

FCC PART 15 SUBPART C MEASUREMENT AND TEST REPORT

For

CDM Miami Inc

1825 NW 112 AVE Unit 158, Miami, FL 33172, USA

E.U.T.: GSM Phone

Model Name: WOW, R200, ABLA, R600BL, ABLA PLUS, R600B, TU, R800

Trade name: OLA, FUN

FCC ID: ZZRTM707

Report Number: WB1111011F

Test Date(s): November 01 2011 to November 18 2011

Report Date(s): November 18

Prepared by

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**Note: This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Dongguan NTC Co., Ltd.
The test results referenced from this report are relevant only to the sample tested.**

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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

The CDM Miami Inc's product, model name : ABLA (referred to as the EUT in this report) is a GSM/GPRS mobil phone. It's power by internal 3.7V rechargeable Li-lithium battery, and also can be charged by external adapter.

A major descriptions of EUT is described as following:

| | |
|---------------------|--|
| Frequency: | : Cellular Band: 824-849MHz PCB Band: 1850-1910MHz Bluetooth: 2402-2480MHz |
| Modulation | : GFSK (Bluetooth), GMSK (GSM/PCS) |
| Number of Channel | : 79 (Bluetooth) |
| Channel space | : 1MHz (Bluetooth) |
| Max RF Output Power | : 32 ± 2 dBm (Cellular Band) 30 ± 2 dBm (PCS Band) 2dBm (Bluetooth) |
| Antenna Type | : PCB antenna (BT) |
| Antenna Gain | : 0Bi |
| Power Supply | : Li-lithium Battery 3.7V : Input : AC 110-240V 50/60Hz (Adapter) : Output :DC 5V 500mA ± 50 mA : Model: SM-800A : |
| Model name | : WOW, R200, ABLA, R600BL, ABLA PLUS, R600B TU, R800 |
| Remark | : All models are the same except appearance, trade name and model name, we prepare ABLA for EMC test. |

Note: This measurement and test report only pertains to the Bluetooth portion of the EUT. For measurement and test results to the GSM 850/1900 function please refer to report WB1111021F.

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: ZZRTM707 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules, and FCC Part 22H & 24E submission with FCC ID: ZZRTM707

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003) and DA 00-705. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

1.6 Test Facility

Accredited by FCC, August 02, 2011
The Certificate Registration Number is 665078.

Accredited by Industry Canada, July 01, 2011
The Certificate Registration Number is 46405-9743.

1.7 Summary of Test Results

| FCC Rules | Description Of Test | Result |
|---------------------------------|-----------------------------------|---------------|
| §15.247(a)(1) | Channel Separation test | Compliant |
| §15.247(a)(1) | 20dB Bandwidth | Compliant |
| §15.247(a)(1)(iii) | Quantity of Hopping Channel | Compliant |
| §15.247(a)(1)(iii) | Time of Occupancy (Dwell Time) | Compliant |
| §15.247(b) | Max Peak output Power test | Compliant |
| §15.247(d) | Band edge test | Compliant |
| §15.207 (a) | AC Power Conducted Emission | Compliant |
| §15.247(d), §15.209, §15.205 | Radiated Emission | Compliant |
| §15.203 | Antenna Requirement | Compliant |
| §2.1093, §15.247(i) | RF Exposure | Compliant |

2. System Test Configuration

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 which intends to maximize its emission characteristics in a continuous normal application.

2.2 Test Procedure

2.2.1 Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2003, conducted emissions from the EUT are measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

2.2.2 Radiated Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. The turn table 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 max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

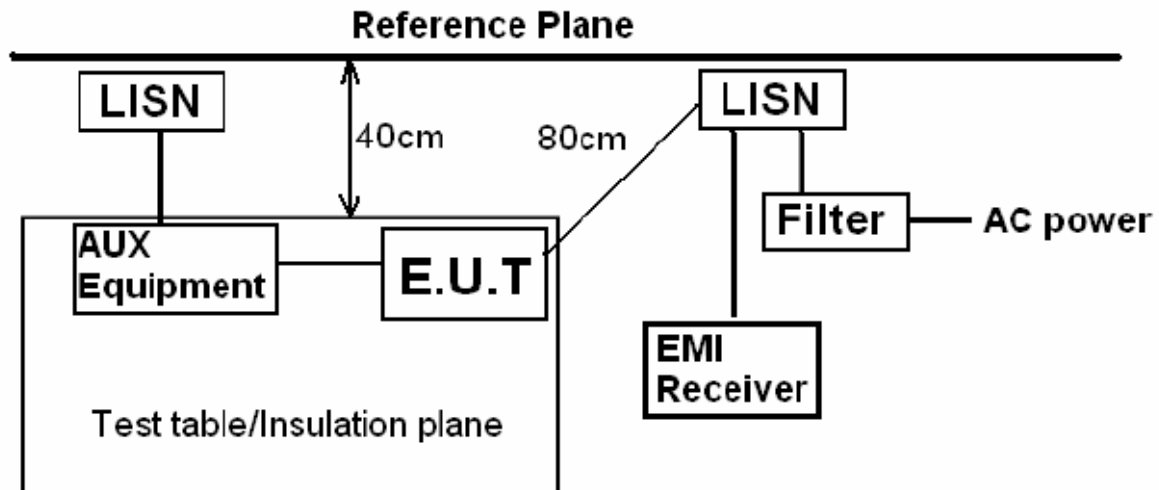
3. Description of test modes

The EUT (GSM Phone) has been tested under normal operating and 3 channels that are the lowest, middle and highest test.

| Channel | Frequency(MHz) |
|---------|----------------|
| Lowest | 2402 |
| Middle | 2441 |
| Highest | 2480 |

4. Conducted Emissions Test

4.1 Test SET-UP (Block Diagram of Configuration)



4.2 Test Condition

Test Requirement: FCC Part 15.207

Frequency Range: 150KHz ~ 30MHz

Detector: RBW 9KHz, VBW 30KHz

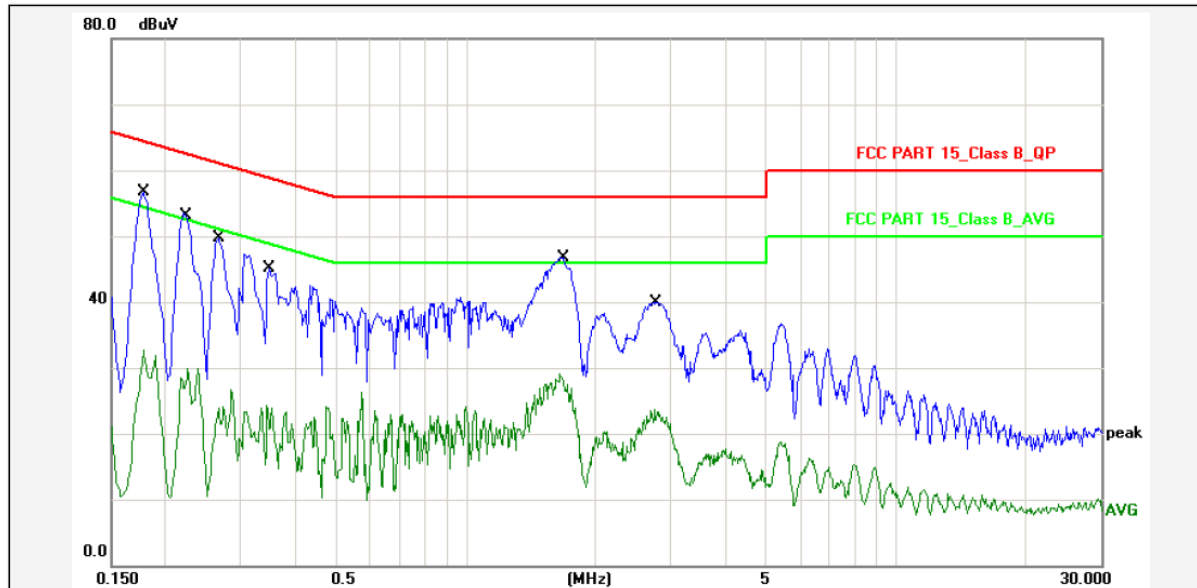
Operation Mode: Charging, Bluetooth

4.3 Measurement Results

Pass

Please refer to following scan wave(the worst case).

Test Time: 2011-11-9 13:25:39



Report No.: ABLA

Test Standard: FCC PART 15_Class B_QP

Test item: Conducted Emission

Phase: L1

Applicant: HUABAO

Temp.()/Hum.(%): 26(C) / 60 %

Product: GSM PHONE

Power Rating: AC 120V/60Hz

Model No.: ABLA

Test Engineer: Think

Test Mode: Bluetooth

Remark:

| No. | Frequency (MHz) | Factor (dBuV) | Reading (dBuV) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|---------------|----------------|--------------|--------------|-------------|----------|-----|--------|
| 1 | 0.1785 | 12.00 | 20.08 | 32.08 | 54.55 | -22.47 | AVG | P | |
| 2 | 0.1789 | 12.00 | 42.30 | 54.30 | 64.53 | -10.23 | QP | P | |
| 3 | 0.2260 | 12.00 | 39.55 | 51.55 | 62.59 | -11.04 | QP | P | |
| 4 | 0.2260 | 12.00 | 17.86 | 29.86 | 52.59 | -22.73 | AVG | P | |
| 5 | 0.2700 | 12.00 | 31.76 | 43.76 | 61.12 | -17.36 | QP | P | |
| 6 | 0.2700 | 12.00 | 9.59 | 21.59 | 51.12 | -29.53 | AVG | P | |
| 7 | 0.3500 | 12.00 | 30.91 | 42.91 | 58.96 | -16.05 | QP | P | |
| 8 | 0.3500 | 12.00 | 12.32 | 24.32 | 48.96 | -24.64 | AVG | P | |
| 9 | 1.6900 | 12.00 | 31.47 | 43.47 | 56.00 | -12.53 | QP | P | |
| 10 | 1.6900 | 12.00 | 17.08 | 29.08 | 46.00 | -16.92 | AVG | P | |
| 11 | 2.7740 | 12.00 | 25.21 | 37.21 | 56.00 | -18.79 | QP | P | |
| 12 | 2.7740 | 12.00 | 11.71 | 23.71 | 46.00 | -22.29 | AVG | P | |

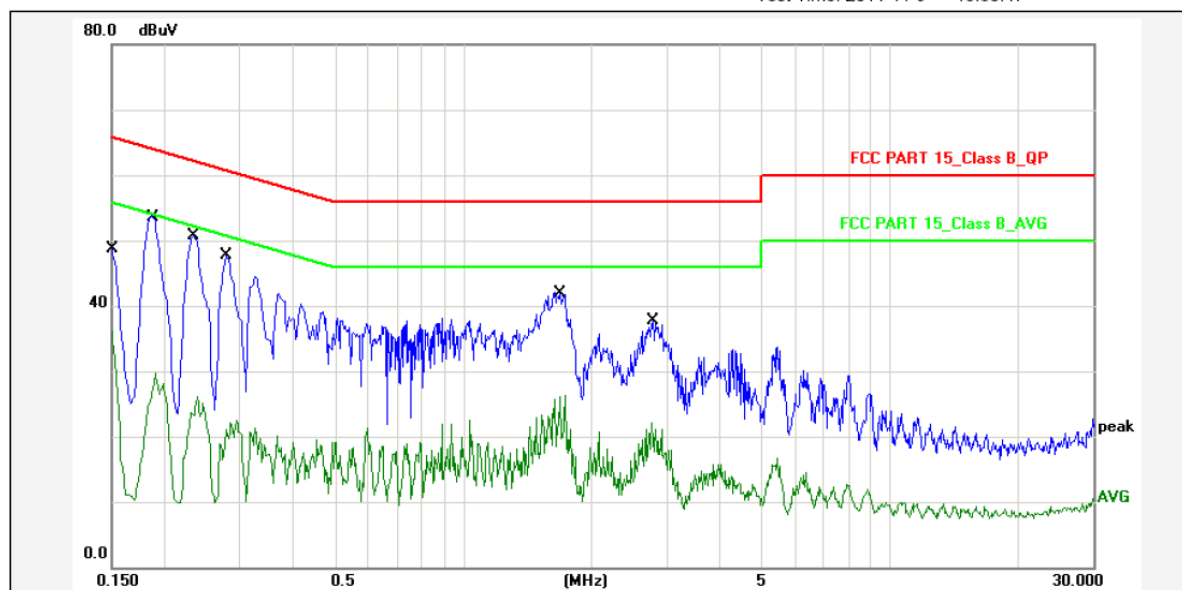
Note: Level=Reading+Factor.

Margin=Limit-Level.

File:ABLA\#3

Page: 1

Test Time: 2011-11-9 13:30:47



Report No.: ABLA

Test Standard: FCC PART 15_Class B_QP

Test item: Conducted Emission

Phase: N

Applicant: HUABAO

Temp.()/Hum.(%): 26(C) / 60 %

Product: GSM PHONE

Power Rating: AC 120V/60Hz

Model No.: ABLA

Test Engineer: Think

Test Mode: Bluetooth

Remark:

| No. | Frequency (MHz) | Factor (dBuV) | Reading (dBuV) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|---------------|----------------|--------------|--------------|-------------|----------|-----|--------|
| 1 | 0.1500 | 12.00 | 33.78 | 45.78 | 65.99 | -20.21 | QP | P | |
| 2 | 0.1500 | 12.00 | 24.09 | 36.09 | 55.99 | -19.90 | AVG | P | |
| 3 | 0.1900 | 12.00 | 38.27 | 50.27 | 64.03 | -13.76 | QP | P | |
| 4 | 0.1900 | 12.00 | 17.61 | 29.61 | 54.03 | -24.42 | AVG | P | |
| 5 | 0.2340 | 12.00 | 36.64 | 48.64 | 62.30 | -13.66 | QP | P | |
| 6 | 0.2340 | 12.00 | 14.11 | 26.11 | 52.30 | -26.19 | AVG | P | |
| 7 | 0.2802 | 12.00 | 35.34 | 47.34 | 60.81 | -13.47 | QP | P | |
| 8 | 0.2802 | 12.00 | 8.27 | 20.27 | 50.81 | -30.54 | AVG | P | |
| 9 | 1.6860 | 12.00 | 27.63 | 39.63 | 56.00 | -16.37 | QP | P | |
| 10 | 1.6860 | 12.00 | 14.08 | 26.08 | 46.00 | -19.92 | AVG | P | |
| 11 | 2.7900 | 12.00 | 23.45 | 35.45 | 56.00 | -20.55 | QP | P | |
| 12 | 2.7900 | 12.00 | 10.09 | 22.09 | 46.00 | -23.91 | AVG | P | |

Note: Level=Reading+Factor.

Margin=Limit-Level.

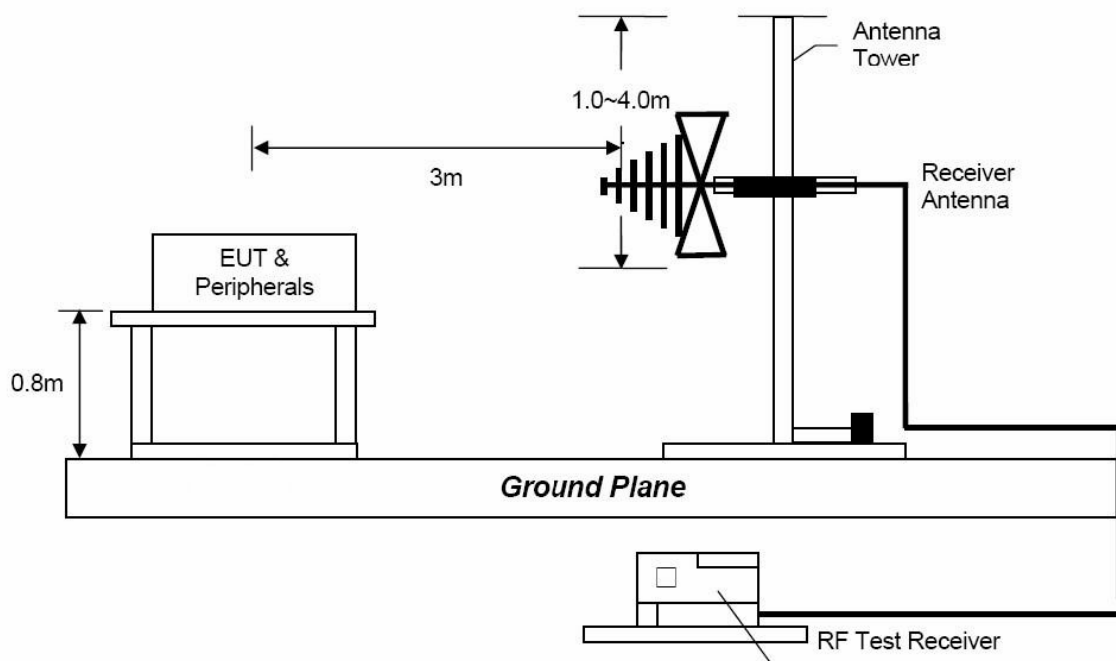
File:ABLA\#4

Page: 1

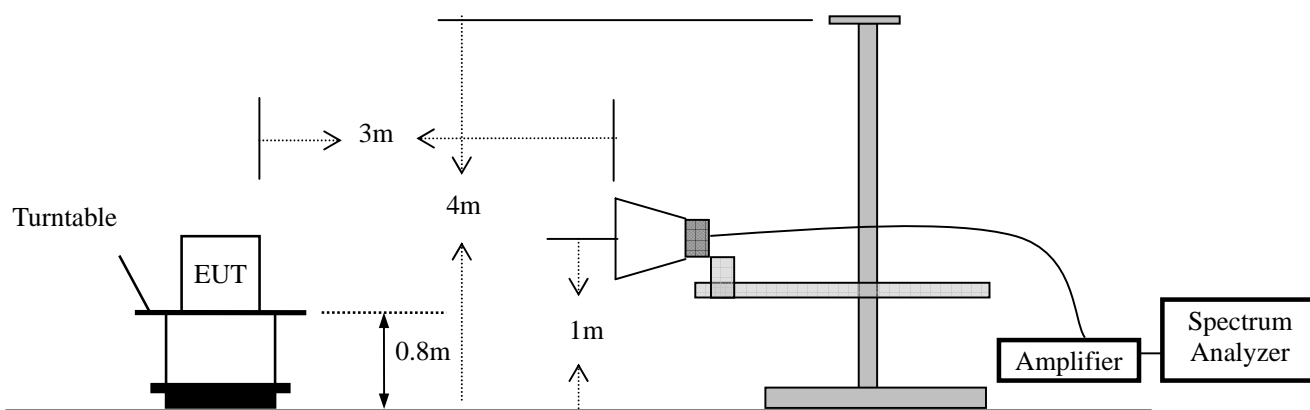
5. Radiated Emission Test

5.1 Test SET-UP (Block Diagram of Configuration)

Radiated Emission Test Set-Up, Frequency Below 1GHz



Radiated Emission Test Set-Up, Frequency above 1GHz



5.2 Measurement Result

| | | | |
|--------------------|------------|---------------|-------------------|
| Operation Mode: | TX+RX Mode | Test Date : | November 08, 2011 |
| Frequency Range: | 30~1000MHz | Temperature : | 22 °C |
| Test Result: | PASS | Humidity : | 50 % |
| Measured Distance: | 3m | Test By: | Think |

| Freq. (MHz) | Ant.Pol. H/V | Emission Level (dBuV) | Limit 3m (dBuV/m) | Margin (dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 33.84 | V | 33.59 | 40.00 | -6.41 | PK |
| 49.95 | V | 29.83 | 40.00 | -10.17 | PK |
| 53.47 | V | 26.94 | 40.00 | -13.06 | PK |
| 127.90 | V | 27.58 | 43.50 | -15.92 | PK |
| 195.62 | V | 28.51 | 43.50 | -14.99 | PK |
| 31.69 | H | 30.47 | 40.00 | -9.53 | PK |
| 39.82 | H | 31.53 | 40.00 | -8.47 | PK |
| 57.42 | H | 28.55 | 40.00 | -11.45 | PK |
| 137.60 | H | 28.80 | 43.50 | -14.7 | PK |
| 211.80 | H | 29.24 | 43.50 | -14.26 | PK |

Note: (1) All Readings are Peak Value.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

| | | | |
|--------------------|---------------|---------------|-------------------|
| Operation Mode: | TX Mode (Low) | Test Date : | November 08, 2011 |
| Frequency Range: | Above 1GHz | Temperature : | 22 °C |
| Test Result: | PASS | Humidity : | 50 % |
| Measured Distance: | 3m | Test By: | Think |

| Freq. (MHz) | Ant.Pol. H/V | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Margin(dB) | |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4804 | V | 50.59 | 41.53 | 74.00 | 54.00 | -23.41 | -12.47 |
| 7206 | V | 49.67 | 40.19 | 74.00 | 54.00 | -24.33 | -13.81 |
| 9608 | V | 49.52 | 40.02 | 74.00 | 54.00 | -24.48 | -13.98 |
| 12010 | V | 47.23 | 39.17 | 74.00 | 54.00 | -26.77 | -14.83 |
| 4804 | H | 51.28 | 40.95 | 74.00 | 54.00 | -12.72 | -13.05 |
| 7206 | H | 49.23 | 39.38 | 74.00 | 54.00 | -24.77 | -14.62 |
| 9608 | H | 48.85 | 39.12 | 74.00 | 54.00 | -25.15 | -14.88 |
| 12010 | H | 50.34 | 41.26 | 74.00 | 54.00 | -23.66 | -12.74 |

Other harmonics emissions are lower than 20dB below the allowable limit.

Note:

- (1) All Readings are Peak Value and AV.
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss
- (3) The average measurement was not performed when the peak measured data under the limit of average detection.

| | | | |
|--------------------|---------------|---------------|-------------------|
| Operation Mode: | TX Mode (Mid) | Test Date : | November 08, 2011 |
| Frequency Range: | Above 1GHz | Temperature : | 22 °C |
| Test Result: | PASS | Humidity : | 50 % |
| Measured Distance: | 3m | Test By: | Think |

| Freq. (MHz) | Ant.Pol. H/V | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Margin(dB) | |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4882 | V | 49.68 | 39.25 | 74.00 | 54.00 | -24.32 | -14.75 |
| 7323 | V | 47.24 | 37.65 | 74.00 | 54.00 | -26.76 | -16.35 |
| 9764 | V | 47.85 | 37.12 | 74.00 | 54.00 | -26.15 | -16.88 |
| 12205 | V | 45.53 | 35.68 | 74.00 | 54.00 | -28.47 | -18.32 |
| 4882 | H | 50.24 | 40.82 | 74.00 | 54.00 | -23.76 | -13.18 |
| 7323 | H | 49.64 | 39.11 | 74.00 | 54.00 | -24.36 | -14.89 |
| 9764 | H | 50.23 | 40.65 | 74.00 | 54.00 | -23.77 | -13.35 |
| 12205 | H | 47.67 | 37.51 | 74.00 | 54.00 | -26.33 | -16.49 |

Other harmonics emissions are lower than 20dB below the allowable limit.

Note:

- (1) All Readings are Peak Value and AV.
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss
- (3) The average measurement was not performed when the peak measured data under the limit of average detection.

| | | | |
|--------------------|----------------|---------------|-------------------|
| Operation Mode: | TX Mode (High) | Test Date : | November 08, 2011 |
| Frequency Range: | Above 1GHz | Temperature : | 22 °C |
| Test Result: | PASS | Humidity : | 50 % |
| Measured Distance: | 3m | Test By: | Think |

| Freq. (MHz) | Ant.Pol. H/V | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Margin(dB) | |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4960 | V | 50.65 | 41.03 | 74.00 | 54.00 | -23.35 | -12.97 |
| 7440 | V | 49.67 | 39.70 | 74.00 | 54.00 | -24.33 | -14.30 |
| 9920 | V | 47.82 | 38.56 | 74.00 | 54.00 | -26.18 | -15.44 |
| 12400 | V | 47.03 | 36.92 | 74.00 | 54.00 | -26.97 | -17.08 |
| 4960 | H | 51.31 | 41.62 | 74.00 | 54.00 | -22.69 | -12.38 |
| 7440 | H | 48.63 | 39.64 | 74.00 | 54.00 | -25.37 | -14.36 |
| 9920 | H | 50.11 | 40.19 | 74.00 | 54.00 | -23.89 | -13.81 |
| 12400 | H | 47.94 | 38.84 | 74.00 | 54.00 | -26.06 | -15.16 |

Other harmonics emissions are lower than 20dB below the allowable limit.

Note:

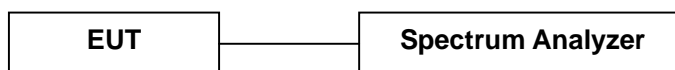
- (1) All Readings are Peak Value and AV.
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss
- (3) The average measurement was not performed when the peak measured data under the limit of average detection.

6. Channel Separation test

6.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

6.2 Test SET-UP (Block Diagram of Configuration)



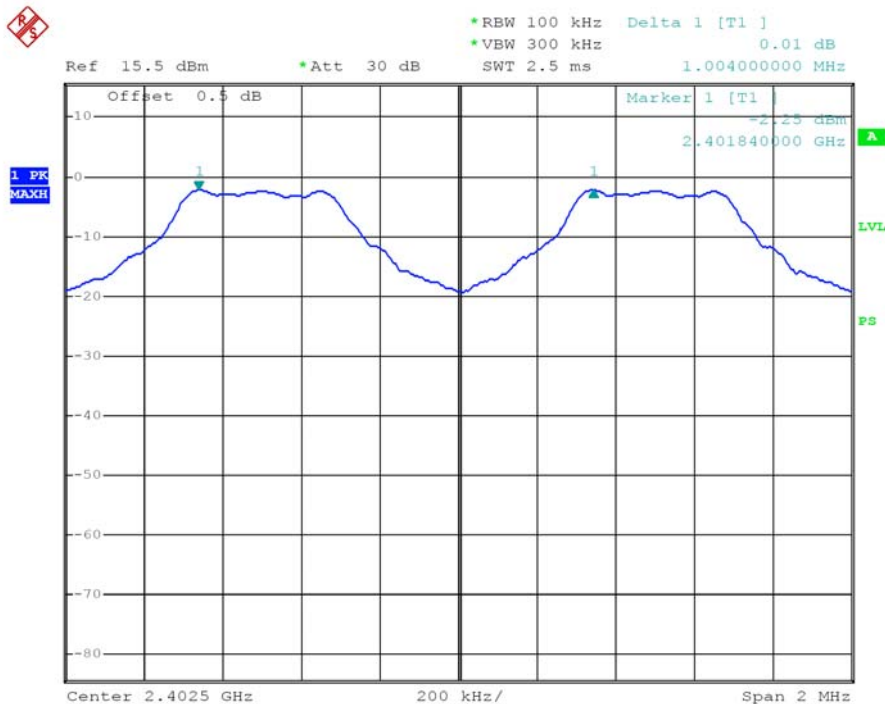
6.3 Measurement Results:

Refer to attached data chart.

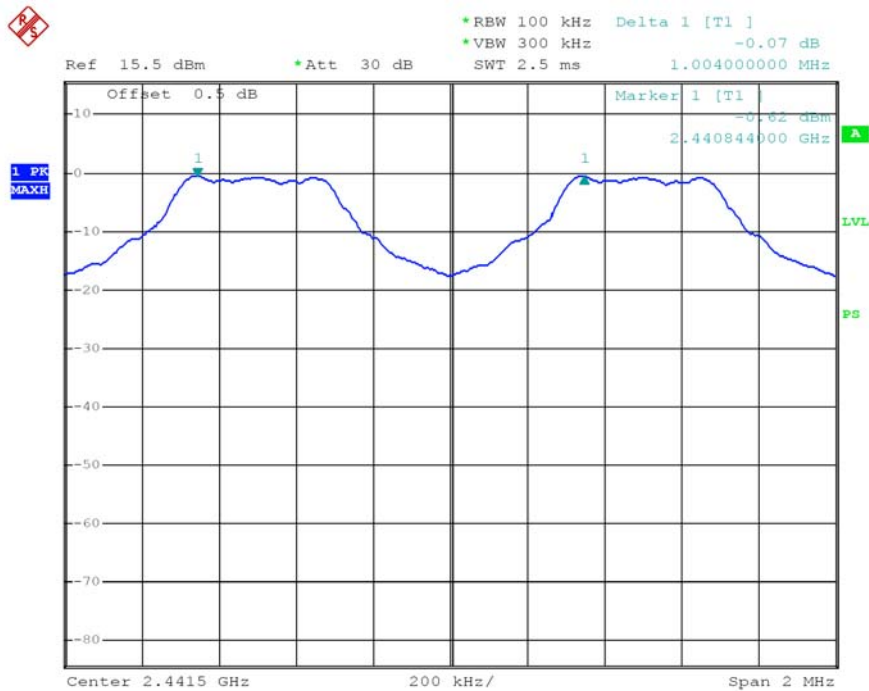
| | | | |
|--------------------|--------|---------------|-------------------|
| Modulation | GFSK | VBW: | 300KHz |
| RBW: | 100KHz | Test Date : | November 10, 2011 |
| Spectrum Detector: | PK | Temperature : | 24 °C |
| Test By: | Think | Humidity : | 50 % |
| Test Result: | PASS | | |

| Channel number | Channel frequency (MHz) | Separation Read Value (KHz) | Separation Limit (KHz) |
|----------------|-------------------------|-----------------------------|------------------------|
| Lowest | 2402 | 1004 | >581.3 |
| Middle | 2441 | 1004 | >581.3 |
| Highest | 2480 | 1004 | >581.3 |

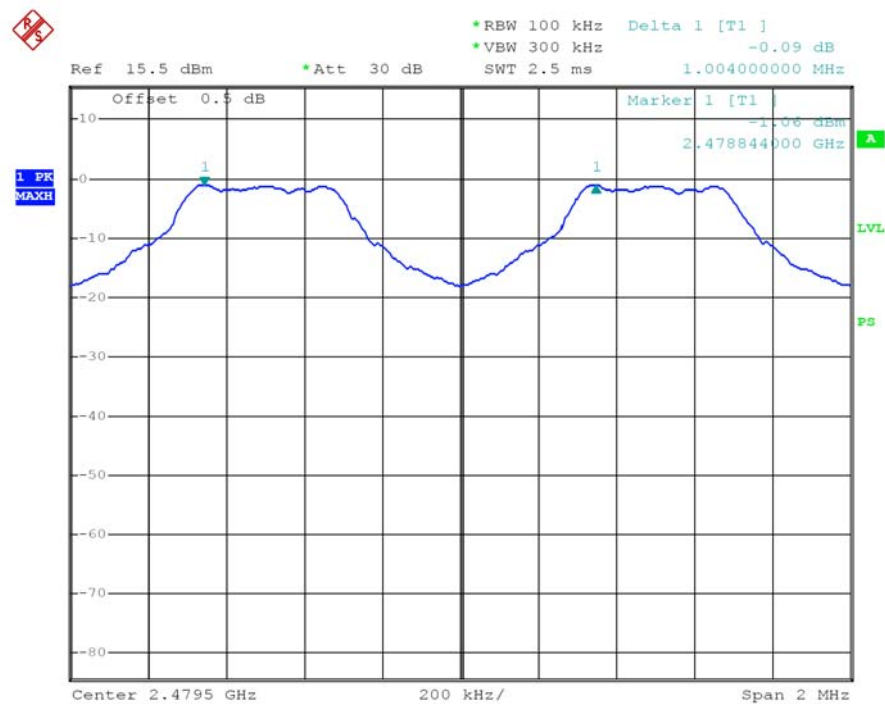
Lowest Channel



Middle Channel



Highest Channel



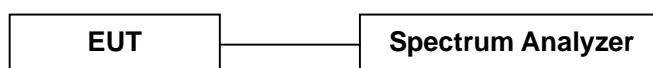
7. 20dB Bandwidth

7.1 Measurement Procedure

Maximum 20dB RF Bandwidth, FCC Rule 15.247(a)(1):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was chosen so that the display was a result of the hopping channel modulation. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. Use the spectrum 20dB down delta function to measure the bandwidth.

7.2 Test SET-UP (Block Diagram of Configuration)



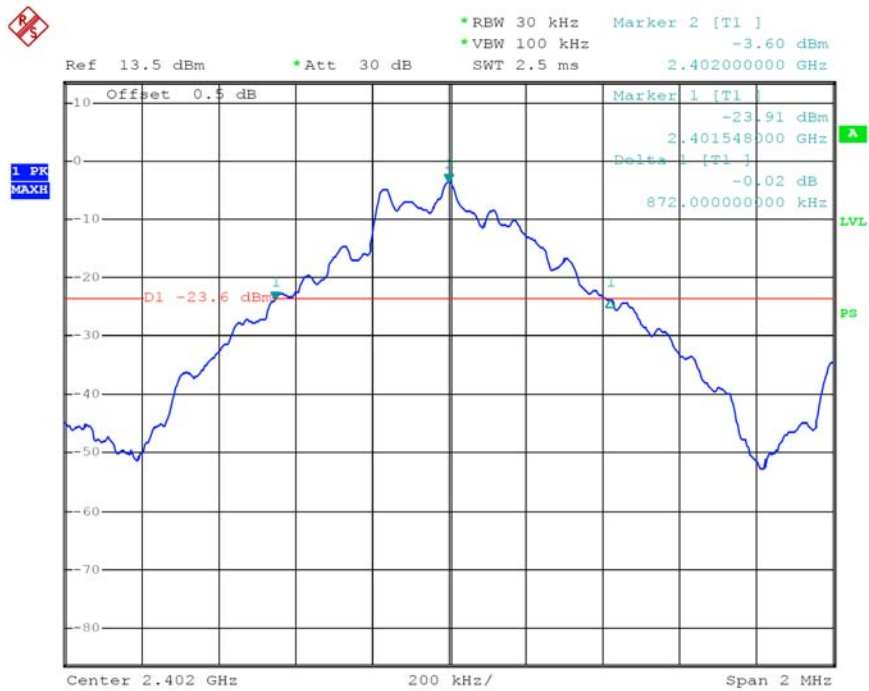
7.3 Measurement Results:

Refer to attached data chart.

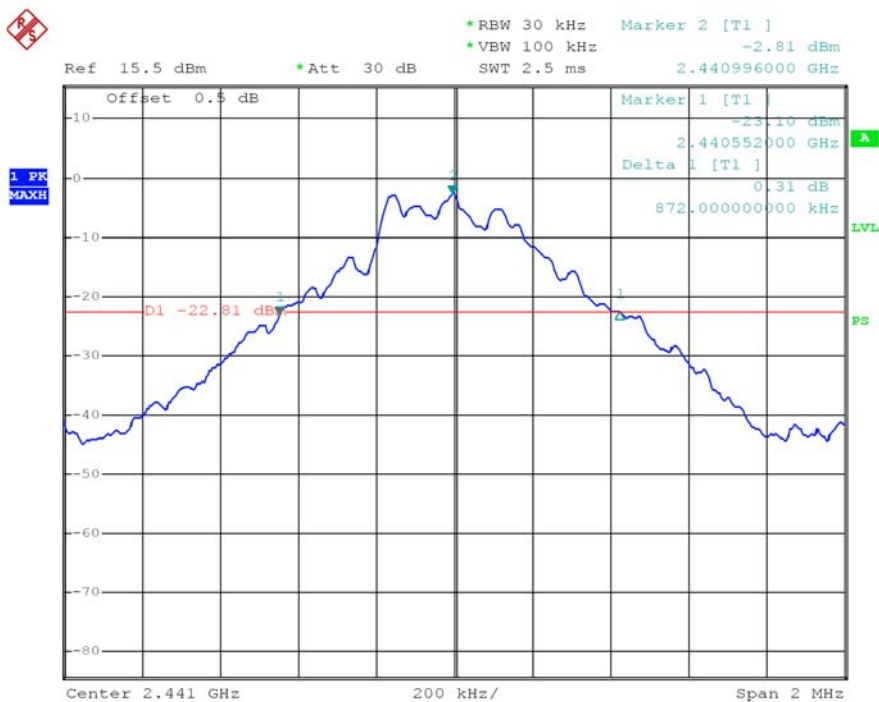
| | | | |
|--------------------|-------|---------------|-------------------|
| Modulation | GFSK | Packet | DH 5 |
| RBW | 30KHz | VBW | 100KHz |
| Spectrum Detector: | PK | Test Date : | November 10, 2011 |
| Test By: | Think | Temperature : | 23 °C |
| Test Result: | PASS | Humidity : | 50 % |

| Channel frequency (MHz) | 20dB Down BW(kHz) |
|-------------------------|-------------------|
| 2402 | 872 |
| 2441 | 872 |
| 2480 | 872 |

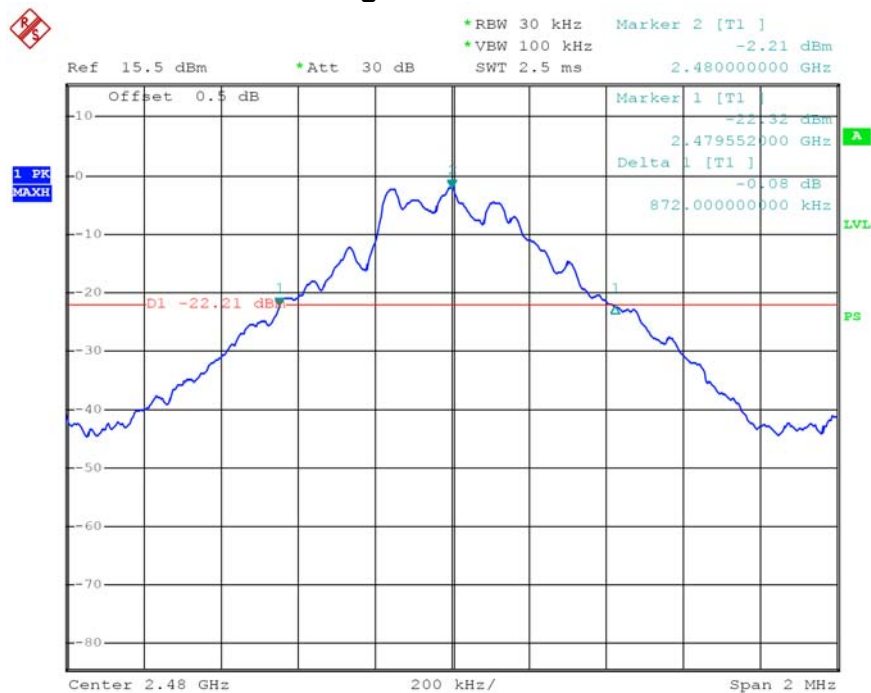
Lowest Channel



Middle Channel



Highest Channel



8. Hopping Channel Number

8.1 Measurement Procedure

Minimum Number of Hopping Frequencies, FCC Rule 15.247(a)(1)(iii):

Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum, and the spectrum analyzer set to MAX HOLD readings were taken for 3-5 minutes. The channel peaks so recorded were added together, and the total number compared to the minimum number of channels required in the regulation.

8.2 Test SET-UP (Block Diagram of Configuration)

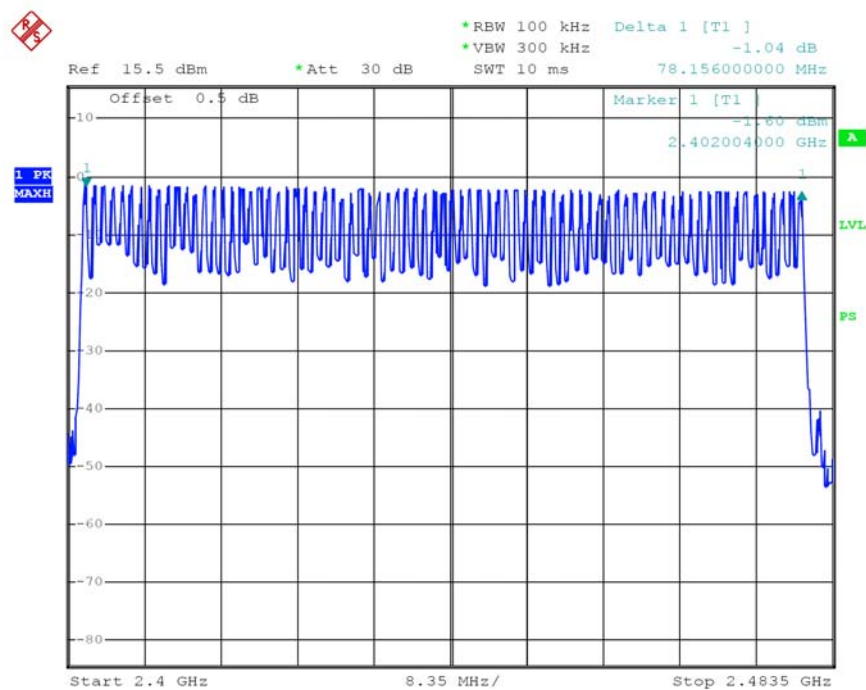


8.3 Measurement Results:

Refer to attached data chart.

| | | | |
|--------------------|--------|---------------|-------------------|
| Modulation | GFSK | VBW | 300KHz |
| RBW | 100KHz | Test Date : | November 09, 2011 |
| Spectrum Detector: | PK | Temperature : | 23 °C |
| Test By: | Think | Humidity : | 50 % |
| Test Result: | PASS | | |

| Hopping Channel Frequency Range | Number of Hopping Channels | Limit |
|---------------------------------|----------------------------|-------|
| 2402-2480 | 79 | >15 |



9. Time of Occupancy (Dwell Time)

9.1 Measurement Procedure

Average Channel Occupancy Time, FCC Ref:15.247(a)(1)(iii):

Connect EUT antenna terminal to the specturm analyzer with a low loss cable.

The spectrum analyzer center frequency was set to one of the known hopping channels. The Sweep was set to 10ms, the SPAN was set to Zero SPAN. The time duration of the transmissions so captured was measured with the Marker Delta function

9.2 Measurement Results:

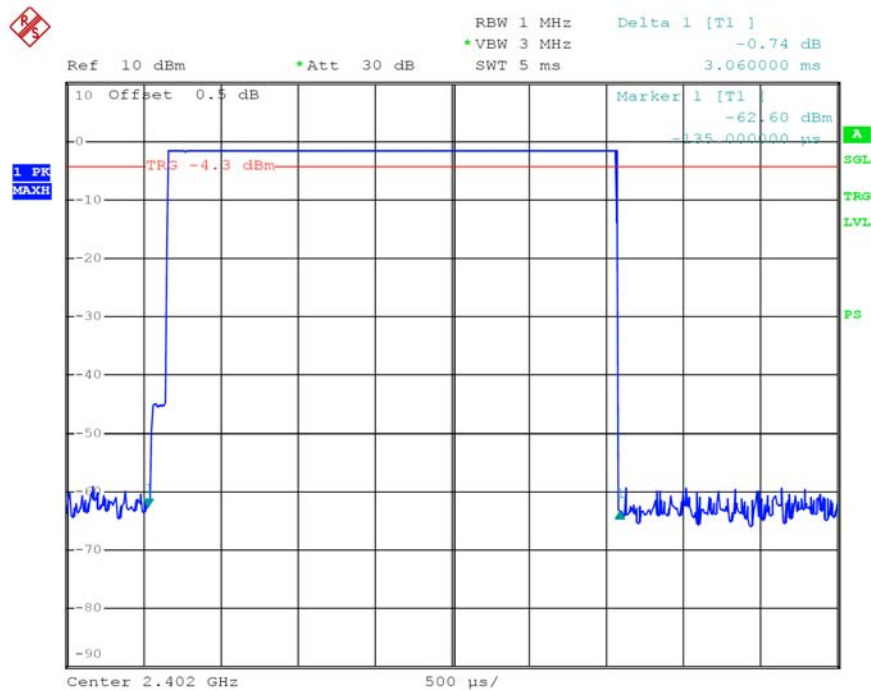
The maximum number of hopping channels in 31.6s (0.4s/Channel x 79 Channel)

Refer to attached data chart.(worst data DH 5)

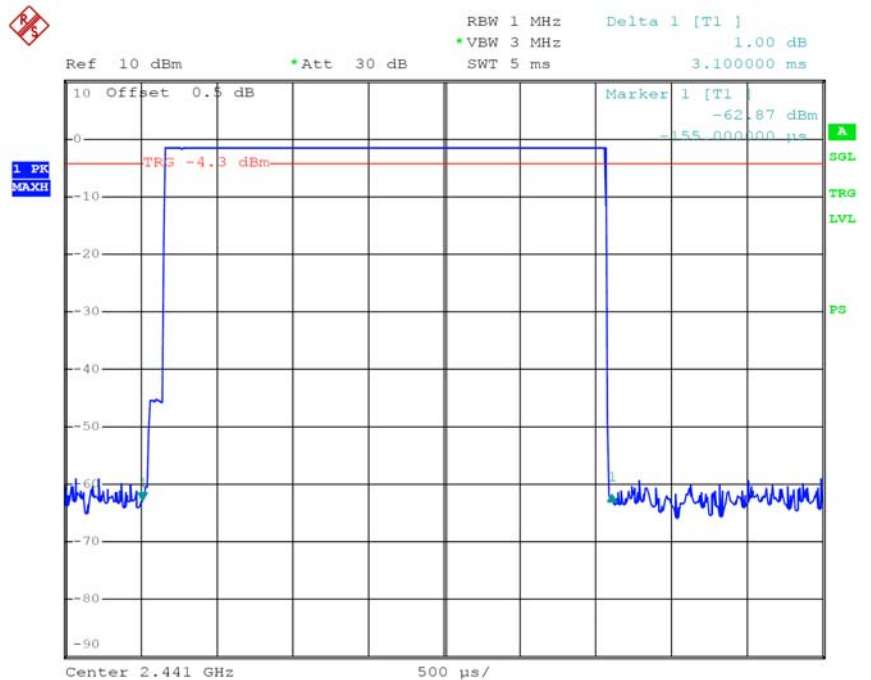
| | | | |
|--------------------|-------|---------------|-------------------|
| Modulation : | GFSK | Packet : | DH 1, DH 3, DH 5 |
| RBW : | 1MHz | VBW : | 3MHz |
| Spectrum Detector: | PK | Test Date : | November 09, 2011 |
| Test By: | Think | Temperature : | 22 °C |
| Test Result: | PASS | Humidity : | 52 % |

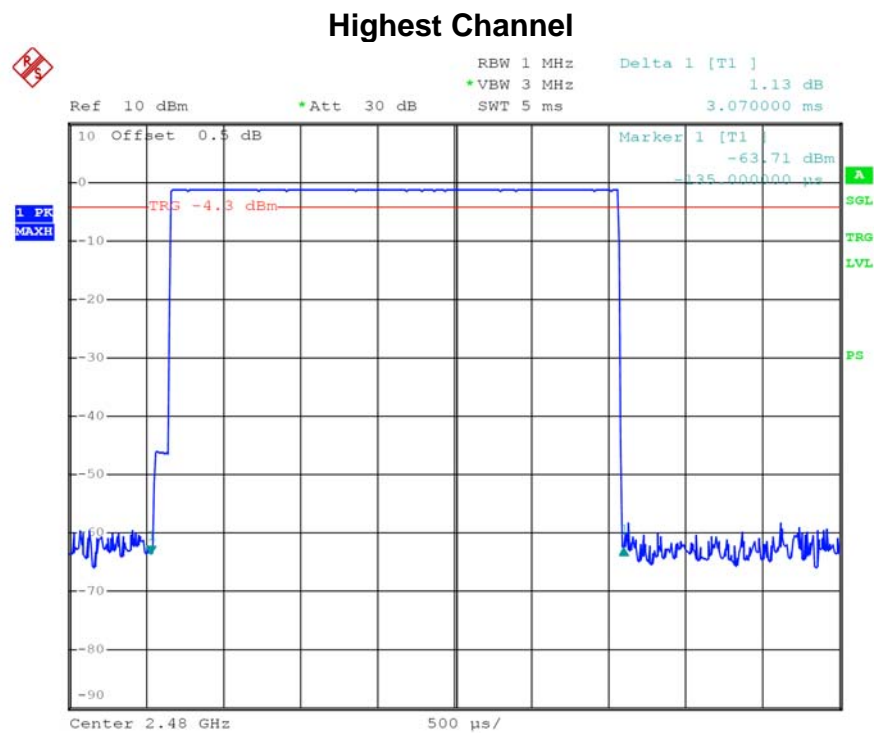
| Packet | Frequency (MHz) | Result (msec) | Limit (msec) |
|--------|-----------------|--|--------------|
| DH5 | 2402 | $3.06(\text{ms}) * (1600 / (6 * 79)) * 31.6 = 326.4$ | 400 |
| DH5 | 2441 | $3.10(\text{ms}) * (1600 / (6 * 79)) * 31.6 = 330.7$ | 400 |
| DH5 | 2480 | $3.07(\text{ms}) * (1600 / (6 * 79)) * 31.6 = 327.5$ | 400 |

Lowest Channel



Middle Channel





10. MAXIMUM PEAK OUTPUT POWER

10.1 Measurement Procedure

Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(1): Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum. The analyzer was set for RBW > 20dB bandwidth and power was read directly in dBm. Cable loss was considered during this measurement.

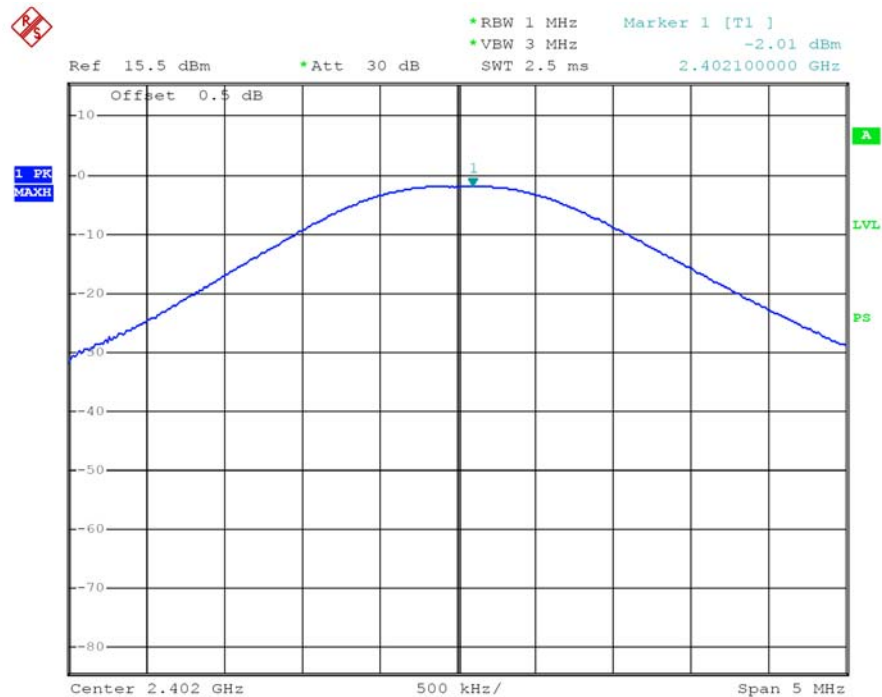
10.2 Measurement Results:

Refer to attached data chart.

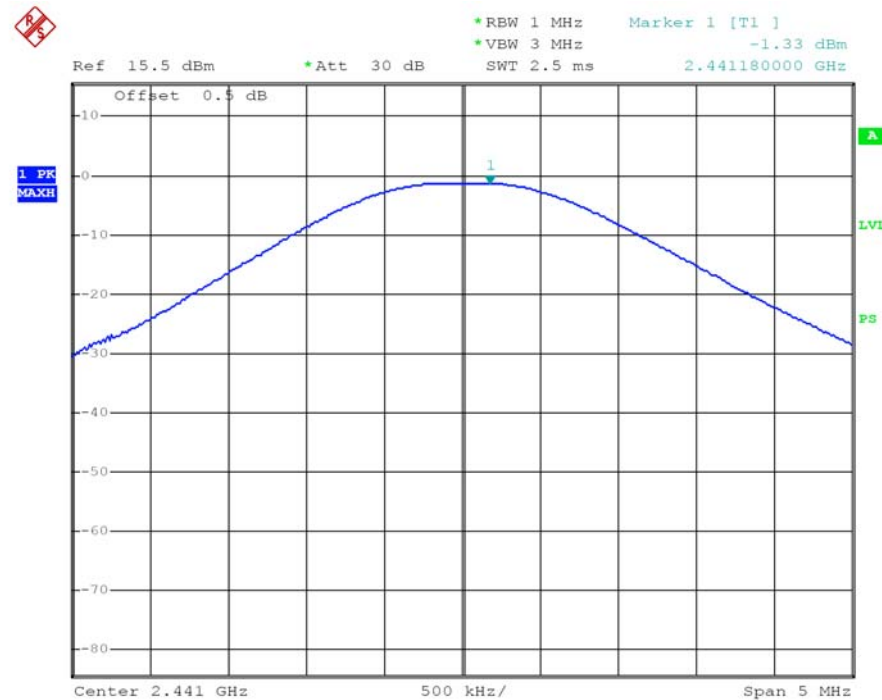
| | | | |
|--------------------|-------|---------------|-------------------|
| Modulation : | GFSK | Packet : | DH 5 |
| RBW : | 1MHz | VBW : | 3MHz |
| Spectrum Detector: | PK | Test Date : | November 09, 2011 |
| Test By: | Think | Temperature : | 23 °C |
| Test Result: | PASS | Humidity : | 50 % |

| Channel Frequency (MHz) | Cable Loss dB | Peak Power output(mW) | Peak Power output(dBm) | Peak Power Limit(mW) | Pass/Fail |
|-------------------------|---------------|-----------------------|------------------------|----------------------|-----------|
| 2402.00 | 1.5 | 0.630 | -2.01 | 125 | PASS |
| 2441.00 | 1.5 | 0.736 | -1.33 | 125 | PASS |
| 2480.00 | 1.5 | 0.845 | -0.73 | 125 | PASS |

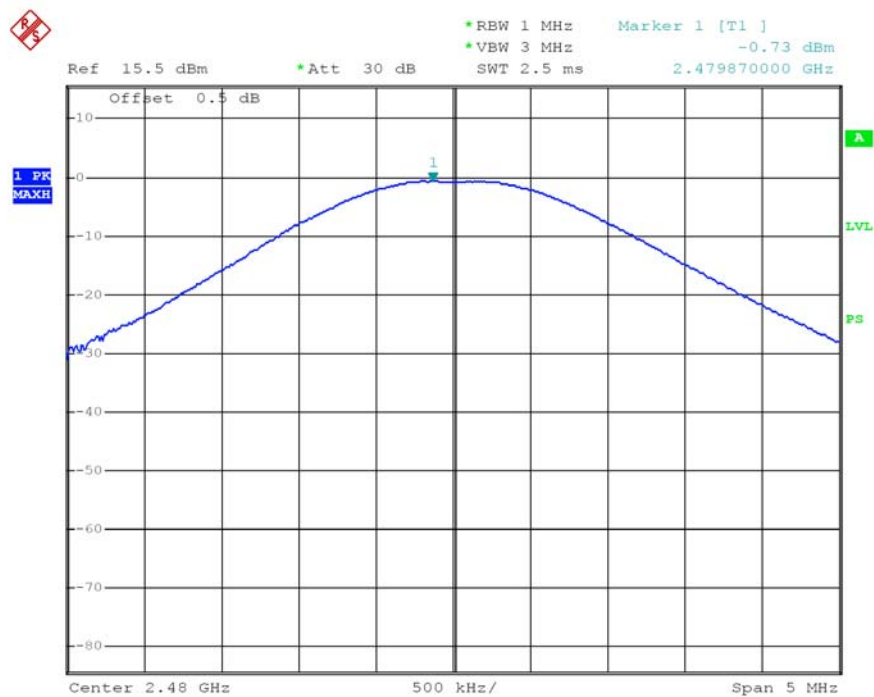
Lowest Channel



Middle Channel



Highest Channel



11. Band Edge

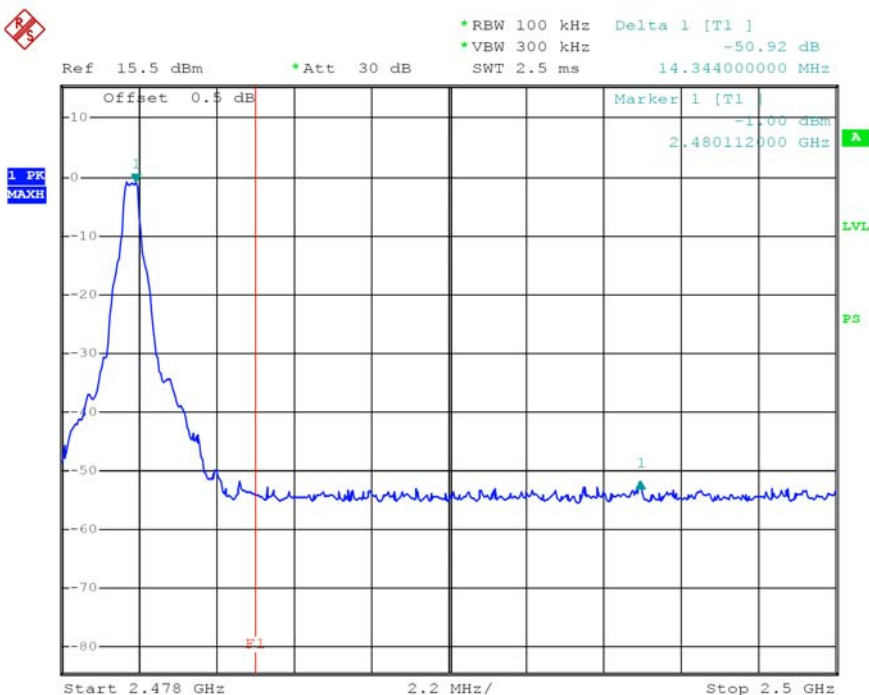
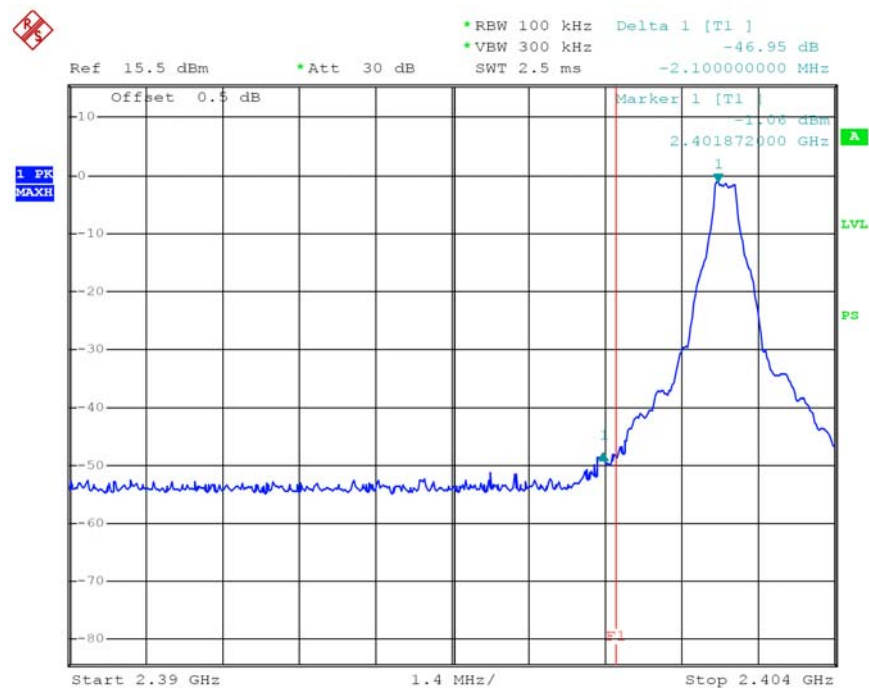
11.1 Measurement Procedure

Out of Band Conducted Emissions, FCC Rule 15.247(d):

The transmitter output is connected to spectrum analyzer. The resolution bandwidth is set to 100KHz, and the video bandwidth set to 300KHz.

11.2 Limit

15.247(d) In any 100KHz 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 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.



12. Antenna Application

12.1 Antenna requirement

According to of FCC part 15C section 15.203 and 15.240:

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

Systems operating in the 2400-2483.5MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

12.2. Result

The EUT has two antennas, one is for Bluetooth, and other for GSM. Both of the antenna are internal and no consideration of replacement. The best case gain of the antennas are 0dBi. So, the antennas are considered meet the requirement.

13. RF Exposure

According to §15.247(i), §2.1093 and 1.1307(b)(1), systems operating under the provisions of this section shall be operated in manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Table 2 – Summary of SAR Evaluation Requirements for a Cell Phone with Multiple Transmitters

| | Individual Transmitter | Simultaneous Transmission |
|--------------------------------|---|---|
| Licensed Transmitters | <u>Routine evaluation required</u> | SAR not required: <u>Unlicensed only</u> <ul style="list-style-type: none"> when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas Licensed & Unlicensed <ul style="list-style-type: none"> when the sum of the 1-g SAR is < 1.6 W/kg for all simultaneous transmitting antennas when SAR to peak location separation ratio of simultaneous transmitting antenna pair is < 0.3 SAR required: Licensed & Unlicensed antenna pairs with SAR to peak location separation ratio ≥ 0.3 ; test is only required for the configuration that results in the highest SAR in stand-alone configuration for each wireless mode and exposure condition Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply |
| Unlicensed Transmitters | <p>When there is no simultaneous transmission –</p> <ul style="list-style-type: none"> output ≤ 60 f: SAR not required output > 60 f: stand-alone SAR required <p>When there is simultaneous transmission – <u>Stand-alone SAR not required when</u></p> <ul style="list-style-type: none"> output $\leq 2 \cdot P_{Ref}$ and antenna is ≥ 5.0 cm from other antennas output $\leq P_{Ref}$ and antenna is ≥ 2.5 cm from other antennas output $\leq P_{Ref}$ and antenna is < 2.5 cm from other antennas, each with either output power $\leq P_{Ref}$ or 1-g SAR < 1.2 W/kg <p><u>Otherwise stand-alone SAR is required</u></p> <p>When stand-alone SAR is required</p> <ul style="list-style-type: none"> test SAR on highest output channel for each wireless mode and exposure condition if SAR for highest output channel is $> 50\%$ of SAR limit, evaluate all channels according to normal procedures | |
| Jaw, Mouth and Nose | <p><u>Flat phantom SAR required</u></p> <ul style="list-style-type: none"> when measurement is required in tight regions of SAM and it is not feasible or the results can be questionable due to probe tilt, calibration, positioning and orientation issues position rectangular and clam-shell phones according to flat phantom procedures and conduct SAR measurements for these specific locations | When simultaneous transmission SAR testing is required, contact the FCC Laboratory for interim guidance. |

Result:

The EUT has two antennas are available, one is GSM/PCS antenna, other is Bluetooth antenna, and the distance between GSM and Bluetooth antenna are less than 2.5cm. According to document FCC KDB 648474 D01 SAR Handsets Multi Xmitter and Ant, v01r05, the Max peak output power of Bluetooth is 0.845mw less than Pref (12mW), so, the Bluetooth antenna is considered to comply SAR requirement without stand-alone SAR testing.

14. Test Equipment List

| Description | Manfucaturer | Model Number | Serial Number | Calibration Date | Calibration Due Date |
|---|---|--------------|---------------|------------------|----------------------|
| Receiver | Rohde & Schwarz | ESCI7 | 100837 | Mar.14 2011 | Mar.14 2012 |
| Receiver | Rohde & Schwarz | ESCI | 101152 | Mar. 09, 2011 | Mar.09 2012 |
| L.I.S.N | Rohde & Schwarz | ENV-216 | 101317 | Mar. 07, 2011 | Mar. 07, 2012 |
| RF Switching Unit | Compliance Direction Systems Inc. | RSU-M2 | 38311 | Mar. 07, 2011 | Mar. 07, 2012 |
| Spectrum Analyzer | Agilent | 8564E | 3943A10314 | Mar. 19, 2011 | Mar. 19, 2012 |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU200 | 108462 | Aug. 15, 2011 | Aug. 15, 2012 |
| Pre-Amplifier | HP | 8447D | 2944A07999 | Mar. 19, 2011 | Mar. 19, 2012 |
| Broadband Antenna | Schwarzbeck | VULB9162 | 9162-010 | Apr. 18, 2011 | Apr. 18, 2012 |
| Horn Antenna | Schwarzbeck | BBHA9120D | D262 | Mar. 26, 2011 | Mar. 26, 2012 |
| Horn Antenna | ETS | 3116 | 00101347 | Apr. 24, 2011 | Apr. 24, 2012 |
| Pre-Amplifier | Agilent | 8449B | 3008A02964 | Mar. 19, 2011 | Mar. 19, 2012 |
| Cable | UBER+SUHNER | CBL2-NN-1M | 22320001 | Mar. 19, 2011 | Mar. 19, 2012 |
| Cable | Schwarzbeck | CIL02 | N/A | Mar. 19, 2011 | Mar. 19, 2012 |