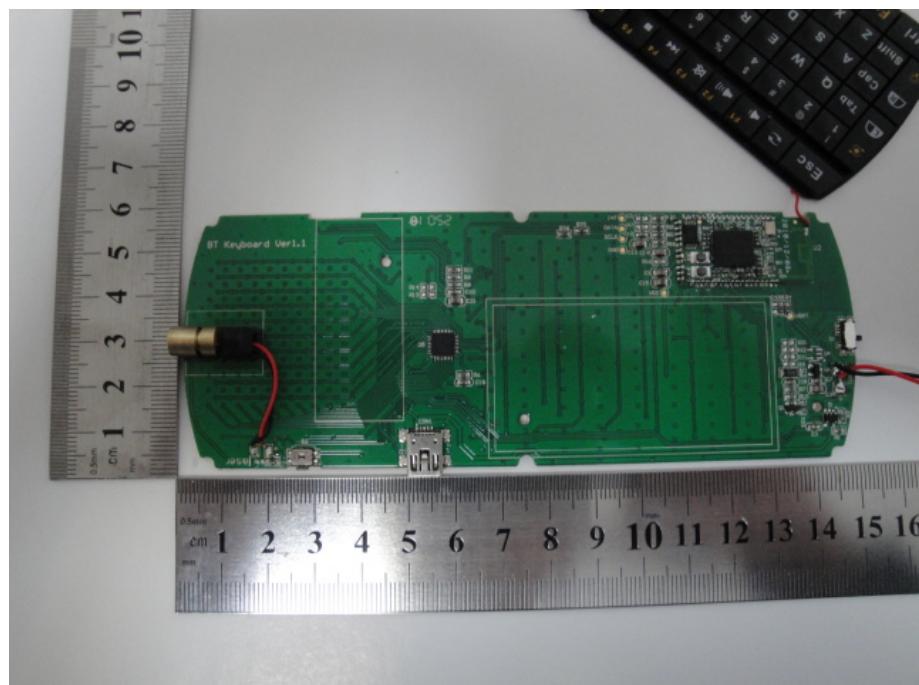
EUT - Rear View



EUT – Open View



EUT – Inside View 1



EUT – Inside View 2



APPENDIX C - TEST SETUP PHOTOGRAPHS

Conducted Disturbances Test



Radiated Emission (Below 1GHz)

Test mode: Transmitting



Test mode: Charging



Radiated Emission (Above 1GHz)

