FCC Test Report

| Product Name | WiFi Module |
|--------------|--------------|
| Model No | WSDB-686GN |
| FCC ID. | 2AAD3AA1G0J0 |

| Applicant | ABILITY ENTERPRISE CO.,LTD. | |
|-----------|---|--|
| Address | 4F., No.8, Ln.7,Wuquan Rd.,Wugu Dist., New Taipei | |
| | City 24886, Taiwan(R.O.C) | |

| Date of Receipt | Oct. 10, 2013 |
|-----------------|---------------------|
| Issue Date | Oct. 24, 2013 |
| Report No. | 13A0283R-RFUSP42V01 |
| Report Version | V1.0 |



The test results relate only to the samples tested.

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Test Report Certification

Issue Date: Oct. 24, 2013 Report No.: 13A0283R-RFUSP42V01



| Product Name | WiFi Module | | | |
|---------------------|---|--|--|--|
| Applicant | ABILITY ENTERPRISE CO.,LTD. | | | |
| Address | 4F., No.8, Ln.7,Wuquan Rd.,Wugu Dist., New Taipei City 24886, | | | |
| | Taiwan(R.O.C) | | | |
| Manufacturer | ABILITY ENTERPRISE CO.,LTD. | | | |
| Model No. | WSDB-686GN | | | |
| FCC ID. | 2AAD3AA1G0J0 | | | |
| EUT Rated Voltage | DC 3.3V | | | |
| EUT Test Voltage | AC 120V/60Hz | | | |
| Trade Name | ABILITY | | | |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart C: 2012 | | | |
| | ANSI C63.4: 2003, ANSI C63.10: 2009, KDB 558074 | | | |
| Test Result | Complied | | | |

The test results relate only to the samples tested.

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Tested By

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(Engineer / Vincent Chu)

Approved By

:

(Manager / Vincent Lin)

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

| Product Name | WiFi Module | |
|--------------------|---|--|
| Trade Name | ABILITY | |
| Model No. | WSDB-686GN | |
| FCC ID. | 2AAD3AA1G0J0 | |
| Frequency Range | 2412-2462MHz for 802.11b/g/n-20BW | |
| Number of Channels | 802.11b/g/n-20MHz: 11 | |
| Data Speed | 802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 72.2Mbps | |
| Type of Modulation | 802.11b:DSSS (DBPSK, DQPSK, CCK) | |
| | 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM) | |
| Antenna Type | Chip Antenna | |
| Antenna Gain | Refer to the table "Antenna List" | |
| Channel Control | Auto | |

Antenna List

| No. | Manufacturer | Model No. | Antenna Type | Peak Gain |
|-----|--------------|-------------------|--------------|-----------------------|
| 1 | YAGEO | CAN4311781042453K | Chip Antenna | -4.39 dBi for 2.4 GHz |

Note: The antenna of EUT is conform to FCC 15.203.

QuieTer

802.11b/g/n-20MHz Center Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Channel 01: | 2412 MHz | Channel 02: | 2417 MHz | Channel 03: | 2422 MHz | Channel 04: | 2427 MHz |
| Channel 05: | 2432 MHz | Channel 06: | 2437 MHz | Channel 07: | 2442 MHz | Channel 08: | 2447 MHz |
| Channel 09: | 2452 MHz | Channel 10: | 2457 MHz | Channel 11: | 2462 MHz | | |

- 1. The EUT is a WiFi Module with a built-in 2.4GHz WLAN transceiver.
- 2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps 802.11g is 6Mbps 802.11n(20M-BW) is 7.2Mbps .
- 4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
- 5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

| Test Mode: | Mode 1: Transmit (802.11b 1Mbps) |
|--|----------------------------------|
| | Mode 2: Transmit (802.11g 6Mbps) |
| Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) | |

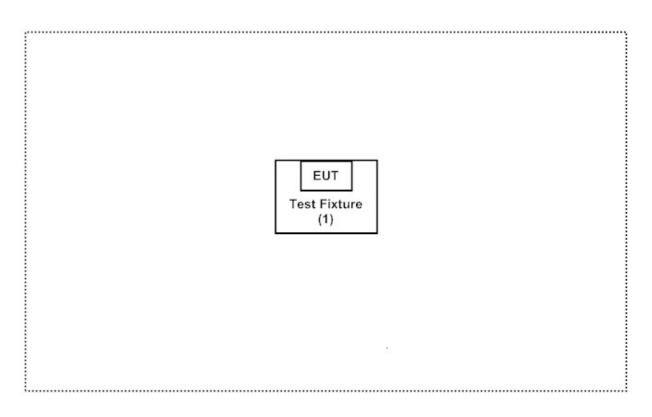
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

| | Product | Manufacturer | Model No. | Serial No. | Power Cord |
|---|--------------|--------------|-----------|------------|------------|
| 1 | Test Fixture | NIKON | N/A | N/A | N/A |

| Signa | al Cable Type | Signal cable Description |
|-------|---------------|--------------------------|
| А | N/A | N/A |

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Connect EUT and PC via 18pin signal cable.
- (2) Execute program "WL.exe "on the PC
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press "OK" to start the continuous transmission.
- (5) Remove notebook and signal cable and PC, Setup the EUT as shown in Section 1.4
- (6) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

| Items | Required (IEC 68-1) | Actual |
|----------------------------|---------------------|----------|
| Temperature (°C) | 15-35 | 20-35 |
| Humidity (%RH) | 25-75 | 50-65 |
| Barometric pressure (mbar) | 860-1060 | 950-1000 |

The related certificate for our laboratories about the test site and management system can be downloaded from

QuieTek Corporation's Web Site: <u>http://www.quietek.com/tw/ctg/cts/accreditations.htm</u> The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site: <u>http://www.quietek.com/</u>

| Site Description: | File on |
|-------------------|-----------------------------------|
| | Federal Communications Commission |
| | FCC Engineering Laboratory |
| | 7435 Oakland Mills Road |
| | Columbia, MD 21046 |
| | Registration Number: 92195 |

| Site Name: | Quietek Corporation |
|---------------|--|
| Site Address: | No.5-22, Ruishukeng, |
| | Linkou Dist. New Taipei City 24451, |
| | Taiwan, R.O.C. |
| | TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789 |
| | E-Mail : <u>service@quietek.com</u> |

FCC Accreditation Number: TW1014

2. Conducted Emission

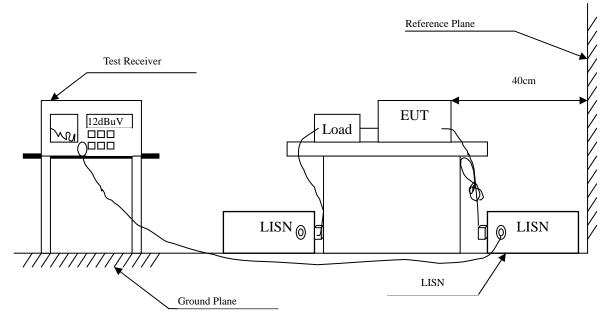
2.1. Test Equipment

| | Equipment | Manufacturer | Model No. / Serial No. | Last Cal. | Remark |
|---|--------------------------|--------------|------------------------|------------|-------------|
| Х | Test Receiver | R & S | ESCS 30 / 825442/018 | Sep., 2013 | |
| X | Artificial Mains Network | R & S | ENV4200 / 848411/10 | Feb., 2013 | Peripherals |
| X | LISN | R & S | ESH3-Z5 / 825562/002 | Feb., 2013 | EUT |
| | DC LISN | Schwarzbeck | 8226 / 176 | Mar, 2013 | EUT |
| X | Pulse Limiter | R & S | ESH3-Z2 / 357.8810.52 | Feb., 2013 | |
| | No.1 Shielded Room | | | | |

Note:

- 1. All equipments are calibrated every one year.
- 2. The test instruments marked by "X" are used to measure the final test results.

2.2. Test Setup



2.3. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit | | | | | |
|---|--------|-------|--|--|--|
| Frequency | Limits | | | | |
| MHz | QP | AVG | | | |
| 0.15 - 0.50 | 66-56 | 56-46 | | | |
| 0.50-5.0 | 56 | 46 | | | |
| 5.0 - 30 | 60 | 50 | | | |

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2009 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

| Product | : | WiFi Module |
|------------|---|--|
| Test Item | : | Conducted Emission Test |
| Power Line | : | Line 1 |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz) |

| Frequency | Correct | Reading | Reading Measurement | | Limit |
|------------|---------|---------|---------------------|---------|--------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV | dB | dBuV |
| Line 1 | | | | | |
| Quasi-Peak | | | | | |
| 0.255 | 9.701 | 22.320 | 32.021 | -30.979 | 63.000 |
| 0.392 | 9.707 | 19.150 | 28.857 | -30.229 | 59.086 |
| 0.556 | 9.715 | 27.090 | 36.805 | -19.195 | 56.000 |
| 1.306 | 9.759 | 18.600 | 28.359 | -27.641 | 56.000 |
| 4.951 | 9.830 | 12.220 | 22.050 | -33.950 | 56.000 |
| 13.295 | 9.890 | 7.570 | 17.460 | -42.540 | 60.000 |
| | | | | | |
| Average | | | | | |
| 0.255 | 9.701 | 8.980 | 18.681 | -34.319 | 53.000 |
| 0.392 | 9.707 | 2.610 | 12.317 | -36.769 | 49.086 |
| 0.556 | 9.715 | 15.310 | 25.025 | -20.975 | 46.000 |
| 1.306 | 9.759 | -2.070 | 7.689 | -38.311 | 46.000 |
| 4.951 | 9.830 | 3.680 | 13.510 | -32.490 | 46.000 |
| 13.295 | 9.890 | -4.040 | 5.850 | -44.150 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.

2. "means the worst emission level.

3. Measurement Level = Reading Level + Correct Factor

| Product Test Item | WiFi Module Conducted Emission Test | | | | | | |
|----------------------|--|--------------------|-------------------|---------------|--------|--|--|
| Power Line | : Line 2 | | | | | | |
| Test Mode | | : Transmit (802.11 | n MCS0 7.2Mbps 20 | M-BW) (2437MI | Hz) | | |
| | | | - | | | | |
| Frequency | Correct | Reading | Measurement | Margin | Limit | | |
| | Factor | Level | Level | | | | |
| MHz | dB | dBuV | dBuV | dB | dBuV | | |
| Line 2 | | | | | | | |
| Quasi-Peak | | | | | | | |
| 0.248 | 9.681 | 18.870 | 28.551 | -34.649 | 63.200 | | |
| 0.392 | 9.687 | 16.010 | 25.697 | -33.389 | 59.086 | | |
| 0.560 | 9.695 | 24.020 | 33.715 | -22.285 | 56.000 | | |
| 1.017 | 9.726 | 16.950 | 26.676 | -29.324 | 56.000 | | |
| 1.849 | 9.774 | 11.780 | 21.554 | -34.446 | 56.000 | | |
| 7.861 | 9.860 | 10.550 | 20.410 | -39.590 | 60.000 | | |
| | | | | | | | |
| Average | | | | | | | |
| 0.248 | 9.681 | 12.350 | 22.031 | -31.169 | 53.200 | | |
| 0.392 | 9.687 | 7.080 | 16.767 | -32.319 | 49.086 | | |
| 0.560 | 9.695 | 17.980 | 27.675 | -18.325 | 46.000 | | |
| 1.017 | 9.726 | 8.490 | 18.216 | -27.784 | 46.000 | | |
| 1.849 | 9.774 | 2.750 | 12.524 | -33.476 | 46.000 | | |
| 7.861 | 9.860 | -2.050 | 7.810 | -42.190 | 50.000 | | |

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

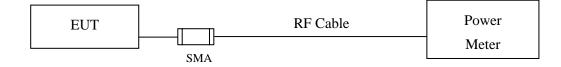
3. Peak Power Output

3.1. Test Equipment

| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-------|-------------------------|---------------------|---------------------------------|----------------------------|
| Х | Power Meter | Anritsu | ML2495A/6K00003357 | May, 2013 |
| Х | Power Sensor | Anritsu | MA2411B/0738448 | Jun, 2013 |
| Note: | | | | |
| 1. | All equipments are c | alibrated with trac | eable calibrations. Each calibr | ration is traceable to the |
| | national or internation | onal standards. | | |

2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Test Procedure

The EUT was tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.3 PKPM1 Peak power meter method.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Power Output

| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Peak Power Output Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

| Channel No | Channel No. | | Average Power For different Data Rate (Mbps) | | | Peak Power | Required | Result |
|------------|-------------|-------|---|-----------|-----------|---------------|----------|--------|
| Channel No | (MHz) | 1 | 2 | 5.5 | 11 | 1 | Limit | Kesun |
| | | | Measur | ement Lev | vel (dBm) | | | |
| 01 | 2412 | 14.84 | | | | 17.97 | <30dBm | Pass |
| 06 | 2437 | 14.67 | 14.55 | 14.41 | 14.32 | 17.91 | <30dBm | Pass |
| 11 | 2462 | 14.33 | | | | 17.48 | <30dBm | Pass |

Note: Peak Power Output Value =Reading value on power meter + cable loss

| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Peak Power Output Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |
| | | |

| | | F | or diffe | Average erent Da | | | 5) | | Peak Power | | | |
|------------|--------------------|-------|----------|---------------------|---------|---------|----------|-------|---------------|-------|-------------------|--------|
| Channel No | Frequency (MHz) | 6 | 9 | 12 | 18 | 24 | 36 | 48 | 54 | 6 | Required Limit | Result |
| | | | | Ν | Aeasure | ement L | .evel (d | Bm) | | | | |
| 01 | 2412 | 14.79 | | | | | | | | 25.27 | <30dBm | Pass |
| 06 | 2437 | 14.51 | 14.4 | 14.29 | 14.15 | 14.01 | 13.91 | 13.81 | 13.74 | 24.91 | <30dBm | Pass |
| 11 | 2462 | 14.26 | | | | | | | | 24.56 | <30dBm | Pass |

Note: Peak Power Output Value = Reading value on power meter + cable loss

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Peak Power Output Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) |

| | | | F | for diffe | Ũ | e Power | | 3) | | Peak Power | | |
|------------|--------------------|-------|-------|-----------|---------|---------|-------|-------|------|---------------|-------------------|--------|
| Channel No | Frequency (MHz) | 7.2 | 14.4 | 21.7 | 28.9 | 43.3 | 57.8 | 65 | 72.2 | 7.2 | Required Limit | Result |
| | | | Ν | Aeasure | ement L | evel (d | Bm) | | | | | |
| 01 | 2412 | 14.31 | | | | | | | | 25.04 | <30dBm | Pass |
| 06 | 2437 | 13.92 | 13.81 | 13.72 | 13.58 | 13.44 | 13.34 | 13.21 | 13.1 | 24.14 | <30dBm | Pass |
| 11 | 2462 | 13.74 | | | | | | | | 24.20 | <30dBm | Pass |

Note: Peak Power Output Value =Reading value on power meter + cable loss

4. Radiated Emission

4.1. Test Equipment

The following test equipment are used during the radiated emission test:

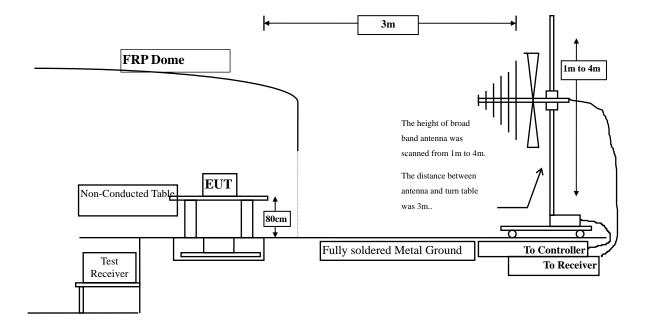
| Test Site | | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-----------|---|-------------------|-----------------|-----------------------|------------|
| Site # 3 | Х | Loop Antenna | Teseq | HLA6120 / 26739 | Jul., 2013 |
| | Х | Bilog Antenna | Schaffner Chase | CBL6112B/2673 | Sep., 2013 |
| | Х | Horn Antenna | Schwarzbeck | BBHA9120D/D305 | Sep., 2013 |
| | Х | Horn Antenna | Schwarzbeck | BBHA9170/208 | Jul., 2013 |
| | Х | Pre-Amplifier | Agilent | 8447D/2944A09549 | Sep., 2013 |
| | Х | Spectrum Analyzer | Agilent | E4407B / US39440758 | May, 2013 |
| | Х | Test Receiver | R & S | ESCS 30/ 825442/018 | Sep., 2013 |
| | Х | Coaxial Cable | QuieTek | QTK-CABLE/ CAB5 | Feb., 2013 |
| | Х | Controller | QuieTek | QTK-CONTROLLER/ CTRL3 | N/A |
| | Х | Coaxial Switch | Anritsu | MP59B/6200265729 | N/A |

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

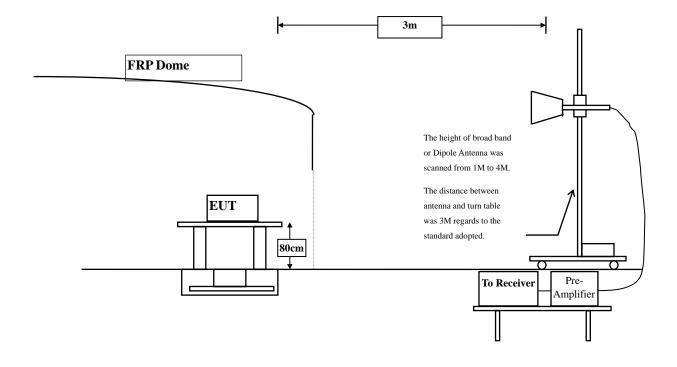
2. The test instruments marked with "X" are used to measure the final test results.

4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| FCC Part 15 Subpart C Paragraph 15.209(a) Limits | | | | | | | |
|--|--------------------|----------------------|--|--|--|--|--|
| Frequency MHz | Field strength | Measurement distance | | | | | |
| | (microvolts/meter) | (meter) | | | | | |
| 0.009-0.490 | 2400/F(kHz) | 300 | | | | | |
| 0.490-1.705 | 24000/F(kHz) | 30 | | | | | |
| 1.705-30 | 30 | 30 | | | | | |
| 30-88 | 100 | 3 | | | | | |
| 88-216 | 150 | 3 | | | | | |
| 216-960 | 200 | 3 | | | | | |
| Above 960 | 500 | 3 | | | | | |

Remarks: E field strength $(dBuV/m) = 20 \log E$ field strength (uV/m)

4.4. Test Procedure

The EUT was setup according to ANSI C63.10: 2009 and tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2009 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas. The measurement is divided into the Preliminary Measurement and the Final Measurement. The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The frequency range from 9kHz to 10th harminics is checked.

4.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Harmonic Radiated Emission Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2412MHz) |

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|-------------------|---------|---------|-------------|---------|--------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Horizontal | | | | | |
| Peak Detector: | | | | | |
| 4824.000 | 3.261 | 39.630 | 42.891 | -31.109 | 74.000 |
| 7236.000 | 10.650 | 37.470 | 48.120 | -25.880 | 74.000 |
| 9648.000 | 13.337 | 36.830 | 50.166 | -23.834 | 74.000 |
| | | | | | |
| Average Detector: | | | | | |
| | | | | | |
| | | | | | |
| Vertical | | | | | |
| Peak Detector: | | | | | |
| 4824.000 | 36.745 | 38.260 | 44.681 | -29.319 | 74.000 |
| 7236.000 | 39.748 | 37.130 | 48.625 | -25.375 | 74.000 |
| 9648.000 | 42.342 | 36.400 | 50.206 | -23.794 | 74.000 |

Average Detector:

--

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product | : WiFi Module | | | | | | |
|-----------------------|-----------------------------------|------------------|-------------------|---------|--------|--|--|
| Test Item | : Harmonic Radiated Emission Data | | | | | | |
| Test Site | : No.3 OATS | | | | | | |
| Test Mode | : Mode 1: | Transmit (802.11 | b 1Mbps) (2437 MH | z) | | | |
| Frequency | Correct | Reading | Measurement | Margin | Limit | | |
| | Factor | Level | Level | | | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m | | |
| Horizontal | | | | | | | |
| Peak Detector: | | | | | | | |
| 4874.000 | 2.076 | 51.750 | 53.827 | -20.173 | 74.000 | | |
| 7311.000 | 9.512 | 39.650 | 49.162 | -24.838 | 74.000 | | |
| 9748.000 | 9.630 | 39.460 | 49.090 | -24.910 | 74.000 | | |
| Average Detector: | | | | | | | |
| Vertical | | | | | | | |
| Peak Detector: | | | | | | | |
| 4874.000 | 2.532 | 51.010 | 53.542 | -20.458 | 74.000 | | |
| 7311.000 | 10.089 | 39.690 | 49.779 | -24.221 | 74.000 | | |
| 9748.000 | 10.266 | 39.810 | 50.077 | -23.923 | 74.000 | | |
| | | | | | | | |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product | : WiFi Module | | | | | | |
|-----------------------|-----------------------------------|------------------|-------------------|---------|--------|--|--|
| Test Item | : Harmonic Radiated Emission Data | | | | | | |
| Test Site | : No.3 OATS | | | | | | |
| Test Mode | : Mode 1: | Transmit (802.11 | b 1Mbps) (2462 MH | z) | | | |
| | | | | | | | |
| Frequency | Correct | Reading | Measurement | Margin | Limit | | |
| | Factor | Level | Level | | | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m | | |
| Horizontal | | | | | | | |
| Peak Detector: | | | | | | | |
| 4924.000 | 2.191 | 50.120 | 52.311 | -21.689 | 74.000 | | |
| 7386.000 | 10.373 | 38.240 | 48.614 | -25.386 | 74.000 | | |
| 9848.000 | 9.964 | 39.950 | 49.914 | -24.086 | 74.000 | | |
| | | | | | | | |
| Average Detector: | | | | | | | |
| | | | | | | | |
| Vertical | | | | | | | |
| Peak Detector: | | | | | | | |
| 4924.000 | 2.805 | 48.790 | 51.595 | -22.405 | 74.000 | | |
| 7386.000 | 11.180 | 38.020 | 49.200 | -24.800 | 74.000 | | |
| 9848.000 | 10.801 | 39.520 | 50.321 | -23.679 | 74.000 | | |
| | | | | | | | |

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product | : WiFi Module | | | | | | |
|-------------------|-----------------------------------|--------------------|-------------------|---------|--------|--|--|
| Test Item | : Harmonic Radiated Emission Data | | | | | | |
| Test Site | : No.3 OATS | | | | | | |
| Test Mode | : Mode 2 | : Transmit (802.11 | g 6Mbps) (2412MHz | Z) | | | |
| | | | | | | | |
| Frequency | Correct | Reading | Measurement | Margin | Limit | | |
| | Factor | Level | Level | | | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m | | |
| Horizontal | | | | | | | |
| Peak Detector: | | | | | | | |
| 4824.000 | 3.261 | 40.330 | 43.591 | -30.409 | 74.000 | | |
| 7236.000 | 2.155 | 37.410 | 39.565 | -34.435 | 74.000 | | |
| 9648.000 | 4.015 | 37.610 | 41.625 | -32.375 | 74.000 | | |
| | | | | | | | |
| Average Detector: | | | | | | | |
| | | | | | | | |
| Vertical | | | | | | | |
| Peak Detector: | | | | | | | |
| 4824.000 | 6.421 | 39.660 | 46.081 | -27.919 | 74.000 | | |
| 7236.000 | 2.155 | 37.330 | 39.485 | -34.515 | 74.000 | | |
| 9648.000 | 4.015 | 37.070 | 41.085 | -32.915 | 74.000 | | |
| | | | | | | | |

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product | : WiFi Module | | | | | | | |
|-------------------|-----------------------------------|---|-------------|---------|--------|--|--|--|
| Test Item | : Harmonic Radiated Emission Data | | | | | | | |
| Test Site | : No.3 OATS | | | | | | | |
| Test Mode | : Mode 2: | : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz) | | | | | | |
| | | | | | | | | |
| Frequency | Correct | Reading | Measurement | Margin | Limit | | | |
| | Factor | Level | Level | | | | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m | | | |
| Horizontal | | | | | | | | |
| Peak Detector: | | | | | | | | |
| 4874.000 | 3.038 | 54.900 | 57.937 | -16.063 | 74.000 | | | |
| 7311.000 | 11.795 | 36.930 | 48.724 | -25.276 | 74.000 | | | |
| 9748.000 | 12.635 | 37.030 | 49.665 | -24.335 | 74.000 | | | |
| Average Detector: | | | | | | | | |
| 4874.000 | 3.038 | 38.020 | 41.057 | -12.943 | 54.000 | | | |
| Peak Detector: | | | | | | | | |
| 4874.000 | 5.812 | 52.420 | 58.231 | -15.769 | 74.000 | | | |
| 7311.000 | 12.630 | 36.570 | 49.199 | -24.801 | 74.000 | | | |
| 9748.000 | 13.126 | 37.770 | 50.896 | -23.104 | 74.000 | | | |
| Average Detector: | | | | | | | | |
| 4874.000 | 5.812 | 35.690 | 41.501 | -12.499 | 54.000 | | | |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product | : WiFi Module | | | | | | |
|-------------------|-----------------------------------|------------------|-------------------|---------|--------|--|--|
| Test Item | : Harmonic Radiated Emission Data | | | | | | |
| Test Site | : No.3 OATS | | | | | | |
| Test Mode | : Mode 2: | Transmit (802.11 | g 6Mbps) (2462 MH | z) | | | |
| | | | | | | | |
| Frequency | Correct | Reading | Measurement | Margin | Limit | | |
| | Factor | Level | Level | | | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m | | |
| Horizontal | | | | | | | |
| Peak Detector: | | | | | | | |
| 4924.000 | 2.858 | 53.190 | 56.047 | -17.953 | 74.000 | | |
| 7386.000 | 12.127 | 36.540 | 48.668 | -25.332 | 74.000 | | |
| 9848.000 | 12.852 | 37.500 | 50.353 | -23.647 | 74.000 | | |
| | | | | | | | |
| Average Detector: | | | | | | | |
| 4924.000 | 2.858 | 36.610 | 39.467 | -14.533 | 54.000 | | |
| | | | | | | | |
| Vertical | | | | | | | |
| Peak Detector: | | | | | | | |
| 4924.000 | 5.521 | 52.810 | 58.330 | -15.670 | 74.000 | | |
| 7386.000 | 13.254 | 35.820 | 49.074 | -24.926 | 74.000 | | |
| 9848.000 | 13.367 | 37.320 | 50.687 | -23.313 | 74.000 | | |
| | | | | | | | |
| Average Detector: | | | | | | | |
| 4924.000 | 5.521 | 35.960 | 41.480 | -12.520 | 54.000 | | |
| | | | | | | | |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product Test Item Test Site Test Mode | : No.3 OA | c Radiated Emiss TS | sion Data n MCS0 7.2Mbps 20 | M-BW)(2412MF | Hz) |
|--|-----------|------------------------|--------------------------------|--------------|--------|
| Frequency | Correct | Reading | Measurement | Margin | Limit |
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Horizontal | | | | | |
| Peak Detector: | | | | | |
| 4824.000 | 3.261 | 52.190 | 55.451 | -18.549 | 74.000 |
| 7236.000 | 10.650 | 37.680 | 48.330 | -25.670 | 74.000 |
| 9648.000 | 13.337 | 38.260 | 51.596 | -22.404 | 74.000 |
| Average Detector: 4824.000 | 3.261 | 34.950 | 38.211 | -15.789 | 54.000 |
| Vertical | | | | | |
| Peak Detector: | | | | | |
| 4824.000 | 6.421 | 51.560 | 57.981 | -16.019 | 74.000 |
| 7236.000 | 11.495 | 37.310 | 48.805 | -25.195 | 74.000 |
| 9648.000 | 13.807 | 36.850 | 50.656 | -23.344 | 74.000 |
| | | | | | |
| Average Detector: | | | | | |
| 4824.000 | 6.421 | 34.610 | 41.031 | -12.969 | 54.000 |
| | | | | | |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product | : | WiFi Module |
|-----------|---|---|
| Test Item | : | Harmonic Radiated Emission Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437 MHz) |

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|-----------------------|---------|---------|-------------|---------|--------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Horizontal | | | | | |
| Peak Detector: | | | | | |
| 4874.000 | 3.038 | 38.590 | 41.627 | -32.373 | 74.000 |
| 7311.000 | 11.795 | 36.530 | 48.324 | -25.676 | 74.000 |
| 9748.000 | 12.635 | 37.660 | 50.295 | -23.705 | 74.000 |
| | | | | | |
| Average Detector: | | | | | |
| | | | | | |
| Vertical | | | | | |
| Peak Detector: | | | | | |
| 4874.000 | 5.812 | 38.410 | 44.221 | -29.779 | 74.000 |
| 7311.000 | 12.630 | 36.170 | 48.799 | -25.201 | 74.000 |

9748.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.

50.656

-23.344

74.000

- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.

37.530

4. Measurement Level = Reading Level + Correct Factor.

13.126

- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product | : | WiFi Module |
|-----------|---|---|
| Test Item | : | Harmonic Radiated Emission Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462 MHz) |
| | | |

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|-----------------------|---------|---------|-------------|---------|--------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Horizontal | | | | | |
| Peak Detector: | | | | | |
| 4924.000 | 2.858 | 48.360 | 51.217 | -22.783 | 74.000 |
| 7386.000 | 13.254 | 35.800 | 49.054 | -24.946 | 74.000 |
| 9848.000 | 13.367 | 37.050 | 50.417 | -23.583 | 74.000 |
| | | | | | |
| Average Detector: | | | | | |
| | | | | | |
| Vertical | | | | | |
| Peak Detector: | | | | | |
| 4924.000 | 5.521 | 46.370 | 51.890 | -22.110 | 74.000 |
| 7386.000 | 13.254 | 36.190 | 49.444 | -24.556 | 74.000 |
| 9848.000 | 13.367 | 37.330 | 50.697 | -23.303 | 74.000 |
| | | | | | |

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product Test Item Test Site Test Mode | : No.3 OA | Radiated Emissio | n Data b 1Mbps)(2437 MHz | 2) | |
|--|-----------|------------------|-----------------------------|---------|--------|
| Frequency | Correct | Reading | Measurement | Margin | Limit |
| | Factor | Level | Level | - | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Horizontal | | | | | |
| 303.540 | -3.074 | 31.921 | 28.847 | -17.153 | 46.000 |
| 363.680 | -1.433 | 32.311 | 30.878 | -15.122 | 46.000 |
| 466.500 | 0.794 | 26.833 | 27.626 | -18.374 | 46.000 |
| 544.100 | 3.512 | 24.826 | 28.338 | -17.662 | 46.000 |
| 759.440 | 4.372 | 24.498 | 28.870 | -17.130 | 46.000 |
| 819.580 | 5.789 | 24.485 | 30.275 | -15.725 | 46.000 |
| Vertical | | | | | |
| 175.500 | -8.257 | 31.288 | 23.030 | -20.470 | 43.500 |
| 256.980 | -7.573 | 26.791 | 19.218 | -26.782 | 46.000 |
| 344.280 | -3.171 | 28.174 | 25.004 | -20.996 | 46.000 |
| 458.740 | -3.887 | 25.371 | 21.484 | -24.516 | 46.000 |
| 501.420 | -0.795 | 25.084 | 24.289 | -21.711 | 46.000 |
| 687.660 | 2.444 | 24.127 | 26.571 | -19.429 | 46.000 |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

| Product Test Item Test Site Test Mode | : No.3 OATS | adiated Emissio S | n Data g 6Mbps)(2437 MHz | :) | |
|--|-------------|----------------------|-----------------------------|---------|--------|
| Frequency | Correct | Reading | Measurement | Margin | Limit |
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Horizontal | | | | | |
| 198.780 | -10.661 | 40.880 | 30.219 | -13.281 | 43.500 |
| 363.680 | -1.433 | 32.159 | 30.726 | -15.274 | 46.000 |
| 460.680 | 1.589 | 26.324 | 27.913 | -18.087 | 46.000 |
| 546.040 | 3.570 | 25.077 | 28.646 | -17.354 | 46.000 |
| 615.880 | 3.215 | 28.356 | 31.571 | -14.429 | 46.000 |
| 887.480 | 6.204 | 24.442 | 30.646 | -15.354 | 46.000 |
| | | | | | |
| Vertical | | | | | |
| 200.720 | -7.835 | 34.264 | 26.429 | -17.071 | 43.500 |
| 344.280 | -3.171 | 28.204 | 25.034 | -20.966 | 46.000 |
| 458.740 | -3.887 | 25.427 | 21.540 | -24.460 | 46.000 |
| 544.100 | -0.688 | 24.266 | 23.578 | -22.422 | 46.000 |
| 691.540 | 2.421 | 23.637 | 26.058 | -19.942 | 46.000 |
| 968.960 | 8.191 | 23.619 | 31.810 | -22.190 | 54.000 |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

| Product | : WiFi Module | | | | | | |
|------------|----------------------------------|--------------------|-------------------|----------------|-----------|--|--|
| Test Item | : General Radiated Emission Data | | | | | | |
| Test Site | : No.3 OATS | | | | | | |
| Test Mode | : Mode 3 | : Transmit (802.11 | n MCS0 7.2Mbps 20 | M-BW)(2437 M | Hz) | | |
| | | | | | | | |
| Frequency | Correct | Reading | Measurement | Margin | Limit | | |
| | Factor | Level | Level | | | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m | | |
| Horizontal | | | | | | | |
| 191.020 | -10.040 | 40.136 | 30.096 | -13.404 | 43.500 | | |
| 305.480 | -2.929 | 31.615 | 28.686 | -17.314 | 46.000 | | |
| 363.680 | -1.433 | 31.361 | 29.928 | -16.072 | 46.000 | | |
| 542.160 | 3.011 | 25.181 | 28.192 | -17.808 | 46.000 | | |
| 854.500 | 6.626 | 24.281 | 30.907 | -15.093 | 46.000 | | |
| 976.720 | 6.655 | 25.759 | 32.415 | -21.585 | 54.000 | | |
| | | | | | | | |
| Vertical | | | | | | | |
| 200.720 | -7.835 | 34.885 | 27.050 | -16.450 | 43.500 | | |
| 344.280 | -3.171 | 28.530 | 25.360 | -20.640 | 46.000 | | |
| 462.620 | -3.838 | 25.116 | 21.278 | -24.722 | 46.000 | | |
| 530.520 | -0.517 | 24.874 | 24.357 | -21.643 | 46.000 | | |
| 685.720 | 2.319 | 23.760 | 26.078 | -19.922 | 46.000 | | |
| 0.50.0.50 | 0.404 | 0 0 4 44 | 21.272 | 22 (12) | - 4 0 0 0 | | |

968.960

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.

31.352

-22.648

54.000

- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.

23.161

4. Measurement Level = Reading Level + Correct Factor.

8.191

- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

5. **RF** antenna conducted test

5.1. Test Equipment

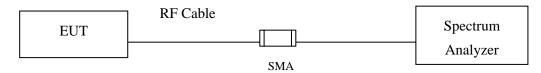
| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---|-------------------|--------------|----------------------|------------|
| | Spectrum Analyzer | R&S | FSP40 / 100170 | Jun, 2013 |
| | Spectrum Analyzer | Agilent | E4407B / US39440758 | Jun, 2013 |
| Х | Spectrum Analyzer | Agilent | N9010A / MY48030495 | Apr., 2013 |

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

2. The test instruments marked with "X" are used to measure the final test results.

5.2. Test Setup

RF antenna Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

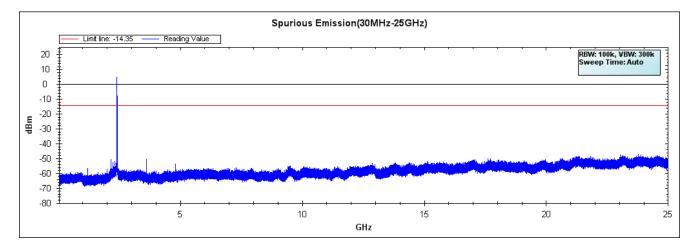
5.5. Uncertainty

The measurement uncertainty Conducted is defined as ± 1.27 dB

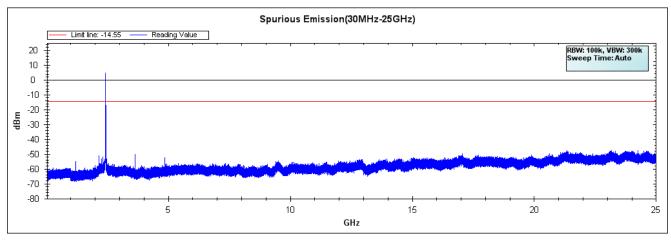
5.6. Test Result of RF antenna conducted test

| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | RF antenna conducted test |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

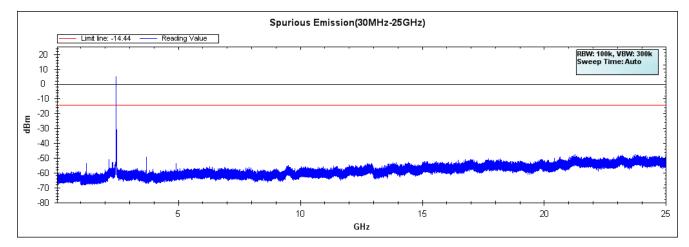
Channel 01 (2412MHz) - 30M-25G



Channel 06 (2437MHz) - 30M-25G

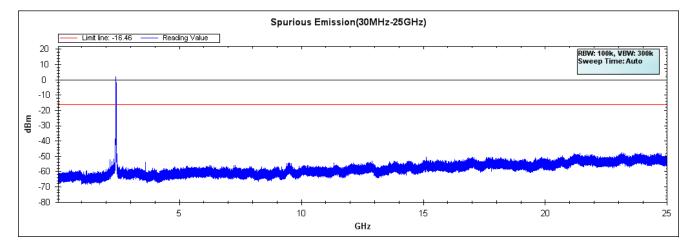


Channel 11 (2462MHz) - 30M-25G

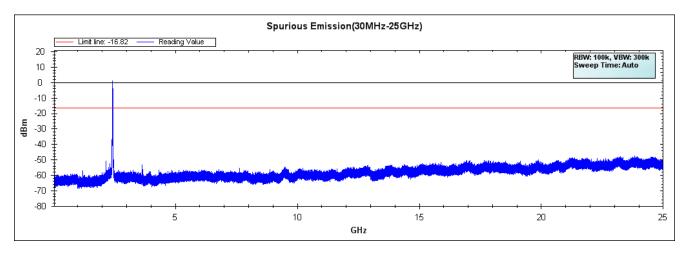


| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | RF Antenna Conducted Spurious |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |
| | | |

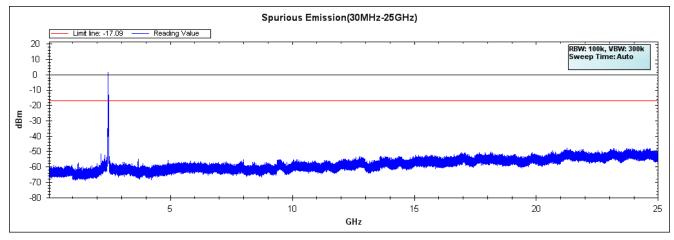
Channel 01 (2412MHz) - 30M-25G



Channel 06 (2437MHz) - 30M-25G

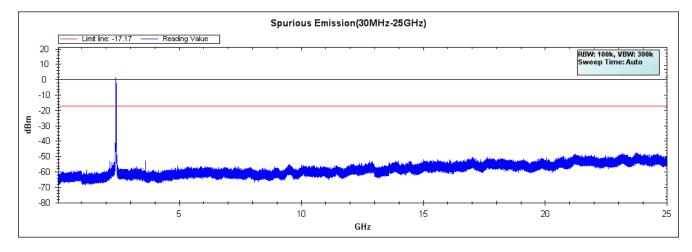


Channel 11 (2462MHz) - 30M-25G

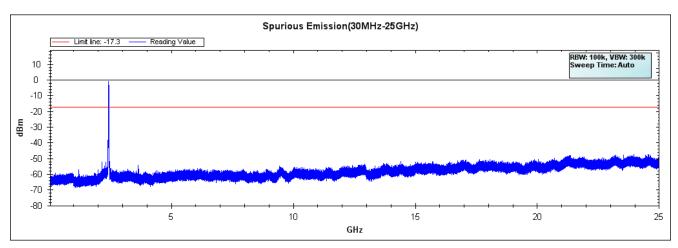


| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | RF Antenna Conducted Spurious |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) |

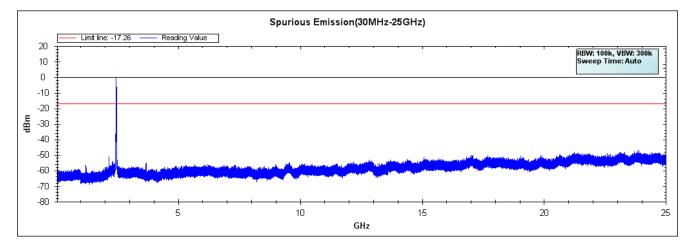
Channel 01 (2412MHz) - 30M-25G



Channel 06 (2437MHz) - 30M-25G



Channel 11 (2462MHz) - 30M-25G



6. Band Edge

6.1. Test Equipment

RF Radiated Measurement:

The following test equipments are used during the band edge tests:

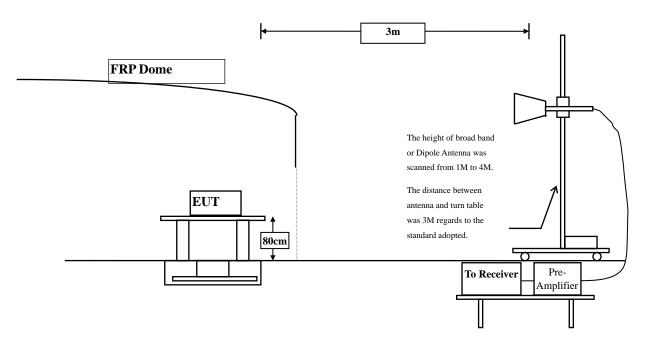
| Test Site | | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-----------|---|-------------------|-----------------|-----------------------|------------|
| Site # 3 | | Bilog Antenna | Schaffner Chase | CBL6112B/2673 | Sep., 2013 |
| | Х | Horn Antenna | Schwarzbeck | BBHA9120D/D305 | Sep., 2013 |
| | | Horn Antenna | Schwarzbeck | BBHA9170/208 | Jul., 2013 |
| | Х | Pre-Amplifier | Agilent | 8447D/2944A09549 | Sep., 2013 |
| | Х | Spectrum Analyzer | Agilent | E4407B / US39440758 | May, 2013 |
| | | Test Receiver | R & S | ESCS 30/ 825442/018 | Sep., 2013 |
| | Х | Coaxial Cable | QuieTek | QTK-CABLE/ CAB5 | Feb., 2013 |
| | Х | Controller | QuieTek | QTK-CONTROLLER/ CTRL3 | N/A |
| | Х | Coaxial Switch | Anritsu | MP59B/6200265729 | N/A |

Note: 1. All instruments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

The EUT was setup according to ANSI C63.10: 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2009 on radiated measurement.

6.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz

6.6. Test Result of Band Edge

| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

RF Radiated Measurement (Horizontal):

| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|--------------|--------------------|------------------------|-------------------------|----------------------------|------------------------|---------------------------|--------|
| 01 (Peak) | 2390.000 | 33.739 | 24.222 | 57.961 | 74.00 | 54.00 | Pass |
| 01 (Peak) | 2413.000 | 33.775 | 63.834 | 97.608 | | | Pass |
| 01 (Average) | 2390.000 | 33.739 | 12.288 | 46.027 | 74.00 | 54.00 | Pass |
| 01 (Average) | 2412.800 | 33.775 | 59.728 | 93.502 | | | Pass |

Figure Channel 01:

Horizontal (Peak)

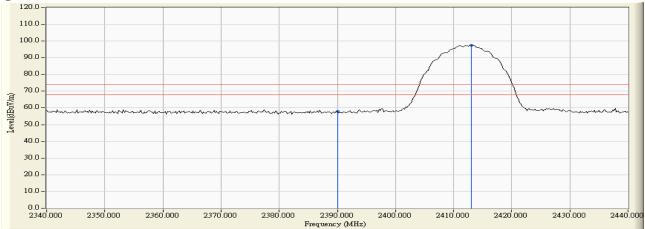
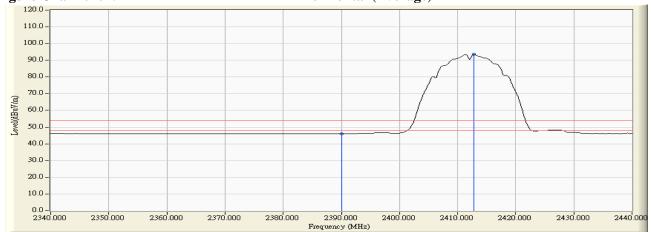


Figure Channel 01:

Horizontal (Average)



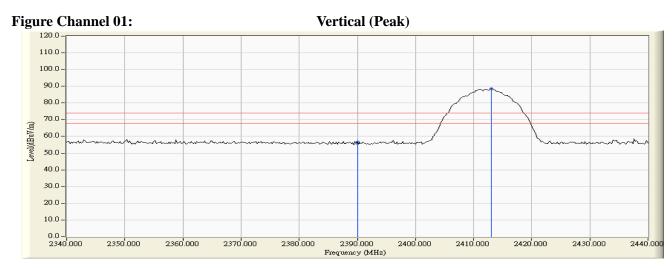
Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

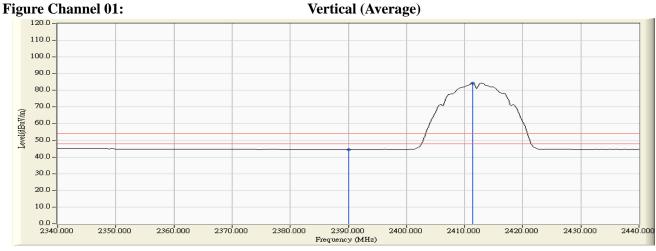
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

RF Radiated Measurement (Vertical):

| Channel No. Fre | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|-----------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
| Channel No. | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Result |
| 01 (Peak) | 2390.000 | 32.267 | 24.206 | 56.473 | 74.00 | 54.00 | Pass |
| 01 (Peak) | 2413.000 | 32.254 | 56.163 | 88.416 | | | Pass |
| 01 (Average) | 2390.000 | 32.267 | 12.182 | 44.449 | 74.00 | 54.00 | Pass |
| 01 (Average) | 2411.400 | 32.247 | 52.124 | 84.370 | | | Pass |





Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

RF Radiated Measurement (Horizontal):

| Channel No. | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
| Channel No. | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Kesuit |
| 11 (Peak) | 2462.900 | 33.895 | 64.956 | 98.851 | | | Pass |
| 11 (Peak) | 2483.500 | 33.951 | 24.062 | 58.012 | 74.00 | 54.00 | Pass |
| 11 (Average) | 2461.300 | 33.890 | 61.015 | 94.906 | | | Pass |
| 11 (Average) | 2483.500 | 33.951 | 12.377 | 46.327 | 74.00 | 54.00 | Pass |

Figure Channel 11:

Horizontal (Peak)

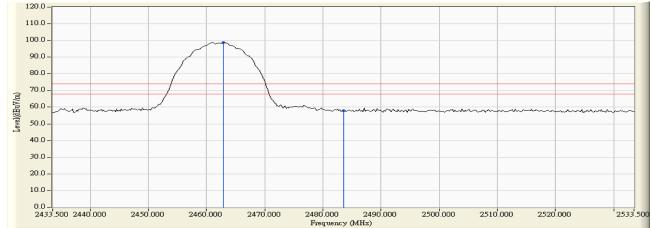


Figure Channel 11:

Horizontal (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

RF Radiated Measurement (Vertical):

| Channel No. | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
| Channel No. | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Kesuit |
| 11 (Peak) | 2462.900 | 32.485 | 54.211 | 86.696 | | | Pass |
| 11 (Peak) | 2483.500 | 32.586 | 23.487 | 56.072 | 74.00 | 54.00 | Pass |
| 11 (Average) | 2462.900 | 32.485 | 50.101 | 82.586 | | | Pass |
| 11 (Average) | 2483.500 | 32.586 | 12.105 | 44.690 | 74.00 | 54.00 | Pass |

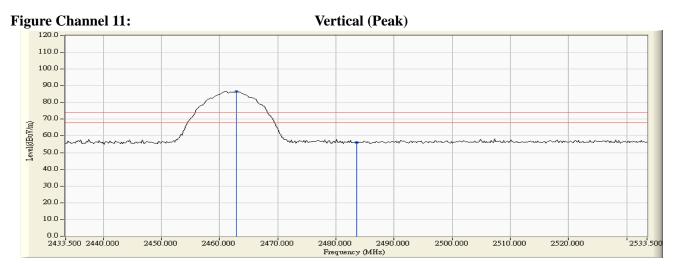


Figure Channel 11:

Vertical (Average)



Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

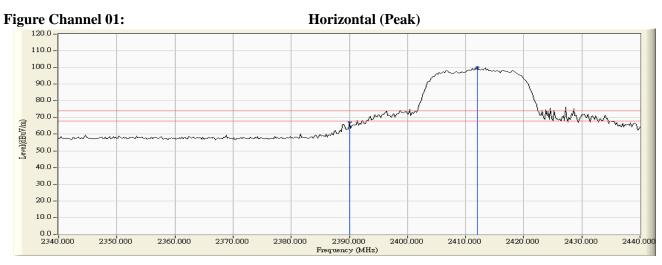
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

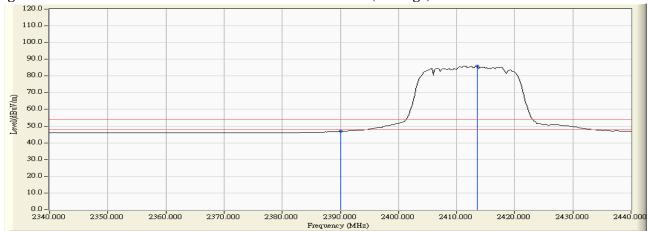
RF Radiated Measurement (Horizontal):

| Channel No. | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|-------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
| | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Kesuit |
| 01 (Peak) | 2390.000 | 33.739 | 33.622 | 67.361 | 74.00 | 54.00 | Pass |
| 01 (Peak) | 2412.000 | 33.771 | 66.413 | 100.185 | | | Pass |
| 01(Average) | 2390.000 | 33.739 | 13.139 | 46.878 | 74.00 | 54.00 | Pass |
| 01(Average) | 2413.600 | 33.776 | 52.155 | 85.931 | | | Pass |





Horizontal (Average)



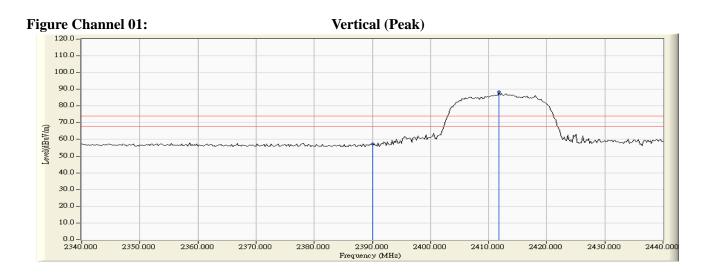
Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

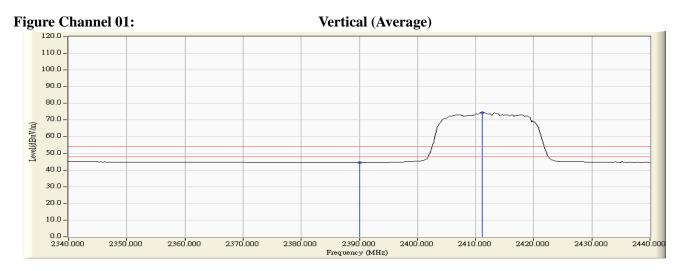
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

RF Radiated Measurement (Vertical):

| Channel No. | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
| | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Result |
| 01 (Peak) | 2390.000 | 32.267 | 24.977 | 57.244 | 74.00 | 54.00 | Pass |
| 01 (Peak) | 2411.800 | 32.248 | 56.285 | 88.533 | | | Pass |
| 01 (Average) | 2390.000 | 32.267 | 12.169 | 44.436 | 74.00 | 54.00 | Pass |
| 01 (Average) | 2411.200 | 32.245 | 42.188 | 74.433 | | | Pass |





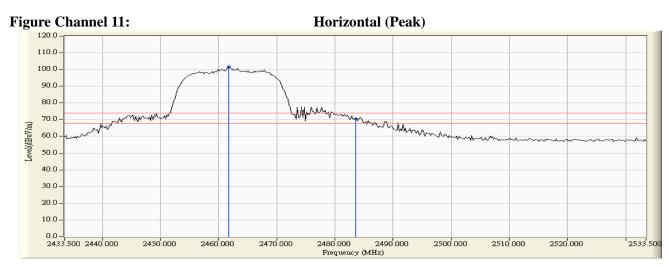
Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

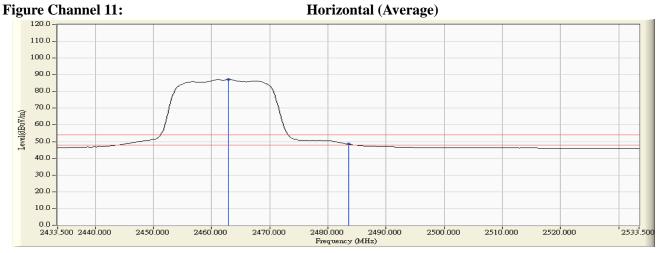
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

RF Radiated Measurement (Horizontal):

| Channel No. | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
| | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Kesuit |
| 11 (Peak) | 2461.700 | 32.380 | 67.761 | 101.653 | | | Pass |
| 11 (Peak) | 2483.500 | 32.417 | 36.479 | 70.429 | 74.00 | 54.00 | Pass |
| 11 (Average) | 2462.900 | 33.895 | 53.329 | 87.224 | | | Pass |
| 11 (Average) | 2483.500 | 33.951 | 14.563 | 48.513 | 74.00 | 54.00 | Pass |





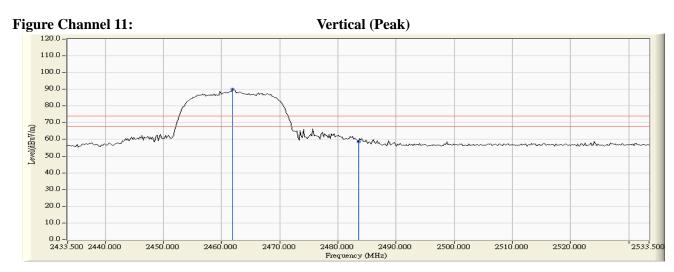
Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

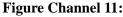
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product | : | WiFi Module |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

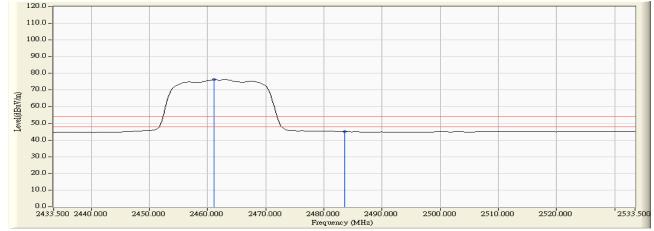
RF Radiated Measurement (Vertical):

| Channel No. | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
| | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Result |
| 11 (Peak) | 2461.900 | 32.480 | 57.654 | 90.134 | | | Pass |
| 11 (Peak) | 2483.500 | 32.586 | 26.018 | 58.603 | 74.00 | 54.00 | Pass |
| 11 (Average) | 2461.100 | 32.476 | 43.790 | 76.266 | | | Pass |
| 11 (Average) | 2483.500 | 32.586 | 12.402 | 44.987 | 74.00 | 54.00 | Pass |





Vertical (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

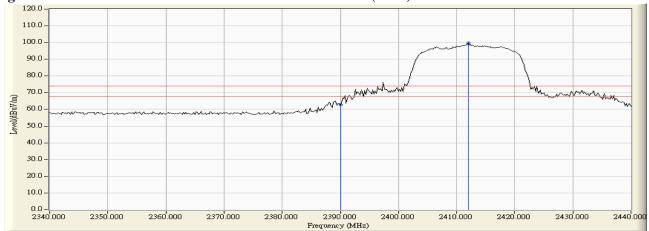
| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) |

RF Radiated Measurement (Horizontal):

| Channel No. | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
| | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Result |
| 01 (Peak) | 2390.000 | 33.739 | 29.021 | 62.760 | 74.00 | 54.00 | Pass |
| 01 (Peak) | 2412.000 | 33.771 | 66.000 | 99.772 | | | Pass |
| 01 (Average) | 2390.000 | 33.739 | 13.093 | 46.832 | 74.00 | 54.00 | Pass |
| 01 (Average) | 2413.200 | 33.775 | 51.686 | 85.461 | | | Pass |

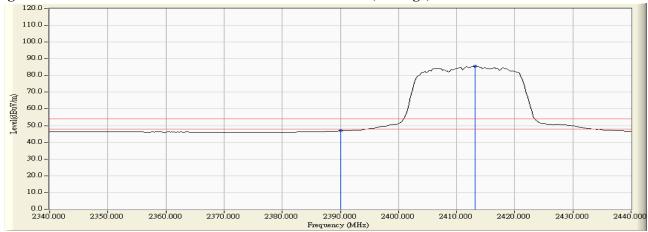
Figure Channel 01:

Horizontal (Peak)





Horizontal (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

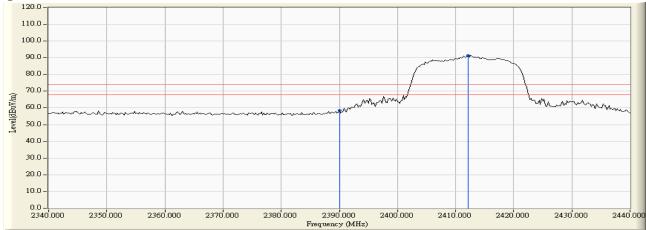
| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) |

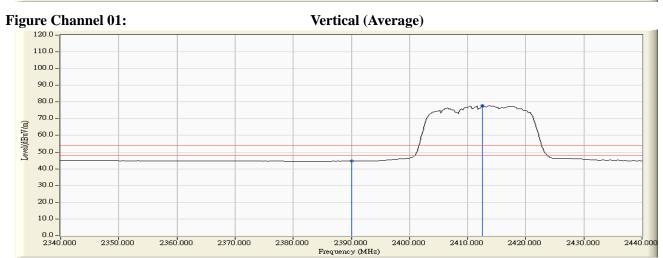
RF Radiated Measurement (Vertical):

| Channel No. | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
| | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Kesuit |
| 01 (Peak) | 2390.000 | 32.267 | 26.369 | 58.636 | 74.00 | 54.00 | Pass |
| 01 (Peak) | 2412.200 | 32.250 | 59.140 | 91.390 | | | Pass |
| 01 (Average) | 2390.000 | 32.267 | 12.360 | 44.627 | 74.00 | 54.00 | Pass |
| 01 (Average) | 2412.600 | 32.251 | 45.628 | 77.880 | | | Pass |

Figure Channel 01:

Vertical (Peak)





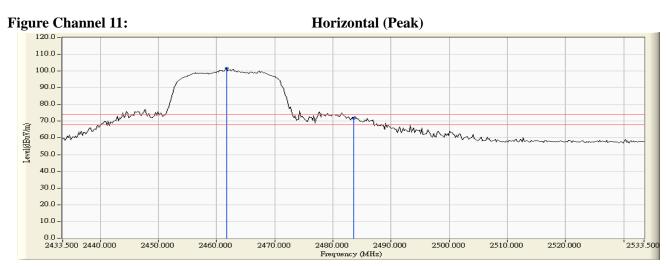
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

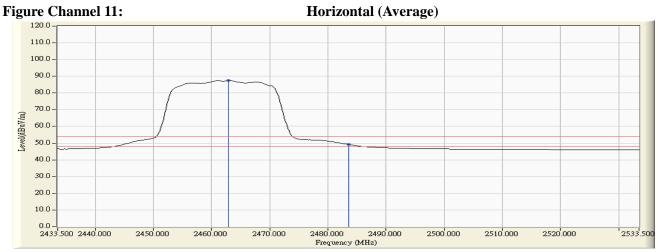


| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) |

RF Radiated Measurement (Horizontal):

| Channel No. | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Average Limit | Result |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
| Channel No. | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dBuV/m) | Result |
| 11 (Peak) | 2461.700 | 33.892 | 67.773 | 101.665 | | | Pass |
| 11 (Peak) | 2483.500 | 33.951 | 37.753 | 71.703 | 74.00 | 54.00 | Pass |
| 11 (Average) | 2462.900 | 33.895 | 53.588 | 87.483 | | | Pass |
| 11 (Average) | 2483.500 | 33.951 | 15.210 | 49.160 | 74.00 | 54.00 | Pass |





- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) |

RF Radiated Measurement (Vertical):

| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|--------------|--------------------|------------------------|-------------------------|----------------------------|------------------------|---------------------------|--------|
| 11 (Peak) | 2461.900 | 32.480 | 56.223 | 88.703 | | | Pass |
| 11 (Peak) | 2483.500 | 32.586 | 27.604 | 60.189 | 74.00 | 54.00 | Pass |
| 11 (Average) | 2460.900 | 32.476 | 42.878 | 75.353 | | | Pass |
| 11 (Average) | 2483.500 | 32.586 | 12.431 | 45.016 | 74.00 | 54.00 | Pass |

Figure Channel 11:

Vertical (Peak)

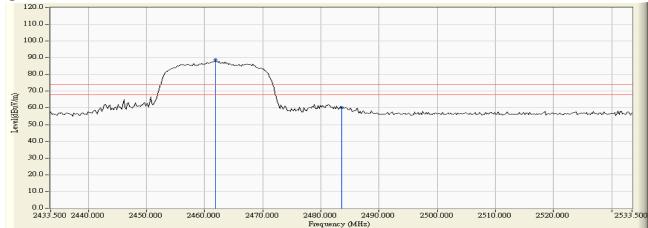
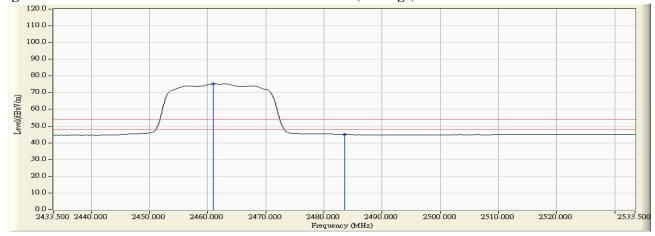


Figure Channel 11:

Vertical (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

7. Occupied Bandwidth

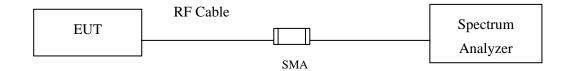
7.1. Test Equipment

| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---|-------------------|--------------|----------------------|------------|
| | Spectrum Analyzer | R&S | FSP40 / 100170 | Jun, 2013 |
| | Spectrum Analyzer | Agilent | E4407B / US39440758 | Jun, 2013 |
| Х | Spectrum Analyzer | Agilent | N9010A/MY48030495 | Apr., 2013 |

Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

7.2. Test Setup



7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

7.4. Test Procedure

The EUT was setup according to ANSI C63.10: 2009; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

7.5. Uncertainty

 \pm 150Hz

7.6. Test Result of Occupied Bandwidth

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2412MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 1 | 2412 | 8150 | >500 | Pass |

Figure Channel 1:

| | AC | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 01:37:38 PM Oct 16, 2013 TRACE 1 2 3 4 5 6 | Frequency |
|-------------------------------------|------------------------------|---------------------------------|--------------------------------|---|----------------------------|
| enter Freq 2.4120 | PNO: Fast FGain:Low | Trig: Free Run #Atten: 30 dB | Avg Type. Log-Pwr | TYPE MWWWWW DET P N N N N N | |
| dB/div Ref 20.00 | dBm | | Mkr | 2 2.407 95 GHz -1.83 dBm | Auto Tu |
| 99 0.0 | | ^1 | | | ContonEr |
| 00 | | 2 arenny Mayas | \^ 1 | -0.60 dBm | Center Fr 2.412000000 G |
| .0 | | | M. | | 2.412000000 G |
| .0 | | | - Vy Vy | | Start Fr |
| .0 | put | | No. | | 2.387000000 0 |
| .0N | when a | | M. Mon | | |
| 1.0 Murhunhunnihum | × | | | Manantheman | Stop Fr |
| .0 | | | | | 2.437000000 0 |
| | | | | | |
| enter 2.41200 GHz Res BW 100 kHz | #\/8 | W 300 kHz | Sween | Span 50.00 MHz 4.80 ms (1001 pts) | CF St |
| | | | | | 5.000000 N |
| R MODE TRC SCL | × 2.412 55 GHz | 5.40 dBm | UNCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> N |
| 2 N 1 f 3 N 1 f | 2.407 95 GHz 2.416 10 GHz | -1.83 dBm -1.04 dBm | | | |
| | 2.410 10 0112 | 1.04 0.011 | | | Freq Offs 0 |
| 3 | - | | | | 0 |
| | | | 0 | | |
| 3 | | | 1 | | |
| 7 3 9 0 | | | | | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2437MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 6 | 2437 | 8150 | >500 | Pass |

Figure Channel 6:

| RL RF | 50 Ω AC | | SENSE | | ALIGN AUTO | 01:44:38 PM | 4 Oct 16, 2013 | - |
|-----------------------------|--|---|------------------------------|-------------|----------------|-----------------------|----------------------------|---------------------|
| enter Freq 2 | 437000000 0 | Hz PNO: Fast ⊂ | Trig: Free R #Atten: 30 d | un | Type: Log-Pwr | TYPE | 123456 MWWWWW PNNNNN | Frequency |
| dB/div Ref | 20.00 dBm | | | | Mkr | 2 2.432 9 -2.3 | 95 GHz 1 dBm | Auto Tu |
| g 1.0 | | | 2 marrie | 1 | | | | Center Fr |
| .0 | | A | warkhow | March March | | | -0.48 dBm | 2.437000000 G |
| 0 | | J. S. | | - 4 | ۱. | | | Start Fr |
| .0 | where , | Velont | | | Wy where | Mail | | 2.412000000 G |
| 0 unteresting | where the second | | | | Y | Jus ann | mernernerner | Stop Fr |
| .0 | | | | | | | | 2.462000000 G |
| nter 2.43700 es BW 100 k | | #VBW | / 300 kHz | | Sweep 4 | Span 50 4.80 ms (1 |).00 MHz 001 pts) | CF St 5.000000 M |
| N 1 F | | 55 GHz | Y 5.52 dBn | | FUNCTION WIDTH | FUNCTIO | N VALUE | <u>Auto</u> N |
| N 1 f N 1 f | 2.432 | 95 GHz 10 GHz | -2.31 dBn -0.95 dBn | | | | | Freq Offs |
| | | | | | | | | 0 |
| | | | | | | | | |
| | | | | | | | | |
| | | 1 | | | STATUS | | | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2462MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 11 | 2462 | 8150 | >500 | Pass |

Figure Channel 11:

| | | | | | | | | | | Spectrum Ai | |
|----------------------------------|--|--------------|-----------|---------|----------|------------------------------|------------------|----------------------------------|---------------|-------------------------|---------------------------------|
| Frequency | M Oct 16, 2013 E 1 2 3 4 5 6 E M WWWWW | TRAC TYPE | ALIGNAUTO | Avg Typ | NSE:INT | 1 | IZ I0: Fast ⊆ | 0000 GH | | er Freq | Cent |
| Auto Tur | 95 GHz 05 dBm | 2 2.457 | Mkr | |) dB | #Atten: 30 | Gain:Low | IFG | f 20.00 (| div Re | 10 dB |
| Center Fre 2.462000000 GH | -0.62 dBm | | | Aa | Auren A | 2 Massimly | | | | | - og 10.0 - 0.00 - |
| Start Fr 2.437000000 G | | lan . | W. Marie | V V. | | | www. | unn 10 | | | 20.0 30.0 40.0 |
| Stop Fr 2.487000000 G | Contraction of the second | hadren | | | | | | | North Carling | www.anst | 50.0 50.0 70.0 |
| CF Sto 5.000000 M Auto M | 0.00 MHz 1001 pts) | 4.80 ms (| Sweep 4 | TION FU | FUN | 300 kHz | #VBN | × | kHz | er 2.4620 BW 100 | Res |
| Freq Offs 0 | | FONCTIO | | | Bm Bm | 5.38 d -2.05 d -1.15 d | 5 GHz | 2.462 59 2.457 99 2.466 10 | | N 1 f N 1 f N 1 f | 1 3 4 5 6 |
| | | | | | | | | | | | 7 8 9 0 1 2 |
| | | | STATUS | | | | | | | | G |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2412MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 1 | 2412 | 15250 | >500 | Pass |

Figure Channel 1:

| Agilent Spectrum Analyzer - Sw | | | | | |
|--|---|-----------------------|--------------------------------|--|-------------------------------|
| Center Freq 2.41200 | | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 02:15:41 PM Oct 16, 2013 TRACE 1 2 3 4 5 6 TYPE MWWWWW | Frequency |
| 10 dB/div Ref 20.00 | IFGain:Low | #Atten: 30 dB | Mkr | 2 2.404 40 GHz -4.43 dBm | Auto Tune |
| 10.0 0.00 -10.0 | 2 com | 1 | 3 | -2:69 dBm | Center Free 2.412000000 GH |
| 20.0 30.0 40.0 | alter town - water to be | | | Murry Murry | Start Fre 2.387000000 GH |
| 50.0 60.0 70.0 | | | | | Stop Fre 2.437000000 GF |
| Center 2.41200 GHz Res BW 100 kHz | | 300 kHz | | Span 50.00 MHz 4.80 ms (1001 pts) | CF Ste 5.000000 MH |
| MKR MODE TEC SQL 1 N 1 f | × 2.413 30 GHz 2.404 40 GHz 2.419 65 GHz | 4.43 dBm -4.57 dBm | FUNCTION FUNCTION WIDTH | FUNCTION VALUE | Auto Ma Freq Offse 0 H |
| 9 10 11 11 11 11 11 11 11 11 11 11 11 11 | | | STATU | s | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2437MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 6 | 2437 | 15200 | >500 | Pass |

Figure Channel 6:

| Agilent Spectrum Analyzer - Swept SA | | | | | 90. | | |
|---|----------------------------|------------------------------------|-------------|--|---------------|---------------------------|------------------------------------|
| XIRL RF 50Ω AC Center Freq 2.437000000 G | iHz PNO: Fast 😱 | SENSE:IN | Avg Type | LIGNAUTO | TRACE | 1 2 3 4 5 6 MWWWWW | Frequency |
| ا 10 dB/div Ref 20.00 dBm | FGain:Low | #Atten: 30 dB | | Mkr2 | 2.429 | 45 GHz 5 dBm | Auto Tun |
| •99 10.0 0.00 10.0 | 2 Autom | hard and a | Marchard 3 | | | -2.72 dBm | Center Fre 2.437000000 GH |
| 20.0 30.0 10.0 10.0 | not a second | | | Hone was a second and a second a | ph/www.luhuji | Mary and the state of the | Start Fre 2.412000000 GF |
| 50.0 50.0 70.0 | | | | | | | Stop Fr 2.462000000 G |
| enter 2.43700 GHz Res BW 100 kHz KR MODELTRC SCL | #VBW | 300 kHz | FUNCTION FU | Sweep 4 | | <u> </u> | CF Ste 5.000000 M Auto M |
| 1 N 1 f 2.438 2 N 1 f 2.429 | 30 GHz 45 GHz 65 GHz | 3.27 dBm -3.15 dBm -5.02 dBm | | | | | Freq Offs 01 |
| 9 - 10 - 11 - 12 - 56 - | | | | STATUS | | | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2462MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 11 | 2462 | 15200 | >500 | Pass |

Figure Channel 11:

| gilent Spectrum Analyzer - Swe RL RF 50 Ω Center Freq 2.46200 | AC | SENSE:INT | ALIGN AUTO Avg Type: Log-Pwr | 03:09:28 PM Oct 16, 2013 TRACE 1 2 3 4 5 6 | Frequency |
|---|--|------------------------------------|---------------------------------|--|----------------------------------|
| 0 dB/div Ref 20.00 c | PNO: Fast G IFGain:Low | ┘ Trig: Free Run #Atten: 30 dB | Mkr | 2 2.454 45 GHz -2.87 dBm | Auto Tun |
| og 10.0 0.00 | 2 | 1 | 3 | 2.59 dBm | Center Fre 2.462000000 GH |
| 0.0 0.0 0.0 0.0 | Mashermana and | | multilization | Jul Inumental march and | Start Fr 2.437000000 G |
| 0.0 | | | | | Stop Fr 2.487000000 G |
| enter 2.46200 GHz Res BW 100 kHz R MODE TRC SCL | #VBW | / 300 kHz | Sweep | Span 50.00 MHz 4.80 ms (1001 pts) FUNCTION VALUE | CF Ste 5.000000 M Auto M |
| 1 N 1 f 2 N 1 f 3 N 1 f 4 5 6 6 | 2.463 30 GHz 2.454 45 GHz 2.469 65 GHz | 3.41 dBm -2.87 dBm -5.19 dBm | | | Freq Offs |
| 7 8 9 0 1 2 | | | | | |
| G | | | STATUS | s | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 1 | 2412 | 15200 | >500 | Pass |

Figure Channel 1:

| Agilent Spectrum Analyzer - Sw | | | | | |
|---|--|------------------------------------|--------------------------------|--|-----------------------------------|
| Center Freq 2.4120 | | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 03:16:05 PM Oct 16, 2013 TRACE 1 2 3 4 5 6 TYPE MWWWWW | Frequency |
| 10 dB/div Ref 20.00 | IFGain:Low | #Atten: 30 dB | Mkrź | 2 2.404 45 GHz -3.15 dBm | Auto Tune |
| 10.0 0.00 -10.0 | 2 marinetine | and particular from the set | 3 | | Center Fre 2.412000000 G⊦ |
| 20.0 30.0 40.0 | าโกปลโมเวินระกาว | | | Wilm hand a property | Start Fre 2.387000000 G⊦ |
| 50.0 60.0 70.0 | | | | | Stop Fre 2.437000000 GH |
| Center 2.41200 GHz #Res BW 100 kHz | #VBW | 300 kHz | Sweep 4 | Span 50.00 MHz 1.80 ms (1001 pts) | CF Ste 5.000000 MH Auto Ma |
| 1 N 1 f 2 N 1 f 3 N 1 f 4 - 5 5 - - 6 - - 7 - - 8 - - | 2.413 30 GHz 2.404 45 GHz 2.419 65 GHz | 2.87 dBm -3.15 dBm -4.99 dBm | | | Freq Offs 0 ⊦ |
| 9 10 11 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14 | | | STATUS | | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 6 | 2437 | 15200 | >500 | Pass |

Figure Channel 6:

| gilent Spectrum Analyzer - Swept | | | | | |
|---|--|------------------------------------|--------------------------------|--|---------------------------------|
| RL RF 50 Ω Center Freq 2.437000 | AC 000 GHz PNO: Fast | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 03:22:38 PM Oct 16, 2013 TRACE 1 2 3 4 5 6 TYPE MWWWWW | Frequency |
| 10 dB/div Ref 20.00 dB | IFGain:Low | ∕ #Atten: 30 dB | Mkr | 2 2.429 45 GHz -3.38 dBm | Auto Tun |
| • 0 | 2 Automation | | Tantash they | | Center Fre 2.437000000 GH |
| 20.0 30.0 40.0 | hunner and | | hunder | prosenting the stand of the sta | Start Fre 2.412000000 GF |
| 50.0 50.0 70.0 | | | | | Stop Fre 2.462000000 GF |
| enter 2.43700 GHz Res BW 100 kHz | #VBW | 300 kHz | Sweep | Span 50.00 MHz 4.80 ms (1001 pts) EUNCTION VALUE | CF Ste 5.000000 MI Auto M |
| 1 N 1 f 2 N 1 f 3 N 1 f 4 5 6 7 | 2.438 30 GHz 2.429 45 GHz 2.444 65 GHz | 2.71 dBm -3.38 dBm -5.09 dBm | | | Freq Offs |
| 9 0 1 2 | | | | | |
| SG | | | STATUS | | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 11 | 2462 | 15200 | >500 | Pass |

Figure Channel 11:

| Agilent Spectrum Analyzer - Swept SA | | ne - | | | | | |
|--|----------------------------|------------------------------------|-------------|-------------------------|---------------|---|---------------------------------|
| RL RF 50 Ω AC Center Freq 2.462000000 G | | SENSE:I | Avg Type | ALIGNAUTO e: Log-Pwr | TRAC | M Oct 16, 2013 E 1 2 3 4 5 6 E M MANANA | Frequency |
| | PNO: Fast 😱 FGain:Low | ┘ Trig: Free Ru #Atten: 30 dB | | Mkr | DE 2 2.454 | 45 GHz | Auto Tun |
| 0 dB/div Ref 20.00 dBm | 2 (martinet | hitestration | 1 | | -3.5 | -3:25 dDm | Center Fre 2.462000000 GH |
| 20.0 30.0 40.0 0 | | | | Murch allow | en multuredi | aller and rearly the | Start Fre 2.437000000 GF |
| 50.0 50.0 70.0 | | | | | | | Stop Fr 2.487000000 G |
| enter 2.46200 GHz Res BW 100 kHz | #VBW | 300 kHz | FUNCTION FU | Sweep 4 | 4.80 ms (| 0.00 MHz 1001 pts) | CF Ste 5.000000 M Auto M |
| 1 N 1 f 2.463 2 N 1 f 2.454 | 30 GHz 45 GHz 65 GHz | 2.74 dBm -3.55 dBm -5.62 dBm | | | | IN VALUE | Freq Offs 0 I |
| 0 | | | | STATUS | | | |

8. **Power Density**

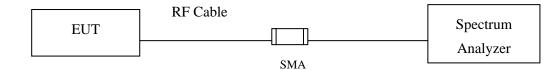
8.1. Test Equipment

| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---|-------------------|--------------|----------------------|------------|
| | Spectrum Analyzer | R&S | FSP40 / 100170 | Jun, 2013 |
| | Spectrum Analyzer | Agilent | E4407B / US39440758 | Jun, 2013 |
| Х | Spectrum Analyzer | Agilent | N9010A / MY48030495 | Apr., 2013 |

Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

8.2. Test Setup



8.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

8.5. Uncertainty

 \pm 1.27 dB

8.6. Test Result of Power Density

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Power Density Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2412MHz) |

| Channel No. | Frequency (MHz) | Measure Level (dBm) | Limit (dBm) | Result |
|-------------|--------------------|------------------------|----------------|--------|
| 1 | 2412 | 5.65 | < 8dBm | Pass |

Figure Channel 1:

| RL RF 50 Ω AC | | SENSE | INT | ALIGN AUTO | 01:38:12 PM Oct 16, 2013 | |
|--------------------------------------|----------------------|--------------------|--------|-------------|--------------------------------------|---------------------------------|
| enter Freq 2.41200000 |) GHz PNO: Wide 😱 |] Trig: Free Ri | Avg Ty | pe: Log-Pwr | TRACE 1 2 3 4 5 6 TYPE MWW/WWW | Frequency |
|) dB/div Ref 20.00 dBm | IFGain:Low | #Atten: 30 dl | 3 | Mkr1 | 2.412 538 GHz 5.65 dBm | Auto Tur |
| 0.0 | | ٨٠٨ | 1 | | | Center Fre 2.412000000 GF |
| 0.0 | L. A. M.L. | W | | -A-A-A | M | Start Fro 2.405887500 G |
| 0.0 | | | | | | Stop Fr 2.418112500 G |
| 0.0 | | | | | | CF St 1.222500 M Auto M |
| 0.0 | | | | | | Freq Offs 0 |
| 0.0 | | | | | | |
| enter 2.412000 GHz Res BW 100 kHz | #VBW | 300 kHz | | Sweep | Span 12.23 MHz 1.20 ms (1001 pts) | |
| G | | | | STATUS | 3 | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Power Density Data |
| Test Site | : | No.3OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2437MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 6 | 2437 | 5.45 | < 8dBm | Pass |

Figure Channel 6:

| PNO: Wide Irig: Free Kun IFGain:Low #Atten: 30 dB Mkr1 2.437 526 GI 5.45 dB | Frequency | 01:45:12 PM Oct 16, 2013 TRACE 1 2 3 4 5 6 | ALIGNAUTO ype: Log-Pwr | A | SEM | GHz | | RF 50 | nter Fre |
|--|-----------------------------|---|---------------------------|------------|---------|-------------|-------|-----------|----------|
| | Auto Tu | | Mkr1 | | | PNO: Wide 😱 | | | |
| | Center Fr 2.437000000 G | 5.45 dBm | | ▲ 1 | | |) dBm | Ref 20.00 | |
| | Start Fr 2.430887500 G | my | | M | M | An | un. | m | A |
| | Stop Fr 2.443112500 0 | ~ | | | | | | | |
| | CF St 1.222500 M Auto | | | | | | | | |
| | Freq Off | | | | | | | | |
| | | | | | | | | | |
| nter 2.437000 GHz Span 12.23 M es BW 100 kHz #VBW 300 kHz Sweep 1.20 ms (1001 p | | Span 12.23 MHz 1.20 ms (1001 pts) | Sweep | | 300 kHz | #VBW | z | | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Power Density Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2462MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 11 | 2462 | 5.56 | < 8dBm | Pass |

Figure Channel 11:

| RL | RF 50 Ω AC | | SENSE | INT | ALIGN AUT | 01:57:47 PM Oct 16, 2013 | - |
|----------------------|---------------------|------------------------------------|------------------------------|-----|-----------------|---|---------------------|
| nter Fre | eq 2.46200000 | 0 GHz PNO: Wide 😱 IFGain:Low | Trig: Free R #Atten: 30 d | un | g Type: Log-Pwi | TRACE 1 2 3 4 5 6 TYPE MWWWWM DET P N N N N N | 1 |
| B/div | Ref 20.00 dBm | | | | Mkr | 1 2.462 538 GHz 5.56 dBm | |
| | | | | •1 | | | Center Fr |
| | | n a rit | M | hin | ~^ ^ ^ 0 | | 2.462000000 G |
| л | man | for the start | W | | | my | Start Fr |
| W | | | | | | W | 2.455887500 G |
| | | | | | | | Stop Fr |
| | | | | | | | 2.468112500 G |
| | | | | | | | CF St 1.222500 M |
| ı — | _ | | | | | | <u>Auto</u> N |
| | | | | | | | Freq Off: |
| | | | | | | | 0 |
| Ϊ | | | | | | | |
| nter 2.46 es BW 1 | 52000 GHz 00 kHz | #VBW | 300 kHz | | Sweep | Span 12.23 MHz 1.20 ms (1001 pts) | |
| | | | | | STAT | , | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Power Density Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2412MHz) |

| Channel No. | Frequency (MHz) | Measure Level (dBm) | Limit (dBm) | Result |
|-------------|--------------------|------------------------|----------------|--------|
| 1 | 2412 | 3.54 | < 8dBm | Pass |

Figure Channel 1:

| RL RF 50Ω A | | SENSE:INT | ALIGN AUTO | 02:16:14 PM Oct 16, 2013 | |
|------------------------|-----------------------------------|---------------------------------|-----------------------------|---|----------------------------|
| Center Freq 2.4120000 | 00 GHz PNO: Fast IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg Type: Log-Pwr | TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N | , , , |
| 0 dB/div Ref 20.00 dBn | n | | Mkr1 | 2.413 304 GHz 3.54 dBm | |
| | | | | | Center Fre |
| 10.0 | | ∮ 1 | | | 2.412000000 GH |
| 00 and man | bushantant | while and warding | approximation of the second | handler | Start Fre |
| 0.0 | | | | | 2.400562500 G |
| 0.0 | | | | N. | |
| · · | | | | N was | Stop Fre 2.423437500 GI |
| D.0 Myny Ard | | | | Whavy | |
| 0.0 | | | | | 2.287500 M |
| 0.0 | | | _ | | <u>Auto</u> M |
| 0.0 | | | | | FreqOffs |
| | | | | | 01 |
| 0.0 | | | | | |
| enter 2.41200 GHz | | | | Span 22.88 MHz | |
| Res BW 100 kHz | #VBW | 300 kHz | Sweep | 2.20 ms (1001 pts) | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Power Density Data |
| Test Site | : | No.3OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2437MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 6 | 2437 | 3.18 | < 8dBm | Pass |

Figure Channel 6:

| RL | um Analyzer - Swept SA RF 50 Ω AC | | SENSE:INT | | ALIGN AUTO | | M Oct 16, 2013 | Frequency |
|---------------|--------------------------------------|------------------------------------|---|------------|------------|---------------------|-------------------------------------|--------------------------------------|
| enter Fi | req 2.43700000 |) GHz PNO: Fast 😱 IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg Type: | Log-Pwr | TYP | E 123456 MWWWWW T P N N N N N | |
| dB/div | Ref 20.00 dBm | | | | Mkr1 | I 2.438 3 3.⁺ | 00 GHz 18 dBm | Auto Tur |
| 0.0 | | | | 1 | | | | Center Fre 2.437000000 Gł |
| .00 | manum | water and | water and the second | walnun lan | nhnnh | harding | | Start Fr 2.425600000 G |
|).0).0 | and and a second | | | | | hy | | Stop Fr |
|).0 1.17/m | Aurol . | | | _ | | | Why Www | 2.448400000 G |
| .0 | | | | | | | | CF St 2.280000 M <u>Auto</u> M |
| .0 | | | | _ | | | | Freq Off |
| .0 | | | | | | | | |
| | 13700 GHz 100 kHz | #VBW | 300 kHz | | Sweep | Span 2 2.20 ms (| 2.80 MHz 1001 pts) | |
| 3 | | | 0.0110000000000000000000000000000000000 | | STATU | | | 1 |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Power Density Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2462MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 11 | 2462 | 2.91 | < 8dBm | Pass |

Figure Channel 11:

| RL RF 50 Ω Center Freq 2.462000 | AC DOOO GHz PNO: Fast G IFGain:Low | SENSE:INT Trig: Free Run #Atten: 30 dB | Avg Type: L | .ign auto .og-Pwr | TRAC TYP | M Oct 16, 2013 E 1 2 3 4 5 6 E MWWWWW T P N N N N N | Frequency |
|-------------------------------------|---|--|-------------|----------------------|---------------------|--|---------------------------------------|
| 0 dB/div Ref 20.00 dB | | #Atten: So dB | | Mkr1 | 2.463 3 | 20010 - 10000000000000 | Auto Tun |
| 0.0 | | | r | | 6 | | Center Fre 2.462000000 GH |
| 0.0 | Amalanalan | and and provide | malannam | Arrah | sandrag by | | Start Fre 2.450600000 Gi |
| D.0 Mandeer | | | | | | William M | Stop Fr 2.473400000 GI |
| 0.0 | | | | | | | CF Ste 2.280000 M <u>Auto</u> M |
| 0.0 | | | | | - | | Freq Offs 0 |
| 0.0 | | | | | | | |
| enter 2.46200 GHz Res BW 100 kHz | #VBW | 300 kHz | s | Sweep | Span 2 2.20 ms (| 2.80 MHz 1001 pts) | |
| 5G | | 000 1112 | | STATU | | 1001 pto/ | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Power Density Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz) |

| Channel No. | Frequency (MHz) | Measure Level (dBm) | Limit (dBm) | Result |
|-------------|--------------------|------------------------|----------------|--------|
| 1 | 2412 | 2.83 | < 8dBm | Pass |

Figure Channel 1:

| RL RF 50 Ω A0 | | SENSE:INT | | ALIGN AUTO | 03:16:38 PM | 4 Oct 16, 2013 | |
|---|-----------------------|---------------------------------|-----------|------------|-----------------------|----------------------------|---|
| enter Freq 2.4120000 | 00 GHz PNO: Fast G | Trig: Free Run #Atten: 30 dB | Avg Type: | Log-Pwr | TYP | 123456 MWWWWW PNNNNN | Frequency |
| dB/div Ref 20.00 dBn | | #Atten: 30 dB | | Mkr1 | 2.413 3 | Dates strang | Auto Tun |
| .0 | | 1 | | | | | Center Fre 2.412000000 GH |
| 00 manharat | montymant | magazan haan fra | ndramhran | Amrah | many | | Start Fro 2.400600000 GI |
| 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | hours | Stop Fr 2.423400000 G |
| | | | | | | - alle | CF St (2.280000 M <u>Auto</u> M |
| 0.0 | | | | | | | Freq Offs 0 |
| .0 | | | | | | | |
| enter 2.41200 GHz Res BW 100 kHz | #VBW | 300 kHz | | Sweep | Span 22 2.20 ms (* | 2.80 MHz 1001 pts) | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Power Density Data |
| Test Site | : | No.3OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 6 | 2437 | 2.70 | < 8dBm | Pass |

Figure Channel 6:

| OdB/div Ref 20.00 dBm | 0.0 | туре [Й Шил Der [P NNN 2.438 300 G 2.70 dE | Hz Auto Tur |
|--|--------------|---|---|
| 10.0 | ton formatin | when | 2.437000000 Gł Start Fre 2.425600000 Gł |
| | Inna Amanda | why | 2.425600000 G |
| | | 4 | Stop Fr |
| | | h h | 2.448400000 G |
| | | | CF Sto 2.280000 M Auto M |
| | | | Freq Offs |
| | | | |
| enter 2.43700 GHz Res BW 100 kHz #VBW 300 kHz | Sween | Span 22.80 M 2.20 ms (1001 p | |

| Product | : | WiFi Module |
|-----------|---|--|
| Test Item | : | Power Density Data |
| Test Site | : | No.3 OATS |
| Test Mode | : | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz) |

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 11 | 2462 | 2.74 | < 8dBm | Pass |

Figure Channel 11:

| | AC | SENSE:INT | ALI Avg Type: Lo | | :39 PM Oct 16, 2013 TRACE 1 2 3 4 5 6 | Frequency |
|---|--------------------------------------|---------------------------------|---------------------|---------------------|---|---|
| enter Freq 2.462000 | DOU GHZ PNO: Fast C IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg Type: Lo | og-Pwr | TYPE MWWWWW DET P NNNNN | |
| dB/div Ref 20.00 dB | m | | | Mkr1 2.46 | 3 300 GHz 2.74 dBm | Auto Tur |
| 1.0 | | 1 | | | | Center Fr 2.462000000 G |
| 00 pmmmmm | tunaturation | withing with | withanthant | in Mary Any | ~ | Start Fr 2.450600000 G |
| 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | | | | | La construction of the second | Stop Fr 2.473400000 G |
|).0 | | | | | "When the second | CF St 2.280000 M <u>Auto</u> M |
| 0.0 | | | | | | Freq Offs 0 |
| 1.0 | | | | | _ | |
| enter 2.46200 GHz Res BW 100 kHz | #VBW | 300 kHz | S | Spar weep 2.20 m | n 22.80 MHz Is (1001 pts) | |

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs