

Report No.: ER/2010/A0024 Issue Date: Dec. 08, 2010

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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C AND CANADA RSS-210 REQUIREMENT

OF

Product Name: Fitbit Base Station

Brand Name: N/A

Model Name: F004

Model Difference: N/A

FCC ID: XRAF004

IC: 8542A-F004

Report No.: ER/2010/A0024

Issue Date: Dec. 08, 2010

FCC Rule Part: §15.249

IC Rule Part: RSS-210 issue 7:2007, Annex 2.9

Prepared for: Ftibit, Inc.

625 Market St., Suite 1400, San Francisco, CA

94105

Prepared by: SGS Taiwan Ltd.

Electronics & Communication Laboratory

No. 134, Wu Kung Rd., Wuku Industrial Zone,

Taipei County, Taiwan.



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Model No.:

FCC ID: XRAF004 IC: 8542A-F004 Report No.: ER/2010/A0024 Issue Date: Dec. 08, 2010

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VERIFICATION OF COMPLIANCE

Applicant: Ftibit, Inc.

625 Market St., Suite 1400, San Francisco, CA 94105

Product Description: Ftibit Base Station

FCC ID: XRAF004

IC: 8542A-F004

Brand Name: N/A

Model Difference: N/A

File Number: ER/2010/A0024

Date of test: Oct. 21, 2010 ~ Dec. 08, 2010

F004

Date of EUT Received: Oct. 21, 2010

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd., Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.249 and RSS-210 issue 7: 2007 Annex 2.9.

The test results of this report relate only to the tested sample identified in this report.

| Test By: | Bondi Jin | Date: | Dec. 08, 2010 |
|--------------|----------------------|-------|---------------|
| | Bondi Liu / Engineer | | |
| Prepared By: | Cherry Chen | Date: | Dec. 08, 2010 |
| | Cherry Chen / Clerk | | |
| Approved By: | Almo Hsieh | Date: | Dec. 08, 2010 |
| | | | |

Arno Hsieh / Asst. Supervisor

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Version

| Version No. | Date | Description |
|-------------|---------------|------------------------------|
| 00 | Dec. 08, 2010 | Initial creation of document |
| | | |

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GENERAL INFORMATION 1.

1.1. **Product Description**

The Fitbit Base Station, Model: F004 (referred to as the EUT in this report) is a 2.4 G Base

A major technical descriptions of EUT is described as following:

A) Transition Frequency: 2400-2483.5MHz, 78 channels

B) Modulation Type: GFSK

C) Power Supply: 5Vdc from USB port

D) Antenna Designation: PCB Printed Antenna type

1.2. **Related Submittal(s) / Grant (s)**

This submittal(s) (test report) is intended for FCC ID: XRAF004 filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules and IC: 8542A-F004 filing to comply with Industry Canada RSS-210 issue 7: 2007 Annex 2.9.

1.3. **Test Methodology**

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003) and RSS-Gen: 2007. Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4. **Test Facility**

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-4.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

1.5. **Special Accessories**

Not available for this EUT intended for grant.

1.6. **Equipment Modifications**

Not available for this EUT intended for grant.

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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. **EUT Exercise**

The Transmitter was operated in the engineering operating mode, the Tx frequency was fixed at 2402, 2440 and 2480MHz which were for the purpose of the measurements.

Test Procedure 2.3.

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003 and RSS-Gen: 2007. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as 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 8 and 13 of ANSI C63.4-2003 and RSS-Gen:2007.

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2.4. Limitation

(1) Conducted Emission

According to section 15.207(a) and RSS-Gen §7.2.2 Conducted Emission Limits is as following.

| Frequency | Conducted Limit (dBuV) | | | | |
|------------|------------------------|---------|--|--|--|
| (MHz) | Quasi-Peak | Average | | | |
| 0.15 - 0.5 | 66 - 56 | 56 - 46 | | | |
| 0.5 - 5 | 56 | 46 | | | |
| 5 - 30 | 60 | 50 | | | |

(2) Radiated Emission 15.249(a) and RSS-210 issue 7,§A2.9(a)

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following.

| Frequency | Field strength of | Field strength of | Distance (m) |
|---------------|-------------------|-------------------|--------------|
| (MHz) | Fundamental | Harmonics | |
| 902 - 928 | 50 mV/m | 500 uV/m | 3 |
| | (94dBuV/m) | (54dBuV/m) | |
| 2400 – 2483.5 | 50 mV/m | 500 uV/m | 3 |
| | (94dBuV/m) | (54dBuV/m) | |
| 5725 – 5875 | 50 mV/m | 500 uV/m | 3 |
| | (94dBuV/m) | (54dBuV/m) | |

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(3) Radiated Emission15.249 (d) and RSS-210 issue 7,§A2.9(b)

Emission Radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in Section 15.209 and RSS-210 issue 7,§A2.9(a) as below, whichever is the lesser attenuation.

| Frequency | | | Field strength at 3m |
|-----------|------|----|----------------------|
| (MHz) | μV/m | | dBμV/m |
| 1.705-30 | 30 | 30 | 69.54 |
| 30-88 | 100 | 3 | 40 |
| 88-216 | 150 | 3 | 43.5 |
| 216-960 | 200 | 3 | 46 |
| Above 960 | 500 | 3 | 54 |

(4) Radiated Emission 15.249(e) and RSS-210 issue 7

For frequencies above 1000MHz, the above field strength limits are based on average limits. The peak filed strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation.

Remark: 1. Emission level in dBuV/m=20 log (uV/m)

- 2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
- 3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205
- 4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of ξ 15.205, then the general radiated emission limits in ξ 15.209 apply.

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2.5. Configuration of Tested System

Fig. 2-1 Configuration of TX

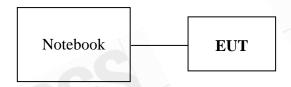


Table 2-2 Equipment Used in Tested System

| Item | Equipment | Mfr/Brand | Model/ Type No. | FCC ID | Series No. | Data Cable | Power Cord |
|------|-----------|-----------|--------------------|--------|------------|------------|--------------|
| 1. | Notebook | HP | Probook4411s | N/A | CNU9316V4C | N/A | Un-shielding |

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

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SUMMARY OF TEST RESULTS 3.

| FCC Rules | Description Of Test | Result |
|-----------------------------|-----------------------------|-----------|
| §15.207/ | Conducted Emission | Compliant |
| RSS-Gen §7.2.2 | | |
| §15.249(a)(d)(e) | Field Strength Measurement | Compliant |
| RSS-210 issue 7,§A2.9(a)(b) | (TX and RX) | |
| §15.215(c) | 20dB band width Measurement | Compliant |
| RSS-Gen §4.6.1 | 99% Power Bandwidth | Compliant |

Description of test modes

The EUT has been tested under operating condition.

Test program used to control the EUT for staying in continuous transmitting and receive mode is programmed.

Channel low (2402MHz) · mid (2440MHz) and high (2480MHz) with highest data rate are chosen for full testing.

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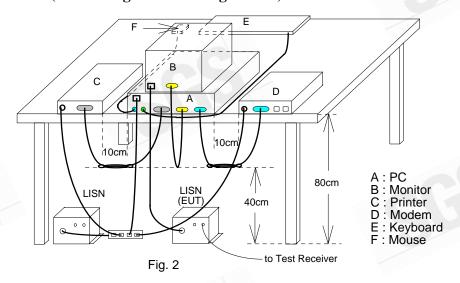
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4. CONDUCTED EMISSIONS TEST

4.1 **Measurement Procedure:**

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured were complete.

Test SET-UP (Block Diagram of Configuration)



4.3 **Measurement Equipment Used:**

| Conducted Emission Test Site | | | | | | | | | |
|------------------------------|------------|-------------------------|------------|------------|------------|--|--|--|--|
| EQUIPMENT | MFR | MODEL | SERIAL | LAST | CAL DUE. | | | | |
| TYPE | | NUMBER | NUMBER | CAL. | | | | | |
| EMI Test Receiver | R&S | ESCS30 | 828985/004 | 09/15/2010 | 09/14/2011 | | | | |
| LISN | Rolf-Heine | NNB-2/16Z | 99012 | 02/02/2010 | 02/01/2011 | | | | |
| LISN | FCC | FCC-LISN-50/250-25-2-01 | 04034 | 02/02/2010 | 02/01/2011 | | | | |
| Coaxial Cables | N/A | WK CE Cable | N/A | 11/28/2010 | 11/27/2011 | | | | |

Measurement Result:

Note: Refer to next page for measurement data and plots.

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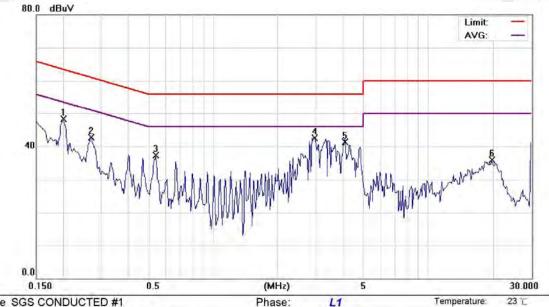
Humidity:

Air Pressure:

hpa

AC POWER LINE CONDUCTED EMISSION TEST DATA

| Operation Mode: | Operation N | Mode | | Test Date: | Dec. 07, 2010 |
|-----------------|-------------|-----------|------|------------|---------------|
| Temperature: | 23 °C | Humidity: | 55 % | Test By: | Bondi |



Power:

Distance:

L1

AC 120V/60Hz

Site SGS CONDUCTED #1

Limit: FCC Class B Conduction(QP)

EUT: Fitbit Base Station

M/N: F004

Note: Operation Mode

| No. Mk. | Freq. | Reading Level | Factor | Measure- ment | Limit | Over | | |
|---------|---------|------------------|--------|------------------|-------|--------|----------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | 0.2000 | 48.15 | 0.12 | 48.27 | 63.61 | -15.34 | peak | |
| 2 | 0.2700 | 42.60 | 0.12 | 42.72 | 61.12 | -18.40 | peak | |
| 3 | 0.5400 | 37.24 | 0.12 | 37.36 | 56.00 | -18.64 | peak | |
| 4 * | 2.9600 | 42.41 | 0.18 | 42.59 | 56.00 | -13.41 | peak | |
| 5 | 4.1137 | 41.06 | 0.20 | 41.26 | 56.00 | -14.74 | peak | |
| 6 | 19.7600 | 35.44 | 0.50 | 35.94 | 60.00 | -24.06 | peak | |

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Report No.: ER/2010/A0024 Issue Date: Dec. 08, 2010

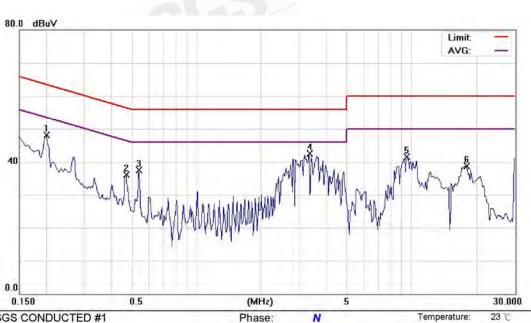
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Humidity:

Air Pressure:

55 %

hpa



Site SGS CONDUCTED #1

Limit: FCC Class B Conduction(QP)

EUT: Fitbit Base Station

M/N: F004

Note: operation Mode

| No. Mk | Freq. | Reading Level | Factor | Measure- ment | Limit | Over | | |
|--------|---------|------------------|--------|------------------|-------|--------|----------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | 0.2000 | 48.05 | 0.13 | 48.18 | 63.61 | -15.43 | peak | |
| 2 | 0.4700 | 35.89 | 0.12 | 36.01 | 56.51 | -20.50 | peak | |
| 3 | 0.5400 | 37.29 | 0.12 | 37.41 | 56.00 | -18.59 | peak | |
| 4 * | 3.3600 | 42.37 | 0.19 | 42.56 | 56.00 | -13.44 | peak | |
| 5 | 9.4800 | 41.10 | 0.47 | 41.57 | 60.00 | -18.43 | peak | |
| 6 | 18.0200 | 38.34 | 0.44 | 38.78 | 60.00 | -21.22 | peak | |

Power:

Distance:

AC 120V/60Hz

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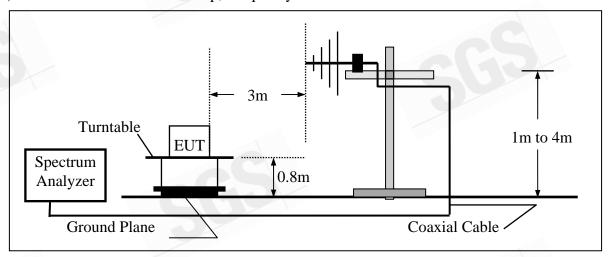
RADIATED EMISSION TEST (TX, RX) 5.

5.1 **Measurement Procedure**

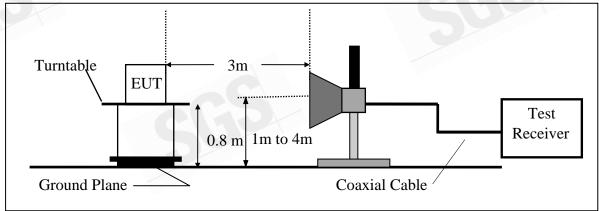
- The EUT was placed on a turntable that is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until all frequency measured were complete.

5.2 **Test SET-UP (Block Diagram of Configuration)**

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



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Measurement Equipment Used:

| 966 Chamber | | | | | | | | | | | |
|-------------------|--------------|------------------------|------------|------------|------------|--|--|--|--|--|--|
| EQUIPMENT | MFR | MODEL | SERIAL | LAST | CAL DUE. | | | | | | |
| TYPE | | NUMBER | NUMBER | CAL. | | | | | | | |
| Spectrum Analyzer | R&S | FSP 40 | 100034 | 02/12/2010 | 02/11/2011 | | | | | | |
| Loop antenna | MESSTEC | FLA30 | 03/10086 | 07/08/2009 | 07/07/2011 | | | | | | |
| Bilog Antenna | SCHWAZBECK | VULB9160 | 9160-3136 | 11/15/2010 | 11/14/2011 | | | | | | |
| Horn antenna | SCHWAZBECK | BBHA 9120D | 9120D-673 | 05/09/2010 | 05/08/2012 | | | | | | |
| Pre-Amplifier | Agilent | 8447D | 1937A02834 | 11/30/2010 | 11/29/2011 | | | | | | |
| Pre-Amplifier | Agilent | 8449B | 3008A01973 | 01/05/2010 | 01/04/2011 | | | | | | |
| Turn Table | HD | DT420 | N/A | N.C.R | N.C.R | | | | | | |
| Antenna Tower | HD | MA240-N | 240/657 | N.C.R | N.C.R | | | | | | |
| Controller | HD | HD100 | N/A | N.C.R | N.C.R | | | | | | |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA-10M | 10m | 01/05/2010 | 01/04/2011 | | | | | | |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA-3M | 3m | 01/05/2010 | 01/04/2011 | | | | | | |
| 3m Site | SGS | 966 chamber | N/A | 11/08/2010 | 11/09/2011 | | | | | | |

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

| Where | FS = Field Strength | CL = Cable Attenuation Factor (Cable Loss) |
|-------|------------------------|--|
| | RA = Reading Amplitude | AG = Amplifier Gain |
| | AF = Antenna Factor | |

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5.5 Measurement Result

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH Low Test Date Dec. 07, 2010

Fundamental Frequency 2402MHz Test By Bondi Temperature 25 °C Pol Ver./Hor

Humidity 65 %

| | | | _ | | | | | |
|---|---------|----------|------------------|---------|--------|-----------|----------|-------------|
| | Freq. | Ant.Pol. | Detector Mode | Reading | Factor | Actual FS | Limit3m | Safe Margin |
| _ | (MHz) | H/V | (PK/QP) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) |
| | 33.88 | V | Peak | 46.58 | -14.65 | 31.93 | 40.00 | -8.07 |
| | 131.85 | V | Peak | 37.63 | -14.33 | 23.30 | 43.50 | -20.20 |
| | 270.56 | V | Peak | 37.58 | -13.54 | 24.04 | 46.00 | -21.96 |
| | 384.05 | V | Peak | 37.99 | -10.54 | 27.45 | 46.00 | -18.55 |
| | 524.70 | V | Peak | 36.55 | -8.06 | 28.49 | 46.00 | -17.51 |
| | 888.45 | V | Peak | 32.60 | -1.23 | 31.37 | 46.00 | -14.63 |
| | | | | | | | | |
| | 41.64 | Н | Peak | 45.98 | -13.76 | 32.22 | 40.00 | -7.78 |
| | 192.96 | Н | Peak | 45.80 | -15.29 | 30.51 | 43.50 | -12.99 |
| | 262.80 | Н | Peak | 43.24 | -13.61 | 29.63 | 46.00 | -16.37 |
| | 384.05 | Н | Peak | 48.25 | -10.54 | 37.71 | 46.00 | -8.29 |
| | 551.86 | Н | Peak | 37.32 | -7.59 | 29.73 | 46.00 | -16.27 |
| | 833.16 | Н | Peak | 33.14 | -2.29 | 30.85 | 46.00 | -15.15 |
| T | Domortz | | | | | | | |

- Remark:
- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH Mid Test Date Dec. 07, 2010

Fundamental Frequency 2440MHz Test By Bondi Temperature 25 °C Pol Ver./Hor

Humidity 65 %

| Freq. | Ant.Pol. | Detector Mode | Reading | Factor | Actual FS | Limit3m | Safe Margin |
|--------|----------|------------------|---------|--------|-----------|----------|-------------|
| (MHz) | H/V | (PK/QP) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) |
| 33.88 | V | Peak | 45.59 | -14.65 | 30.94 | 40.00 | -9.06 |
| 127.00 | V | Peak | 37.32 | -14.71 | 22.61 | 43.50 | -20.89 |
| 262.80 | V | Peak | 35.53 | -13.61 | 21.92 | 46.00 | -24.08 |
| 425.76 | V | Peak | 40.30 | -9.24 | 31.06 | 46.00 | -14.94 |
| 610.06 | V | Peak | 32.30 | -5.81 | 26.49 | 46.00 | -19.51 |
| 888.45 | V | Peak | 31.88 | -1.23 | 30.65 | 46.00 | -15.35 |
| | | | | | | | |
| 34.85 | Н | Peak | 44.03 | -14.58 | 29.45 | 40.00 | -10.55 |
| 192.96 | Н | Peak | 46.75 | -15.29 | 31.46 | 43.50 | -12.04 |
| 264.74 | Н | Peak | 43.88 | -13.59 | 30.29 | 46.00 | -15.71 |
| 384.05 | Н | Peak | 47.82 | -10.54 | 37.28 | 46.00 | -8.72 |
| 551.86 | Н | Peak | 37.02 | -7.59 | 29.43 | 46.00 | -16.57 |
| 901.06 | Н | Peak | 32.19 | -1.07 | 31.12 | 46.00 | -14.88 |

Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH High Test Date Dec. 07, 2010

Fundamental Frequency 2480MHz Test By Bondi Temperature 25 $^{\circ}$ C Pol Ver./Hor

Humidity 65 %

| Freq. | Ant.Pol. | Detector Mode | Reading | Factor | Actual FS | Limit3m | Safe Margin |
|--------|--|---|---|---|--|---|---|
| (MHz) | H/V | (PK/QP) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) |
| 33.88 | V | Peak | 48.19 | -14.65 | 33.54 | 40.00 | -6.46 |
| 128.94 | V | Peak | 37.66 | -14.56 | 23.10 | 43.50 | -20.40 |
| 274.44 | V | Peak | 35.47 | -13.50 | 21.97 | 46.00 | -24.03 |
| 384.05 | V | Peak | 37.30 | -10.54 | 26.76 | 46.00 | -19.24 |
| 610.06 | V | Peak | 32.86 | -5.81 | 27.05 | 46.00 | -18.95 |
| 893.30 | V | Peak | 32.32 | -1.16 | 31.16 | 46.00 | -14.84 |
| | | | | | | | |
| 73.65 | Н | Peak | 48.51 | -16.79 | 31.72 | 40.00 | -8.28 |
| 192.96 | Н | Peak | 46.46 | -15.29 | 31.17 | 43.50 | -12.33 |
| 264.74 | Н | Peak | 44.17 | -13.59 | 30.58 | 46.00 | -15.42 |
| 384.05 | Н | Peak | 47.76 | -10.54 | 37.22 | 46.00 | -8.78 |
| 600.36 | Н | Peak | 35.63 | -6.00 | 29.63 | 46.00 | -16.37 |
| 898.15 | Н | Peak | 32.34 | -1.09 | 31.25 | 46.00 | -14.75 |
| | 33.88 128.94 274.44 384.05 610.06 893.30 73.65 192.96 264.74 384.05 600.36 | (MHz) H/V 33.88 V 128.94 V 274.44 V 384.05 V 610.06 V 893.30 V 73.65 H 192.96 H 264.74 H 384.05 H 600.36 H | Freq. Ant.Pol. Mode (MHz) H/V (PK/QP) 33.88 V Peak 128.94 V Peak 274.44 V Peak 384.05 V Peak 610.06 V Peak 893.30 V Peak 73.65 H Peak 192.96 H Peak 264.74 H Peak 384.05 H Peak 600.36 H Peak | Freq. Ant.Pol. Mode (PK/QP) Reading (dBuV) 33.88 V Peak 48.19 128.94 V Peak 37.66 274.44 V Peak 35.47 384.05 V Peak 37.30 610.06 V Peak 32.86 893.30 V Peak 48.51 192.96 H Peak 46.46 264.74 H Peak 44.17 384.05 H Peak 47.76 600.36 H Peak 35.63 | Freq. Ant.Pol. Mode Reading Factor (MHz) H/V (PK/QP) (dBuV) (dB) 33.88 V Peak 48.19 -14.65 128.94 V Peak 37.66 -14.56 274.44 V Peak 35.47 -13.50 384.05 V Peak 37.30 -10.54 610.06 V Peak 32.86 -5.81 893.30 V Peak 32.32 -1.16 73.65 H Peak 48.51 -16.79 192.96 H Peak 46.46 -15.29 264.74 H Peak 44.17 -13.59 384.05 H Peak 47.76 -10.54 600.36 H Peak 35.63 -6.00 | Freq. Ant.Pol. Mode Reading Factor Actual FS (MHz) H/V (PK/QP) (dBuV) (dB) (dBuV/m) 33.88 V Peak 48.19 -14.65 33.54 128.94 V Peak 37.66 -14.56 23.10 274.44 V Peak 35.47 -13.50 21.97 384.05 V Peak 37.30 -10.54 26.76 610.06 V Peak 32.86 -5.81 27.05 893.30 V Peak 32.32 -1.16 31.16 73.65 H Peak 48.51 -16.79 31.72 192.96 H Peak 46.46 -15.29 31.17 264.74 H Peak 44.17 -13.59 30.58 384.05 H Peak 47.76 -10.54 37.22 600.36 H Peak 35.63 -6.00 29.63 | Freq. Ant.Pol. Mode (MHz) Reading (MHz) Factor (dBuV) Actual FS Limit3m 33.88 V Peak 48.19 -14.65 33.54 40.00 128.94 V Peak 37.66 -14.56 23.10 43.50 274.44 V Peak 35.47 -13.50 21.97 46.00 384.05 V Peak 37.30 -10.54 26.76 46.00 610.06 V Peak 32.86 -5.81 27.05 46.00 893.30 V Peak 32.32 -1.16 31.16 46.00 73.65 H Peak 48.51 -16.79 31.72 40.00 192.96 H Peak 46.46 -15.29 31.17 43.50 264.74 H Peak 44.17 -13.59 30.58 46.00 384.05 H Peak 47.76 -10.54 37.22 46.00 600.36 H Peak |

Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Low Test Date: Dec. 07, 2010

Fundamental Frequency: 2402MHz Test By: Bondi Temperature: 25 °C Pol: Vertical

65 % Humidity:

| | | | Peak | \mathbf{AV} | | Actual | Actual | Peak Limit | AV Limit | | |
|---|----------|----------|---------|---------------|--------|----------|----------|------------|-----------------|--------|---|
| | Freq. | Ant.Pol. | Reading | Reading | Factor | Peak FS | AV FS | at 3m | at 3m | Margin | |
| _ | (MHz) | H/V | (dBuV) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| | 2390.0 | V | 60.28 | 38.84 | -1.39 | 58.89 | 37.45 | 74.00 | 54.00 | -16.55 | S |
| | 2402.1 | V | 98.02 | 43.83 | -1.36 | 96.66 | 42.47 | 114.00 | 94.00 | -51.53 | F |
| | | | | | | | | | | | |
| | 4802.5 | V | 41.14 | | 6.02 | 47.16 | | 74.00 | 54.00 | -6.84 | Н |
| | 7206.4 | V | | | | | | 74.00 | 54.00 | | Н |
| | 9608.6 | V | | | | | | 74.00 | 54.00 | | Н |
| | 12010.7 | V | | | | | " | 74.00 | 54.00 | | Н |
| | 14412.8 | V | | | | | | 74.00 | 54.00 | | Н |
| | 16815.0 | V | | | | | | 74.00 | 54.00 | | Н |
| | 19217.1 | V | | | | | | 74.00 | 54.00 | | Н |
| | 21619.3 | V | | | | | | 74.00 | 54.00 | | Н |
| | 24021.4 | V | | | | | | 74.00 | 54.00 | | Н |
| T | O amarlz | | | | | | | | | | |

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz-26GHz, RBW=1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Low Test Date: Dec. 07, 2010

Fundamental Frequency: 2402 MHz Test By: Bondi Temperature: $25 \, ^{\circ}\text{C}$ Pol: Horizontal

Humidity: 65 %

| | | | Peak | \mathbf{AV} | | Actual | Actual | Peak Limit | AV Limit | | |
|---|---------|----------|---------|---------------|--------|----------|----------|------------|----------|--------|---|
| | Freq. | Ant.Pol. | Reading | Reading | Factor | Peak FS | AV FS | at 3m | at 3m | Margin | |
| _ | (MHz) | H/V | (dBuV) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| | 2390.0 | Н | 59.35 | 38.79 | -1.39 | 57.96 | 37.40 | 74.00 | 54.00 | -16.60 | S |
| | 2402.0 | Н | 93.83 | 43.36 | -1.36 | 92.47 | 42.00 | 114.00 | 94.00 | -52.00 | F |
| | | | | | | | | | | | |
| | 4672.5 | Н | 34.77 | | 5.71 | 40.48 | | 74.00 | 54.00 | -13.52 | S |
| | 4804.3 | Н | | | | | | 74.00 | 54.00 | | Н |
| | 7206.4 | Н | | | | | | 74.00 | 54.00 | | Н |
| | 9608.6 | Н | | | | | | 74.00 | 54.00 | | Н |
| | 12010.7 | Н | | | | | | 74.00 | 54.00 | | Н |
| | 14412.8 | Н | | | | | | 74.00 | 54.00 | | Н |
| | 16815.0 | Н | | | | | | 74.00 | 54.00 | | Н |
| | 19217.1 | Н | | | | | | 74.00 | 54.00 | | Н |
| | 21619.3 | Н | | | | | | 74.00 | 54.00 | | Н |
| Ľ | Pemark. | | | | | | | | | | |

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Mid Test Date: Dec. 07, 2010

Fundamental Frequency: 2440MHz Test By: Bondi Temperature: 25 °C Pol: Vertical

65 % Humidity:

| | | Peak | \mathbf{AV} | | Actual | Actual | Peak Limit | AV Limit | | |
|---------|----------|---------|---------------|--------|----------|----------|------------|----------|--------|---|
| Freq. | Ant.Pol. | Reading | Reading | Factor | Peak FS | AV FS | at 3m | at 3m | Margin | |
| (MHz) | H/V | (dBuV) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 2440.0 | V | 97.09 | 43.66 | -1.13 | 95.96 | 42.53 | 114.00 | 94.00 | -51.47 | F |
| | | | | | | | | | | |
| 4877.0 | V | 40.46 | | 6.23 | 46.69 | | 74.00 | 54.00 | -7.31 | Н |
| 7319.3 | V | | | | | | 74.00 | 54.00 | | Н |
| 9759.1 | V | | | | | | 74.00 | 54.00 | | Н |
| 12198.9 | V | | | | | | 74.00 | 54.00 | | Н |
| 14638.7 | V | | | | | | 74.00 | 54.00 | | Н |
| 17078.5 | V | | | | | | 74.00 | 54.00 | | Н |
| 19518.2 | V | | | | | | 74.00 | 54.00 | | Н |
| 21958.0 | V | | | | | | 74.00 | 54.00 | | Н |
| 24397.8 | V | | | | | | 74.00 | 54.00 | | Н |

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz-26GHz, RBW=1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Mid Test Date: Dec. 07, 2010

Fundamental Frequency: 2440MHz

Test By: Bondi
Temperature: 25 °C

Pol: Horizontal

Humidity: 65 %

| | | | Peak | \mathbf{AV} | | Actual | Actual | Peak Limit | AV Limit | | |
|-----|-------|----------|---------|---------------|--------|----------|----------|------------|----------|--------|---|
| F | req. | Ant.Pol. | Reading | Reading | Factor | Peak FS | AV FS | at 3m | at 3m | Margin | |
| (N | (IHz) | H/V | (dBuV) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 24 | 40.0 | Н | 93.77 | 43.27 | -1.13 | 92.64 | 42.14 | 114.00 | 94.00 | -51.86 | F |
| | | | | | | | | | | | |
| 48 | 887.0 | Н | 39.86 | | 6.23 | 46.09 | | 74.00 | 54.00 | -7.91 | Н |
| 73 | 19.3 | Н | | | | | | 74.00 | 54.00 | | Н |
| 97 | 59.1 | Н | | | | | | 74.00 | 54.00 | | Н |
| 12 | 198.9 | Н | | | | | | 74.00 | 54.00 | | Н |
| 140 | 638.7 | Н | | | | | | 74.00 | 54.00 | | Н |
| 170 | 078.5 | Н | | | | | | 74.00 | 54.00 | | Н |
| 19: | 518.2 | Н | | | | | | 74.00 | 54.00 | | Н |
| 219 | 958.0 | Н | | | | | | 74.00 | 54.00 | | Н |
| 243 | 397.8 | Н | | | | | | 74.00 | 54.00 | | Н |

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH High Test Date: Dec. 07, 2010

Fundamental Frequency: 2480MHz

Test By: Bondi

Temperature: 25 °C

Pol: Vertical

Humidity: 65 %

| | | Peak | \mathbf{AV} | | Actual | Actual | Peak Limit | AV Limit | | |
|---------|----------|---------|---------------|--------|----------|----------|------------|-----------------|--------|---|
| Freq. | Ant.Pol. | Reading | Reading | Factor | Peak FS | AV FS | at 3m | at 3m | Margin | |
| (MHz) | H/V | (dBuV) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 2483.5 | V | 71.98 | 39.63 | -0.92 | 71.06 | 38.71 | 74.00 | 54.00 | -15.29 | S |
| 2480.1 | V | 96.74 | 43.63 | -0.92 | 95.82 | 42.71 | 114.00 | 94.00 | -51.29 | F |
| | | | | | | | | | | |
| 5342.0 | V | 34.54 | | 7.16 | 41.70 | | 74.00 | 54.00 | -12.30 | Н |
| 7440.2 | V | | | | | | 74.00 | 54.00 | | Н |
| 9920.2 | V | | | | | | 74.00 | 54.00 | | Н |
| 12400.3 | V | | | | | | 74.00 | 54.00 | | Н |
| 14880.4 | V | | | | | | 74.00 | 54.00 | | Н |
| 17360.4 | V | | | | | | 74.00 | 54.00 | | Н |
| 19840.5 | V | | | | | | 74.00 | 54.00 | | Н |
| 22320.5 | V | | | | | | 74.00 | 54.00 | | Н |
| 24800.6 | V | | | | | | 74.00 | 54.00 | | Н |
| Remark: | | | | | | | | | | |

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH High Test Date: Dec. 07, 2010

Fundamental Frequency: 2480MHz Test By: Bondi Temperature: 25 °C Pol: Horizontal

65 % Humidity:

| | | Peak | \mathbf{AV} | | Actual | Actual | Peak Limit | AV Limit | | |
|---------|----------|---------|---------------|--------|----------|----------|------------|----------|--------|---|
| Freq. | Ant.Pol. | Reading | Reading | Factor | Peak FS | AV FS | at 3m | at 3m | Margin | |
| (MHz) | H/V | (dBuV) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 2483.5 | H | 68.81 | 39.44 | -0.92 | 67.89 | 38.52 | 74.00 | 54.00 | -15.48 | S |
| 2480.1 | Н | 94.76 | 43.36 | -0.92 | 93.84 | 42.44 | 114.00 | 94.00 | -51.56 | F |
| | | | | | | | | | | |
| 4965.0 | Н | 35.94 | | 6.38 | 42.32 | | 74.00 | 54.00 | -11.68 | Н |
| 7440.2 | Н | | | | | | 74.00 | 54.00 | | Н |
| 9920.2 | Н | | | | | | 74.00 | 54.00 | | Н |
| 12400.3 | Н | | | | | | 74.00 | 54.00 | | Н |
| 14880.4 | Н | | | | | | 74.00 | 54.00 | | Н |
| 17360.4 | Н | | | | | | 74.00 | 54.00 | | Н |
| 19840.5 | Н | | | | | | 74.00 | 54.00 | | Н |
| 22320.5 | Н | | | | | | 74.00 | 54.00 | | Н |
| 24800.6 | Н | | - | | | | 74.00 | 54.00 | | Н |
| Remark: | | | | | | | | | | |

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz-26GHz, RBW=1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode RX CH Low Test Date Dec. 07, 2010

Fundamental Frequency 2402MHz Test By Bondi Temperature 25 °C Pol Ver./Hor

Humidity 65 %

| Freq. | Ant.Pol. | Detector Mode | Reading | Factor | Actual FS | Limit3m | Safe Margin |
|---------|----------|------------------|---------|--------|------------------|----------|-------------|
| (MHz) | H/V | (PK/QP) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) |
| 33.88 | V | Peak | 46.54 | -14.65 | 31.89 | 40.00 | -8.11 |
| 127.00 | V | Peak | 37.48 | -14.71 | 22.77 | 43.50 | -20.73 |
| 262.80 | V | Peak | 38.07 | -13.61 | 24.46 | 46.00 | -21.54 |
| 384.05 | V | Peak | 37.26 | -10.54 | 26.72 | 46.00 | -19.28 |
| 610.06 | V | Peak | 32.04 | -5.81 | 26.23 | 46.00 | -19.77 |
| 849.65 | V | Peak | 33.29 | -1.99 | 31.30 | 46.00 | -14.70 |
| | | | | | | | |
| 33.88 | Н | Peak | 45.41 | -14.65 | 30.76 | 40.00 | -9.24 |
| 192.96 | Н | Peak | 46.18 | -15.29 | 30.89 | 43.50 | -12.61 |
| 267.65 | Н | Peak | 43.29 | -13.57 | 29.72 | 46.00 | -16.28 |
| 384.05 | Н | Peak | 47.92 | -10.54 | 37.38 | 46.00 | -8.62 |
| 551.86 | Н | Peak | 37.82 | -7.59 | 30.23 | 46.00 | -15.77 |
| 924.34 | Н | Peak | 32.13 | -1.04 | 31.09 | 46.00 | -14.91 |
| Remark: | | | | | | | |

Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode RX CH Mid Test Date Dec. 07, 2010

Fundamental Frequency 2440MHz Test By Bondi Temperature 25 °C Pol Ver./Hor

Humidity 65 %

| Freq. | Ant.Pol. | Detector Mode | Reading | Factor | Actual FS | Limit3m | Safe Margin | |
|---------|----------|------------------|---------|--------|------------------|----------|-------------|--|
| (MHz) | H/V | (PK/QP) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| 37.76 | V | Peak | 47.55 | -14.24 | 33.31 | 40.00 | -6.69 | |
| 128.94 | V | Peak | 39.50 | -14.56 | 24.94 | 43.50 | -18.56 | |
| 270.56 | V | Peak | 34.71 | -13.54 | 21.17 | 46.00 | -24.83 | |
| 384.05 | V | Peak | 37.98 | -10.54 | 27.44 | 46.00 | -18.56 | |
| 610.06 | V | Peak | 32.22 | -5.81 | 26.41 | 46.00 | -19.59 | |
| 878.75 | V | Peak | 32.19 | -1.47 | 30.72 | 46.00 | -15.28 | |
| | | | | | | | | |
| 34.85 | Н | Peak | 45.71 | -14.58 | 31.13 | 40.00 | -8.87 | |
| 192.96 | Н | Peak | 45.98 | -15.29 | 30.69 | 43.50 | -12.81 | |
| 262.80 | Н | Peak | 42.42 | -13.61 | 28.81 | 46.00 | -17.19 | |
| 384.05 | Н | Peak | 47.56 | -10.54 | 37.02 | 46.00 | -8.98 | |
| 551.86 | Н | Peak | 36.53 | -7.59 | 28.94 | 46.00 | -17.06 | |
| 907.85 | Н | Peak | 32.40 | -1.07 | 31.33 | 46.00 | -14.67 | |
| Remark. | | | | | | | | |

Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode RX CH High Test Date Dec. 07, 2010

Fundamental Frequency 2480MHz Test By Bondi Temperature 25 $^{\circ}$ C Pol Ver./Hor

Humidity 65 %

| Freq. | Ant.Pol. | Detector Mode | Reading | Factor | Actual FS | Limit3m | Safe Margin | |
|---------|----------|------------------|---------|--------|-----------|----------|-------------|--|
| (MHz) | H/V | (PK/QP) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| 34.85 | V | Peak | 48.70 | -14.58 | 34.12 | 40.00 | -5.88 | |
| 192.96 | V | Peak | 37.48 | -15.29 | 22.19 | 43.50 | -21.31 | |
| 280.26 | V | Peak | 34.07 | -13.32 | 20.75 | 46.00 | -25.25 | |
| 384.05 | V | Peak | 36.31 | -10.54 | 25.77 | 46.00 | -20.23 | |
| 610.06 | V | Peak | 32.14 | -5.81 | 26.33 | 46.00 | -19.67 | |
| 883.60 | V | Peak | 32.32 | -1.40 | 30.92 | 46.00 | -15.08 | |
| | | | | | | | | |
| 34.85 | Н | Peak | 44.52 | -14.58 | 29.94 | 40.00 | -10.06 | |
| 192.96 | Н | Peak | 46.57 | -15.29 | 31.28 | 43.50 | -12.22 | |
| 241.46 | Н | Peak | 44.13 | -14.09 | 30.04 | 46.00 | -15.96 | |
| 384.05 | Н | Peak | 47.90 | -10.54 | 37.36 | 46.00 | -8.64 | |
| 551.86 | Н | Peak | 37.83 | -7.59 | 30.24 | 46.00 | -15.76 | |
| 898.15 | Н | Peak | 33.55 | -1.09 | 32.46 | 46.00 | -13.54 | |
| Remark: | | | | | | | | |

Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: RX CH Low Test Date: Dec. 07, 2010

Fundamental Frequency: 2402 MHz Test By: Bondi Temperature: $25 \, ^{\circ}C$ Pol: V/H

Humidity: 65 %

| | | Peak | \mathbf{AV} | | Actual | Actual | Peak Limit | AV Limit | | |
|---------|----------|---------|---------------|--------|----------|----------|------------|-----------------|--------|---|
| Freq. | Ant.Pol. | Reading | Reading | Factor | Peak FS | AV FS | at 3m | at 3m | Margin | |
| (MHz) | H/V | (dBuV) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 5277.0 | V | 34.08 | | 7.03 | 41.11 | | 74.00 | 54.00 | -12.89 | Н |
| 7206.0 | V | | | | | | 74.00 | 54.00 | | Н |
| 9608.0 | V | | | | | | 74.00 | 54.00 | | Н |
| 12010.0 | V | | | | | | 74.00 | 54.00 | | Н |
| | | | | | | | | | | |
| 5257.5 | Н | 34.54 | | 6.98 | 41.52 | | 74.00 | 54.00 | -12.48 | Н |
| 7206.0 | Н | | | | | 1 | 74.00 | 54.00 | | Н |
| 9608.0 | Н | | | | | | 74.00 | 54.00 | | Н |
| 12010.0 | Н | | | | | | 74.00 | 54.00 | | Н |

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: RX CH Mid Test Date: Dec. 07, 2010

Fundamental Frequency: 2440 MHz Test By: Bondi Temperature: $25 \, ^{\circ}\text{C}$ Pol: V/H

Humidity: 65 %

| | | Peak | \mathbf{AV} | | Actual | Actual | Peak Limit | AV Limit | | |
|---------|----------|---------|---------------|--------|----------|----------|------------|----------|--------|---|
| Freq. | Ant.Pol. | Reading | Reading | Factor | Peak FS | AV FS | at 3m | at 3m | Margin | |
| (MHz) | H/V | (dBuV) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 5212.0 | V | 34.97 | | 6.89 | 41.86 | | 74.00 | 54.00 | -12.14 | Н |
| 7320.0 | V | | | | | | 74.00 | 54.00 | | Н |
| 9760.0 | V | | | | | | 74.00 | 54.00 | | Н |
| 12200.0 | V | | | | | | 74.00 | 54.00 | | Н |
| | | | | | | | | | | |
| 5225.0 | Н | 33.59 | | 6.92 | 40.51 | | 74.00 | 54.00 | -13.49 | Н |
| 7320.0 | Н | | | | | 1 | 74.00 | 54.00 | | Н |
| 9760.0 | Н | | | | | | 74.00 | 54.00 | | Н |
| 12200.0 | Н | | | | | | 74.00 | 54.00 | | Н |

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: RX CH High Test Date: Dec. 07, 2010

Fundamental Frequency: 2480 MHz Test By: Bondi Temperature: $25 \, ^{\circ}C$ Pol: V/H

Humidity: 65 %

| | | Peak | \mathbf{AV} | | Actual | Actual | Peak Limit | AV Limit | | |
|---------|----------|---------|---------------|--------|----------|----------|------------|----------|--------|---|
| Freq. | Ant.Pol. | Reading | Reading | Factor | Peak FS | AV FS | at 3m | at 3m | Margin | |
| (MHz) | H/V | (dBuV) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 4783.0 | V | 35.00 | | 6.00 | 41.00 | | 74.00 | 54.00 | -13.00 | Н |
| 7440.0 | V | | | | | | 74.00 | 54.00 | | Н |
| 9920.0 | V | | | | | | 74.00 | 54.00 | | Н |
| 12400.0 | V | | | | | | 74.00 | 54.00 | | Н |
| | | | | | | | | | | |
| 5238.0 | Н | 33.92 | | 6.94 | 40.86 | | 74.00 | 54.00 | -13.14 | Н |
| 7440.0 | Н | | | | | 1 | 74.00 | 54.00 | | Н |
| 9920.0 | Н | | | | | | 74.00 | 54.00 | | Н |
| 12400.0 | Н | | | | | | 74.00 | 54.00 | | Н |

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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6. 20 DB BAND WIDTH MEASUREMENT

6.1 Measurement Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Set ETU normal operating mode.
- 3. Set SPA Center Frequency = fundamental frequency, RBW = 30KHz, VBW = 10KHz, Span = 2MHz.
- 4. Set SPA Max hold. Mark peak, -20dB.

6.2 Test SET-UP (Block Diagram of Configuration)

Same as 4.2 Radiated Emission Measurement.

6.3 Measurement Equipment Used:

Same as 4.2 Radiated Emission Measurement.

6.4 Measurement Results:

2402 Channel = 720 KHz

2440 Channel = 720 KHz

2480 Channel = 725 KHz

Refer to attached data chart.

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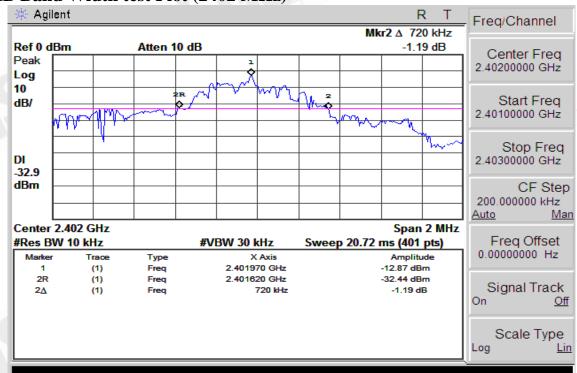
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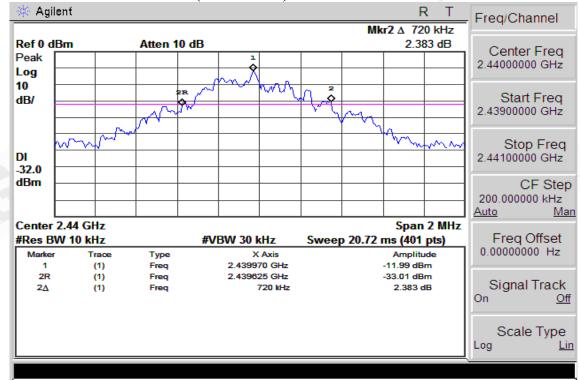
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20dB Band Width test Plot (2402 MHz)



20dB Band Width test Plot (2440 MHz)



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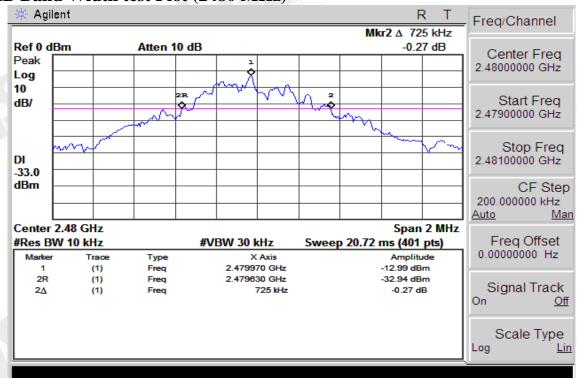
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20dB Band Width test Plot (2480 MHz)



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7. 99% BAND WIDTH MEASUREMENT

7.1 Measurement Procedure

- Place the EUT on the table and set it in transmitting mode.
- Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- Set the spectrum analyzer as RBW=1% of the approximate emission bandwidth, VBW = 3 times RBW, Span= approximately 20dB below the peak level. Sweep=auto
- Turn on the 99% bandwidth function, max reading..
- Repeat above procedures until all frequency measured were complete.

7.2 **Test SET-UP (Block Diagram of Configuration)**

Same as 4.2 Radiated Emission Measurement.

7.3 **Measurement Equipment Used:**

Same as 4.2 Radiated Emission Measurement.

Measurement Results:

2402 Channel = 722.713 KHz

2440 Channel = 725.578 KHz

2480 Channel = 721.207 KHz

Refer to attached data chart.

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99% Band Width test Plot (2402 MHz)



99% Band Width test Plot (2440 MHz)



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99% Band Width test Plot (2480 MHz)



~ End of Report ~

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