TEST REPORT

of

FCC Part 15 Subpart C AND CANADA RSS-247

 \boxtimes New Application; \square Class I PC; \square Class II PC

| Product : | Almond |
|-------------------|--|
| Brand: | SECURIFI |
| Model: | Almond, Almond1 |
| Model Difference: | Market Segment |
| FCC ID: | AHL-ALMOND1 |
| IC: | 10114A-ALMOND1 |
| FCC Rule Part: | §15.247, Cat: DTS |
| IC Rule Part: | RSS-247 issue 1: May 28, 2015 RSS-Gen issue 4: 2014 |
| Applicant: | Securifi LTD. |
| Address: | 11F, No.92, Sec. 5, Nanjing E. Rd., Songshan Dist., Taipei City 105, Taiwan |

Test Performed by: International Standards Laboratory

<Lung-Tan LAB> *Site Registration No. BSMI: SL2-IN-E-0013; MRA TW1036; TAF: 0997; IC: IC4067B-3; *Address: No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist., Tao Yuan City 325, Taiwan *Tel : 886-3-407-1718; Fax: 886-3-407-1738 Report No.: **ISL-14LR061FC-R1** Issue Date : **2015/12/23**



Test results given in this report apply only to the specific sample(s) tested and are traceable to national or international standard through calibration of the equipment and evaluating measurement uncertainty herein.

This report MUST not be used to claim product endorsement by TAF, NVLAP or any agency of the Government.

This test report shall not be reproduced except in full, without the written approval of International Standards Laboratory.



-2 of 97-

FCC ID: AHL-ALMOND1 IC: 10114A-ALMOND1

VERIFICATION OF COMPLIANCE

| Applicant: | Securifi LTD. |
|-----------------------|-------------------------|
| Product Description: | Almond |
| Brand Name: | SECURIFI |
| Model No.: | Almond, Almond1 |
| Model Difference: | Market Segment |
| FCC ID: | AHL-ALMOND1 |
| IC: | 10114A-ALMOND1 |
| Date of test: | 2014/03/03 ~ 2015/12/21 |
| Date of EUT Received: | 2014/03/03 |

We hereby certify that:

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

| Test By: | DinoChen | Date: | 2015/12/23 |
|--------------|--------------------------------|-------|------------|
| | Dion Chang / Engineer | | |
| Prepared By: | Gigi yeh | Date: | 2015/12/23 |
| | Gigi Yeh / Specialist | | |
| Approved By: | Timent In | Date: | 2015/12/23 |
| | Vincent Su / Technical Manager | | |



Version

| Version No. | Date | Description |
|-------------|------------|------------------------------|
| 00 | 2015/12/23 | Initial creation of document |
| | | |
| | | |



Table of Contents

| 1 | GEN | ERAL INFORMATION | 6 |
|---|------|--|----|
| | 1.1. | Product Description | 6 |
| | 1.1 | Related Submittal(s) / Grant (s) | 8 |
| | 1.2 | Test Methodology | |
| | 1.3 | Test Facility | |
| | 1.4 | Special Accessories | |
| | 1.5 | Equipment Modifications | 8 |
| 2 | SYS | FEM TEST CONFIGURATION | 9 |
| | 2.1 | EUT Configuration | 9 |
| | 2.2 | EUT Exercise | 9 |
| | 2.3 | Test Procedure | 9 |
| | 2.4 | Configuration of Tested System | 10 |
| 3 | SUM | IMARY OF TEST RESULTS | |
| 4 | DES | CRIPTION OF TEST MODES | |
| 5 | CON | DUCTED EMISSION TEST | |
| | 5.1 | Standard Applicable: | 13 |
| | 5.2 | Measurement Equipment Used: | |
| | 5.3 | EUT Setup: | 13 |
| | 5.4 | Measurement Procedure: | 14 |
| | 5.5 | Measurement Result: | 14 |
| 6 | PEA | K /AVERAGE OUTPUT POWER MEASUREMENT | |
| | 6.1 | Standard Applicable: | |
| | 6.2 | Measurement Equipment Used: | |
| | 6.3 | Test Set-up: | |
| | 6.4 | Measurement Procedure: | |
| | 6.5 | Measurement Result: | 23 |
| 7 | 6dB | /99% Bandwidth(EBW) | |
| | 7.1 | Standard Applicable: | |
| | 7.2 | Measurement Equipment Used: | |
| | 7.3 | Test Set-up: | |
| | 7.4 | Measurement Procedure: | |
| | 7.5 | Measurement Result: | |
| 8 | 100K | KHz BANDWIDTH OF BAND EDGES MEASUREMENT | |
| | 8.1 | Standard Applicable: | |
| | 8.2 | Measurement Equipment Used: | |
| | 8.3 | Test SET-UP: | |
| | 8.4 | Measurement Procedure: | |
| | 8.5 | Field Strength Calculation: | |
| | 8.6 | Measurement Result: | |
| 9 | | RIOUS RADIATED EMISSION TEST | |
| | 9.1 | Standard Applicable | |
| | 9.2 | Measurement Equipment Used: | |
| | 9.3 | Test SET-UP: | |
| | 9.4 | Measurement Procedure: | |
| | 9.5 | Field Strength Calculation | |
| | 9.6 | Measurement Result: | 54 |



| 10 | Peak | Power Spectral Density | |
|----|------|---|----|
| | | Standard Applicable: | |
| | | Measurement Equipment Used: | |
| | | Test Set-up: | |
| | 10.4 | Measurement Procedure: | 79 |
| | 10.5 | Measurement Result: | 80 |
| 11 | ANTI | ENNA REQUIREMENT | |
| | 11.1 | Standard Applicable: | |
| | | Antenna Connected Construction: | |
| 12 | Maxi | mum Permissible Exposure (MPE) | 94 |
| | | Standard Applicable | |
| | | Maximum Permissible Exposure (MPE) Evaluation | |



1 GENERAL INFORMATION

1.1. Product Description

General:

| Product Name: | Almond | | |
|-------------------|----------------|---|--|
| Brand Name: | SECURIFI | | |
| Model Name: | Almond, Almon | d1 | |
| Model Difference: | Market Segment | | |
| Hardware Version: | N/A | | |
| Software Version: | N/A | | |
| | 12Vdc form AC | /DC Adapter | |
| Power Supply: | Adaptor: | Model: DSA-12G-12FUS, Supplier: Switching Model: MU12AB120100-A1, Supplier: I.T.E. Model: MU12AR120100-A1, Supplier: I.T.E. | |



WLAN: 2X2 SM-MIMO

| Wi-Fi | Frequency Range (MHz) | Channels | Peak Rated Power | Modulation Technology | |
|----------------------|--------------------------|---|--|---|--|
| 802.11b | 2412 - 2462(DTS) | 11 | 17.74dBm | DSSS | |
| 802.11g | 2412 - 2462(DTS) | 11 | 23.99dBm | DSSS, OFDM | |
| 802.11n | HT20 2412 - 2462(DTS) | 11 | 23.44dBm | OFDM | |
| 802.1111 | HT40 2422 - 2452(DTS) | 7 24.65dBm | | OFDM | |
| Modulation t | type | CCK, DQPSK, DBPSK for DSSS 64QAM. 16QAM, QPSK, BPSK for OFDM | | | |
| Transition R | ate: | Upto 72Mbp | S | | |
| Antenna Designation: | | 0 | z: 4.95dBi KDB662911 D01 S d uncorrelated for pu | M-MIMO signals could rposes of directional gain | |
| | | Directional g | ain = Gant | | |

The EUT is compliance with IEEE 802.11 b/g/n Standard. This report is applied for band wifi.

Remark: The above DUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



1.1 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: <u>AHL-ALMOND1</u>** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. And **IC: <u>10114A-ALMOND1</u>** filing to comply with Industry Canada RSS-247 issue 1: 2015. The composite system (digital device) is compliance with Subpart B is authorized under a DoC procedure.

1.2 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2009). Radiated testing was performed at an antenna to EUT distance 3 meters.

KDB Document: 558074 D01 DTS Meas Guidance v03r01

1.3 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of **International Standards Laboratory** <Lung-Tan LAB> No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist., Tao Yuan City 325, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2009. FCC Registration Number is: TW1036, Canada Registration Number: 4067B-3.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.



2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

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

2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

2.3 Test Procedure 2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2009.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and 13 of ANSI C63.4-2009.



2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

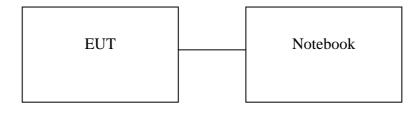


Table 2-1 Equipment Used in Tested System

| Item | Equipment | Mfr/Brand | Model/ Type No. | Series No. | Data Cable | Power Cord |
|------|-----------|-----------|--------------------|------------|------------|------------|
| 1 | Notebook | Lenovo | X220i | NA | shield | Non-shield |



3 SUMMARY OF TEST RESULTS

| FCC /IC Rules | Description Of Test | Result |
|-----------------------------|----------------------------------|-----------|
| §15.207(a) | AC Power Line Conducted Emission | Compliant |
| RSS-Gen §8.8 | | |
| §15.247(b) (3),(4) | Peak Output Power | Compliant |
| RSS-247 issue 1,§5.4(4) | | |
| §15.247(a)(2) | 6dB Bandwidth | Compliant |
| RSS-247 issue 1, §5.2(1) | & | |
| RSS-Gen §6.6 | 99% Power Bandwidth | |
| §15.247(d) | 100 KHz Bandwidth Of | Compliant |
| RSS-247 issue 1, §5.5 | Frequency Band Edges | |
| §15.247(d) | Spurious Emission | Compliant |
| RSS-247 issue 1, §5.5 | - | - |
| §15.247(e) | Peak Power Density | Compliant |
| RSS-247 issue 1, | 5 | 1 |
| §5.2(2) | | |
| §15.203 | Antenna Requirement | Compliant |
| RSS-GEN 8.3 | - | - |
| MPE | Maximum Permissible Exposure | Compliant |



4 DESCRIPTION OF TEST MODES

The EUT has been tested under engineering operating condition. Test program used to control the EUT for staying in continuous transmitting mode is programmed.

2.4GHz:

802.11 b mode: Channel low (2412MHz) \cdot mid (2437MHz) and high (2462MHz) (2472MHz) with 1Mbps lowest data rate are chosen for pre-test testing of radiated emissions.

802.11 g mode: Channel low (2412MHz) \cdot mid (2437MHz) and high (2462MHz) (2472MHz) with 6Mbps lowest data rate are chosen for pre-test testing of radiated emissions.

802.11 n HT20: Channel low (2412MHz) \cdot mid (2437MHz) and high (2462MHz) (2472MHz) with 6.5Mbps lowest data rate are chosen for pre-test testing of radiated emissions.

802.11 n HT40: Channel low (2422MHz) \cdot mid (2437MHz) and high (2452MHz) (2462MHz) with 13.5Mbps lowest data rate are chosen for pre-test testing of radiated emissions.

The worst case 802.11 g mode was reported for Radiated Emission.



5 CONDUCTED EMISSION TEST

5.1 Standard Applicable:

According to \$15.207 and RSS-Gen \$7.2.4, frequency range within 150KHz to 30MHz shall not exceed the Limit table as below.

| F | | nits |
|-----------------|------------|----------|
| Frequency range | UB(| (uV) |
| MHz | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |
| Note | | |

1. The lower limit shall apply at the transition frequencies

2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

5.2 Measurement Equipment Used:

| Conducted Emission Test Site | | | | | | |
|------------------------------|--------------------|------------|------------------|------------|------------|--|
| EQUIPMENT MFR MODEL SERIAL | | LAST | CAL DUE. | | | |
| TYPE | | NUMBER | NUMBER | CAL. | | |
| Conduction 04-3 Cable | WOKEN | CFD 300-NL | Conduction 04 -3 | 07/28/2015 | 07/27/2016 | |
| EMI Receiver 17 | Rohde & Schwarz | ESCI 7 | 100887 | 09/08/2015 | 09/07/2016 | |
| LISN 18 | ROHDE & SCHWARZ | ENV216 | 101424 | 02/11/2015 | 02/10/2016 | |
| LISN 19 | ROHDE & SCHWARZ | ENV216 | 101425 | 03/12/2015 | 03/11/2016 | |

5.3 EUT Setup:

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2009.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.



5.4 Measurement Procedure:

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

5.5 Measurement Result:

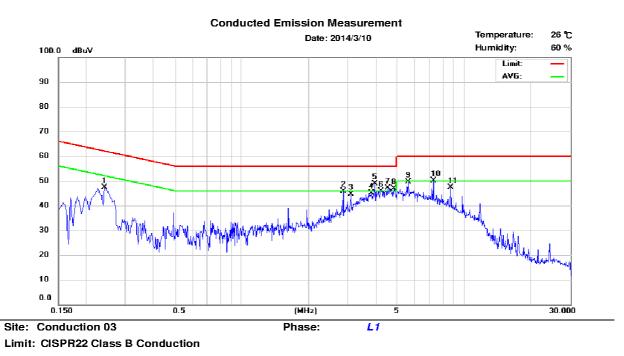
The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

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



AC POWER LINE CONDUCTED EMISSION TEST DATA

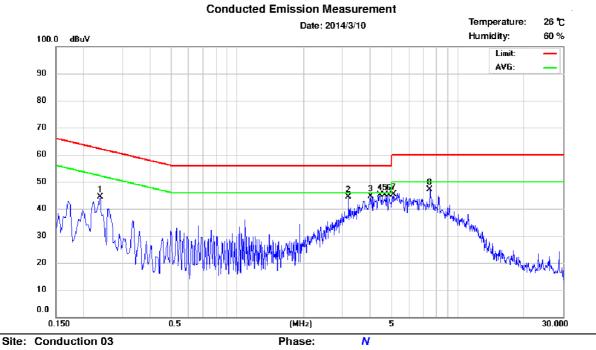
| Operation Mode: | Operation Mode | Test Date: | 2014/03/10 |
|-----------------|----------------|------------|------------|
| Test By: | Dino | | |
| Adapter name: | DSA-12G-12 FUS | | |



| No. | Frequency (MHz) | Correct Factor (dB) | QP Emission (dBuV) | QP Limit (dBuV) | QP Margin (dB) | AVG Emission (dBuV) | AVG Limit (dBuV) | AVG Margin (dB) | Note |
|-----|--------------------|------------------------|--------------------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------|------|
| 1 | 0.242 | 9.62 | 46.69 | 62.03 | -15.34 | 35.72 | 52.03 | -16.31 | |
| 2 | 2.858 | 9.72 | 35.23 | 56.00 | -20.77 | 26.23 | 46.00 | -19.77 | |
| 3 | 3.094 | 9.74 | 36.70 | 56.00 | -19.30 | 27.69 | 46.00 | -18.31 | |
| 4 | 3.822 | 9.75 | 41.33 | 56.00 | -14.67 | 31.33 | 46.00 | -14.67 | |
| 5 | 3.974 | 9.75 | 41.56 | 56.00 | -14.44 | 32.22 | 46.00 | -13.78 | |
| 6 | 4.238 | 9.75 | 41.59 | 56.00 | -14.41 | 32.46 | 46.00 | -13.54 | |
| 7 | 4.526 | 9.76 | 43.11 | 56.00 | -12.89 | 33.01 | 46.00 | -12.99 | |
| 8 | 4.834 | 9.77 | 43.42 | 56.00 | -12.58 | 32.73 | 46.00 | -13.27 | |
| 9 | 5.622 | 9.78 | 41.69 | 60.00 | -18.31 | 31.98 | 50.00 | -18.02 | |
| 10 | 7.258 | 9.82 | 39.42 | 60.00 | -20.58 | 29.78 | 50.00 | -20.22 | |
| 11 | 8.706 | 9.85 | 36.19 | 60.00 | -23.81 | 26.62 | 50.00 | -23.38 | |

International Standards Laboratory





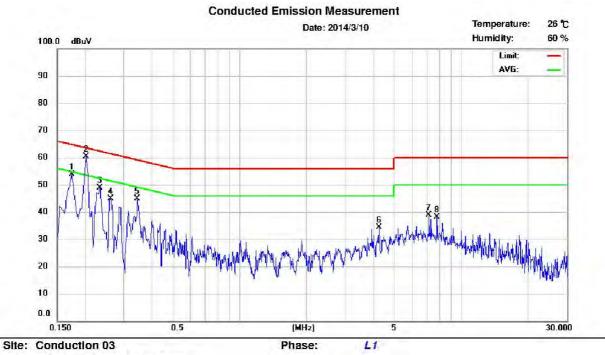
Limit: CISPR22 Class B Conduction

| No. | Frequency (MHz) | Correct Factor (dB) | QP Emission (dBuV) | QP Limit (dBuV) | QP Margin (dB) | AVG Emission (dBuV) | AVG Limit (dBuV) | AVG Margin (dB) | Note |
|-----|--------------------|------------------------|--------------------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------|------|
| 1 | 0.238 | 9.62 | 41.62 | 62.17 | -20.55 | 28.96 | 52.17 | -23.21 | |
| 2 | 3.190 | 9.72 | 32.50 | 56.00 | -23.50 | 20.85 | 46.00 | -25.15 | |
| 3 | 4.030 | 9.74 | 37.75 | 56.00 | -18.25 | 26.39 | 46.00 | -19.61 | |
| 4 | 4.450 | 9.75 | 38.60 | 56.00 | -17.40 | 27.65 | 46.00 | -18.35 | |
| 5 | 4.682 | 9.76 | 38.68 | 56.00 | -17.32 | 28.25 | 46.00 | -17.75 | |
| 6 | 4.874 | 9.76 | 37.93 | 56.00 | -18.07 | 27.57 | 46.00 | -18.43 | |
| 7 | 5.122 | 9.76 | 38.21 | 60.00 | -21.79 | 26.21 | 50.00 | -23.79 | |
| 8 | 7.506 | 9.81 | 35.77 | 60.00 | -24.23 | 24.65 | 50.00 | -25.35 | |



AC POWER LINE CONDUCTED EMISSION TEST DATA

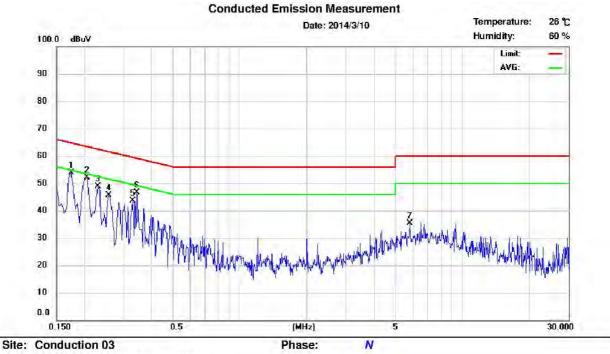
| Operation Mode: | Operation Mode | Test Date: | 2014/03/10 |
|-----------------|-----------------|------------|------------|
| Test By: | Dino | | |
| Adapter name: | MU12AB120100-A1 | | |



| Limit: | CISPR22 | Class B | Conduction |
|--------|----------|---------|------------|
| | CICI III | 01000 0 | Gonadanon |

| No. | Frequency (MHz) | Correct Factor (dB) | QP Emission (dBuV) | QP Limit (dBuV) | QP Margin (dB) | AVG Emission (dBuV) | AVG Limit (dBuV) | AVG Margin (dB) | Note |
|-----|--------------------|------------------------|--------------------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------|------|
| u ţ | 0.174 | 9.61 | 53.81 | 64.77 | -10.96 | 53.81 | 54.77 | -0.96 | |
| 2 | 0.202 | 9.61 | 60.28 | 63.53 | -3.25 | 60.28 | 53.53 | 6.75 | |
| 3 | 0.234 | 9.62 | 48.94 | 62.31 | -13.37 | 48.94 | 52.31 | -3.37 | |
| 4 | 0.262 | 9.62 | 44.93 | 61.37 | -16.44 | 44.93 | 51.37 | -6.44 | |
| 5 | 0.346 | 9.62 | 44.90 | 59.06 | -14.16 | 44.90 | 49.06 | -4.16 | |
| 6 | 4.250 | 9.75 | 34.43 | 56.00 | -21.57 | 34.43 | 46.00 | -11.57 | |
| 7 | 7.170 | 9.82 | 38.98 | 60.00 | -21.02 | 38.98 | 50.00 | -11.02 | |
| 8 | 7.770 | 9.83 | 38.21 | 60.00 | -21.79 | 38.21 | 50.00 | -11.79 | |





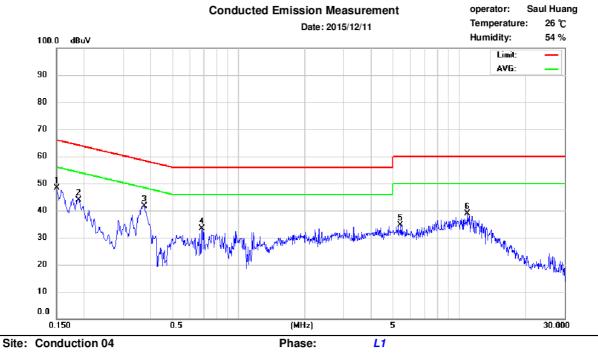
Limit: CISPR22 Class B Conduction

| No. | Frequency (MHz) | Correct Factor (dB) | QP Emission (dBuV) | QP Limit (dBuV) | QP Margin (dB) | AVG Emission (dBuV) | AVG Limit (dBuV) | AVG Margin (dB) | Note |
|-----|--------------------|------------------------|--------------------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------|------|
| 1 | 0.174 | 9.61 | 53.85 | 64.77 | -10.92 | 53.85 | 54.77 | -0.92 | |
| 2 | 0.206 | 9.61 | 52.01 | 63.37 | -11.36 | 52.01 | 53.37 | -1.36 | |
| 3 | 0.230 | 9.62 | 48.84 | 62.45 | -13.61 | 48.84 | 52.45 | -3.61 | |
| 4 | 0.258 | 9.62 | 45.61 | 61.50 | -15.89 | 45.61 | 51.50 | -5.89 | |
| 5 | 0.330 | 9.62 | 43.71 | 59.45 | -15.74 | 43.71 | 49.45 | -5.74 | |
| 6 | 0.346 | 9.62 | 46.65 | 59.06 | -12.41 | 46.65 | 49.06 | -2.41 | |
| 7 | 5.814 | 9.78 | 35.45 | 60.00 | -24.55 | 35.45 | 50.00 | -14.55 | |



AC POWER LINE CONDUCTED EMISSION TEST DATA

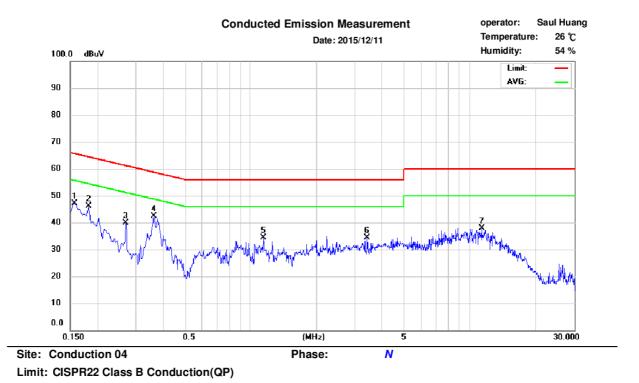
| Operation Mode: | Operation Mode | Test Date: | 2015/12/11 |
|-----------------|-----------------|------------|------------|
| Test By: | Dino | | |
| Adapter name: | MU12AR120100-A1 | | |



Limit: CISPR22 Class B Conduction(QP)

| No. | Frequency (MHz) | QP_R (dBuV) | AVG_R (dBuV) | Correct Factor (dB) | QP Emission (dBuV) | QP Limit (dBuV) | QP Margin (dB) | AVG Emission (dBuV) | AVG Limit (dBuV) | AVG Margin (dB) |
|-----|--------------------|----------------|-----------------|---------------------------|--------------------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------|
| 1 | 0.150 | 35.16 | 19.74 | 9.64 | 44.80 | 66.00 | -21.20 | 29.38 | 56.00 | -26.62 |
| 2 | 0.191 | 29.53 | 17.07 | 9.61 | 39.14 | 63.98 | -24.84 | 26.68 | 53.98 | -27.30 |
| 3 | 0.374 | 31.58 | 29.58 | 9.61 | 41.19 | 58.41 | -17.22 | 39.19 | 48.41 | -9.22 |
| 4 | 0.686 | 15.56 | 5.29 | 9.62 | 25.18 | 56.00 | -30.82 | 14.91 | 46.00 | -31.09 |
| 5 | 5.446 | 17.98 | 11.74 | 9.78 | 27.76 | 60.00 | -32.24 | 21.52 | 50.00 | -28.48 |
| 6 | 10.906 | 20.24 | 14.49 | 9.91 | 30.15 | 60.00 | -29.85 | 24.40 | 50.00 | -25.60 |





| No. | Frequency (MHz) | QP_R (dBuV) | AVG_R (dBuV) | Correct Factor (dB) | QP Emission (dBuV) | QP Limit (dBuV) | QP Margin (dB) | AVG Emission (dBuV) | AVG Limit (dBuV) | AVG Margin (dB) |
|-----|--------------------|----------------|-----------------|---------------------------|--------------------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------|
| 1 | 0.158 | 35.73 | 19.74 | 9.62 | 45.35 | 65.57 | -20.22 | 29.36 | 55.57 | -26.21 |
| 2 | 0.182 | 31.13 | 16.93 | 9.62 | 40.75 | 64.39 | -23.64 | 26.55 | 54.39 | -27.84 |
| 3 | 0.270 | 21.04 | 9.82 | 9.62 | 30.66 | 61.12 | -30.46 | 19.44 | 51.12 | -31.68 |
| 4 | 0.362 | 31.35 | 28.51 | 9.62 | 40.97 | 58.68 | -17.71 | 38.13 | 48.68 | -10.55 |
| 5 | 1.146 | 18.75 | 12.18 | 9.65 | 28.40 | 56.00 | -27.60 | 21.83 | 46.00 | -24.17 |
| 6 | 3.402 | 16.55 | 10.16 | 9.73 | 26.28 | 56.00 | -29.72 | 19.89 | 46.00 | -26.11 |
| 7 | 11.350 | 18.57 | 13.18 | 9.93 | 28.50 | 60.00 | -31.50 | 23.11 | 50.00 | -26.89 |

-21 of 97-



6 PEAK /AVERAGE OUTPUT POWER MEASUREMENT

6.1 Standard Applicable:

According to §15.247(b)(3),(4)(b)

(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

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

(ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

According to RSS-247 issue 1,§5.4

(4) For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(5), the e.i.r.p. shall not exceed 4 W.

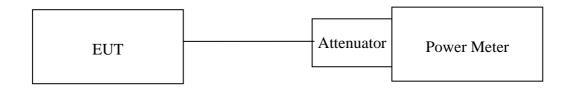
As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.



| | Conduc | ted Emission T | est Site | | |
|---------------------|---------|----------------|-------------------|------------|------------|
| EQUIPMENT | MFR | MODEL | SERIAL | LAST | CAL DUE. |
| ТҮРЕ | | NUMBER | NUMBER | CAL. | |
| Power Meter 05 | Anritsu | ML2495A | 1116010 | 07/29/2015 | 07/28/2016 |
| Power Sensor 05 | Anritsu | MA2411B | 34NKF50 | 07/29/2015 | 07/28/2016 |
| Power Sensor 06 | DARE | RPR3006W | 13I00030SNO3 3 | 11/03/2015 | 11/02/2016 |
| Power Sensor 07 | DARE | RPR3006W | 13I00030SNO3 4 | 11/03/2015 | 11/02/2016 |
| Temperature Chamber | KSON | THS-B4H100 | 2287 | 06/05/2015 | 06/04/2016 |
| DC Power supply | ABM | 8185D | N/A | 09/05/2015 | 09/04/2016 |
| AC Power supply | EXTECH | CFC105W | NA | 12/27/2014 | 12/26/2015 |
| Attenuator | Woken | Watt-65m3502 | 11051601 | NA | NA |
| Splitter | MCLI | PS4-199 | 12465 | 12/27/2013 | 12/26/2015 |
| Spectrum analyzer | Agilent | N9030A | MY51360021 | 10/02/2015 | 10/01/2016 |

6.2 Measurement Equipment Used:

6.3 Test Set-up:



6.4 Measurement Procedure:

Refer to section 9.1.3 and 9.2.3 Peak and Average Conducted Output Power Measurement Procedure of KDB Document: 558074 D01 DTS Meas Guidance v03r01



6.5 Measurement Result:

| 802. | 11b | | | |
|----------|--------------------|--------|-------|----|
| Cable lo | $\mathbf{DSS} = 0$ | Output | Limit | |
| СН | Frequency | Dete | (dBm) | |
| | (MHz) | РК | AV | |
| | | (dBm) | (dBm) | |
| 1 | 2412 | 17.74 | 13.48 | |
| 7 | 2442 | 17.6 | 13.35 | 30 |
| 11 | 2462 | 17.42 | 13.22 | |

802.11g

| Cable loss $= 0$ | | Output | Limit | |
|------------------|-----------|--------|-------|----|
| СН | Frequency | Dete | (dBm) | |
| | (MHz) | РК | AV | |
| | | (dBm) | (dBm) | |
| 1 | 2412 | 23.99 | 11.99 | |
| 7 | 2442 | 23.95 | 11.82 | 30 |
| 11 | 2462 | 23.85 | 11.61 | |



802.11n Peak Measurement: 2*2 MIMO

| Channel | | Frequency | Output Chain (dBm) | | Combine Output Power | Limit(dBm) | Dogult |
|---------|----|-----------|--------------------|---------|----------------------|------------|--------|
| | | (MHz) | Chain A | chain B | (dBm) | | Kesuit |
| | 1 | 2412 | 20.46 | 20.39 | 23.44 | 30 | Pass |
| AN HT20 | 7 | 2442 | 20.33 | 20.3 | 23.33 | 30 | Pass |
| | 11 | 2462 | 19.71 | 19.76 | 22.75 | 30 | Pass |
| | 3 | 2422 | 19.79 | 22.93 | 24.65 | 30 | Pass |
| AN HT40 | 7 | 2442 | 19.52 | 23.04 | 24.64 | 30 | Pass |
| | 9 | 2452 | 19.24 | 23.01 | 24.53 | 30 | Pass |

Average Measurement

2*2 MIMO

| Channel | | Frequency | Output Ch | ain (dBm) | Combine Output Power | Limit(dDm) | Result |
|---------|----|-----------|-----------|-----------|----------------------|------------|--------|
| | | (MHz) | Chain A | chain B | (dBm) | | |
| | 1 | 2412 | 9.29 | 9.23 | 12.27 | 30 | Pass |
| AN HT20 | 7 | 2442 | 9.09 | 9.15 | 12.13 | 30 | Pass |
| | 11 | 2462 | 8.59 | 8.63 | 11.62 | 30 | Pass |
| | 3 | 2422 | 8.48 | 8.44 | 11.47 | 30 | Pass |
| AN HT40 | 7 | 2442 | 8.20 | 8.26 | 11.24 | 30 | Pass |
| | 9 | 2452 | 7.93 | 7.98 | 10.97 | 30 | Pass |



7 6dB /99% Bandwidth(EBW)

7.1 Standard Applicable:

According to §15.247(a)(2), Systems using digital modulation techniques may operate in the 902 - 928 MHz,2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500kHz.

According to RSS-247 issue 1, §5.2

(1) The minimum 6 dB bandwidth shall be 500 kHz.

7.2 Measurement Equipment Used:

Refer to section 6.2 for details.

7.3 Test Set-up:

Refer to section 6.3 for details.

7.4 Measurement Procedure:

Refer to section 8.1 DTS bandwidth Measurement Procedure of KDB Document: 558074 D01 DTS Meas Guidance v03r01

- 1. Set resolution bandwidth (RBW) = 100KHz.
- 2. Set the video bandwidth (VBW) =300KHz.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Compare the resultant bandwidth with the RBW setting of the analyzer.



7.5 Measurement Result:

2.4GHz

802.11b

| Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Bandwidth (MHz) | Bandwidth (KHz) | Result |
|--------------------|------------------------|------------------------|--------------------|--------|
| 2412 | 10.09 | 12.46 | > 500 | PASS |
| 2442 | 10.03 | 12.41 | > 500 | PASS |
| 2462 | 10.09 | 12.37 | > 500 | PASS |

802.11g

| Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Bandwidth (MHz) | Bandwidth (KHz) | Result |
|--------------------|------------------------|------------------------|--------------------|--------|
| 2412 | 16.38 | 17.05 | > 500 | PASS |
| 2442 | 16.38 | 17.04 | > 500 | PASS |
| 2462 | 16.37 | 17.01 | > 500 | PASS |

802.11n HT20

| Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Bandwidth (MHz) | Bandwidth (KHz) | Result |
|--------------------|------------------------|------------------------|--------------------|--------|
| 2412 | 17.54 | 17.58 | > 500 | PASS |
| 2442 | 17.05 | 17.60 | > 500 | PASS |
| 2462 | 16.78 | 17.65 | > 500 | PASS |

802.11n HT40

| Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Bandwidth (MHz) | Bandwidth (KHz) | Result |
|--------------------|------------------------|------------------------|--------------------|--------|
| 2422 | 35.66 | 36.41 | > 500 | PASS |
| 2442 | 35.76 | 36.45 | > 500 | PASS |
| 2452 | 35.80 | 36.42 | > 500 | PASS |

Note: Refer to next page for plots.



802.11b 6dB Band Width Test Data 2412MHz

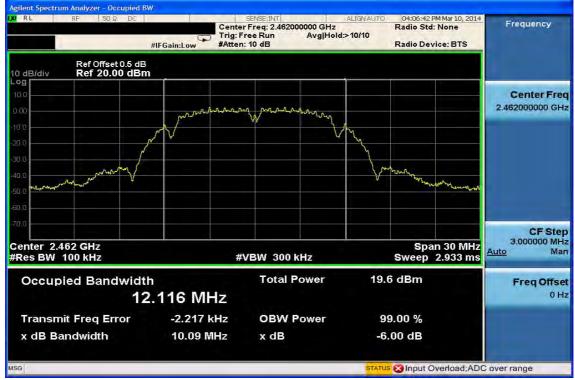


6dB Band Width Test Data 2442MHz





6dB Band Width Test Data 2462MHz



802.11g 6dB Band Width Test Data 2412MHz

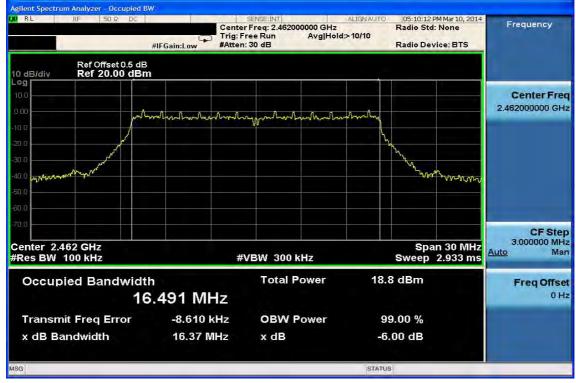
| α RL RF 50 Ω DC | Trig: F | SEMSE:JNT ALIGNAU Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold:>10/10 #Atten: 30 dB | | UTO 05:08:53 PM Mar 10, 2014 Radio Std: None Radio Device: BTS | | Frequency |
|---|---------------------|--|----------|--|-----------------------|---|
| Ref Offset 0.5 dB Ref 20.00 dBm | | | | | | |
| | Mundranderalle | my mandra day | mounday. | | | Center Fre 2.412000000 GH |
| 10.0 20.0 30.0 40.0 | | | | WWWWWWWWWWWWWW | | |
| 60.0 70.0 Center 2.412 GHz #Res BW 100 kHz | # | VBW 300 kHz | | | an 30 MHz 2.933 ms | CF Ste 3.000000 MH <u>Auto</u> Ma |
| Occupied Bandwidth 16. | 492 MHz | Total Power | 19 | .2 dBm | | Freq Offse 0 H |
| Transmit Freq Error x dB Bandwidth | 963 Hz 16.38 MHz | OBW Power x dB | | 99.00 % 6.00 dB | | |
| SG | | | STAT | JS | | |



nt Spectrum Analyzer - Occupied BW RL 05:09:35 PM Mar 10, 2014 Radio Std: None #IFGain:Low #Atten: 30 dB ALIGNAUTO Frequency Avg|Hold:>10/10 Radio Device: BTS Ref Offset 0.5 dB Ref 20.00 dBm 10 dB/div Log **Center Freq** 2.442000000 GHz apropro have been from the . 1 annam Mamelia W July a CF Step 3.000000 MHz Center 2.442 GHz #Res BW 100 kHz Span 30 MHz Sweep 2.933 ms Auto Man #VBW 300 kHz **Total Power** 19.1 dBm **Occupied Bandwidth** Freq Offset 16.482 MHz 0 Hz **Transmit Freq Error** -9.613 kHz **OBW Power** 99.00 % x dB Bandwidth 16.38 MHz x dB -6.00 dB STATUS MSG

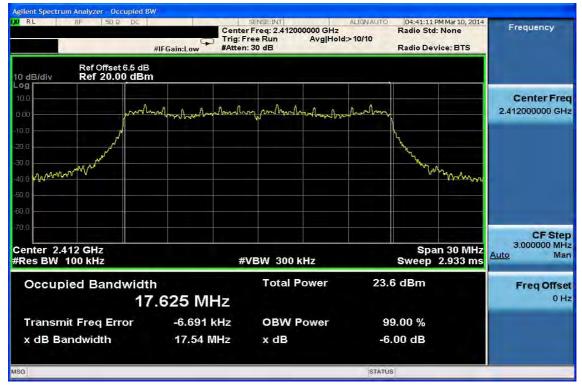
6dB Band Width Test Data 2442MHz

6dB Band Width Test Data 2462MHz

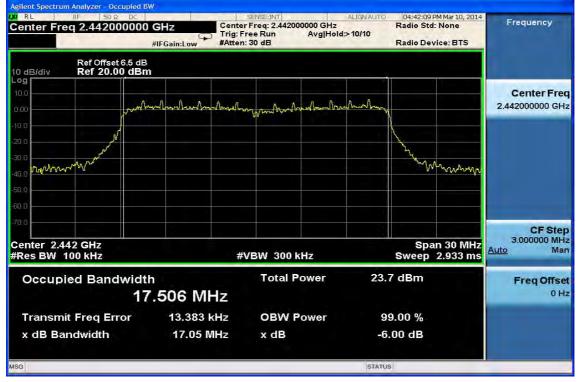




802.11n_20M 6dB Band Width Test Data 2412MHz

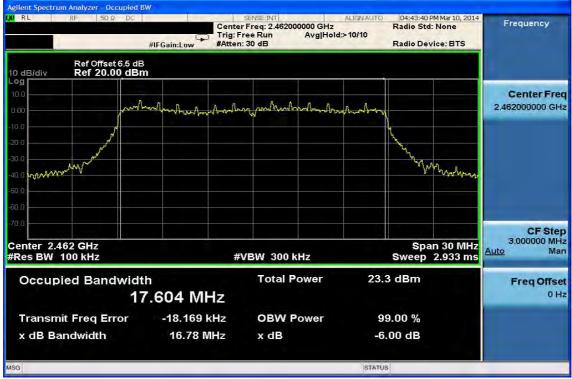


6dB Band Width Test Data 2442MHz



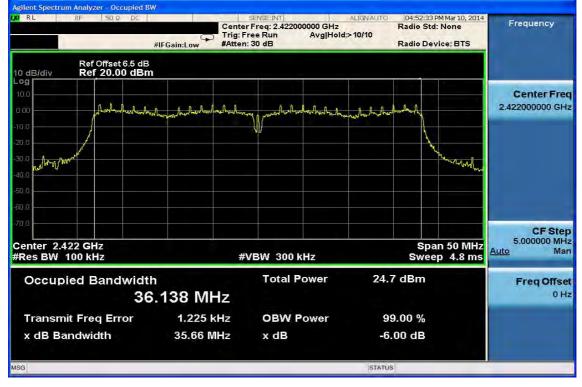


6dB Band Width Test Data 2462MHz



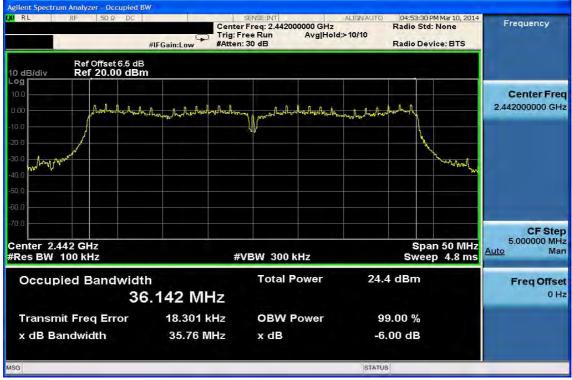
802.11n_40M

6dB Band Width Test Data 2422MHz

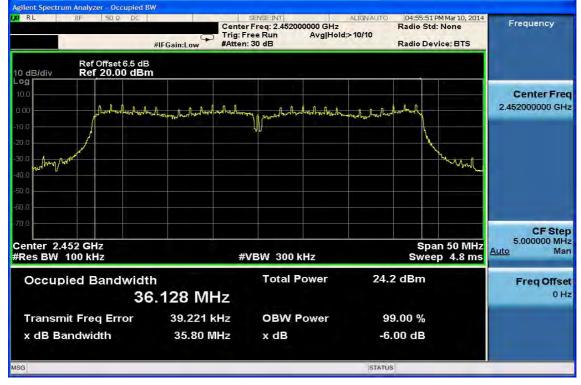




6dB Band Width Test Data 2442MHz



6dB Band Width Test Data 2452MHz





802.11b 99% Band Width Test Data 2412MHz



99%Band Width Test Data 2442MHz

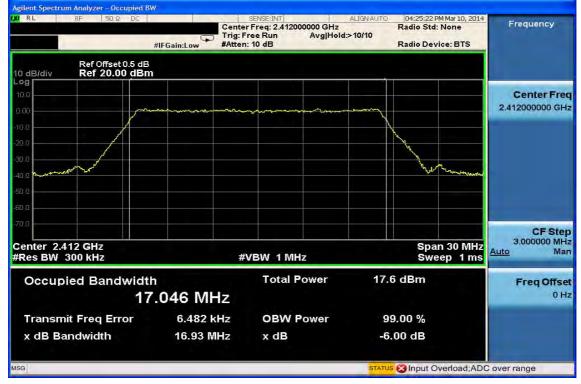




99%Band Width Test Data 2462MHz

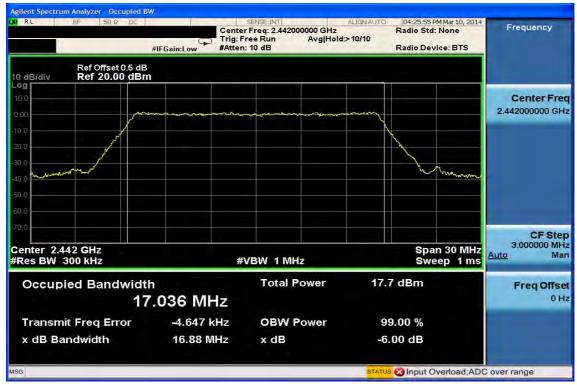


802.11g 99% Band Width Test Data 2412MHz

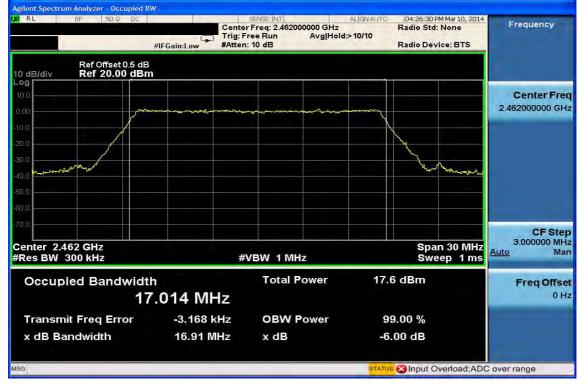




99% Band Width Test Data 2442MHz



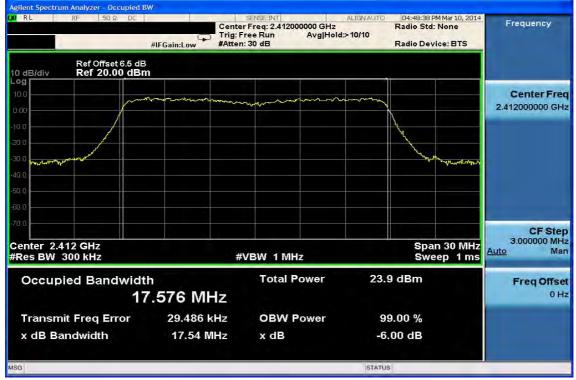
99% Band Width Test Data 2462MHz



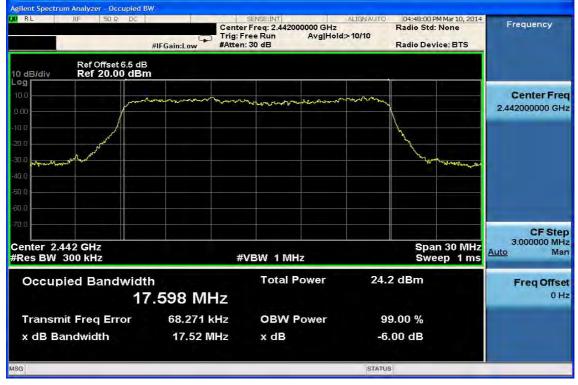


802.11n_20M

99% Band Width Test Data 2412MHz

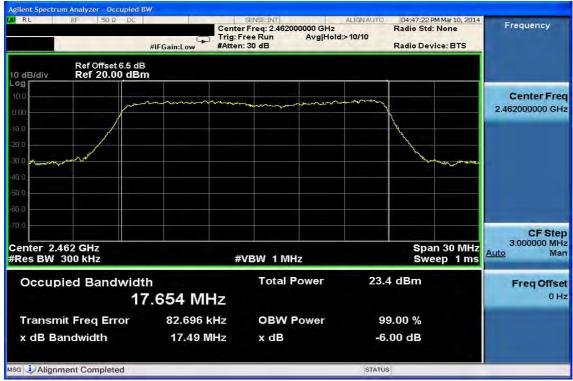


99% Band Width Test Data 2442MHz





99% Band Width Test Data 2462MHz

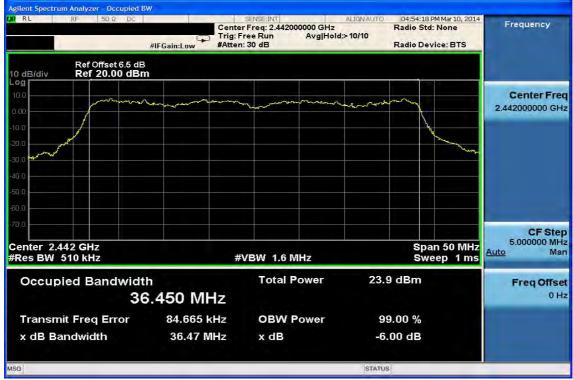


802.11n_40M 99% Band Width Test Data 2422MHz

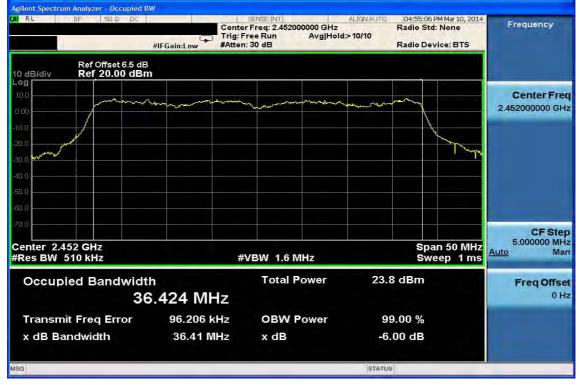




99% Band Width Test Data 2442MHz



99% Band Width Test Data 2452MHz



-39 of 97-



8 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

8.1 Standard Applicable:

According to §15.247(c), in any 100 KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in15.209(a).

According to RSS-247 issue 1, §5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digi-tally modulated device is operating, the RF power that is produced shall be at least 20 dB be-low that in the 100 kHz bandwidth within the band that contains the highest level of the de-sired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

8.2 Measurement Equipment Used:

8.2.1 Conducted Emission at antenna port:

Refer to section 6.2 for details.



8.2.2 Radiated emission:

| | Ch | amber 14(966) |) | | |
|----------------------------------|---------------|------------------------------|---------------------|------------|------------|
| EQUIPMENT | MFR | MODEL | SERIAL | LAST | CAL DUE. |
| ТҮРЕ | | NUMBER | NUMBER | CAL. | |
| Spectrum Analyzer 21(26.5GHz) | Agilent | N9010A | MY49060537 | 07/30/2015 | 07/29/2016 |
| Spectrum Analyzer 20(6.5GHz) | Agilent | E4443A | MY48250315 | 05/21/2015 | 05/20/2016 |
| Spectrum Analyzer 22(43GHz) | R&S | FSU43 | 100143 | 05/23/2015 | 05/22/2016 |
| Dipole antenna | SCHWARZBECK | VHAP,30-300 | 919 | 12/03/2015 | 12/02/2017 |
| Dipole antenna | SCHWARZBECK | UHAP,300-100 0 | 1195 | 12/03/2015 | 12/02/2017 |
| Loop Antenna9K-30M | A.H.SYSTEM | SAS-564 | 294 | 06/17/2015 | 06/16/2017 |
| Bilog Antenna30-1G | Schaffner | CBL 6112D | 37873 | 06/16/2015 | 06/15/2016 |
| Horn antenna1-18G | ETS | 3117 | 00066665 | 11/27/2015 | 11/26/2016 |
| Horn antenna26-40G(05) | Com-power | AH-640 | 100A | 01/21/2015 | 01/20/2017 |
| Horn antenna18-26G(04) | Com-power | AH-826 | 081001 | 07/24/2015 | 07/23/2017 |
| Preamplifier9-1000M | HP | 8447D | NA | 03/12/2015 | 03/11/2016 |
| Preamplifier1-18G | MITEQ | AFS44-001018 00-25-10P-44 | 1329256 | 07/28/2015 | 07/27/2016 |
| Preamplifier1-26G | EM | EM01M26G | NA | 03/11/2015 | 03/10/2016 |
| Preamplifier26-40G | MITEQ | JS-26004000-2 7-5A | 818471 | 07/23/2015 | 07/22/2017 |
| Cable1-18G | HUBER SUHNER | Sucoflex 106 | NA | 12/02/2015 | 12/01/2016 |
| Cable UP to 1G | HUBER SUHNER | RG 214/U | NA | 10/02/2015 | 10/01/2016 |
| SUCOFLEX 1GHz~40GHz cable | HUBER SUHNER | Sucoflex 102 | 27963/2&3742 1/2 | 11/03/2015 | 11/02/2017 |
| Signal Generator | R&S | SMU200A | 102330 | 03/11/2015 | 02/10/2016 |
| Signal Generator | Anritsu | MG3692A | 20311 | 11/04/2015 | 11/03/2016 |
| 2.4G Filter | Micro-Tronics | Brm50702 | 76 | 12/27/2014 | 12/26/2015 |



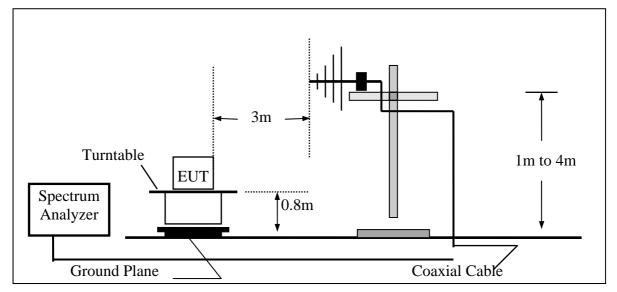
8.3 Test SET-UP:

8.3.1 Conducted Emission at antenna port:

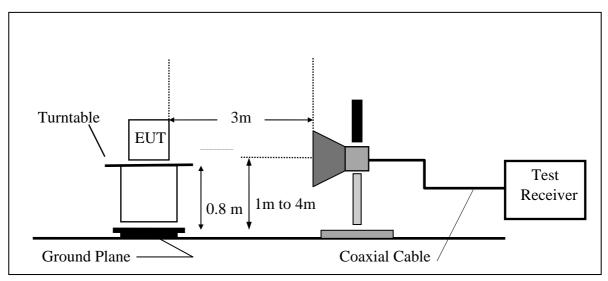
Refer to section 6.3 for details.

8.3.2 Radiated emission:

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



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





8.4 Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set center frequency of spectrum analyzer = operating frequency.
- 4. Set the spectrum analyzer as RBW, VBW=100KHz, Span=25MHz, Sweep = auto
- 5. Mark Peak, 2.390GHz and 2.4835GHz and record the max. level.
- 6. Repeat above procedures until all frequency measured were complete.

Refer to section 11 and 12 emissions in restricted and non-restricted frequency bands Measurement Procedure of KDB Document: 558074 D01 DTS Meas Guidance v03r01

The measurement of unwanted emissions at the edge of the authorized frequency bands can be complicated by the leakage of RF energy from the fundamental emission into the RBW pass band. Thus, for measurements at the band edges, a narrower resolution bandwidth (no less than 10 kHz) can be used within the first 1 MHz beyond the fundamental emission, provided that that measured energy is subsequently integrated over the appropriate reference bandwidth (i.e., 100 kHz or 1 MHz). This integration can be performed using the band power function of the spectrum analyzer or by summing the spectral levels (in linear power units) over the appropriate reference bandwidth.

8.5 Field Strength Calculation:

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

 $\mathbf{FS} = \mathbf{RA} + \mathbf{AF} + \mathbf{CL} - \mathbf{AG}$

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

8.6 Measurement Result:

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.



802.11b Band Edges Test Data 2412MHz



Band Edges Test Data 2462MHz





Radiated Emission: 802.11b mode

| Operation Mode | TX CH Low | Test Date | 2014/03/24 |
|-----------------------|-----------|-----------|------------|
| Fundamental Frequency | 2412 MHz | Test By | Dino |
| Temperature | 25 °C | Humidity | 60 % |

| N | lo | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|---|----|---------|---------|--------|--------|--------|---------------|---------|------------|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
|] | 1 | 2390.00 | 17.34 | 31.40 | 48.74 | 54.00 | -5.26 | Average | VERTICAL |
| 4 | 2 | 2390.00 | 27.86 | 31.40 | 59.26 | 74.00 | -14.74 | Peak | VERTICAL |
| | | | | | | | | | |
| 1 | 1 | 2390.00 | 15.98 | 31.40 | 47.38 | 54.00 | -6.62 | Average | HORIZONTAL |
| 2 | 2 | 2390.00 | 26.76 | 31.40 | 58.16 | 74.00 | -15.84 | Peak | HORIZONTAL |

Operation ModeTX CH HighFundamental Frequency2462 MHzTemperature25 °C

Test Date2014/03/24Test ByDinoHumidity60 %

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|---------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 2483.50 | 17.58 | 31.56 | 49.14 | 54.00 | -4.86 | Average | VERTICAL |
| 2 | 2483.50 | 27.77 | 31.56 | 59.33 | 74.00 | -14.67 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 2483.50 | 15.77 | 31.56 | 47.33 | 54.00 | -6.67 | Average | HORIZONTAL |
| 2 | 2483.50 | 28.32 | 31.56 | 59.88 | 74.00 | -14.12 | Peak | HORIZONTAL |



802.11g Band Edges Test Data2412MHz



Band Edges Test Data 2462MHz





Radiated Emission: 802.11g mode

| 1 | TX CH Low | | 2014/03/24 Dino |
|--------------------------------------|------------------|---------------------|--------------------|
| Fundamental Frequency Temperature | 2412 MHZ 25 ℃ | Test By Humidity | Dino 60 % |
| remperature | 23 C | Humany | 00 /0 |

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|---------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 2390.00 | 18.61 | 31.40 | 50.01 | 54.00 | -3.99 | Average | VERTICAL |
| 2 | 2390.00 | 31.08 | 31.40 | 62.48 | 74.00 | -11.52 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 2390.00 | 16.47 | 31.40 | 47.87 | 54.00 | -6.13 | Average | HORIZONTAL |
| 2 | 2390.00 | 28.67 | 31.40 | 60.07 | 74.00 | -13.93 | Peak | HORIZONTAL |

Operation ModeTX CH HighFundamental Frequency2462 MHzTemperature25 °C

Test Date2014/03/24Test ByDinoHumidity60 %

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|---------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 2483.50 | 18.75 | 31.56 | 50.31 | 54.00 | -3.69 | Average | VERTICAL |
| 2 | 2483.50 | 32.01 | 31.56 | 63.57 | 74.00 | -10.43 | Peak | VERTICAL |
| 3 | 2484.65 | 17.95 | 31.56 | 49.51 | 54.00 | -4.49 | Average | VERTICAL |
| 4 | 2484.65 | 34.59 | 31.56 | 66.15 | 74.00 | -7.85 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 2483.50 | 16.54 | 31.56 | 48.10 | 54.00 | -5.90 | Average | HORIZONTAL |
| 2 | 2483.50 | 29.09 | 31.56 | 60.65 | 74.00 | -13.35 | Peak | HORIZONTAL |



802.11n_20M (chain a), Conducted Band Edges Test Data 2412MHz

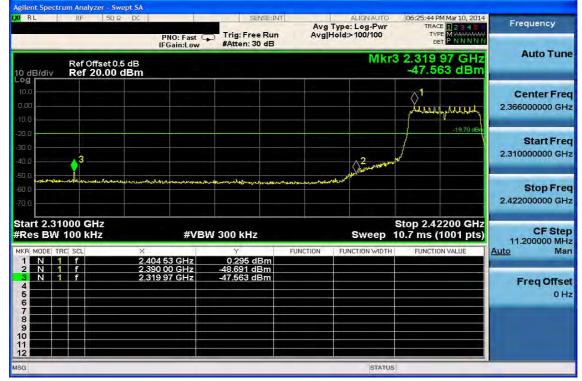


Band Edges Test Data 2462MHz





802.11n_20M (chain b) Band Edges Test Data 2412MHz



Band Edges Test Data 2462MHz





٦

| Fund | ation Mode lamental Fre perature | equency 24 | X CH Low 12 MHz 5 ℃ | V | | Tes | st By 1 | 2014/03/24 Dino 50 % |
|------|--|------------|---------------------------|-------|-------|---------------|---------|----------------------------|
| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
| | NATE- | 1D17 | JD | ID-J/ | 1D17/ | ль | | X7/II |

| Radiated | Emission | 802 11 n | 20M mode |
|----------|------------|------------|------------|
| Naulattu | Linission. | 002.11 II_ | 20111 moue |

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|---------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 2390.00 | 18.86 | 31.40 | 50.26 | 54.00 | -3.74 | Average | VERTICAL |
| 2 | 2390.00 | 33.82 | 31.40 | 65.22 | 74.00 | -8.78 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 2390.00 | 16.34 | 31.40 | 47.74 | 54.00 | -6.26 | Average | HORIZONTAL |
| 2 | 2390.00 | 29.26 | 31.40 | 60.66 | 74.00 | -13.34 | Peak | HORIZONTAL |

Operation ModeTX CH HighFundamental Frequency2462 MHzTemperature25 °C

Test Date2014/03/24Test ByDinoHumidity60 %

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|---------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 2483.50 | 18.65 | 31.56 | 50.21 | 54.00 | -3.79 | Average | VERTICAL |
| 2 | 2483.50 | 33.17 | 31.56 | 64.73 | 74.00 | -9.27 | Peak | VERTICAL |
| 3 | 2484.15 | 18.29 | 31.56 | 49.85 | 54.00 | -4.15 | Average | VERTICAL |
| 4 | 2484.15 | 35.34 | 31.56 | 66.90 | 74.00 | -7.10 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 2483.50 | 17.07 | 31.56 | 48.63 | 54.00 | -5.37 | Average | HORIZONTAL |
| 2 | 2483.50 | 29.64 | 31.56 | 61.20 | 74.00 | -12.80 | Peak | HORIZONTAL |



802.11n_40M (chain a), Conducted Band Edges Test Data 2422MHz



Band Edges Test Data 2452MHz

| RL RF | 50Ω DC | PNO: Fast C | Trig: Free Ru #Atten: 30 dB | in Av | aLIGNAUTO yg Type: Log-Pwr g Hold:>100/100 | TRACE TYPE | M Mar 10, 2014 E 1 2 3 4 5 5 E M MANANA T P N N N N N | Frequency |
|---------------------------------------|-------------------------|--------------------|--------------------------------|---|--|-------------------------|--|-------------------------------|
| | fset 0.5 dB 0.00 dBm | | | | Mkr3 | 2.489 5 | 00 GHz 66 dBm | Auto Tune |
| | | ng pure holeshe | homebure | Neuky | | | | Center Free 2.466000000 GH |
| | | | | - And | Jummer July market | amanta hanking | 21 43 dBm | Start Free 2,432000000 GH |
| 0.0 0.0 0.0 | | | | | | | | Stop Fre 2.500000000 GH |
| tart 2.43200 GH Res BW 100 kH | z | #VB | W 300 kHz | | Sweep | Stop 2.50 6.53 ms (1 | 1001 pts) | CF Ste 6.800000 MH |
| KR MODE TRC SCL 1 N 1 F 2 N 1 F | × 2.435 2.483 | 740 GHz 500 GHz | √ -1.494 dBm -42.428 dBm | FUNCTION | FUNCTION WIDTH | FUNCTIO | N VALUE | <u>Auto</u> Ma |
| 3 N 1 F 4 5 6 7 | | 500 GHz | -40.866 dBm | | | | | Freq Offse 0 H |
| 8 9 0 1 2 | | | | | | | | |
| G | | | | | STATU | | | |



802.11n_40M (chain b) Band Edges Test Data 2422MHz



Band Edges Test Data 2452MHz





| Radiated Emission: 802 | Radiated Emission: 802.11 n_40M mode | | | | | | | | |
|------------------------|--------------------------------------|-----------|------------|--|--|--|--|--|--|
| Operation Mode | TX CH Low | Test Date | 2014/03/24 | | | | | | |
| Fundamental Frequency | 2422 MHz | Test By | Dino | | | | | | |
| Temperature | 25 °C | Humidity | 60 % | | | | | | |

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|---------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 2390.00 | 18.97 | 31.40 | 50.37 | 54.00 | -3.63 | Average | VERTICAL |
| 2 | 2390.00 | 31.76 | 31.40 | 63.16 | 74.00 | -10.84 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 2390.00 | 17.74 | 31.40 | 49.14 | 54.00 | -4.86 | Average | HORIZONTAL |
| 2 | 2390.00 | 29.32 | 31.40 | 60.72 | 74.00 | -13.28 | Peak | HORIZONTAL |

Operation Mode TX CH High Fundamental Frequency 2452 MHz Temperature 25 °C

Test Date 2014/03/24 Test By Dino Humidity 60 %

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|---------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 2483.50 | 18.38 | 31.56 | 49.94 | 54.00 | -4.06 | Average | VERTICAL |
| 2 | 2483.50 | 32.92 | 31.56 | 64.48 | 74.00 | -9.52 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 2483.50 | 17.97 | 31.56 | 49.53 | 54.00 | -4.47 | Average | HORIZONTAL |
| 2 | 2483.50 | 32.17 | 31.56 | 63.73 | 74.00 | -10.27 | Peak | HORIZONTAL |



9 SPURIOUS RADIATED EMISSION TEST

9.1 Standard Applicable

According to §15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

According to RSS-247 issue 1, §5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digi-tally modulated device is operating, the RF power that is produced shall be at least 20 dB be-low that in the 100 kHz bandwidth within the band that contains the highest level of the de-sired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

9.2 Measurement Equipment Used:

9.2.1 Conducted Emission at antenna port:

Refer to section 6.2 for details.

9.2.2 Radiated emission:

Refer to section 7.2 for details.

9.3 Test SET-UP:

9.3.1 Conducted Emission at antenna port:

Refer to section 6.3 for details.

9.3.2 Radiated emission:

Refer to section 7.3 for details.



9.4 Measurement Procedure:

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 4. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
- 5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 7. Repeat above procedures until all frequency measured were complete.

Refer to section 11 and 12 emissions in restricted and non-restricted frequency bands Measurement Procedure of KDB Document: 558074 D01 DTS Meas Guidance v03r01

9.5 Field Strength Calculation

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

$\mathbf{FS} = \mathbf{RA} + \mathbf{AF} + \mathbf{CL} - \mathbf{AG}$

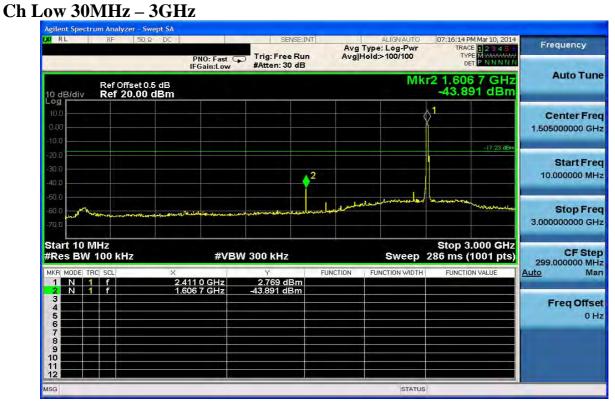
| Where | FS = Field Strength | CL = Cable Attenuation Factor (Cable Loss) |
|-------|------------------------|--|
| | RA = Reading Amplitude | AG = Amplifier Gain |
| | AF = Antenna Factor | |

9.6 Measurement Result:

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.



Conducted Spurious Emission Measurement Result 802.11b 2412MHz Ch Low 30MHz – 3GHz



Ch Low 3GHz – 26.5GHz

| Frequency | 07:17:22 PM Mar 10, 2014 TRACE 1 2 3 4 5 5 TYPE M MM/MM/ DET P N N N N N | ALIGNAUTO Type: Log-Pwr Iold: 14/100 | Avg | Trig: Free Run #Atten: 30 dB | PNO: Fast C IFGain:Low | 50 Ω DC | BF |
|------------------------------------|---|--|--|---------------------------------|---------------------------|----------------------------|--------------------|
| Auto Tur | kr1 3.207 GHz -44.619 dBm | М | | | | offset 0.5 dB 20.00 dBm | |
| Center Fre 14.500000000 GH | | | | | | | |
| Start Fre 3.000000000 GH | -17.23 dEm | | | | | | 1 |
| Stop Fre 26.00000000 Gi | an and the second se | water from the second second | uquqa bulana ang ang ang ang ang ang ang ang ang | nerezetus Antoninanon | phpelph-sulvetone | Anna Anna | man |
| CF Ste 2.30000000 G | Stop 26.00 GHz 2.20 s (1001 pts) | Sweep | | 300 kHz | #VB | Hz | 3.00 GHz BW 100 |
| <u>Auto</u> Ma | FUNCTION VALUE | FUNCTION WIDTH | FUNCTION | ∨ -44.619 dBm | 3.207 GHz | × | DDE TRC SCL |
| Freq Offs 01 | | | | | | | |
| | | | | | | | |
| - | | STATUS | | | | | |



2442MHz Ch Mid 30MHz – 3GHz

| PNO: Fast O IFGain:Low B B B B | Trig: Free Ru #Atten: 30 dB | n Avg | g Type: Log-Pwr Hold>100/100 | TRACE 2 = 4 TYPE M WARMANY DET P N N N N N r2 1.627 6 GHz -43.134 dBm ↓1 ↓1 ↓1 ↓1 ↓1 ↓1 ↓1 ↓1 ↓1 ↓1 | Frequency Auto Tune Center Freq 1.505000000 GHz Start Freq |
|---|--|--------------|---------------------------------------|--|---|
| | | 2 | Mk | -43.134 dBm | Center Freq 1.505000000 GHz Start Freq |
| | | 2 | | | 1.505000000 GHz Start Free |
| | | 2 | | -17.47 dBm | |
| | | | | <u></u> | 10.000000 MHz |
| | an altractic backnowl gryponater Jik (saarer | and and and | ushow-doubning-true | their and mananthingson | Stop Free 3.000000000 GH: |
| #VB | W 300 kHz | | Sweep | Stop 3.000 GHz 286 ms (1001 pts) | CF Stej 299.000000 MH |
| × 2.440 9 GHz 1.627 6 GHz | Y 2.532 dBm -∕13 134 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | Auto Mar |
| | | | | | Freq Offse 0 H |
| | | | | | |
| | #VB | #VBW 300 kHz | #VBW 300 kHz 2,440 9 GHz 2,532 dBm | #VBW 300 kHz Sweep X Y FUNCTION 2.440 9 GHz 2.532 dBm FUNCTION 1.627 6 GHz -43.134 dBm -43.134 dBm | Stop 3.000 GHz #VBW 300 kHz Sweep 286 ms (1001 pts) X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE 2.440 9 GHz 2.532 dBm 2.532 dBm FUNCTION VALUE |

Ch Mid 3GHz – 26.5GHz

| RL RF 50 Ω DC | PNO: Fast C | Trig: Free Run #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 9/100 | 07:19:25 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M MARANN DET P N N N N N | Frequency |
|--|---------------|---------------------------------|-----------------------------|---|---|--|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | N | 1kr1 3.253 GHz -48.324 dBm | Auto Tune |
| 0.0 | | | | | | Center Fre 14.500000000 GH |
| 1.0 | | | | | -17.47 dBm | |
| | | | | | | Start Fre 3.000000000 GH |
| 10 My man and man | Horn Annahore | win the internet work | We plan and a second second | to man and shape of | marker and a start | |
| | | | | | | |
| art 3.00 GHz | | W 300 kHz | | | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GH |
| art 3.00 GHz Res BW 100 kHz R MODE TRC SCL X | | | FUNCTION | | Stop 26.00 GHz | 26.00000000 GH CF Ste 2.30000000 GH |
| art 3.00 GHz Res BW 100 kHz (R) MODE TRC SCL X 1 5 | #VBI | W 300 kHz Y | ~ | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GH CF Ste 2.30000000 GH <u>Auto</u> Ma |
| tart 3.00 GHz Res BW 100 kHz | #VBI | W 300 kHz Y | ~ | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | Stop Fre 26.00000000 GH 2.300000000 GH Auto Ma Freq Offse 0 H |



2462MHz Ch High 30MHz – 3GHz

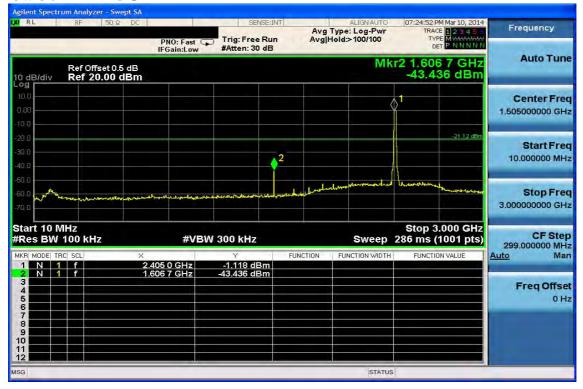
| RL RF 50 Ω | DC | | SENS | E:INT | | ALIGNAUTO | | 4 Mar 10, 2014 | Concession of the local division of the loca |
|--------------------------------------|--------------------|------------------------------------|------------------------------|----------------|----------------------|------------------------|-----------------------|--|--|
| | | PNO: Fast G | Trig: Free F #Atten: 30 d | | Avg Type Avg Hold | :: Log-Pwr >100/100 | TYP | 123455 M MMMMM PNNNNN | Frequency |
| Ref Offset 0.5 dB/div Ref 20.00 c | ödB d Bm | | | | | Mk | r2 1.642 -42.87 | 5 GHz 8 dBm | Auto Tune |
| g 1.0 00 | | | | | | | ∲ ¹ | | Center Fred 1.505000000 GHz |
| n.a n.a | | | | ¢ ² | | | | -17.71 dBm | Start Free 10.000000 MH: |
| 0.0 0.0 | alousational here | at to be at the start of the start | Anto-Managerran and a second | | hamelines and | Jeron and the | Announ | Mudwallows | Stop Fre 3.000000000 GH |
| art 10 MHz Res BW 100 kHz | | #VBV | V 300 kHz | | | | Stop 3. 286 ms (1 | | CF Step 299.000000 MH |
| R MODE TRC SCL | | 4 8 GHz 2 5 GHz | 2.289 dBi -42.878 dBi | FUNC m | TION FO | NCTION WIDTH | FUNCTIO | N VALUE | <u>Auto</u> Mai |
| | | | | | | | | | Freq Offse 0 H |
| | | | | | | | | | |
| | | | | | | | | | |

Ch High 3GHz – 26.5GHz

| RL RF 50 Ω DC | PNO: Fast G IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 18/100 | 07:21:29 PM Mar TRACE 1 2 TYPE MW DET P | 2 3 4 5 Frequence |
|---|--|---------------------------------|--|---|--|--|
| Ref Offset 0.5 dB | | | | MI | (r1 25.816 -49.603 | GHz Auto T dBm |
| .00 | | | | | | Center 14.500000000 |
| 1.0 | | | | | | 17.71 gBm |
| 1.0 1.0 | | | | | | 3.000000000 |
| 1.0 | | | | | | |
| | un fatter fan en | Margan Margarian | nan jana an daga gana kan | and a start of the second s | analimeteria, and Mahana | 26.000000000 |
| art 3.00 GHz | | M 300 kHz | nan tanan tang mang tang tang tang tang tang tang tang t | | Stop 26.00 2.20 s (100 | 26.000000000 0 GHz |
| art 3.00 GHz Res BW 100 kHz R MODE TRC SCL X | | | FUNCTION | | Stop 26.00 | 0 GHz 2,3000000000000000000000000000000000000 |
| R MODE TRC SCL X R MODE TRC SCL X Image: Image of the second seco | #VB\ | AV 300 kHz | ~ | Sweep | Stop 26.00 2.20 s (100 | 0 GHz 2,3000000000000000000000000000000000000 |
| tart 3.00 GHz Res BW 100 kHz | #VB\ | AV 300 kHz | ~ | Sweep | Stop 26.00 2.20 s (100 | 0 GHz 11 pts) LUE |



Conducted Spurious Emission Measurement Result 802.11g 2412MHz Ch Low 30MHz – 3GHz



Ch Low 3GHz – 26.5GHz

| RL RF 50Ω DC | PNO: Fast C IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 8/100 | 07:25:22 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWWW DET P N N N N | Frequency |
|---|---------------------------|--|----------------------------------|---|--|---|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | N | lkr1 3.207 GHz -44.767 dBm | Auto Tune |
| 9 1.0 00 | | | | | | Center Fre 14.500000000 GH |
| 10 10 10 | | | | | -21.12 dBm | Start Free 3.000000000 GH |
| 1.0 | www.herelever.ro | alder marthal war and a dimeter of the | الرسورة المحادثة ومروقة والمحادث | an and photos and a series of the series of | and the second s | |
|),0 | | | | | | |
| | | W 300 kHz | | | Ŝtop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GF |
| art 3.00 GHz Res BW 100 kHz R MODE TRC SCL × | | | FUNCTION | | Stop 26.00 GHz | 26.00000000 GH CF Ste 2.30000000 GH |
| art 3.00 GHz Res BW 100 kHz R MODEI TRC SCL X | #VB | W 300 kHz Y | | Sweep | Ŝtop 26.00 GHz 2.20 s (1001 pts) | Stop Fre 26.00000000 GH 2.300000000 GH <u>Auto</u> Ma Freq Offse 0 H |



2442MHz Ch Mid 30MHz – 3GHz

| RL RF 50 Ω | DC | SENSE:INT | ALIGNAUTO | 07:47:46 PM Mar 10, 2014 | The second second | | | | |
|-------------------------------|---|---|--|--|-------------------------------------|--|--|--|--|
| | PNO: Fast IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg Type: Log-Pwr Avg Hold:>100/100 | TRACE 123455 TYPE MWWWWWW DET PNNNNN | Frequency Auto Tune | | | | |
| dB/div Ref 20.00 c | Ref Offset 0.5 dB Mkr2 1.627 6 GHz Ref 20.00 dBm -42.840 dBm | | | | | | | | |
| 9 1.0 00 1.0 | | | | ¢ ¹ | Center Freq 1.505000000 GHz | | | | |
| a.o a.o a.o | | 2 ² | | 18.83 dBm | Start Fred 10.000000 MHz | | | | |
| 0.0 | anger and the substance | and a second and a second s | have been block and have been been been been been block and b | o homente | Stop Fred 3.000000000 GH; | | | | |
| tart 10 MHz Res BW 100 kHz | #VE | W 300 kHz | Sweep | Stop 3.000 GHz 286 ms (1001 pts) | CF Step 299.000000 MHz | | | | |
| KR MODE TRC SCL | × 2.434 9 GHz | 1.174 dBm | UNCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Mar | | | | |
| 2 N 1 f 3 4 5 5 6 7 | 1.627 6 GHz | -42.840 dBm | | | Freq Offset 0 Hz | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Ch Mid 3GHz – 26.5GHz

| Frequency | 3:12 PM Mar 10, 2014 TRACE 1 2 3 4 5 5 TYPE WWWWWW DET P N N N N N | | ALIGN Type: Log Iold: 6/100 | | | Trig: Free #Atten: 30 | NO: Fast G | | RF 50 | |
|-----------------------------------|--|--|-----------------------------------|-----------------------------|--------|--------------------------|------------|---|---------------------------|-----------|
| Auto Tur | 3.253 GHz 8.063 dBm | Mkr | | | | | | | Ref Offset (Ref 20.00 | |
| Center Fre 14.50000000 GH | | | | | | | | | | |
| Start Fre 3.000000000 GH | 19.83 dBm | | | | | | | | | <u>_1</u> |
| Stop Fre 26.00000000 GH | tyrynteny ^{fry} rthighethynteryrt | www.www.www.www.www.www.www.www.www.ww | ىرىپا تلە لىرلىرىيى | to Carlo Carlo March States | dauran | m har and | - | a payof to a far a fa | man | limin |
| CF Ste 2.30000000 GF | op 26.00 GHz s (1001 pts) | veep 2. | | | | 300 kHz | #VBI | | 00 kHz | |
| Auto Ma | INCTION VALUE | WIDTH | FUNCTION | UNCTION | Bm | ץ -48.063 dI | 3 GHz | × 3.2 | | ODE TRC |
| Freq Offs 0 F | | | | | | | | | | |
| | | | | | | | | | | |
| | | STATUS | | | | | | | | |



2462MHz Ch High 30MHz – 3GHz

| RL RF 50 Q DC | | SENSE;IN | IT | ALIGNAUTO | 07:49:24 PM Mar 10, 2014 | Enclosed and the |
|--|-----------------------|--|-----------------------|--------------------------------|---|--------------------------------|
| | PNO: Fast | Trig: Free Run #Atten: 30 dB | | Type: Log-Pwr Hold:>100/100 | TRACE 12345 TYPE M WWWWWW DET P N N N N N | Frequency |
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | Mk | r2 1.642 5 GHz -43.603 dBm | Auto Tune |
| 9 .0.0 .0 | | | | | ∲ ¹ | Center Fred 1.505000000 GHz |
| | | | ¢ ² | | | Start Fred 10.000000 MHz |
| 10 10 10 10 10 10 10 10 10 10 | hattatern gaper er me | an a | and the second second | hanna de demonstration | - Communication | Stop Free 3.000000000 GH: |
| tart 10 MHz Res BW 100 kHz | #VB | W 300 kHz | | Sweep | Stop 3.000 GHz 286 ms (1001 pts) | CF Step 299.000000 MH |
| R MODE TRC SCL X | 2.461 8 GHz | ۲ 0.146 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Mar |
| 2 N 1 f 7 3 4 5 5 6 6 | 1.642 5 GHz | -43.603 dBm | | | | Freq Offse 0 H; |
| 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | | | | | | |
| | | | | -10- | | |

Ch High 3GHz – 26.5GHz

| RL | RF 50 | | NO: Fast C Gain:Low | Trig: Free Ri #Atten: 30 di | an Avg | ALIGN AUTO Type: Log-Pwr Hold: 10/100 | 07:49:57 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWWW DET P N N N N N | Frequency |
|----------------------------|------------------------|----------------|------------------------|--------------------------------|---------------------------------------|---|--|--------------------------------|
|) dB/div | Ref Offset Ref 20.0 | | | | | N | lkr1 3.276 GHz -49.211 dBm | Auto Tune |
| •9 10.0: 1.00 | | | | | | | | Center Free 14.500000000 GH |
| 0.0 | | | | | | | -19.85 dBm | Start Free 3.000000000 GH |
| | mar house much | nga julia naan | hannan th' hantada | vinenengegenen Journey ann | arrightigetigetigetig flankarfragetig | aggard All Processing and an and an and | Lapathelastan | Stop Free 26.000000000 GH |
| art 3.00 Res BW | GHz 100 kHz | | × #VB | W 300 kHz | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | CF Step 2.300000000 GH |
| R MODE TR | | × 3.2 | 76 GHz | ץ -49.211 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | Auto Ma |
| | | | | | | | | Freq Offse 0 H |
| 7 8 9 0 1 2 | | | | | | | | |
| G | 1 10 | | | | | STATUS | F | |



Conducted Spurious Emission Measurement Result 802.11n_20M (chain a) 2412MHz Ch Low 30MHz – 3GHz

| Frequency | PM Mar 10, 2014 ACE 1 2 3 4 5 5 YPE M WWWWWW DET P N N N N N | TRAC | ALIGNAUTO : Log-Pwr >100/100 | Avg Typ Avg Hold | | | | PNO: Fast 🕞 | DC | 50 Ω | BF | | RL |
|------------------------------|---|----------------------|------------------------------------|------------------------|----------|--------|-----------------------------|--------------------|---------------------------|----------------------------|----------|--------------|-------------------|
| Auto Tun | 6 7 GHz 28 dBm | r2 1.60 -43.1 | Mk | | | | | | | Offset 0.9 20.00 | | | dB/d |
| Center Fre 1.505000000 GH | | 1 | | | | | | | | | | | 9 .0 00 |
| Start Fre 10.000000 M⊦ | -19,55 dBm | | | | 2 | | | | | | | | .0 |
| Stop Fre 3.000000000 GH | the granded and a second | Bangrulangen Harrang | Ana Instration | hand the second second | -mo-this | manara | annan terderanderan | ntonalasenariote | المرود ومعادلة المرود الم | وروني ويوني الم | whereard | | 1.0 1.0 1.0 |
| CF Ste 299.000000 MH | 3.000 GHz (1001 pts) | 286 ms (| Sweep | | | | 300 kHz | #VBW | | Hz | 100 k | 10 M BW 1 | les |
| <u>Auto</u> Ma | ION VALUE | FUNCTIO | ICTION WIDTH | ION FL | FUN | | Y 0.451 de -43.128 de | 4 0 GHz 6 7 GHz | × 2.41 1.60 | | f | | |
| Freq Offse 0 H | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | f | STATUS | | _ | - | | | | | - | - | 3 |

Ch Low 3GHz – 26.5GHz

| RL RF 50 Ω DC | PNO: Fast C IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 8/100 | 07:57:18 PM Mar 10, 201 TRACE 1 2 3 4 5 TYPE MWWWWW DET P N N N N | Frequency |
|---|---------------------------|---------------------------------|--|---|--|---|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | M | lkr1 3.207 GHz -44.197 dBm | Auto Tuno |
| .00 .00 .00 | | | | | | Center Fre 14.500000000 GH |
| 1.0 1.0 1.0 | | | | | 19,55 dBn | Start Fre 3.000000000 GH |
| | | | | | | |
| 1.0 mm many marshar | warytyk to be myself | لىراي مىردورىيە ئەت قەت يە مەنى | transferant styre for the same | an a | n shita an analan san ang san | |
| art 3.00 GHz | | W 300 kHz | trans af her af the first first an at an a | | Stop 26.00 GHz 2.20 s (1001 pts | 26.000000000 GH |
| tart 3.00 GHz Res BW 100 kHz | #VB | | FUNCTION | | Stop 26.00 GHz | 26.00000000 GH CF Ste 2.30000000 GH |
| tart 3.00 GHz Res BW 100 kHz | #VB | W 300 kHz Y | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts | 2.30000000 GH |



2442MHz Ch Mid 30MHz – 3GHz

| RL RF 50 Q DC | | SENSE:INT | ALIGNAUTO | 07:59:16 PM Mar 10, 2014 | E an |
|---|---|---------------------------------|--|--|--|
| | PNO: Fast G | Trig: Free Run #Atten: 30 dB | Avg Type: Log-Pwr Avg Hold:>100/100 | TRACE 123455 TYPE MWWWWWW DET PNNNNN | Frequency |
| Ref Offset 0.5 dB dB/div Ref 20.00 dBn | | | Mk | r2 1.627 6 GHz -42.522 dBm | Auto Tune |
| 99 0.0 0.00 0.00 | | | | ∆ ¹ | Center Freq 1.505000000 GHz |
| 0.0 | | ¢2 | | -18.52 dBm | Start Free 10.000000 MHz |
| 0.0 | , dayle, Ather Arry Westernessen og affer | | hallondraderaderader | - Lorden Monary Marcon Marcon | Stop Fred 3.000000000 GHz |
| tart 10 MHz Res BW 100 kHz | #VBV | V 300 kHz | Sweep | Stop 3.000 GHz 286 ms (1001 pts) | CF Step 299.000000 MH |
| 1 N 1 f | × 2.434 9 GHz | 1.476 dBm | JNCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Mar |
| 2 N 1 f 3 4 5 5 6 | 1.627 6 GHz | -42.522 dBm | | | Freq Offset 0 Hz |
| 7 8 9 | | | | | |
| 2 | | | | | |

Ch Mid 3GHz – 26.5GHz

| | PNO: Fast O IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 11/100 | 08:00:17 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWWW DET P N N N N N | Frequency |
|---|---------------------------|---------------------------------|--------------------------|--|--|---|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBn | | | | N | 1kr1 3.253 GHz -47.372 dBm | Auto Tune |
| 2 9 0.0 .00 | | | | | | Center Fre 14.500000000 GH |
| .0 | | | | | -18.52 dBm | - |
| 1.0 1 | | | | | | Start Fre 3.000000000 GH |
| D. C. M. | caller to the supportant | manner warm | wheatween and failed and | un senter al souther | ognettedens, lederpoliseret, leves | Stop Fre |
| .0 | | | | | | 26.00000000 GH |
| art 3.00 GHz | #VB | W 300 kHz | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | CF Ste |
| art 3.00 GHz Res BW 100 kHz R MODE TRC SCL | #VB × 3.253 GHz | W 300 kHz -47.372 dBm | FUNCTION | Sweep | | 25.00000000 GH CF Ste 2.30000000 GH Auto Ma |
| | × | Y | FUNCTION | | 2.20 s (1001 pts) | CF Ste 2.30000000 GF <u>Auto</u> Ma Freq Offse |
| art 3.00 GHz Res BW 100 KHz R MODE TRC SCL N 1 f | × | Y | FUNCTION | | 2.20 s (1001 pts) | CF Ste 2.30000000 GH |



2462MHz Ch High 30MHz – 3GHz

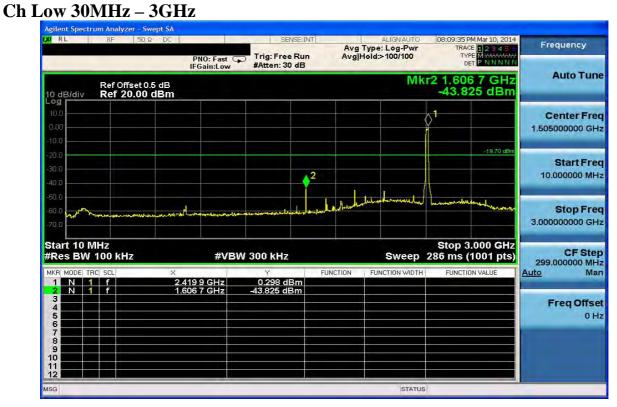
| RL RF 50 Ω | DC | SENSE: | INT | ALIGNAUTO | 08:03:20 PM Mar 10, 2014 | CONTRACTOR OF MELL |
|---|--|----------------------------------|--------------------|--------------------------------|---|-------------------------------------|
| | PNO: Fast IFGain:Low | Trig: Free Ru #Atten: 30 dB | n Avg | Type: Log-Pwr Hold:>100/100 | TRACE 123455 TYPE M MANANAN DET P N N N N N | Frequency |
| Ref Offset 0.5 dB/div Ref 20.00 d | | | | Mk | r2 1.642 5 GHz -43.430 dBm | Auto Tune |
| 9 .0 .0 | | | | | ⊘ ¹ | Center Fred 1.505000000 GH; |
| n.o | | | ¢ ² | | | Start Free 10.000000 MH: |
|).0 .0 .0 | and the second | alrada a ang shekaratir na hijin | and and the second | a, | - harmoling the man down in | Stop Free 3.000000000 GH |
| art 10 MHz Res BW 100 kHz | #VE | 3W 300 kHz | FUNCTION | Sweep | Stop 3.000 GHz 286 ms (1001 pts) FUNCTION VALUE | CF Stej 299.000000 MH Auto Ma |
| | 2.455 8 GHz 1.642 5 GHz | 1.267 dBm -43.430 dBm | FONCTION | FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Ma |
| | | | | | | Freq Offse 0 H |
| 7 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | | | | | | |
| | | | | | | |

Ch High 3GHz – 26.5GHz

| Frequency | 20 PM Mar 10, 2014 TRACE 1 2 3 4 5 5 TYPE M WWWWWW DET P N N N N N | | ALIGNAUTO ype: Log-Pwr old: 11/100 | | sense:IN g: Free Run ten: 30 dB | φ 1 | PNO: Fast C | Ω DC | RF 50 | |
|-------------------------------|---|-------------------|---|--|---------------------------------------|------------|-------------------|----------|--|-----------------|
| Auto Tun | 3.276 GHz 122 dBm | Mkr1 -4 | | | | | | | tef Offset (tef 20.00 | |
| Center Fre 14.500000000 GH | | | | | | | | | | |
| Start Fre 3.000000000 GH | 18.73 dBm | | | | | | | | | 1 |
| Stop Fre 26.000000000 GH | an haden of the many of the the | and the Party was | A MARIN PARA AND AND AND AND AND AND AND AND AND AN | and the second | un denterat operat | | ph and the second | ๅ๛๗ฺ๚๛๛๛ | n an | and the second |
| CF Ste 2.300000000 GH | p 26.00 GHz s (1001 pts) | St ep 2.2 | Swee | 1 | kHz | 3W 30 | #VB | | | 3.00 G BW 10 |
| <u>Auto</u> Ma | NCTION VALUE | DTH F | FUNCTION WIDT | FUNCTION | ץ 122 dBm | -4 | .276 GHz | × 3 | | DE TRC : |
| Freq Offse 0 H | | | | | | | | | | |
| | | | | | | | | | | |
| | | TUS | STAT | | - | _ | | | | |



Conducted Spurious Emission Measurement Result 802.11n_20M (chain b) 2412MHz Ch Low 30MHz – 3GHz



Ch Low 3GHz – 26.5GHz

| | PNO: Fast | Trig: Free Run #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 6/100 | 08:10:06 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWWWW DET P N N N N N | Frequency |
|--|----------------|---------------------------------|-------------------------|---|---|------------------------------------|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | N | lkr1 3.207 GHz -40.310 dBm | Auto Tune |
| 90 00 10 | | | | | | Center Free 14.500000000 GH |
| 10 1 | | | | | | Start Free 3.000000000 GH |
| 0.0 Munady have been all and a second s | nunahannahaada | inne pren and buildenvi | haa Jaapan ya Jalaan 19 | agulador (a' feloquator, angéa f | nnananan laathan atab | Stop Fre 26.000000000 GH |
| art 3.00 GHz Res BW 100 kHz | #VB | W 300 kHz | | Sweep | Ŝtop 26.00 GHz 2.20 s (1001 pts) | CF Ste 2.300000000 GH |
| R MODE TRC SCL X | 3.207 GHz | ۲ -40.310 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Ma |
| | | | | | | Freq Offse 0 H |
| | | | | | | |



2442MHz Ch Mid 30MHz – 3GHz

| RL RF 50 | DΩ DC | | SENSE | EINT | | ALIGNAUTO | | M Mar 10, 2014 | The second second |
|-------------------------------|--|---------------------|------------------------------|--------------|---|-------------------------|--------------------|---|-------------------------------|
| | PN | 0: Fast G | Trig: Free R #Atten: 30 d | un B | Avg Type Avg Hold | e: Log-Pwr :>100/100 | TY | E 1 2 3 4 5 5 E MWWWWWW ET P NNNNN | Frequency |
| Ref Offset dB/div Ref 20.0 | 0.5 dB | | | | | Mk | r1 2.449 -0.0 | 9 8 GHz 20 dBm | Auto Tune |
| og 0.0 | | | | | | | ↓ 1 | | Center Fred 1.505000000 GH |
| 0.0 | | | | \Diamond^2 | | | | 20.02 dBm | Start Free 10.000000 MH: |
| 0.0 0.0 M | when marked and and and and and and and and and an | glater, gutt, troph | op Jaine - masteriation is a | | under and | Interneticient | Linesustr | honor han an a | Stop Free 3.000000000 GH |
| tart 10 MHz Res BW 100 kHz | | #VBV | V 300 kHz | | | Sweep | Stop 3 286 ms (| .000 GHz 1001 pts) | CF Ster 299.000000 MH |
| KR MODE TRC SCL | × 2.449 8 | | -0.020 dBn | 1 | ICTION FU | NCTION WIDTH | FUNCTION | ON VALUE | <u>Auto</u> Mar |
| 2 N 1 f 3 4 5 6 | 1.627 6 | GHz | -43.217 dBn | | | | | | Freq Offse 0 H |
| 7 8 9 0 1 | | | | | | | | | |
| | | | | | | | | | |

-65 of 97-

Ch Mid 3GHz – 26.5GHz

| RL RF 50 Q DC | PNO: Fast C IFGain:Low | Trig: Free Ru #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 7/100 | 08:11:44 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWWWW DET P N N N N N | Frequency |
|---|-------------------------------|--|--------------------------|---|--|------------------------------------|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | N | lkr1 3.253 GHz -43.700 dBm | Auto Tune |
| | | | | | | Center Fre 14.500000000 GH |
| □ □ ↓ ↓ | | | | | -20.02 dBm | Start Fre 3.000000000 GH |
| 0 John Marian Marian | Viller J. M. Hannam M. Sorphy | hand an and the state of the st | hand the men of the town | for the state of the | Alexandra and a second and | Stop Fre 26.00000000 GH |
| art 3.00 GHz es BW 100 kHz | #VB | W 300 kHz | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | CF Ste 2.30000000 GH |
| NODE TRC SCL × | 3.253 GHz | ∀ -43.700 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Ma |
| | | | | | | Freq Offse 0 H |
| · • • • • • • • • • • • • • • • • • • • | | | | | | |
| | | | | | | |



2462MHz Ch High 30MHz – 3GHz

| RL RF 50Ω | DC | SENSE: | NT | ALIGN AUTO | 08:12:43 PM Mar 10, 2014 | and the second s |
|---|---|--------------------------------|----------------|--|---|--|
| | PNO: Fast (IFGain:Low | Trig: Free Ru #Atten: 30 dB | n Avg F | Type: Log-Pwr Iold:>100/100 | TRACE 123455 TYPE MWWWWWW DET PNNNN | Frequency |
| Ref Offset 0.5 dB/div Ref 20.00 d | | | | Mk | r2 1.642 5 GHz -42.825 dBm | Auto Tune |
| 9 .0 .0 | | | | | ¢ ¹ | Center Fred 1.505000000 GH; |
| 0.0 1.0 1.0 | | | ¢ ² | | -19.47 dBm | Start Free 10.000000 MH |
| 1.0 1.0 1.0 | _{รรรรม} ารเปลาไหรร [ู] ไม่คร้างสุดปลูกจะเหลงไขจางสิ | hand an an filler and for | | and the second | I wannow when a war and | Stop Fre 3.000000000 GH |
| art 10 MHz Res BW 100 kHz | #VE | W 300 kHz | FUNCTION | Sweep | Stop 3.000 GHz 286 ms (1001 pts) FUNCTION VALUE | CF Stej 299.000000 MH Auto Ma |
| 1 N 1 f | 2.470 8 GHz 1.642 5 GHz | 0.529 dBm -42.825 dBm | TONCHON | TONCTON WIDTH | TONCTON VALUE | Mato Ma |
| 3 | | | | | | Freq Offse 0 H |
| 8 | | | | | | |
| | | | | | | |

Ch High 3GHz – 26.5GHz

| RL RF 50 Ω DC | PNO: Fast G | Trig: Free Rur #Atten: 30 dB | Avg | ALIGN AUTO Type: Log-Pwr Hold: 7/100 | 08:13:20 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWWW DET P N N N N N | Frequency |
|---|--|---|----------------------|--|--|---|
| Ref Offset 0.5 dB 0 dB/div Ref 20.00 dBm | | | | N | 1kr1 3.276 GHz -46.311 dBm | Auto Tune |
| 0.0) | | | | | | Center Fre 14.500000000 GH |
| 0.0 0.0 0.0 | | | | | -19,47 dBm | Start Fre 3.000000000 G⊦ |
| 0.0 | | | | | an a | |
| | had an | her representation of the second s | Antrank of Matrices | addeleren eeler Enster Provinsi Raam. / | | |
| 0.0 | | W 300 kHz | Antranya aprilatesta | | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GF |
| tart 3.00 GHz Res BW 100 kHz Res MODE TRC SCL × | | | FUNCTION | | Stop 26.00 GHz | Stop Fre 26.00000000 GH CF Ste 2.30000000 GH <u>Auto</u> Ma |
| tart 3.00 GHz Res BW 100 kHz KR MODE TRC SCL × 1 N 1 f 2 3 4 5 6 | #VB1 | W 300 kHz Y | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GF CF Ste 2.30000000 GF |
| tart 3.00 GHz Res BW 100 KHz KR MODE TRC SCL × 1 N 1 f 2 3 4 5 | #VB1 | W 300 kHz Y | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GF CF Ste 2.300000000 GF Auto Ma |



Conducted Spurious Emission Measurement Result 802.11n_40M (chain a) 2422MHz Ch Low 30MHz – 3GHz

| RL RF 50 Ω DC | PNO: Fast 😱 IFGain:Low | SENSE:INT Trig: Free Run #Atten: 30 dB | ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100 | | Frequency |
|------------------------------|---------------------------------|--|--|-------------------------------------|------------------------------------|
| Ref Offset 0.5 dB | | | М | kr2 1.615 6 GHz -44.309 dBm | Auto Tune |
| 9 .0 | | | | | Center Free 1.505000000 GH |
| 00 | | | | | Start Free 10.000000 MH |
| 0 0 0 | nanar hakkensi yang yang kenyek | ي من | Jupper and the realized and | Laprense la martine | Stop Fre 3.000000000 GH |
| art 10 MHz Res BW 100 kHz | #VBW | 300 kHz | | Stop 3.000 GHz 286 ms (1001 pts) | CF Ste 299.000000 MH Auto Ma |
| N 1 F 2.4 N 1 F 1.6 | 05 0 GHz 15 6 GHz | -1.405 dBm -44.309 dBm | | | Freq Offse 0 H |
| | | | | | |

Ch Low 3GHz – 26.5GHz

| RL RF 50 Ω DC | PNO: Fast C IFGain:Low | Trig: Free Rur #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 5/100 | 08:55:32 PM Mar 10, 201 TRACE 1 2 3 4 TYPE M MMMAN DET P N N N N | Frequency |
|---|---|---------------------------------|--|---|---|---|
| Ref Offset 0.5 dB | | | | M | kr1 3.230 GH: -46.401 dBn | Auto Tuno |
| 90 3.0 .00 | | | | | | Center Fre 14.500000000 GH |
| no no no 1 | | | | | 21_41 dB | Start Fre 3.000000000 GH |
| D.D | | | | | | |
| | e of the second s | Autorenant and and a second | haline rijektifenske bolsente som over | nya dalami wakazari ingina dhar | and a second and a s | |
| art 3.00 GHz | | W 300 kHz | ารับราชอยู่ในของ - | | Stop 26.00 GH 2.20 s (1001 pts | 26.000000000 GH |
| tart 3.00 GHz Res BW 100 kHz Res MODE TRC SCL X | | | FUNCTION | | Stop 26.00 GH | 26.00000000 GH CF Ste 2.30000000 GH |
| tart 3.00 GHz Res BW 100 kHz | #VB | W 300 kHz Y | | Sweep | Stop 26.00 GH 2.20 s (1001 pts | 2.30000000 GH |



2442MHz Ch Mid 30MHz – 3GHz

| RL RF 50.Ω | DC | SENSE:I | NT | ALIGNAUTO | 08:56:27 PM Mar 10, 2014 | The second second |
|--------------------------------------|--|--------------------------------|---------------------|-------------------------------------|--|-----------------------------------|
| | PNO: Fast IFGain:Low | | | Type: Log-Pwr Hold:>100/100 | TRACE 123455 TYPE M WWWWWW DET P N N N N N | Frequency |
| Ref Offset 0.5 dB/div Ref 20.00 d | | | | Mk | r2 1.627 6 GHz -42.682 dBm | Auto Tune |
| 9 9 3.0 .00 | | | | | <u>}</u> 1 | Center Fred 1.505000000 GHz |
| n.o n.o n.o | | | 2 | | 21.49.dBm | Start Fred 10.000000 MH: |
| 0.0 0.0 0.0 | and the second | ngulakanan nationanginikan | Jawan Maran Parante | and and a second and a second and a | here and my geologican | Stop Fre 3.000000000 GH |
| art 10 MHz Res BW 100 kHz | #V | BW 300 kHz | | Sweep | Stop 3.000 GHz 286 ms (1001 pts) | CF Step 299.000000 MH |
| R MODE TRC SCL 1 N 1 f 2 N 1 f | × 2.425 9 GHz 1.627 6 GHz | ∀ -1.485 dBm -42.682 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | Auto Mar |
| | 1.027 0 0112 | 42.002 UBI | | | | Freq Offse 0 Ha |
| | | | | | | |
| | | | | | | |

Ch Mid 3GHz – 26.5GHz

| RL RF 50 Ω DC | PNO: Fast (IFGain:Low | Trig: Free Rur #Atten: 30 dB | Avg | ALIGN AUTO Type: Log-Pwr Hold: 5/100 | 08:56:49 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWAMMU DET P N N N N N | Frequency |
|---|---------------------------|---------------------------------|---------------------------------|---|--|------------------------------------|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | N | lkr1 3.253 GHz -47.929 dBm | Auto Tune |
| | | | | | | Center Fre 14.500000000 GH |
| | | | | | 21 49 rdBin | Start Fre 3.000000000 GH |
| 0 Jerrowana an marter | gardetuelagelaanseraary | e-man hann man inderta | Annen an Tagling a Stafford Ann | مر به دارید (۲۰۰۹) ^{۲۵} ۰۱ میلی مراجع (۲۰۱۰ میلی) | panlaten and for all index to have | Stop Fre 26.000000000 GH |
| nrt 3.00 GHz es BW 100 kHz | #VB | W 300 kHz | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | CF Ste 2.300000000 GH |
| N 1 F | 3.253 GHz | ∀ -47.929 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Ma |
| | | | | | | Freq Offse |
| | | | | | | OH |
| | | | | | | 0 F |



2452MHz Ch High 30MHz – 3GHz

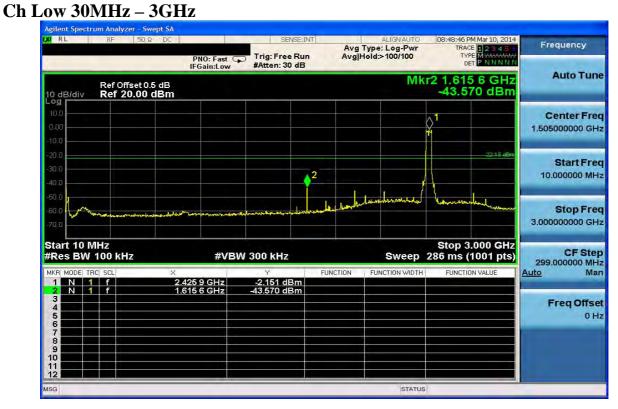
| | DC | | SENSE: | INT | | ALIGNAUTO | | PM Mar 10, 2014 | |
|---|-----------------------------------|-------------|---|----------------|----------------------|------------------------|------------------|--|--|
| | PN | IO: Fast G | Trig: Free Ru #Atten: 30 dE | | Avg Type Avg Hold | :: Log-Pwr >100/100 | т | ACE 123455 YPE MANNANA DET P N N N N N | Frequency |
| Ref Offset 0.5 dB/div Ref 20.00 c | 5 dB d Bm | | | | | Mk | r2 1.63 -43.8 | 33 6 GHz 359 dBm | Auto Tune |
| 9 9 3.0 .00 | | | | | | | | | Center Fred 1.505000000 GHz |
| 3.0 3.0 3.0 | | | | ¢ ² | | | | 22.33 dBm | Start Fred 10.000000 MHz |
| | and freezeward and a state of the | www.leantar | يې د مېرور ور د مېرور ور ماندو ور ور ماندو ور | | worden have | prover and the start | hopen | - Maraharan | Stop Free |
| | | | | | | | | | 3.000000000 GH |
| tart 10 MHz Res BW 100 kHz | | | V 300 kHz | FUNC | TION | | 286 ms | 3.000 GHz (1001 pts) | CF Step 299.000000 MH |
| Image: start 10 MHz Res BOW 100 KHz KR MODE TRC SCL Image: start st | × 2.437 9 1.633 6 | #VBV | | FUNC | TION FU | Sweep NCTION WIDTH | 286 ms | (1001 pts) | CF Step 299.000000 MH |
| 10 MHz Res BW 100 kHz KR MODE TRC SCL 1 N 2 N 3 4 5 6 | × 2.437 9 | #VBV | ¥ 300 kHz ¥ -2.330 dBm | FUNC | TION FU | | 286 ms | (1001 pts) | CF Step 299.000000 MH <u>Auto</u> Mar Freq Offse |
| tart 10 MHz Res BW 100 kHz KR MODE TRC SCL 1 N 1 f 2 N 1 f 3 4 5 | × 2.437 9 | #VBV | ¥ 300 kHz ¥ -2.330 dBm | FUNC | TION FU | | 286 ms | (1001 pts) | 3.00000000 GH: CF Ster 299.00000 MH <u>Auto</u> Mar Freq Offse 0 H: |

Ch High 3GHz – 26.5GHz

| RL RF 50Ω DC | PNO: Fast C IFGain:Low | Trig: Free Rur #Atten: 30 dB | Avg | ALIGN AUTO Type: Log-Pwr Hold: 6/100 | 08:58:03 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE MWWWWW DET P N N N N N | Frequency |
|--|---|--|--|--|---|--|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | N | lkr1 3.276 GHz -48.806 dBm | Auto Tune |
| | | | | | | Center Free 14.500000000 GH |
| 0.0 .0 0.0 1.0 | | | | | | Start Free 3.000000000 GH |
| D.D. Warnana Rangeranda man | | | | | a second at the second second second | |
| | °p-₹ _e ngstagdeg/vist ⁴ nt ⁻ betkunder | ment and a second a | 1994.009.001.001.001.001.001.001.001.001.001 | An and the State of the State o | | |
| art 3.00 GHz | ~ | W 300 kHz | 1994 (MB of Land of La | | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GH |
| art 3.00 GHz Res BW 100 KHz | ~ | | FUNCTION | | Stop 26.00 GHz | 26.00000000 GH CF Ste 2.30000000 GH |
| tart 3.00 GHz Res BW 100 KHz KR MODE TRC SCL 1 2 3 4 5 6 | #VB | W 300 kHz Y | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | Stop Fre 26.00000000 GH CF Stej 2.30000000 GH Auto Ma Freq Offse 0 H |
| Image: Second state in the second state in | #VB | W 300 kHz Y | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GH CF Ste 2.30000000 GH <u>Auto</u> Ma |



Conducted Spurious Emission Measurement Result 802.11n_40M (chain b) 2422MHz Ch Low 30MHz - 3CHz



Ch Low 3GHz – 26.5GHz

| RL RF 50 Ω DC | PNO: Fast (IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 7/100 | 08:49:13 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWWWW DET P N N N N | Frequency |
|---|---------------------------|--|--------------|---|---|---|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | N | lkr1 3.230 GHz -41.469 dBm | Auto Tuno |
| | | | | | | Center Fre 14.500000000 GH |
| 1.0 1.0 1.0 | | | | | 2235 dBm | Start Free 3.000000000 GH |
| 0.0 | | | | | | |
| Mar mar man marken war | Maran Maran Maran | ann ann an ann ann an ann an ann an an a | ~pd.o | and an address of the second | anagalinnyakting galagangangangan dan Kalan | |
| art 3.00 GHz | | W 300 kHz | ngalan Janar | | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GH |
| tart 3.00 GHz Res BW 100 kHz | #VB | | FUNCTION | | Stop 26.00 GHz | |
| tart 3.00 GHz Res BW 100 kHz | #VB | W 300 kHz | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GH CF Ste 2.30000000 GH |



2442MHz Ch Mid 30MHz – 3GHz

| RL | | RF | 50 Ω | DC | | | SI | ENSE:I | TI | | A | LIGNAUTO | | 09 PM Mar 10, 2014 | The second second |
|--|----------|--------------------|----------------------------|-----------|---------------------------|---------------------|--|------------|----------------|---------------|-----------|---|---------|---|--------------------------------|
| | | | | | PNO: IFGair | Fast 🖵 |) Trig: Fre #Atten: 3 | | 1 | | | Log-Pwr 100/100 | т | RACE 2 3 4 5 5 TYPE MWWWWWW DET P N N N N N | Frequency |
| dB/div | | | ffset 0.9 2 0.00 | | | | | | | | | Mk | | 52 8 GHz 652 dBm | Auto Tune |
| 9 3.0 .00 1.0 | | | | | | | | | | | | | 1 | | Center Freq 1.505000000 GHz |
| 1.0 1.0 | | | | | | | | | } ² | | | | | 22.65 dBm | Start Freq 10.000000 MHz |
| 10 | n to | an de califitation | hadan | مديد عد ا | .I ^{nt} him teac | In since the second | in the state of th | antre | mart | and the other | about and | v _e stektologi _{otay} | (benow | her for a grander of the second | Stop Free 3.000000000 GH: |
| art 10 Res B | W 1 | 00 kl | Ηz | | | #VBW | 300 kHz | z | | | _ | | 286 m | o 3.000 GHz s (1001 pts) | CF Step 299.000000 MH |
| R MODE | TRC 1 | f | | | 452 8 G | | -2.652 c -42.991 c | iBm iBm | FUN | CTION | FUNC | TION WIDTH | FUN | CTION VALUE | <u>Auto</u> Mar |
| 3 2 4 2 5 2 6 2 7 2 | | | | | | | | | | | | | | | Freq Offse 0 Ha |
| | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |

Ch Mid 3GHz – 26.5GHz

| | PNO: Fast C | Trig: Free Ru #Atten: 30 dB | Avg | ALIGN AUTO Type: Log-Pwr Hold: 6/100 | 08:50:32 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWWWW DET P N N N N N | Frequency |
|--|--|--------------------------------|---------------------------|--|---|------------------------------------|
| Ref Offset 0.5 dB dB/div Ref 20.00 dBm | | | | N | lkr1 3.253 GHz -43.644 dBm | Auto Tune |
| | | | | | | Center Fre 14.500000000 GH |
|) • • • • • • • • • • • • • • • • • • • | | | | | -22.65 dBm | Start Fre 3.000000000 GH |
| C | ากรายการใจการการการการการการการการการการการการการก | hour and the second second | ntela se de la partecente | angerland to a lot a later on a | ¹ 41 | Stop Fre 26.00000000 GH |
| art 3.00 GHz es BW 100 kHz | #VB | W 300 kHz | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | CF Ste 2,30000000 GH |
| | | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | Auto Ma |
| N 1 f | 3.253 GHz | -43.644 dBm | | | | Auto |
| | 3.253 GHz | | | | | Freq Offso 0 H |
| N 1 F | 3.253 GHz | | | | | Freq Offs |



2452MHz Ch High 30MHz – 3GHz

| RL | RF | 50 Q DC | | SEI | VSE:INT | | ALIGNAUTO | | 4 PM Mar 10, 2014 | Frequency |
|---------------------|-----------------------|------------------------|------------------------|-------------------------------------|--------------------|------------------|---------------------------|-----------------|---|------------------------------------|
| | | | PNO: Fast C | Trig: Free #Atten: 30 | | | pe: Log-Pwr d:>100/100 | 1 | ACE 123455 TYPE M MANANAN DET P N N N N N | |
| dB/div | | et 0.5 dB .00 dBm | | | | | MI | | 34 9 GHz 929 dBm | Auto Tune |
| 9 .0 .0 .0 | | | | | | | | ↓ 1 Μ | | Center Fre 1.505000000 GH |
| | | | | | | | | | | Start Fre 10.000000 MH |
| | and some sport of the | anaa ayaa bahariiya wa | Mustersonsbarresta | andar data da seguna di serektari y | - Anna Internation | and the standard | mbarmete | - lennon | montemporte | Stop Fre 3.000000000 GH |
| art 10 N es BW | 100 kHz | | #VBI | W 300 kHz | | | Sweep | 286 ms | 3.000 GHz (1001 pts) | CF Ste 299.000000 MH Auto Ma |
| N 1 | | × 2. 1. | 434 9 GHz 633 6 GHz | -1.929 de | 3m | | ONCTION WIDTH | FUNC | TION VALUE | <u>Auto</u> Ma |
| | | | | | | | | | | Freq Offse 0 H |
| | | | | | | | | | | |
| | | | | | | | STATU | 1 | | 1 |

Ch High 3GHz – 26.5GHz

| RL RF 50Ω DC | PNO: Fast C IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg | ALIGNAUTO Type: Log-Pwr Hold: 8/100 | 08:51:52 PM Mar 10, 2014 TRACE 1 2 3 4 5 TYPE M WWWWW DET P N N N N N | Frequency |
|---|---------------------------|---------------------------------|-------------------|---|--|---|
| Ref Offset 0.5 dB Mkr1 3.276 GHz dB/div Ref 20.00 dBm -45.066 dBm | | | | | | Auto Tune |
| 0.0 0.0 0.0 | | | | | | Center Fre 14.500000000 GH |
| 0.0 0.0 0.0 0.0 0.0 | | | | | -21.93 dBm | Start Free 3.000000000 GH |
| 0.0 - Martine approximation | algeory of the states | Henry In the states | Maria Maria Maria | and the second | a fredering of the marked and the | |
| | | | | | | |
| tart 3.00 GHz | | W 300 kHz | | | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GH |
| tart 3.00 GHz Res BW 100 kHz | | | FUNCTION | | Stop 26.00 GHz | 26.00000000 GH CF Ste 2.30000000 GH |
| tart 3.00 GHz Res BW 100 kHz KR MODE TRC SCL × 1 N 1 f 3 4 5 6 | #VB | W 300 kHz | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | Stop Fre 26.00000000 GH 2.300000000 GH <u>Auto</u> Ma Freq Offse 0 H |
| Image: Second state | #VB | W 300 kHz | | Sweep | Stop 26.00 GHz 2.20 s (1001 pts) | 26.00000000 GF CF Ste 2.30000000 GF <u>Auto</u> Ma |



| Ruduited Spurious Emission medsurement Result (below Toriz) (worst cuse) | | | | | | | | |
|--|-------------------|-----------|------------|--|--|--|--|--|
| Operation Mode | 802.11g TX CH Low | Test Date | 2014/03/24 | | | | | |
| Fundamental Frequency | 2412MHz | Test By | Dino | | | | | |
| Temperature | 25 °C | Pol | Ver./Hor | | | | | |
| Humidity | 60 % | | | | | | | |

Radiated Spurious Emission Measurement Result (below 1GHz) (worst case)

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|--------|---------|--------|--------|--------|---------------|--------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 56.19 | 42.04 | -12.47 | 29.57 | 40.00 | -10.43 | Peak | VERTICAL |
| 2 | 67.83 | 46.03 | -14.26 | 31.77 | 40.00 | -8.23 | Peak | VERTICAL |
| 3 | 280.26 | 41.94 | -11.57 | 30.37 | 46.00 | -15.63 | Peak | VERTICAL |
| 4 | 579.99 | 35.88 | -6.13 | 29.75 | 46.00 | -16.25 | Peak | VERTICAL |
| 5 | 675.05 | 31.16 | -4.59 | 26.57 | 46.00 | -19.43 | Peak | VERTICAL |
| 6 | 773.02 | 29.38 | -2.70 | 26.68 | 46.00 | -19.32 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 54.25 | 46.93 | -12.36 | 34.57 | 40.00 | -5.43 | Peak | HORIZONTAL |
| 2 | 129.91 | 41.66 | -13.67 | 27.99 | 43.50 | -15.51 | Peak | HORIZONTAL |
| 3 | 283.17 | 37.61 | -11.53 | 26.08 | 46.00 | -19.92 | Peak | HORIZONTAL |
| 4 | 447.10 | 30.97 | -8.23 | 22.74 | 46.00 | -23.26 | Peak | HORIZONTAL |
| 5 | 579.99 | 31.40 | -6.13 | 25.27 | 46.00 | -20.73 | Peak | HORIZONTAL |
| 6 | 803.09 | 27.26 | -2.43 | 24.83 | 46.00 | -21.17 | Peak | HORIZONTAL |

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 9MHz to 1000MHz were made with an instrument detector setting 9-90KHz/110-490KHz using PK/AV and other Frequency Band using PK/QP
- 4 Measurement result within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 9kHz to 30MHz was 10kHz, VBW= 30kHz; between 30MHz to 1GHz was 100KHz, VBW=300KHz.



| Ruduited Spurious Emission measurement Result (below Toriz) ("orst cuse) | | | | | | | | |
|--|--------------------|-----------|------------|--|--|--|--|--|
| Operation Mode | 802.11 g TX CH Mid | Test Date | 2014/03/24 | | | | | |
| Fundamental Frequency | 2437MHz | Test By | Dino | | | | | |
| Temperature | 25 °C | Pol | Ver./Hor | | | | | |
| Humidity | 60 % | | | | | | | |

Radiated Spurious Emission Measurement Result (below 1GHz) (worst case)

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|--------|---------|--------|--------|--------|---------------|--------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 56.19 | 43.33 | -12.47 | 30.86 | 40.00 | -9.14 | Peak | VERTICAL |
| 2 | 65.89 | 44.47 | -13.88 | 30.59 | 40.00 | -9.41 | Peak | VERTICAL |
| 3 | 285.11 | 41.62 | -11.49 | 30.13 | 46.00 | -15.87 | Peak | VERTICAL |
| 4 | 579.99 | 39.58 | -6.13 | 33.45 | 46.00 | -12.55 | Peak | VERTICAL |
| 5 | 680.87 | 31.15 | -4.49 | 26.66 | 46.00 | -19.34 | Peak | VERTICAL |
| 6 | 773.02 | 29.47 | -2.70 | 26.77 | 46.00 | -19.23 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 54.25 | 45.29 | -12.36 | 32.93 | 40.00 | -7.07 | Peak | HORIZONTAL |
| 2 | 127.97 | 41.37 | -13.84 | 27.53 | 43.50 | -15.97 | Peak | HORIZONTAL |
| 3 | 170.65 | 37.00 | -12.71 | 24.29 | 43.50 | -19.21 | Peak | HORIZONTAL |
| 4 | 285.11 | 37.52 | -11.49 | 26.03 | 46.00 | -19.97 | Peak | HORIZONTAL |
| 5 | 563.50 | 30.55 | -6.54 | 24.01 | 46.00 | -21.99 | Peak | HORIZONTAL |
| 6 | 803.09 | 27.62 | -2.43 | 25.19 | 46.00 | -20.81 | Peak | HORIZONTAL |

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 9MHz to 1000MHz were made with an instrument detector setting 9-90KHz/110-490KHz using PK/AV and other Frequency Band using PK/QP
- 4 Measurement result within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 9kHz to 30MHz was 10kHz, VBW= 30kHz; between 30MHz to 1GHz was 100KHz, VBW=300KHz.



| Ruduited Spurious Emission medsurement Result (below 10112) (worst cuse) | | | | | | | | |
|--|---------------------------------------|---|--|--|--|--|--|--|
| 802.11g TX CH High | Test Date | 2014/03/24 | | | | | | |
| 2462MHz | Test By | Dino | | | | | | |
| 25 °C | Pol | Ver./Hor | | | | | | |
| 60 % | | | | | | | | |
| | 802.11g TX CH High 2462MHz 25 ℃ | 802.11g TX CH HighTest Date2462MHzTest By25 °CPol | | | | | | |

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|--------|---------|--------|--------|--------|---------------|--------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 56.19 | 42.12 | -12.47 | 29.65 | 40.00 | -10.35 | Peak | VERTICAL |
| 2 | 67.83 | 46.31 | -14.26 | 32.05 | 40.00 | -7.95 | Peak | VERTICAL |
| 3 | 285.11 | 41.98 | -11.49 | 30.49 | 46.00 | -15.51 | Peak | VERTICAL |
| 4 | 579.99 | 38.05 | -6.13 | 31.92 | 46.00 | -14.08 | Peak | VERTICAL |
| 5 | 671.17 | 30.15 | -4.65 | 25.50 | 46.00 | -20.50 | Peak | VERTICAL |
| 6 | 773.02 | 30.11 | -2.70 | 27.41 | 46.00 | -18.59 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 54.25 | 47.62 | -12.36 | 35.26 | 40.00 | -4.74 | Peak | HORIZONTAL |
| 2 | 129.91 | 42.29 | -13.67 | 28.62 | 43.50 | -14.88 | Peak | HORIZONTAL |
| 3 | 192.96 | 46.48 | -14.71 | 31.77 | 43.50 | -11.73 | Peak | HORIZONTAL |
| 4 | 285.11 | 38.17 | -11.49 | 26.68 | 46.00 | -19.32 | Peak | HORIZONTAL |
| 5 | 531.49 | 39.00 | -7.15 | 31.85 | 46.00 | -14.15 | Peak | HORIZONTAL |
| 6 | 579.99 | 34.77 | -6.13 | 28.64 | 46.00 | -17.36 | Peak | HORIZONTAL |

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 9MHz to 1000MHz were made with an instrument detector setting 9-90KHz/110-490KHz using PK/AV and other Frequency Band using PK/QP
- 4 Measurement result within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5 The IF bandwidth of SPA between 9kHz to 30MHz was 10kHz, VBW= 30kHz; between 30MHz to 1GHz was 100KHz, VBW=300KHz.



| (worst cuso) | | | | | | | | |
|-----------------------|-------------------|-----------|------------|--|--|--|--|--|
| Operation Mode | 802.11g TX CH Low | Test Date | 2014/03/24 | | | | | |
| Fundamental Frequency | 2412MHz | Test By | Dino | | | | | |
| Temperature | 25 ℃ | Pol | Ver./Hor | | | | | |
| Humidity | 60 % | | | | | | | |

Radiated Spurious Emission Measurement Result (above 1GHz) (worst case)

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|--------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 3212.00 | 54.39 | -4.65 | 49.74 | 74.00 | -24.26 | Peak | VERTICAL |
| 2 | 4824.00 | 44.93 | 1.33 | 46.26 | 74.00 | -27.74 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 3219.00 | 52.05 | -4.62 | 47.43 | 74.00 | -26.57 | Peak | HORIZONTAL |
| 2 | 4824.00 | 45.82 | 1.33 | 47.15 | 74.00 | -26.85 | Peak | HORIZONTAL |

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



| Ruduited Spurious Emission measurement Result (above 10112) (worst cuse) | | | | | | | | |
|--|-------------------|-----------|------------|--|--|--|--|--|
| Operation Mode | 802.11g TX CH Mid | Test Date | 2014/03/24 | | | | | |
| Fundamental Frequency | 2442MHz | Test By | Dino | | | | | |
| Temperature | 25 °C | Pol | Ver./Hor | | | | | |
| Humidity | 60 % | | | | | | | |

Radiated Spurious Emission Measurement Result (above 1GHz) (worst case)

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|--------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 3254.00 | 55.32 | -4.50 | 50.82 | 74.00 | -23.18 | Peak | VERTICAL |
| 2 | 4884.00 | 44.39 | 1.54 | 45.93 | 74.00 | -28.07 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 3254.00 | 50.91 | -4.50 | 46.41 | 74.00 | -27.59 | Peak | HORIZONTAL |
| 2 | 4884.00 | 44.02 | 1.54 | 45.56 | 74.00 | -28.44 | Peak | HORIZONTAL |

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



| Ruduited Spurious Emission measurement Result (above 10112) (worst case) | | | | | | | | |
|--|--------------------|-----------|------------|--|--|--|--|--|
| Operation Mode | 802.11g TX CH High | Test Date | 2014/03/24 | | | | | |
| Fundamental Frequency | 2462MHz | Test By | Dino | | | | | |
| Temperature | 25 °C | Pol | Ver./Hor | | | | | |
| Humidity | 60 % | | | | | | | |

Radiated Spurious Emission Measurement Result (above 1GHz) (worst case)

| No | Freq | Reading | Factor | Level | Limit | Over Limit | Remark | Pol |
|----|---------|---------|--------|--------|--------|---------------|--------|------------|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | V/H |
| 1 | 3282.00 | 54.59 | -4.41 | 50.18 | 74.00 | -23.82 | Peak | VERTICAL |
| 2 | 4924.00 | 43.16 | 1.68 | 44.84 | 74.00 | -29.16 | Peak | VERTICAL |
| | | | | | | | | |
| 1 | 3282.00 | 51.64 | -4.41 | 47.23 | 74.00 | -26.77 | Peak | HORIZONTAL |
| 2 | 4924.00 | 44.31 | 1.68 | 45.99 | 74.00 | -28.01 | Peak | HORIZONTAL |

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



FCC ID: AHL-ALMOND1 IC: 10114A-ALMOND1

10 Peak Power Spectral Density

10.1 Standard Applicable:

According to §15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

According to RSS-247 issue 1, §5.2

(2)The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of Section 5.4(4), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

10.2 Measurement Equipment Used:

Refer to section 6.2 for details.

10.3 Test Set-up:

Refer to section 6.3 for details.

10.4 Measurement Procedure:

Refer to section 10.2 Peak Power Density(PKPPSD) Measurement Procedure of KDB Document: 558074 D01 DTS Meas Guidance v03r01

- 1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
- 2. Set the RBW = 100 kHz.
- 3. Set the VBW \geq 300 kHz.
- 4. Set the span to 5-30 % greater than the EBW.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- 10. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log (3 \text{ kHz}/100 \text{ kHz} = -15.2 \text{ dB})$.
- 11. The resulting peak PSD level must be ≤ 8 dBm.



10.5 Measurement Result:

802.11b Mode

| Frequency MHz | Power Density Level (dBm) | Maximum Limit (dBm) |
|------------------|------------------------------|------------------------|
| 2412 | -7.02 | 8 |
| 2442 | -7.80 | 8 |
| 2462 | -8.14 | 8 |

802.11g Mode

| Frequency MHz | Power Density Level (dBm) | Maximum Limit (dBm) |
|------------------|------------------------------|------------------------|
| 2412 | -7.41 | 8 |
| 2442 | -7.76 | 8 |
| 2462 | -7.68 | 8 |

802.11n for 2.4GHz 2*2 MIMO

| | Frequency | - | t Chain 00KHz) | Combine Power Density | Limit (dBm) |
|---------|-----------|---------|-------------------|-----------------------|-------------|
| | (MHz) | Chain A | chain B | (dBm) /3KHz | |
| | 2412 | -10.30 | -13.26 | -8.53 | 8 |
| AN HT20 | 2442 | -10.75 | -13.53 | -8.91 | 8 |
| | 2462 | -10.98 | -14.03 | -9.23 | 8 |
| | 2422 | -9.80 | -13.44 | -8.24 | 8 |
| AN HT40 | 2442 | -9.84 | -13.70 | -8.34 | 8 |
| | 2452 | -10.13 | -13.76 | -8.57 | 8 |



802.11b Power Spectral Density Test Plot 2412MHz







| arker 1 2.4020 | 50 Ω DC 000000000 GHz | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 05:20:46 PM Mar 10, 2014 TRACE 1 2 3 4 5 5 | Peak Search |
|-----------------------------------|--|--|--------------------------------|---|--------------------------|
| | PNO: Wide IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg Hold: 4/100 | | |
| 0 dB/div Ref 20 | set 0.5 dB 0.00 dBm | | Mkr | 2.462 00 GHz -8.137 dBm | Next Peak |
| °g 10,0 | | 1 | | | Next Pk Righ |
| 20.0 30.0 40.0 | and the second s | dante the little later a provin all belo | malunchashay | | Next Pk Lef |
| 50.0 50.0 70.0 | | | - V·· | when the share and | Marker Delta |
| enter 2.46200 G Res BW 3.0 kHz | | 'BW 10 kHz | Sweep | Span 30.00 MHz 3.16 s (1001 pts) | Mkr→Ci |
| | X | | UNCTION FUNCTION WIDTH | FUNCTION VALUE | |
| KR MODE TRC SCL | 2.462 00 GHz | | | | |
| 1 N 1 F 2 3 4 5 | 2.462 00 GHz | | | | Mkr→RefLv |
| 1 N 1 f 2 3 4 9 | 2.462 00 GHz | | | | Mkr→RefLv Mor 1 of |



802.11g Power Spectral Density Test Plot 2412MHz





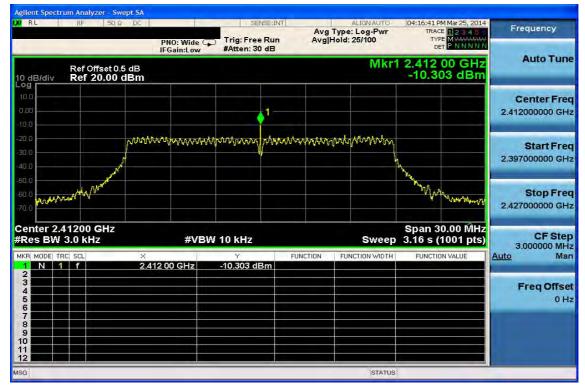




| RL | RF | 50 Ω | DC | | SEN | SE:INT | | ALIGN AUTO | | PM Mar 10, 2014 | Frequency |
|--|-----------|----------|----------|---------------------------|--------------------------|--------|--------------------|-------------------------|------------------|---|-----------------------------------|
| | | | | PNO: Wide C IFGain:Low | Trig: Free #Atten: 30 | | Avg Tyj Avg Hol | be: Log-Pwr d: 4/100 | T | ACE 123455 YPE MWW/WWW DET PNNNNN | - Companyone |
|) dB/div | Ref Off | | | | | | | Mkr | 2.462 | 00 GHz 77 dBm | Auto Tune |
| og 10.0 | | | | | | 1 | | | | | Center Free 2.462000000 GH |
| 0.0 0.0 0.0 | | J. Arrow | N | manna | mmm | ጚኇኯኯኯ | ~~~~~~ | www.www. | NH4. | | Start Free 2.447000000 GH |
| 50.0 50.0 , 1944, 1944 70.0 | e,e,na,na | | | | | | | | - The feel work | Mannahani | Stop Fre 2.477000000 GH |
| enter 2.4 Res BW 3 | | | | #VB | W 10 kHz | | | Sweep | Span 3 3.16 s | 30.00 MHz (1001 pts) | CF Stej 3.000000 MH |
| KR MODE TRO | | | × 2.4 | 62 00 GHz | Ƴ -7.677 dB | | NCTION F | UNCTION WIDTH | FUNCT | ION VALUE | <u>Auto</u> Ma |
| 3 4 5 6 | | | | | | | | | | | Freq Offse 0 H |
| 8 9 0 1 | | | | | | | | | | | |
| G | | | | | | | | STATUS | | | 100 A |



802.11n_20M (chain a) Power Spectral Density Test Plot 2412MHz





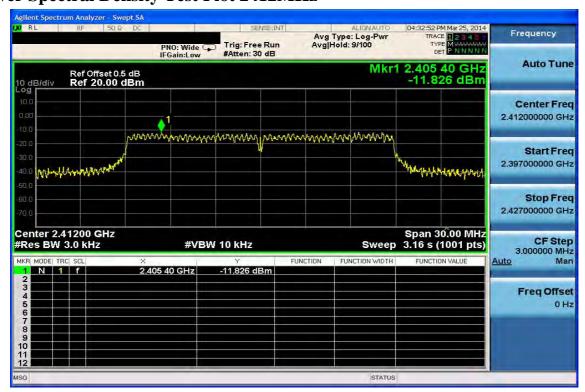




| RL | RF 5 | DΩ DC | | SENSE | :INT | | ALIGNAUTO | | PM Mar 25, 2014 | - |
|--------------------------------------|------------------------|----------|---------------------------|------------------------------|-------|----------------------|---------------------|--|--------------------------------------|----------------------------|
| | | | PNO: Wide C IFGain:Low | Trig: Free R #Atten: 30 d | | Avg Type Avg Hold | : Log-Pwr 14/100 | TY | CE 123455 PE MWWWWW ET P NNNNN | Frequency |
|) dB/div | Ref Offset Ref 20.0 | | | | | | Mkr | 2.462 | 00 GHz 78 dBm | Auto Tu |
| 9 g 0.0 1.00 0.0 | | | | 1 | | | | | | Center Fr 2.462000000 0 |
| 0.0 0.0 0.0 | | porro | Y WARAN | Manny | mmnh | n han | Marria | | | Start Fi 2.447000000 0 |
| 0.0 0.0 0.0 //wh /Ał | wanter and and | | | | | | | "hand the second | hay particular | Stop Fr 2.477000000 0 |
| enter 2.4 Res BW | 46200 GHz 3.0 kHz | z | #VB | W 10 kHz | | | Sweep | Span 3 3.16 s (| 80.00 MHz (1001 pts) | CF St 3.000000 N |
| KR MODE TR | | × 2.4 | 62 00 GHz | Ƴ -10.978 dBm | FUNCT | ION FU | NCTION WIDTH | FUNCTI | ON VALUE | Auto N |
| 2 3 4 5 6 7 | | | | | | | | | | Freq Off 0 |
| 8 | | | | | | | | | | |
| G | | | | | | - 10 | STATUS | | | L. |



802.11n_20M (chain b) Power Spectral Density Test Plot 2412MHz



| RL | RF | 50Ω DC | PNO: Wide IFGain:Low | | Run Avg | ALIGNAUTO Type: Log-Pwr Hold: 14/100 | TRAC TYP | M Mar 25, 2014 E 1 2 3 4 5 5 E M WWWWWW ET P N N N N N | Frequency |
|----------------------------|---------------------|--------------------|-------------------------|-----------------|-------------|---|--------------------|---|------------------------------|
| 0 dB/div | Ref Offs Ref 20. | et0.5 dB 00 dBm | | | | Mkr | 1 2.448 | 63 GHz 29 dBm | Auto Tune |
| 0.0).00 0.0 | | | | | | 1 | | | Center Fre 2.442000000 GH |
| 20.0 30.0 10.0 WYWY | hreeder | mart | www.huhuy | wwwwww | Nuhamahanan | www. | Mur Maryarata | nurantaa | Start Fre 2.427000000 GH |
| 50.0 50.0 70.0 | | | | | | | | | Stop Fre 2.457000000 GH |
| | 44200 GH 3.0 kHz | lz | #VE | 3W 10 kHz | | Sweep | Span 3 3.16 s (| 0.00 MHz 1001 pts) | CF Ste 3.000000 MH |
| KR MODE T | | × 2.4 | 48 63 GHz | ץ -11.929 dB | FUNCTION | FUNCTION WIDTH | FUNCTIO | IN VALUE | <u>Auto</u> Ma |
| 2 3 4 5 6 7 | | | | | | | | | Freq Offse 0 H |
| 8 9 0 1 | | | | | | | | | |
| G | | | | | | STATUS | 1 | | 10. |

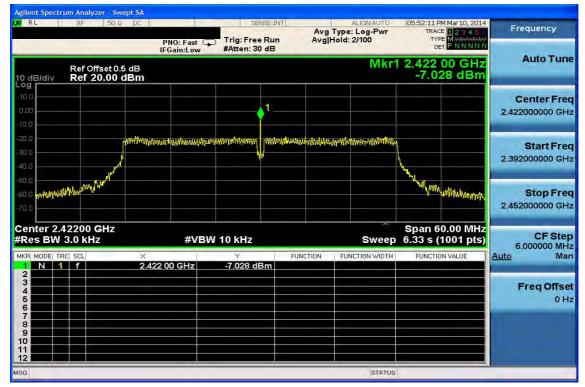




| RL | RF | 50 Ω | DC | | | SE | NSE:INT | | ALIGNAUTO | | PM Mar 25, 2014 | Formation and a |
|---|---------------------|-----------------------|-----------|-----------|----------|------------------------|---------|--|----------------------------|--------------------|---|--------------------------------------|
| | | | | PNO: Wide | e v | Trig: Fre #Atten: 3 | | | ype: Log-Pwr old: 7/100 | TY | CE 1 2 3 4 5 5 PE M WWWWWW ET P N N N N N | Frequency |
| dB/div | | offset 0.5 20.00 d | | | | | | | Mkr | 1 2.455 | 40 GHz 22 dBm | Auto Tune |
| 9 0.0 .00 1.0 | | | | ↓1 | | | | | | | | Center Free 2.462000000 GH: |
| 2.0 2.0 2.0 | nyymry | | | Mapagad | ሳላት በ | Muraya | Nanun | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | MMMM | Van Walt Yourse | YHAAMUNI | Start Free 2.447000000 GH: |
| 3,0 3,0 3,0 | | | | | | | | | | | | Stop Fre 2.477000000 GH |
| | 2.46200 N 3.0 ki | | ~ | #V | BW | 10 kHz | | | Sweep | Span 3 3.16 s (| 0.00 MHz 1001 pts) | CF Stej 3.000000 MH |
| R MODE | TRC SCL | | × 2.45 | 5 40 GHz | | Y -12.722 d | | INCTION | FUNCTION WIDTH | FUNCTI | ON VALUE | <u>Auto</u> Ma |
| | | | | | | | | | | | | Freq Offse 0 H |
| 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |



802.11n_40M (chain b) Power Spectral Density Test Plot 2422MHz









| RL | RF | 50 Ω | DC | | SEL | SE:INT | | ALIGN AUTO | |) PM Mar 10, 2014 | Frequency |
|---------------------------------------|--------|--------------------|-----------|--|--------------------------|--------------------|--------------------|-------------------------|----------------|--|--------------------------------|
| | | | | PNO: Fast C | Trig: Free #Atten: 30 | | Avg Tyj Avg Hol | be: Log-Pwr d: 4/100 | | ACE 123455 YPE M WWWWWW DET P N N N N N | |
| 0 dB/div | | fset 0.5 0.00 d | | | | | | Mkr | 2.45 | 2 00 GHz 899 dBm | Auto Tune |
| .og 10.0: 0.00 | | | | | | 1 | | | | | Center Fred 2.452000000 GHz |
| 20.0 30.0 40.0 | | and a second | nthrowith | ANT AND MIN AND AND AND AND AND AND AND AND AND AN | udantanpananana | nikalikantaka N | addaadaaaayaay | ampanananan Mup | huy huy | | Start Free 2.422000000 GH: |
| 50.0 60.0 4444444 4 70.0 | within | w ^{#1} | | | | | | | "Wally" | hand and the second | Stop Free 2.482000000 GH: |
| enter 2.4 Res BW | | | | #VB | W 10 kHz | | | Sweep | Span 6.33 s | 60.00 MHz (1001 pts) | CF Step 6.000000 MH |
| IKR MODE TR | | | × 2.45 | 52 00 GHz | Y -6.899 dE | | INCTION F | UNCTION WIDTH | FUNC | TION VALUE | <u>Auto</u> Mar |
| 3 4 5 6 7 | | | | | | | | | | | Freq Offse 0 Hi |
| 8 9 9 9 10 11 | | | | | | | | | | | |
| | | | | | | | | | | | |



802.11n_40M (chain b) Power Spectral Density Test Plot 2422MHz









| RL | RF | 50 Ω | DC | | | SENSE:INT | | ALIGN AUTO | | 5 PM Mar 10, 2014 | Frequency |
|--|------------------|-----------------|-----------|-----------|---------------------|---------------------|--------------------|--------------------------|----------------|---|--------------------------------|
| | | | | PNO: Fast | Trig: Fr #Atten: | | Avg Typ Avg Hol | e: Log-Pwr d: 4/100 | TF | ACE 123455 TYPE MWWWWWW DET P NNNNN | |
| 0 dB/div | Ref Off Ref 2 | | | | | | | Mkr | 2.45 | 2 00 GHz 979 dBm | Auto Tune |
| .og 10.0 0.00 10.0 | | | | | | 1 | | | | | Center Fred 2.452000000 GHz |
| 20.0 30.0 40.0 | | 1 march | whowhe | MUNUUU | uu-annthiopdain | n Manananan M | uhalanapar | partilogy range of bully | huy. | | Start Free 2.422000000 GH: |
| 50.0 60.0 <mark>տիկկսիդի</mark> 70.0 | hurpen and | w ^{ra} | | | | | | | haydy y | uiu yhiikiippeenkasta | Stop Free 2.482000000 GH: |
| Center 2.4 Res BW | | | | #VE | W 10 kHz | | | Sweep | Ŝpan 6.33 s | 60.00 MHz (1001 pts) | CF Step 6.000000 MH |
| MKR MODE TR | | | × 2.45 | 52 00 GHz | Y -16.979 | | INCTION F | UNCTION WIDTH | FUNC | TION VALUE | <u>Auto</u> Mai |
| 3 4 5 6 7 | | | | | | | | | | | Freq Offset 0 Ha |
| 7 8 9 10 11 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |



11 ANTENNA REQUIREMENT

11.1 Standard Applicable:

According to §15.203, Antenna requirement.

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

According to RSS-GEN 7.1.2, a transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest-gain antenna of each combination of transmitter and antenna type for which certification is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type and having equal or lesser gain as an antenna that had been successfully tested for certification with the transmitter, will also be considered certified with the transmitter, and may be used and marketed with the transmitter. The manufacturer shall include with the application for certification a list of acceptable antenna types to be used with the transmitter.

When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. Any antenna gain in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power before using the power limits specified in RSS-210 or RSS-310 for devices of RF output powers of 10 milliwatts or less. For devices of output powers greater than 10 milliwatts, except devices subject to RSS-210 Annex 8 (Frequency Hopping and Digital Modulation Systems Operating in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz Bands) or RSS-210 Annex 9 (Local Area Network Devices), the total antenna gain shall be ad ded to the measured RF output power before using the specified power limits. For devices subject to RSS-210 Annex 8 or Annex 9, the antenna gain shall not be added.

11.2 Antenna Connected Construction:

The directional gins of antenna used for transmitting is 4.95dBi for 2.4G WiFi, and the antenna connector is designed with unique type RF connector and no consideration of replacement. Please see EUT photo and antenna spec. for details.

According to KDB662911 D01 SM-MIMO signals could be considered uncorrelated for purposes of directional gain computation.

Directional gain = G_{ANT}



FCC ID: AHL-ALMOND1 IC: 10114A-ALMOND1

12 Maximum Permissible Exposure (MPE)

12.1 Standard Applicable

According to \$1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

| Frequency Range | Electric Field | Magnetic Field | Power Density | Averaging Time |
|-----------------|-----------------|-----------------------|------------------------|----------------|
| (MHz) | Strength (V/m) | Strength (A/m) | (mW/cm^2) | (minute) |
| | Limits for Gene | ral Population/Uncont | trolled Exposure | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | / | / | F/1500 | 30 |
| 1500-15000 | / | / | 1.0 | 30 |

F = frequency in MHz

* = Plane-wave equipment power density



12.2 Maximum Permissible Exposure (MPE) Evaluation

The worst case of Average power: refer to section 6.5 for detail measurement date.

| 802. | 11b | | | |
|------------------|-----------|--------------|-------|-------|
| Cable loss $= 0$ | | Output Power | | Limit |
| СН | Frequency | Detector | | (dBm) |
| | (MHz) | РК | AV | |
| | | (dBm) | (dBm) | |
| 1 | 2412 | 17.74 | 13.48 | |
| 7 | 2442 | 17.60 | 13.35 | 30 |
| 11 | 2462 | 17.42 | 13.22 | |

MPE Prediction (802.11b)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

 $S=PG/4 \pi R^2$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

| Maximum average output power at antenna input | 13.48 | (dBm) |
|---|-------------|-----------|
| Maximum Average output power at antenna input | 22.28435149 | (mW) |
| Duty cycle: | 100 | (%) |
| Maximum Pav : | 22.28435149 | (mW) |
| Antenna gain (typical): | 4.95 | (dBi) |
| Maximum antenna gain: | 3.126079367 | (numeric) |
| Prediction distance: | 20 | (cm) |
| Prediction frequency: | 2412 | (MHz) |
| | | |
| MPE limit for uncontrolled exposure at prediction | 1 | (mW/cm2) |
| Power density at predication frequency at 20 (cm) | 0.0138660 | (mW/cm^2) |

Measurement Result

The predicted power density level at 20 cm is $0.0138660 \text{ mW/cm}^2$. This is below the uncontrolled exposure limit of 1 mW/cm^2 at 2412MHz.



The worst case of Average power: refer to section 6.5 for detail measurement date.

Average Measurement

2*2 MIMO

| Channel | | Frequency | Output Chain (dBm) | | Combine Output Power | Limit(dDm) | Degult |
|---------|----|-----------|--------------------|---------|----------------------|------------|--------|
| | | (MHz) | Chain A | chain B | (dBm) | Limit(dBm) | Result |
| | 1 | 2412 | 9.29 | 9.23 | 12.27 | 30 | Pass |
| AN HT20 | 7 | 2442 | 9.09 | 9.15 | 12.13 | 30 | Pass |
| | 11 | 2462 | 8.59 | 8.63 | 11.62 | 30 | Pass |
| AN HT40 | 3 | 2422 | 8.48 | 8.44 | 11.47 | 30 | Pass |
| | 7 | 2442 | 8.20 | 8.26 | 11.24 | 30 | Pass |
| | 9 | 2452 | 7.93 | 7.98 | 10.97 | 30 | Pass |

MPE Prediction (802.11n HT20)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

S=PG/4 π R²

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

MIMO Chain A

| Maximum average output power at antenna input | 9.29 | (dBm) |
|---|-------------|-----------|
| Maximum Average output power at antenna input | | (mW) |
| Duty cycle: | 100 | (%) |
| Maximum Pav : | 8.49180475 | (mW) |
| Antenna gain (typical): | 4.95 | (dBi) |
| Maximum antenna gain: | 3.126079367 | (numeric) |
| Prediction distance: | 20 | (cm) |
| Prediction frequency: | 2412 | (MHz) |
| | | |
| MPE limit for uncontrolled exposure at prediction | 1 | (mW/cm2) |
| Power density at predication frequency at 20 (cm) | 0.0052838 | (mW/cm^2) |



MIMO Chain B

| Maximum average output power at antenna input | 9.23 | (dBm) |
|---|-------------|-----------|
| Maximum Average output power at antenna input | 8.375292821 | (mW) |
| Duty cycle: | 100 | (%) |
| Maximum Pav : | 8.375292821 | (mW) |
| Antenna gain (typical): | 4.95 | (dBi) |
| Maximum antenna gain: | 3.126079367 | (numeric) |
| Prediction distance: | 20 | (cm) |
| Prediction frequency: | 2412 | (MHz) |
| | | |
| MPE limit for uncontrolled exposure at prediction | 1 | (mW/cm2) |
| Power density at predication frequency at 20 (cm) | 0.0052114 | (mW/cm^2) |

Measurement Result

The predicted power density level at 20 cm is $0.0052838 \text{ mW/cm}^2$, $0.0052114 \text{ mW/cm}^2$. This is below the uncontrolled exposure limit of 1 mW/cm² at 2412MHz.

Remark: The worst case of which power is higher between hT20, and hT40 is deduced, and shown on the test report