



SPORTON International Inc.

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FCC RADIO TEST REPORT

| | |
|------------------------|--|
| Applicant's company | Aruba Networks, Inc. |
| Applicant Address | 1344 Crossman Avenue Sunnyvale CA 94089, USA |
| FCC ID | Q9DAP134135 |
| Manufacturer's company | Wistron NeWeb Corporation |
| Manufacturer Address | 20 Park Avenue II, Hsinchu Science Park, Hsinchu 308,Taiwan,R.O.C. |

| | |
|------------------------------------|---|
| Product Name | ARUBA 134 WIRELESS ACCESS POINT, EXT ANTENNA / ARUBA 135 WIRELESS ACCESS POINT |
| Brand Name | Aruba |
| Model Name | AP-134 / AP-135 |
| Test Rule Part(s) | 47 CFR FCC Part 15 Subpart E § 15.407 |
| Test Freq. Range | 5250 ~ 5350MHz / 5470 ~ 5725MHz |
| Received Date | Dec. 10, 2010 |
| Final Test Date | Jun. 18, 2011 |
| Submission Type | Class II Change |
| Operating Mode | Master |
| Multiple Listing & Class II Change | Please refer to section 3.7 |

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a (5250 ~ 5350MHz / 5470 ~ 5725MHz) of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in ANSI C63.10-2009 and 47 CFR FCC Part 15 Subpart E.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



Testing Laboratory
1190

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History of This Test Report

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|-------------|---------|-------------------------|---------------|
| FROD2823-01 | Rev. 01 | Initial issue of report | Sep. 08, 2011 |
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1. CERTIFICATE OF COMPLIANCE

Product Name : ARUBA 134 WIRELESS ACCESS POINT, EXT ANTENNA /
ARUBA 135 WIRELESS ACCESS POINT

Brand Name : Aruba

Model Name : AP-134 / AP-135

Applicant : Aruba Networks, Inc.

Test Rule Part(s) : 47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Dec. 10, 2010 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Jordan Hsiao 2011.9.8

Jordan Hsiao

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

| Applied Standard: 47 CFR FCC Part 15 Subpart E | | | | |
|--|--------------|-----------------------------------|----------|-------------|
| Part | Rule Section | Description of Test | Result | Under Limit |
| 4.1 | 15.207 | AC Power Line Conducted Emissions | Complies | 3.49 dB |
| 4.2 | 15.407(a) | 26dB Spectrum Bandwidth | Complies | - |
| 4.3 | 15.407(a) | Maximum Conducted Output Power | Complies | 0.09 dB |
| 4.4 | 15.407(a) | Power Spectral Density | Complies | 0.22 dB |
| 4.5 | 15.407(a) | Peak Excursion | Complies | 6.46 dB |
| 4.6 | 15.407(b) | Radiated Emissions | Complies | 0.97 dB |
| 4.7 | 15.407(b) | Band Edge Emissions | Complies | 0.03 dB |
| 4.8 | 15.407(g) | Frequency Stability | Complies | - |
| 4.9 | 15.203 | Antenna Requirements | Complies | - |

| Test Items | Uncertainty | Remark |
|---|-----------------------|--------------------------|
| AC Power Line Conducted Emissions | ±2.3dB | Confidence levels of 95% |
| Maximum Conducted Output Power | ±0.5dB | Confidence levels of 95% |
| Power Spectral Density | ±0.5dB | Confidence levels of 95% |
| Peak Excursion | ±0.5dB | Confidence levels of 95% |
| 26dB Spectrum Bandwidth / Frequency Stability | ±8.5×10 ⁻⁸ | Confidence levels of 95% |
| Radiated Emissions (9kHz~30MHz) | ±0.8dB | Confidence levels of 95% |
| Radiated Emissions (30MHz~1000MHz) | ±1.9dB | Confidence levels of 95% |
| Radiated / Band Edge Emissions (1GHz~18GHz) | ±1.9dB | Confidence levels of 95% |
| Radiated Emissions (18GHz~40GHz) | ±1.9dB | Confidence levels of 95% |
| Temperature | ±0.7°C | Confidence levels of 95% |
| Humidity | ±3.2% | Confidence levels of 95% |
| DC / AC Power Source | ±1.4% | Confidence levels of 95% |

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

| Items | Description |
|--------------------------|--|
| Product Type | WLAN (3TX, 3RX) |
| Radio Type | Intentional Transceiver |
| Power Type | From POE and Power Adapter |
| Modulation | see the below table for IEEE 802.11n |
| Data Modulation | OFDM (BPSK / QPSK / 16QAM / 64QAM) |
| Data Rate (Mbps) | see the below table for IEEE 802.11n |
| Frequency Range | 5250 ~ 5350MHz / 5470 ~ 5725MHz |
| Channel Number | 11 for 20MHz bandwidth ; 5 for 40MHz bandwidth |
| Channel Band Width (99%) | <p><For External Antenna / Ant. 5> MCS8 (20MHz): 23.68 MHz ; MCS8 (40MHz): 56.64 MHz</p> <p><For External Antenna / Ant. 6> MCS8 (20MHz): 27.20 MHz ; MCS8 (40MHz): 57.60 MHz</p> <p><For Internal Antenna / Ant. 8> MCS8 (20MHz): 23.36 MHz ; MCS8 (40MHz): 38.40 MHz</p> |
| Conducted Output Power | <p><For External Antenna / Ant. 5> Band 2: MCS8 (20MHz): 23.49 dBm ; MCS8 (40MHz): 22.53 dBm Band 3: MCS8 (20MHz): 23.88 dBm ; MCS8 (40MHz): 23.52 dBm</p> <p><For External Antenna / Ant. 6> Band 2: MCS8 (20MHz): 23.83 dBm ; MCS8 (40MHz): 23.12 dBm Band 3: MCS8 (20MHz): 23.88 dBm ; MCS8 (40MHz): 23.52 dBm</p> <p><For Internal Antenna / Ant. 8> Band 2: MCS8 (20MHz): 23.15 dBm ; MCS8 (40MHz): 20.64 dBm Band 3: MCS8 (20MHz): 21.93 dBm ; MCS8 (40MHz): 21.00 dBm</p> |
| Carrier Frequencies | Please refer to section 3.4 |
| Antenna | Please refer to section 3.3 |

IEEE 802.11a

| Items | Description |
|--------------------------|--|
| Product Type | WLAN (3TX, 3RX) |
| Radio Type | Intentional Transceiver |
| Power Type | From POE and Power Adapter |
| Modulation | OFDM for IEEE 802.11a |
| Data Modulation | OFDM (BPSK / QPSK / 16QAM / 64QAM) |
| Data Rate (Mbps) | OFDM (6/9/12/18/24/36/48/54) |
| Frequency Range | 5250 ~ 5350MHz / 5470 ~ 5725MHz |
| Channel Number | 11 |
| Channel Band Width (99%) | <p><For External Antenna / Ant. 5> 11a: 28.80 MHz</p> <p><For External Antenna / Ant. 6> 11a: 28.80 MHz</p> <p><For Internal Antenna / Ant. 8> 11a: 23.04 MHz</p> |
| Conducted Output Power | <p><For External Antenna / Ant. 5> Band 2: 23.46 dBm ; Band 3: 23.91 dBm</p> <p><For External Antenna / Ant. 6> Band 2: 23.46 dBm ; Band 3: 23.91 dBm</p> <p><For Internal Antenna / Ant. 8> Band 2: 22.23 dBm ; Band 3: 21.40 dBm</p> |
| Carrier Frequencies | Please refer to section 3.4 |
| Antenna | Please refer to section 3.3 |

Antenna & Band width

| Antenna | Single (TX) | | Three (TX) | |
|--------------|-------------|--------|------------|--------|
| | 20 MHz | 40 MHz | 20 MHz | 40 MHz |
| IEEE 802.11a | X | X | V | X |
| IEEE 802.11n | X | X | V | V |

IEEE 802.11n spec

| MCS Index | Nss | Modulation | R | NBPS | NCBPS | | NDBPS | | Datarate(Mbps) | | | |
|-----------|-----|------------|-----|------|-------|-------|-------|-------|----------------|-------|---------|-------|
| | | | | | 20MHz | 40MHz | 20MHz | 40MHz | 800nsGI | | 400nsGI | |
| | | | | | | | | | 20MHz | 40MHz | 20MHz | 40MHz |
| 0 | 1 | BPSK | 1/2 | 1 | 52 | 108 | 26 | 54 | 6.5 | 13.5 | 7.200 | 15 |
| 1 | 1 | QPSK | 1/2 | 2 | 104 | 216 | 52 | 108 | 13.0 | 27.0 | 14.400 | 30 |
| 2 | 1 | QPSK | 3/4 | 2 | 104 | 216 | 78 | 162 | 19.5 | 40.5 | 21.700 | 45 |
| 3 | 1 | 16-QAM | 1/2 | 4 | 208 | 432 | 104 | 216 | 26.0 | 54.0 | 28.900 | 60 |
| 4 | 1 | 16-QAM | 3/4 | 4 | 208 | 432 | 156 | 324 | 39.0 | 81.0 | 43.300 | 90 |
| 5 | 1 | 64-QAM | 2/3 | 6 | 312 | 648 | 208 | 432 | 52.0 | 108.0 | 57.800 | 120 |
| 6 | 1 | 64-QAM | 3/4 | 6 | 312 | 648 | 234 | 486 | 58.5 | 121.5 | 65.000 | 135 |
| 7 | 1 | 64-QAM | 5/6 | 6 | 312 | 648 | 260 | 540 | 65.0 | 135.0 | 72.200 | 150 |
| 8 | 2 | BPSK | 1/2 | 1 | 104 | 216 | 52 | 108 | 13.0 | 27.0 | 14.444 | 30 |
| 9 | 2 | QPSK | 1/2 | 2 | 208 | 432 | 104 | 216 | 26.0 | 54.0 | 28.889 | 60 |
| 10 | 2 | QPSK | 3/4 | 2 | 208 | 432 | 156 | 324 | 39.0 | 81.0 | 43.333 | 90 |
| 11 | 2 | 16-QAM | 1/2 | 4 | 416 | 864 | 208 | 432 | 52.0 | 108.0 | 57.778 | 120 |
| 12 | 2 | 16-QAM | 3/4 | 4 | 416 | 864 | 312 | 648 | 78.0 | 162.0 | 86.667 | 180 |
| 13 | 2 | 64-QAM | 2/3 | 6 | 624 | 1296 | 416 | 864 | 104.0 | 216.0 | 115.556 | 240 |
| 14 | 2 | 64-QAM | 3/4 | 6 | 624 | 1296 | 468 | 972 | 117.0 | 243.0 | 130.000 | 270 |
| 15 | 2 | 64-QAM | 5/6 | 6 | 624 | 1296 | 520 | 1080 | 130.0 | 270.0 | 144.444 | 300 |

| Symbol | Explanation |
|--------|---|
| NSS | Number of spatial streams |
| R | Code rate |
| NBPS | Number of coded bits per single carrier |
| NCBPS | Number of coded bits per symbol |
| NDBPS | Number of data bits per symbol |
| GI | guard interval |

3.2. Accessories

N/A

3.3. Table for Filed Antenna

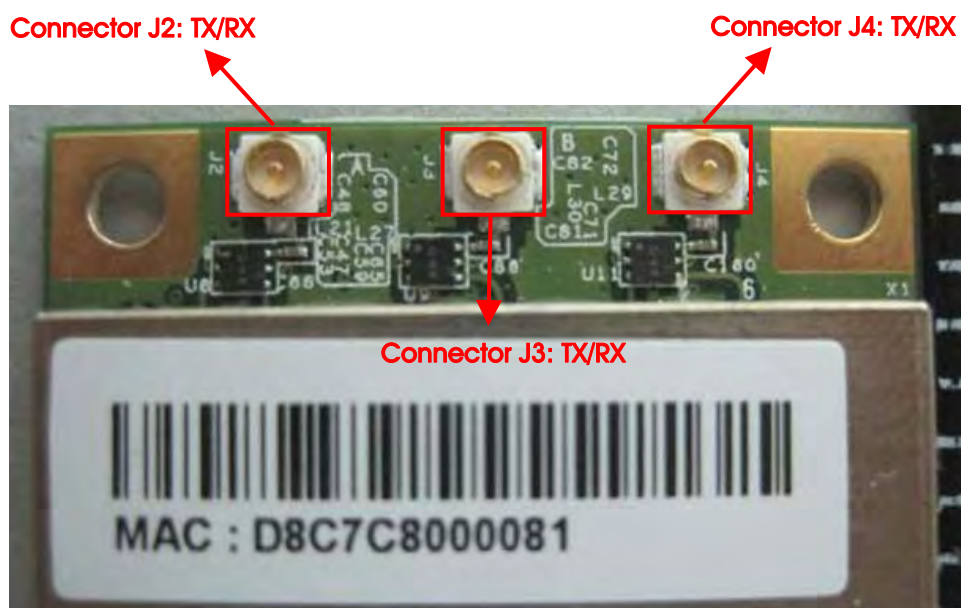
| Ant. | Brand | Model Name | Antenna Type | Connector | Antenna Gain | | Cable Loss | | Test Antenna gain | |
|------|-------|------------|---------------------|-----------|--------------|------|------------|------|-------------------|------|
| | | | | | 2.4GHz | 5GHz | 2.4GHz | 5GHz | 2.4GHz | 5GHz |
| | | | | | Band | Band | Band | Band | Band | Band |
| 1 | ARUBA | AP-ANT-1B | Omni Antenna | RP-SMA | 3.8 | 5.8 | 1.8 | 3.3 | 2 | 2.5 |
| 2 | ARUBA | AP-ANT-13B | Omni Antenna | RP-SMA | 4.4 | 3.3 | 1.8 | 3.3 | 2.6 | 0 |
| 3 | ARUBA | AP-ANT-16 | Omni Antenna | RP-SMA | 3.9 | 4.7 | 1.8 | 3.3 | 2.1 | 1.4 |
| 4 | ARUBA | AP-ANT-17 | Directional Antenna | RP-SMA | 6 | 5 | 1.8 | 3.3 | 4.2 | 1.7 |
| 5 | ARUBA | AP-ANT-18 | Directional Antenna | RP-SMA | 7 | 7.5 | 1.8 | 3.3 | 5.2 | 4.2 |
| 6 | ARUBA | AP-ANT-19 | Omni Antenna | RP-SMA | 3 | 6 | 1.8 | 3.3 | 1.2 | 2.7 |
| 7 | ARUBA | AP-ANT-93 | Directional Antenna | RP-SMA | - | 13 | - | 3.3 | - | 9.7 |
| 8 | WNC | - | Embedded Antenna | I-PEX | 4.5 | 6 | 1.8 | 3.3 | 3.5 | 4.5 |

Note 1: There are two types of EUT, one will collocate with external antennas (Ant. 1~Ant. 7) and another will collocate with internal antenna (Ant. 8).

Note 2: For IEEE 802.11a/n:

Ant. 5, Ant. 6 and Ant. 8 were selected to be tested and recorded in the report.

Note 3: The EUT has three antenna connectors (Connector J2, J3 and J4) that can be used for transmitting and receiving simultaneously as 3TX and 3RX.



3.4. Table for Carrier Frequencies

For IEEE 802.11a, use Channel 52, 56, 60, 64, 100, 104, 108, 112, 132, 136, 140.

There are two bandwidth systems for IEEE 802.11n.

For both 20MHz bandwidth systems, use Channel 52, 56, 60, 64, 100, 104, 108, 112, 132, 136, 140.

For both 40MHz bandwidth systems, use Channel 54, 62, 102, 110, 134.

| Frequency Band | Channel No. | Frequency | Channel No. | Frequency |
|-------------------------|-------------|-----------|-------------|-----------|
| 5250~5350 MHz Band 2 | 52 | 5260 MHz | 60 | 5300 MHz |
| | 54 | 5270 MHz | 62 | 5310 MHz |
| | 56 | 5280 MHz | 64 | 5320 MHz |
| 5470~5725 MHz Band 3 | 100 | 5500 MHz | 116 | 5580 MHz |
| | 102 | 5510MHz | 132 | 5660 MHz |
| | 104 | 5520 MHz | 134 | 5670 MHz |
| | 108 | 5540 MHz | 136 | 5680 MHz |
| | 110 | 5550 MHz | 140 | 5700 MHz |
| | 112 | 5560 MHz | - | - |

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

| Test Items | Mode | | Data Rate | Channel | Antenna |
|--|---------------|--------|-----------|-------------|---------------------------|
| AC Power Conducted Emission | Normal Link | | Auto | - | - |
| Max. Conducted Output Power | MCS8/20MHz | Band 2 | 13Mbps | 52/60/64 | J2/J3/J4/ J2+J3+J 4 |
| | | Band 3 | 13Mbps | 100/116/140 | |
| | MCS8/40MHz | Band 2 | 27Mbps | 54/62 | |
| | | Band 3 | 27Mbps | 102/110/134 | |
| | 11a/BPSK | Band 2 | 6Mbps | 52/60/64 | |
| | | Band 3 | 6Mbps | 100/116/140 | |
| 26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement Power Spectral Density Peak Excursion | MCS8/20MHz | Band 2 | 13Mbps | 52/60/64 | J2+J3+J 4 |
| | | Band 3 | 13Mbps | 100/116/140 | |
| | MCS8/40MHz | Band 2 | 27Mbps | 54/62 | |
| | | Band 3 | 27Mbps | 102/110/134 | |
| | 11a/BPSK | Band 2 | 6Mbps | 52/60/64 | |
| | | Band 3 | 6Mbps | 100/116/140 | |
| Radiated Emission Below 1GHz | Normal Link | | Auto | - | - |
| Radiated Emission Above 1GHz | MCS8/20MHz | Band 2 | 13Mbps | 52/60/64 | J2+J3+J 4 |
| | | Band 3 | 13Mbps | 100/116/140 | |
| | MCS8/40MHz | Band 2 | 27Mbps | 54/62 | |
| | | Band 3 | 27Mbps | 102/110/134 | |
| | 11a/BPSK | Band 2 | 6Mbps | 52/60/64 | |
| | | Band 3 | 6Mbps | 100/116/140 | |
| Band Edge Emission | MCS8/20MHz | Band 2 | 13Mbps | 52/60/64 | J2+J3+J 4 |
| | | Band 3 | 13Mbps | 100/116/140 | |
| | MCS8/40MHz | Band 2 | 27Mbps | 54/62 | |
| | | Band 3 | 27Mbps | 102/110/134 | |
| | 11a/BPSK | Band 2 | 6Mbps | 52/60/64 | |
| | | Band 3 | 6Mbps | 100/116/140 | |
| Frequency Stability | Un-modulation | | - | 60 | N/A |

All the test modes were listed as below:

Mode 1. EUT 1 with external antenna + Adapter

Mode 2. EUT 1 with external antenna + POE

Mode 3. EUT 2 with internal antenna + Adapter

Mode 4. EUT 2 with internal antenna + POE

<For Conducted Emissions Test>:

Due to Mode 1 and Mode 4 generated the worst test result, so both of them were recorded in this report.

<For Radiated Emissions Test Below 1GHz>:

Adapter Mode and POE Mode were performed at Horizontal and Vertical and the worst-case was found at Horizontal, thus measurement will follow this same test mode.

Due to Mode 2 and Mode 4 generated the worst test result, so both of them were recorded in this report.

<For Radiated Emissions Test Above 1GHz>:

Adapter Mode and POE Mode were performed at Horizontal and Vertical and the worst-case was found at Vertical, thus measurement will follow this same test mode.

Due to Mode 1 and Mode 3 generated the worst test result, so both of them were recorded in this report.

3.6. Table for Testing Locations

| Test Site No. | Site Category | Location | FCC Reg. No. | IC File No. | VCCI Reg. No |
|---------------|---------------|----------|--------------|-------------|--------------|
| 03CH01-CB | SAC | Hsin Chu | 262045 | IC 4086D | - |
| CO01-CB | Conduction | Hsin Chu | 262045 | IC 4086D | - |
| TH01-CB | OVEN Room | Hsin Chu | - | - | - |

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC); Fully Anechoic Chamber (FAC).

Please refer section 6 for Test Site Address.

3.7. Table for Multiple Listing & Class II Change

The model names in the following table are all refer to the identical product.

| EUT | Product Name | Model No. | Description |
|-----|--|-----------|---------------------------|
| 1 | ARUBA 134 WIRELESS ACCESS POINT, EXT ANTENNA | AP-134 | EUT with external antenna |
| 2 | ARUBA 135 WIRELESS ACCESS POINT | AP-135 | EUT with internal antenna |

This product is an extension of original one reported under Sporton project number: 0D2823

Below is the table for the change of the product with respect to the original one.

| Modifications | Performance Checking |
|--|---|
| Add DFS function testing and evaluation for IEEE 802.11a / IEEE 802.11an Band 2 and Band 3 (5250~5350MHz, 5470~5725MHz). | 26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement Power Spectral Density Peak Excursion Radiated Emission Above 1GHz Band Edge Emission |

3.8. Table for Supporting Units

| Support Unit | Brand | Model | FCC ID |
|--------------|-------|-----------------|--------------|
| Notebook | DELL | D420 | E2KWM3945ABG |
| Notebook | DELL | D420 | E2KWM3945ABG |
| Notebook | DELL | 1340 | E2K4965AGNM |
| POE | HiPoE | N/A | 9001G |
| Adaptor | LEI | IU18-2120150-WP | DOC |
| Notebook | DELL | D400 | E2K24GBRL |

3.9. Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

<For External Antenna / Ant. 5>

Power Parameters of IEEE 802.11n MCS8 20MHz

| Test Software Version | ART2-GUI 2.13 | | | | | |
|-----------------------|---------------|----------|----------|----------|----------|----------|
| Frequency | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz |
| 802.11n MCS8 20MHz | 19.5 | 21 | 17 | 21 | 21 | 21 |

Power Parameters of IEEE 802.11n MCS8 40MHz

| Test Software Version | ART2-GUI 2.13 | | | | |
|-----------------------|---------------|----------|----------|----------|----------|
| Frequency | 5270 MHz | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz |
| 802.11n MCS8 40MHz | 19 | 14.5 | 16.5 | 21 | 21 |

Power Parameters of IEEE 802.11a

Refer to Appendix C for the actual test results in legacy mode based on KDB662911

<For External Antenna / Ant. 6>

Power Parameters of IEEE 802.11n MCS8 20MHz

| Test Software Version | ART2-GUI 2.13 | | | | | |
|-----------------------|---------------|----------|----------|----------|----------|----------|
| Frequency | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz |
| 802.11n MCS8 20MHz | 20 | 20.5 | 17 | 18.5 | 21 | 21 |

Power Parameters of IEEE 802.11n MCS8 40MHz

| Test Software Version | ART2-GUI 2.13 | | | | |
|-----------------------|---------------|----------|----------|----------|----------|
| Frequency | 5270 MHz | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz |
| 802.11n MCS8 40MHz | 19.5 | 13.5 | 14 | 19.5 | 21 |

Power Parameters of IEEE 802.11a

Refer to Appendix C for the actual test results in legacy mode based on KDB662911

<For External Antenna / Ant. 8>

Power Parameters of IEEE 802.11n MCS8 20MHz

| Test Software Version | ART2-GUI 2.13 | | | | | |
|-----------------------|---------------|----------|----------|----------|----------|----------|
| Frequency | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz |
| 802.11n MCS8 20MHz | 19 | 15 | 13 | 14.5 | 18 | 15.5 |

Power Parameters of IEEE 802.11n MCS8 40MHz

| Test Software Version | ART2-GUI 2.13 | | | | |
|-----------------------|---------------|----------|----------|----------|----------|
| Frequency | 5270 MHz | 5310 MHz | 5510 MHz | 5550 MHz | 5670 MHz |
| 802.11n MCS8 40MHz | 16 | 10 | 11 | 17 | 16 |

Power Parameters of IEEE 802.11a

Refer to Appendix C for the actual test results in legacy mode based on KDB662911

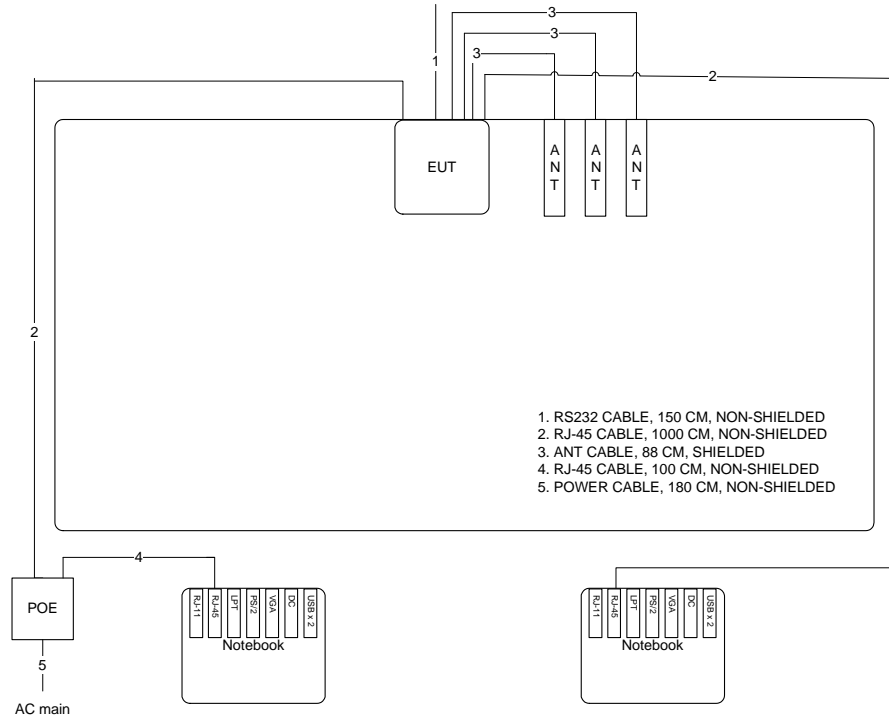
During the test, "ART2-GUI 2.13" under WIN XP was executed to control the EUT continuously transmit RF signal.

3.10. Test Configurations

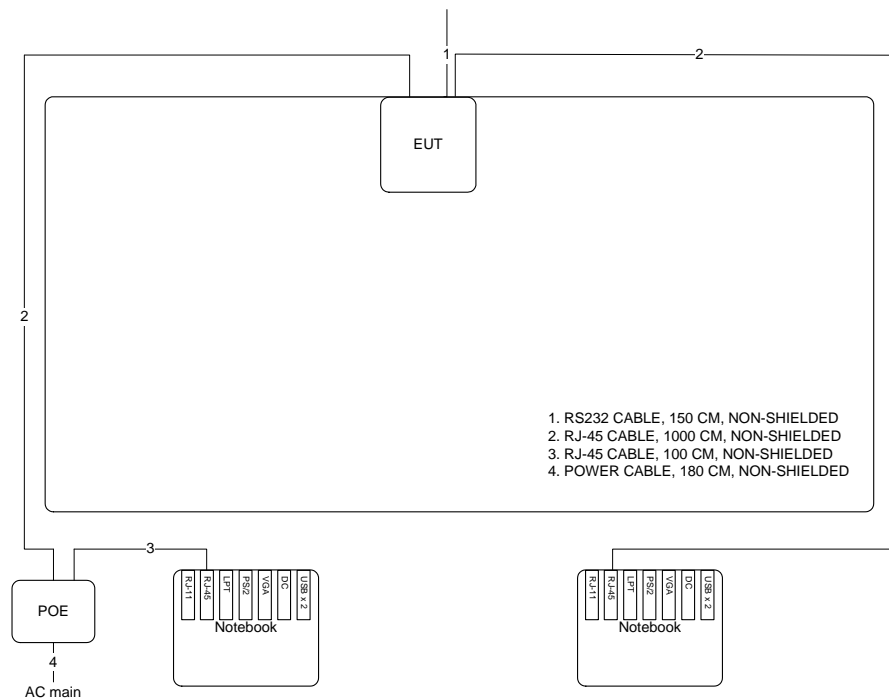
3.10.1. Radiation Emissions Test Configuration

Test Configuration: 9KHz~1GHz

Test Mode: Mode 2

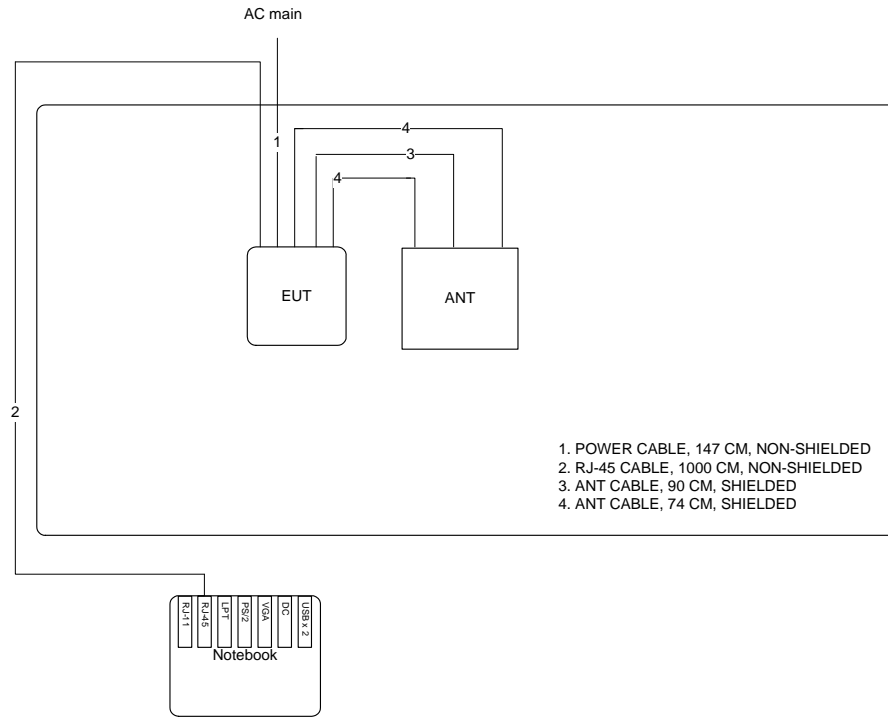


Test Mode: Mode 4

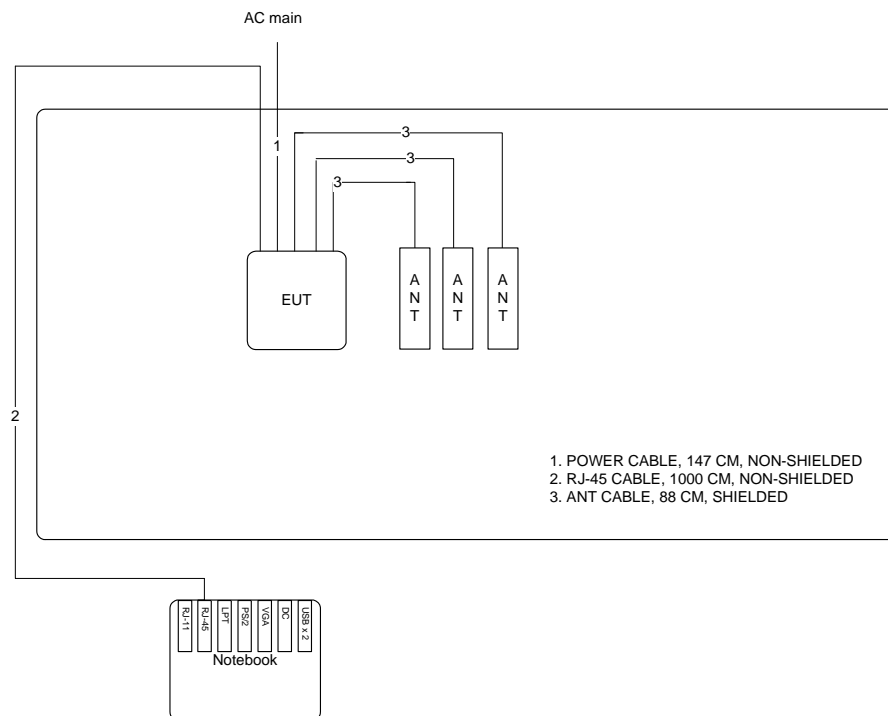


Test Configuration: above 1GHz

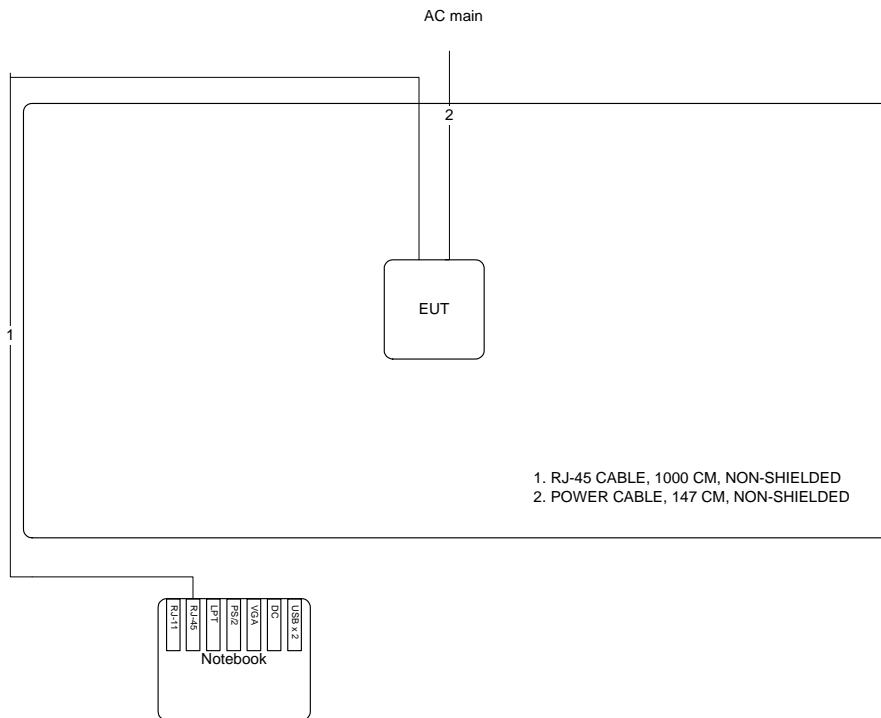
<For External Antenna / Ant. 5>



<For External Antenna / Ant. 6>

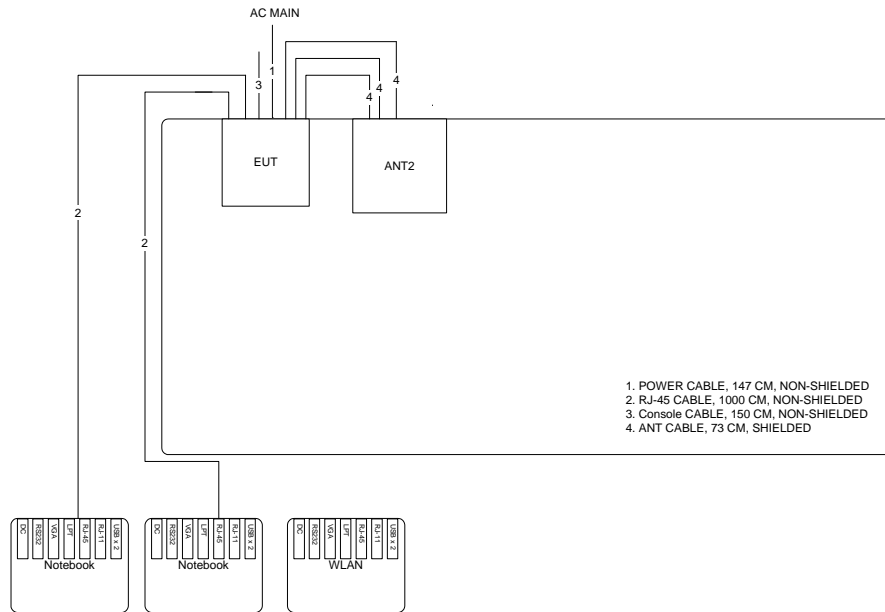


<For Internal Antenna / Ant. 8>

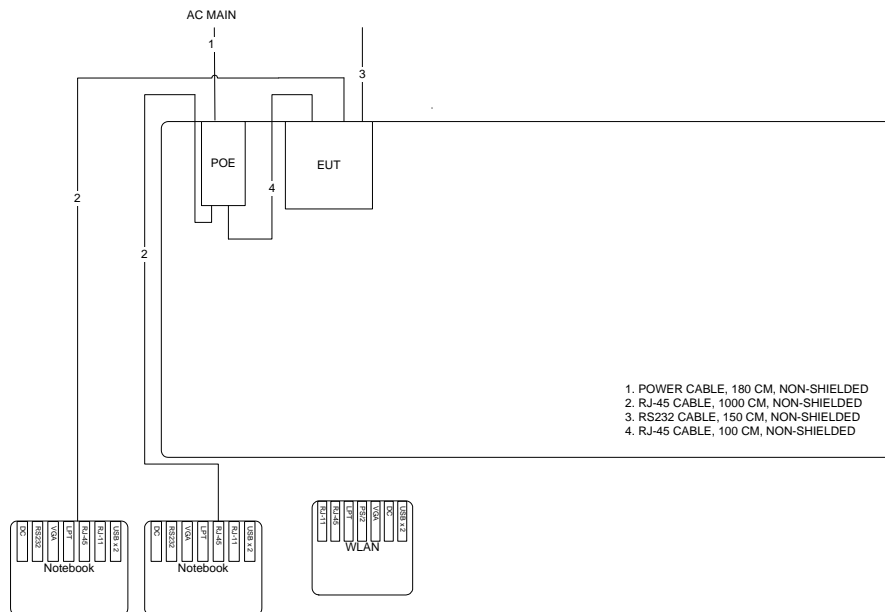


3.10.2. AC Power Line Conduction Emissions Test Configuration

Test Mode: Mode 1



Test Mode: Mode 4



4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product that is designed to connect to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

| Frequency (MHz) | QP Limit (dBuV) | AV Limit (dBuV) |
|-----------------|-----------------|-----------------|
| 0.15~0.5 | 66~56 | 56~46 |
| 0.5~5 | 56 | 46 |
| 5~30 | 60 | 50 |

4.1.2. Measuring Instruments and Setting

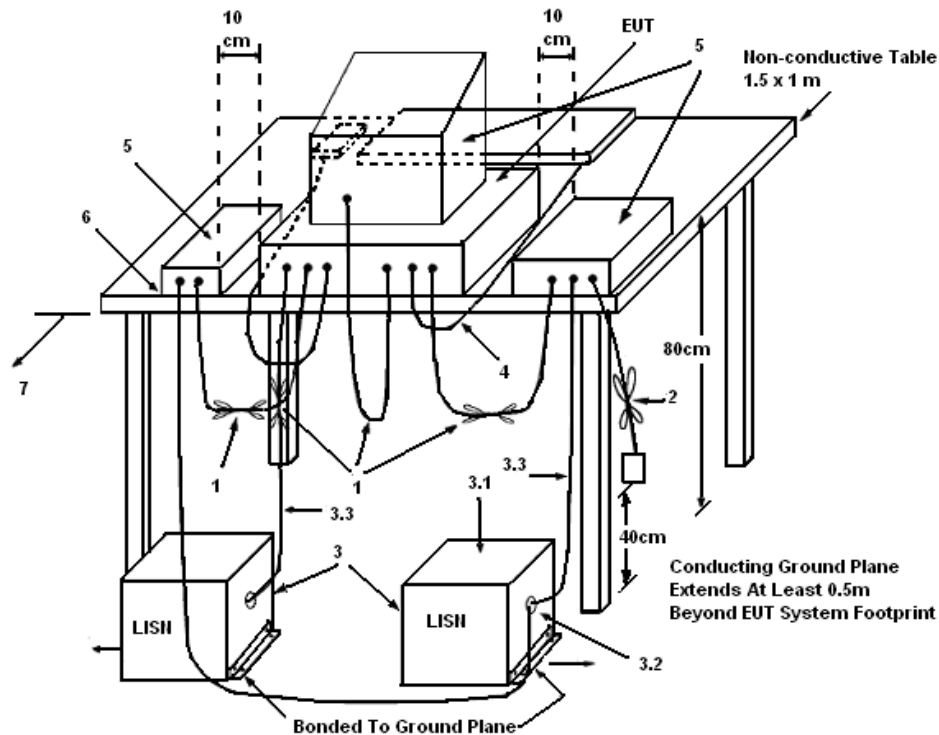
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 KHz |

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
 - (3.1) All other equipment powered from additional LISN(s).
 - (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
 - (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

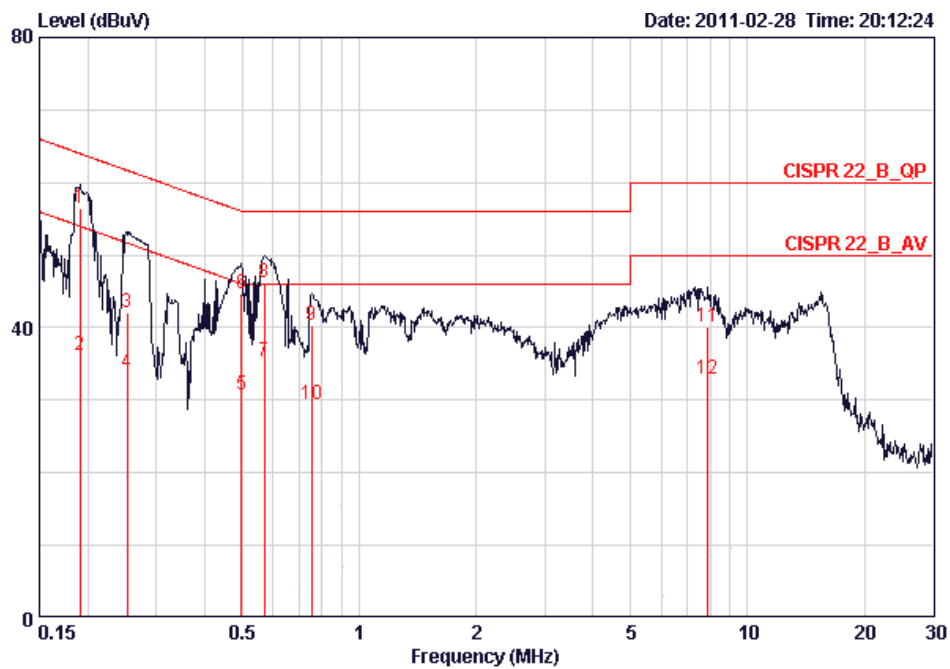
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

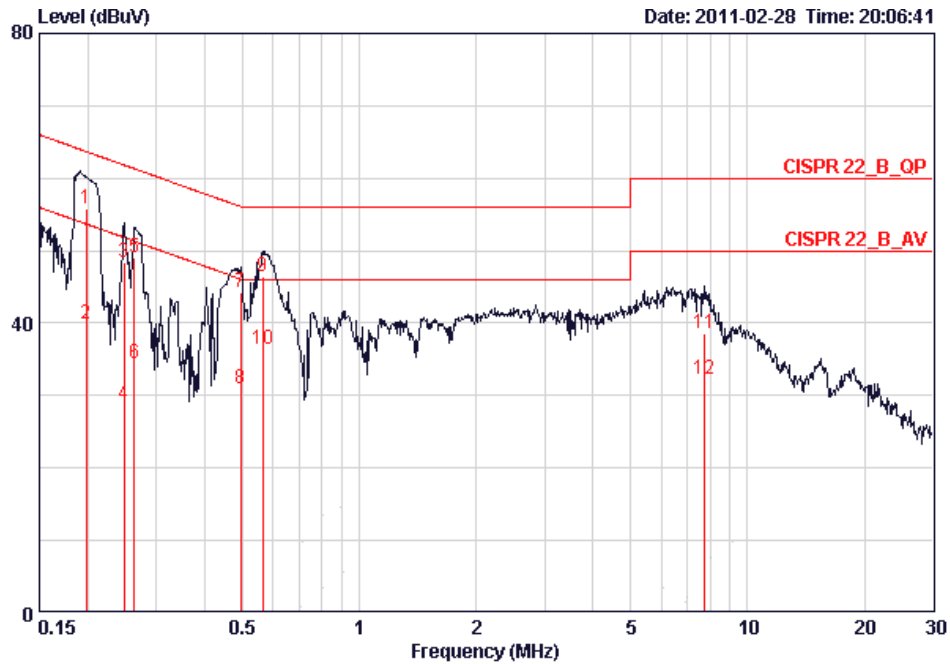
4.1.7. Results of AC Power Line Conducted Emissions Measurement

| | | | |
|---------------|----------------------|----------|------|
| Temperature | 21°C | Humidity | 58% |
| Test Engineer | Ryo Fan | Phase | Line |
| Configuration | Normal Link / Mode 1 | | |



| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|----|---------|-------|------------|------------|------------|-------------|------------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | 0.19039 | 56.49 | -7.53 | 64.02 | 56.24 | 0.05 | 0.20 | QP |
| 2 | 0.19039 | 36.18 | -17.84 | 54.02 | 35.93 | 0.05 | 0.20 | AVERAGE |
| 3 | 0.25211 | 42.01 | -19.67 | 61.69 | 41.77 | 0.04 | 0.20 | QP |
| 4 | 0.25211 | 33.81 | -17.87 | 51.69 | 33.57 | 0.04 | 0.20 | AVERAGE |
| 5 | 0.49673 | 30.81 | -15.25 | 46.05 | 30.60 | 0.03 | 0.18 | AVERAGE |
| 6 | 0.49673 | 44.67 | -11.39 | 56.05 | 44.46 | 0.03 | 0.18 | QP |
| 7 | 0.57010 | 35.33 | -10.67 | 46.00 | 35.10 | 0.03 | 0.20 | AVERAGE |
| 8 | 0.57010 | 46.24 | -9.76 | 56.00 | 46.01 | 0.03 | 0.20 | QP |
| 9 | 0.75493 | 40.35 | -15.65 | 56.00 | 40.12 | 0.03 | 0.20 | QP |
| 10 | 0.75493 | 29.40 | -16.60 | 46.00 | 29.17 | 0.03 | 0.20 | AVERAGE |
| 11 | 7.893 | 40.05 | -19.95 | 60.00 | 39.37 | 0.28 | 0.40 | QP |
| 12 | 7.893 | 32.93 | -17.07 | 50.00 | 32.25 | 0.28 | 0.40 | AVERAGE |

| | | | |
|---------------|----------------------|----------|---------|
| Temperature | 21°C | Humidity | 58% |
| Test Engineer | Ryo Fan | Phase | Neutral |
| Configuration | Normal Link / Mode 1 | | |

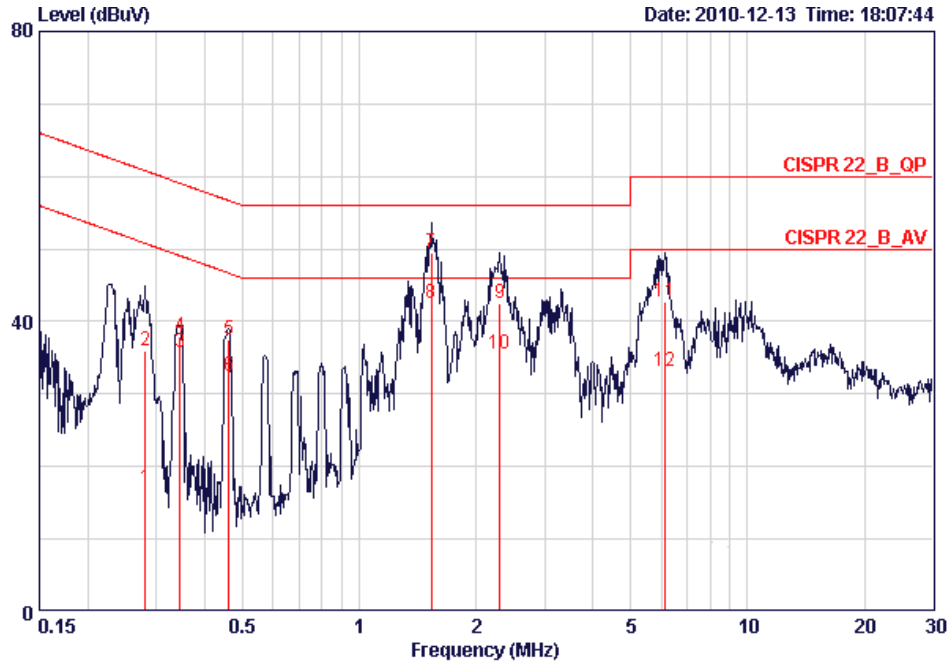


| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|----|---------|-------|------------|------------|------------|-------------|------------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | 0.19789 | 55.81 | -7.89 | 63.70 | 55.53 | 0.08 | 0.20 | QP |
| 2 | 0.19789 | 39.98 | -13.72 | 53.70 | 39.70 | 0.08 | 0.20 | AVERAGE |
| 3 | 0.24814 | 48.36 | -13.46 | 61.82 | 48.08 | 0.08 | 0.20 | QP |
| 4 | 0.24814 | 28.80 | -23.02 | 51.82 | 28.52 | 0.08 | 0.20 | AVERAGE |
| 5 | 0.26303 | 49.08 | -12.26 | 61.34 | 48.80 | 0.08 | 0.20 | QP |
| 6 | 0.26303 | 34.40 | -16.94 | 51.34 | 34.12 | 0.08 | 0.20 | AVERAGE |
| 7 | 0.49411 | 44.33 | -11.77 | 56.10 | 44.08 | 0.07 | 0.18 | QP |
| 8 | 0.49411 | 31.00 | -15.10 | 46.10 | 30.75 | 0.07 | 0.18 | AVERAGE |
| 9 | 0.56409 | 46.52 | -9.48 | 56.00 | 46.25 | 0.07 | 0.20 | QP |
| 10 | 0.56409 | 36.48 | -9.52 | 46.00 | 36.21 | 0.07 | 0.20 | AVERAGE |
| 11 | 7.769 | 38.51 | -21.49 | 60.00 | 37.79 | 0.32 | 0.40 | QP |
| 12 | 7.769 | 32.22 | -17.78 | 50.00 | 31.50 | 0.32 | 0.40 | AVERAGE |

Note:

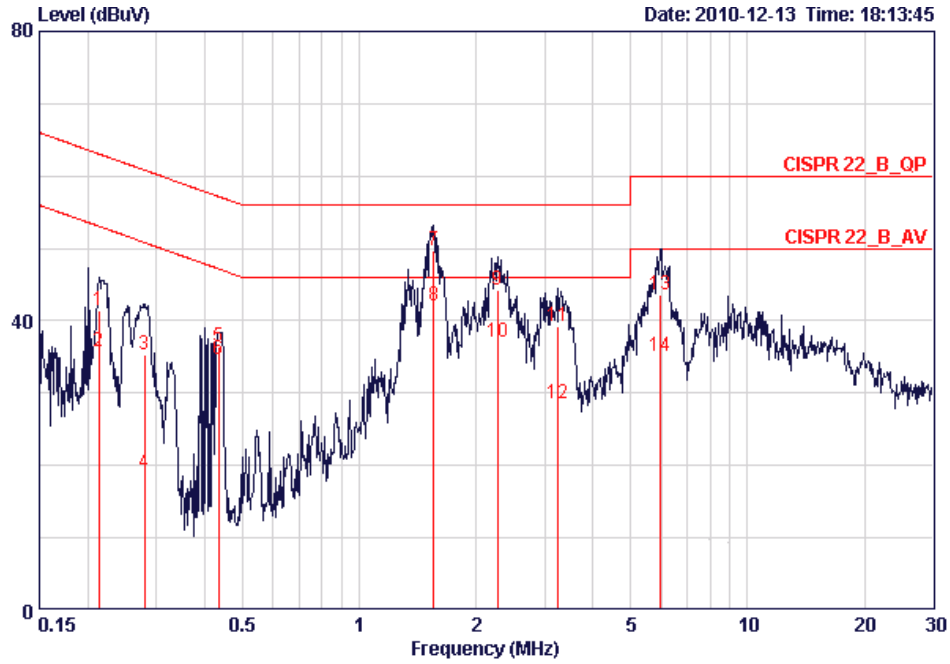
$$\text{Level} = \text{Read Level} + \text{LISN Factor} + \text{Cable Loss.}$$

| | | | |
|---------------|----------------------|----------|------|
| Temperature | 21°C | Humidity | 58% |
| Test Engineer | Ryo Fan | Phase | Line |
| Configuration | Normal Link / Mode 4 | | |



| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|----|---------|-------|------------|------------|------------|-------------|------------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | 0.28178 | 17.03 | -33.73 | 50.76 | 16.79 | 0.04 | 0.20 | AVERAGE |
| 2 | 0.28178 | 35.99 | -24.77 | 60.76 | 35.75 | 0.04 | 0.20 | QP |
| 3 | 0.34463 | 35.74 | -13.35 | 49.09 | 35.51 | 0.03 | 0.20 | AVERAGE |
| 4 | 0.34463 | 37.87 | -21.22 | 59.09 | 37.64 | 0.03 | 0.20 | QP |
| 5 | 0.46122 | 37.59 | -19.08 | 56.67 | 37.36 | 0.03 | 0.20 | QP |
| 6 | 0.46122 | 32.48 | -14.19 | 46.67 | 32.25 | 0.03 | 0.20 | AVERAGE |
| 7 | 1.535 | 49.55 | -6.45 | 56.00 | 49.40 | 0.04 | 0.11 | QP |
| 8 | 1.535 | 42.51 | -3.49 | 46.00 | 42.36 | 0.04 | 0.11 | AVERAGE |
| 9 | 2.297 | 42.47 | -13.53 | 56.00 | 42.21 | 0.06 | 0.20 | QP |
| 10 | 2.297 | 35.50 | -10.50 | 46.00 | 35.24 | 0.06 | 0.20 | AVERAGE |
| 11 | 6.153 | 42.76 | -17.24 | 60.00 | 42.21 | 0.22 | 0.34 | QP |
| 12 | 6.153 | 33.23 | -16.77 | 50.00 | 32.68 | 0.22 | 0.34 | AVERAGE |

| | | | |
|---------------|----------------------|----------|---------|
| Temperature | 21°C | Humidity | 58% |
| Test Engineer | Ryo Fan | Phase | Neutral |
| Configuration | Normal Link / Mode 4 | | |



| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|----|---------|-------|------------|------------|------------|-------------|------------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | 0.21392 | 41.52 | -21.53 | 63.05 | 41.24 | 0.08 | 0.20 | QP |
| 2 | 0.21392 | 35.72 | -17.33 | 53.05 | 35.44 | 0.08 | 0.20 | AVERAGE |
| 3 | 0.28029 | 35.35 | -25.46 | 60.81 | 35.07 | 0.08 | 0.20 | QP |
| 4 | 0.28029 | 19.03 | -31.78 | 50.81 | 18.75 | 0.08 | 0.20 | AVERAGE |
| 5 | 0.43511 | 36.47 | -20.68 | 57.15 | 36.20 | 0.07 | 0.20 | QP |
| 6 | 0.43511 | 34.62 | -12.53 | 47.15 | 34.35 | 0.07 | 0.20 | AVERAGE |
| 7 | 1.552 | 49.76 | -6.24 | 56.00 | 49.57 | 0.08 | 0.11 | QP |
| 8 | 1.552 | 42.04 | -3.96 | 46.00 | 41.85 | 0.08 | 0.11 | AVERAGE |
| 9 | 2.273 | 44.24 | -11.76 | 56.00 | 43.94 | 0.10 | 0.20 | QP |
| 10 | 2.273 | 37.14 | -8.86 | 46.00 | 36.84 | 0.10 | 0.20 | AVERAGE |
| 11 | 3.241 | 39.34 | -16.66 | 56.00 | 38.96 | 0.12 | 0.25 | QP |
| 12 | 3.241 | 28.54 | -17.46 | 46.00 | 28.16 | 0.12 | 0.25 | AVERAGE |
| 13 | 5.961 | 43.65 | -16.35 | 60.00 | 43.10 | 0.25 | 0.30 | QP |
| 14 | 5.961 | 35.01 | -14.99 | 50.00 | 34.46 | 0.25 | 0.30 | AVERAGE |

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits. But resolution bandwidth within band edge measurement is 1% of the 99% occupied bandwidth.

4.2.2. Measuring Instruments and Setting

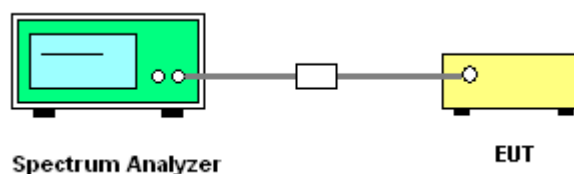
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameters | Setting |
|---------------------|------------------|
| Attenuation | Auto |
| Span Frequency | > 26dB Bandwidth |
| RB | 300 kHz |
| VB | 1000 kHz |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

4.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 300 kHz and the video bandwidth of 1000 kHz were used.
3. Measured the spectrum width with power higher than 26dB below carrier.
4. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of 99% Occupied Bandwidth

<For External Antenna / Ant. 5>

| | | | |
|---------------|-----------|----------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 5 |

Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 52 | 5260 MHz | 36.16 | 20.00 |
| 60 | 5300 MHz | 40.96 | 23.20 |
| 64 | 5320 MHz | 27.52 | 18.72 |
| 100 | 5500 MHz | 40.80 | 21.28 |
| 116 | 5580 MHz | 40.64 | 23.68 |
| 140 | 5700 MHz | 40.96 | 23.04 |

Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 54 | 5270 MHz | 75.84 | 38.40 |
| 62 | 5310 MHz | 45.12 | 36.48 |
| 102 | 5510MHz | 55.36 | 37.12 |
| 110 | 5550 MHz | 76.16 | 50.56 |
| 134 | 5670 MHz | 82.24 | 56.64 |

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 5 |

Configuration IEEE 802.11a Connector J2 + J3 + J4

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 52 | 5260 MHz | 41.76 | 28.80 |
| 60 | 5300 MHz | 35.68 | 18.40 |
| 64 | 5320 MHz | 35.36 | 18.24 |
| 100 | 5500 MHz | 33.76 | 23.52 |
| 116 | 5580 MHz | 42.40 | 26.08 |
| 140 | 5700 MHz | 37.12 | 20.32 |

<For External Antenna / Ant. 6>

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 6 |

Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 52 | 5260 MHz | 40.96 | 25.44 |
| 60 | 5300 MHz | 41.44 | 27.20 |
| 64 | 5320 MHz | 27.52 | 18.72 |
| 100 | 5500 MHz | 39.20 | 19.04 |
| 116 | 5580 MHz | 40.64 | 23.68 |
| 140 | 5700 MHz | 40.96 | 23.04 |

Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 54 | 5270 MHz | 84.16 | 57.60 |
| 62 | 5310 MHz | 46.72 | 36.80 |
| 102 | 5510MHz | 48.32 | 37.12 |
| 110 | 5550 MHz | 79.36 | 49.92 |
| 134 | 5670 MHz | 82.24 | 56.64 |

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 6 |

Configuration IEEE 802.11a Connector J2 + J3 + J4

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 52 | 5260 MHz | 41.76 | 28.80 |
| 60 | 5300 MHz | 37.12 | 20.32 |
| 64 | 5320 MHz | 32.64 | 19.04 |
| 100 | 5500 MHz | 32.80 | 21.76 |
| 116 | 5580 MHz | 42.40 | 26.08 |
| 140 | 5700 MHz | 37.12 | 21.44 |

<For Internal Antenna / Ant. 8>

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 8 |

Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 52 | 5260 MHz | 40.00 | 23.36 |
| 60 | 5300 MHz | 24.64 | 18.40 |
| 64 | 5320 MHz | 23.04 | 17.76 |
| 100 | 5500 MHz | 24.16 | 17.92 |
| 116 | 5580 MHz | 34.08 | 18.56 |
| 140 | 5700 MHz | 25.60 | 18.72 |

Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 54 | 5270 MHz | 75.52 | 37.44 |
| 62 | 5310 MHz | 46.40 | 36.80 |
| 102 | 5510MHz | 45.76 | 36.80 |
| 110 | 5550 MHz | 63.68 | 38.40 |
| 134 | 5670 MHz | 69.12 | 37.44 |

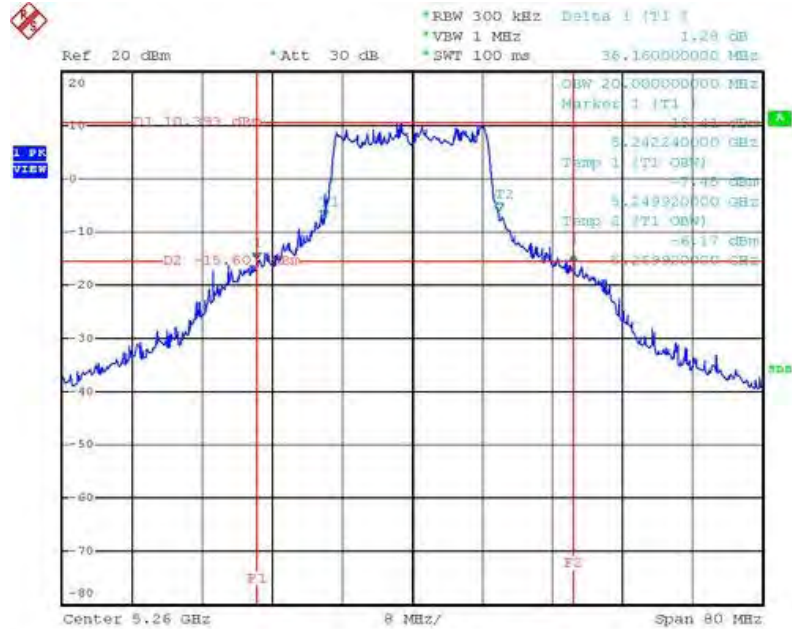
| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 8 |

Configuration IEEE 802.11a Connector J2 + J3 + J4

| Channel | Frequency | 26dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------|----------------------|------------------------------|
| 52 | 5260 MHz | 33.44 | 23.04 |
| 60 | 5300 MHz | 22.24 | 17.44 |
| 64 | 5320 MHz | 23.84 | 17.12 |
| 100 | 5500 MHz | 22.40 | 16.80 |
| 116 | 5580 MHz | 32.32 | 19.04 |
| 140 | 5700 MHz | 26.56 | 17.60 |

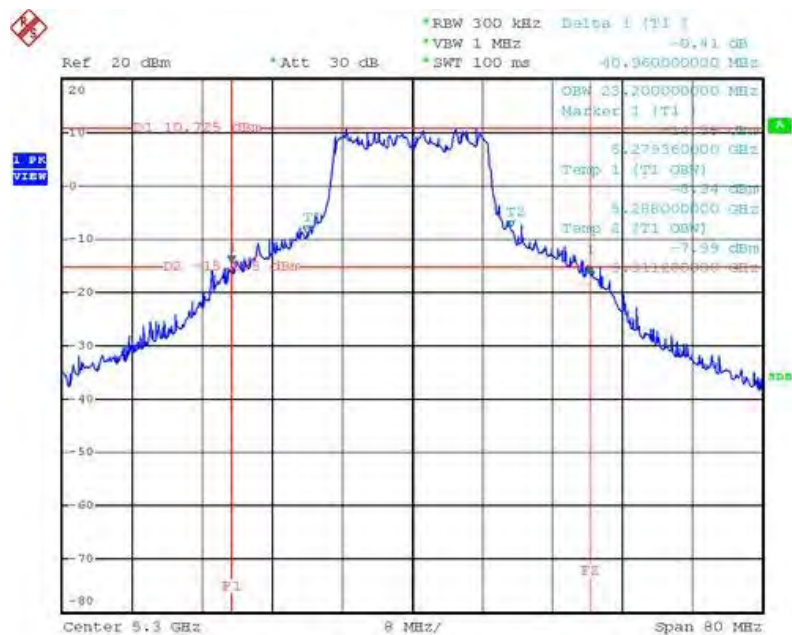
<For External Antenna / Ant. 5>

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 /
5260 MHz



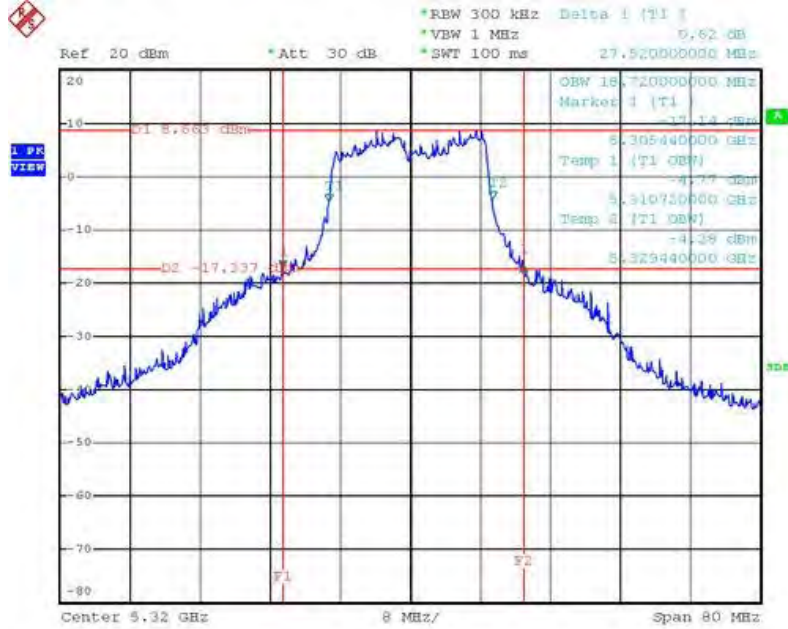
Date: 10.APR.2011 09:21:36

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 /
5300 MHz



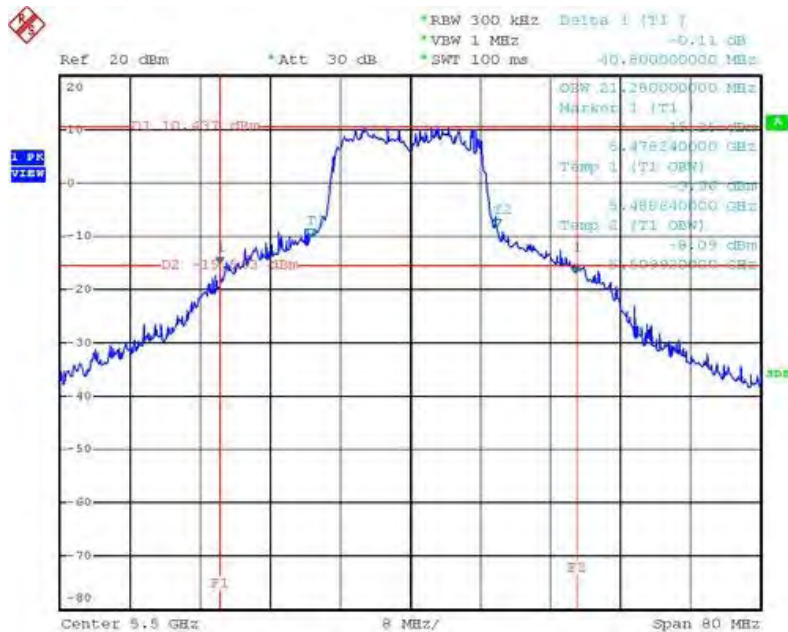
Date: 10.APR.2011 09:24:00

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5320 MHz



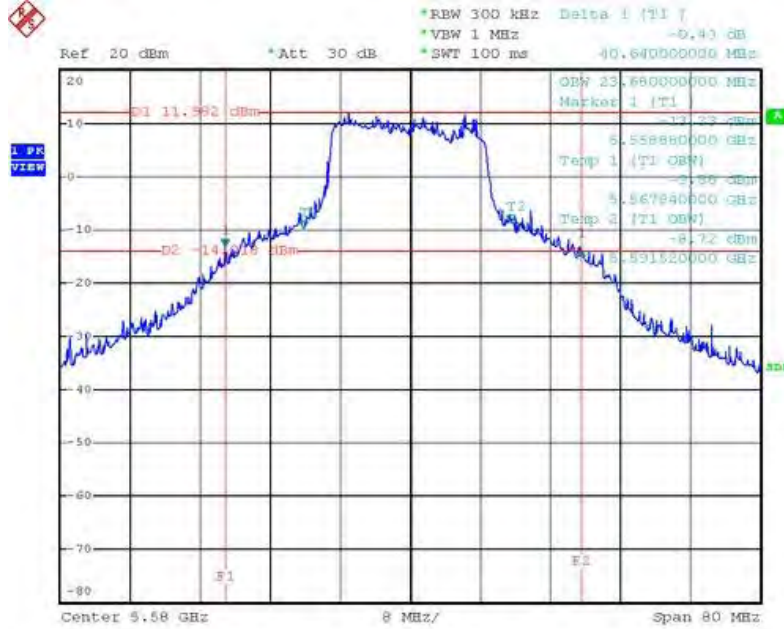
Date: 6.APR.2011 20:00:11

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5500 MHz



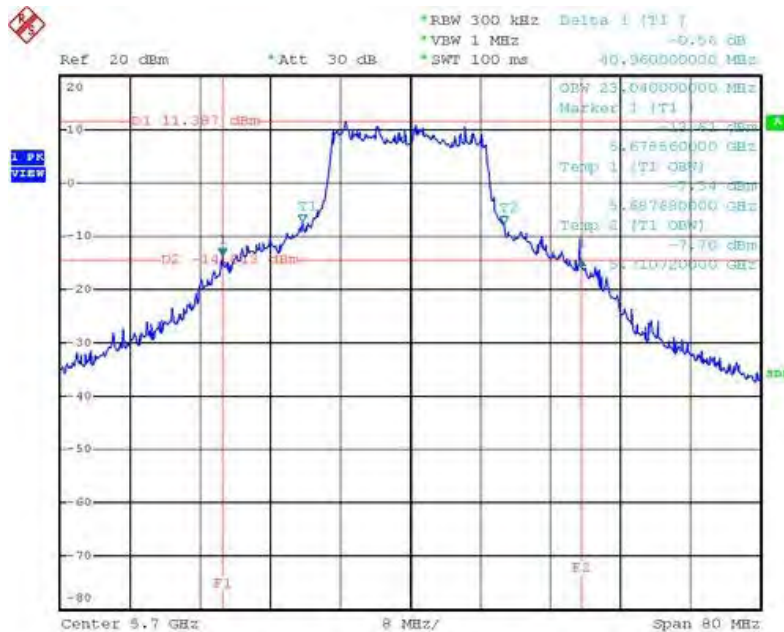
Date: 10.APR.2011 09:34:57

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5580 MHz



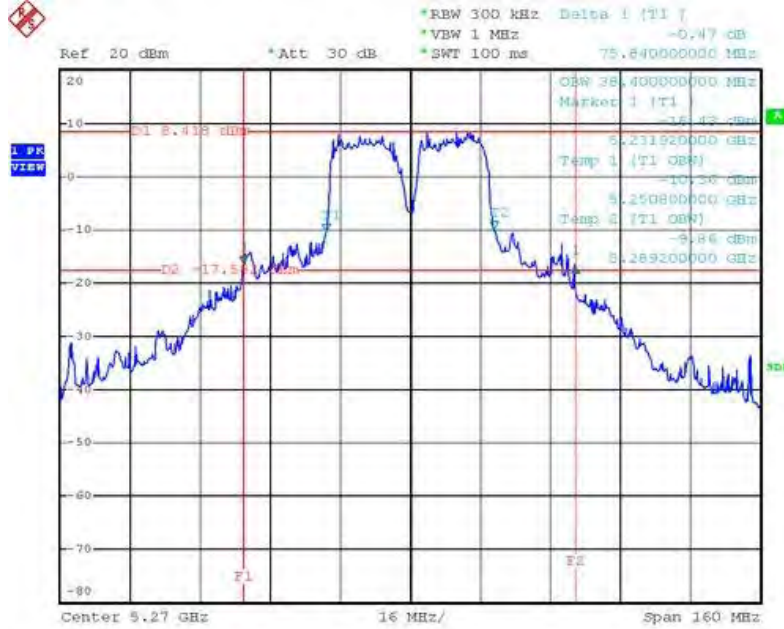
Date: 6.APR.2011 20:04:45

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5700 MHz



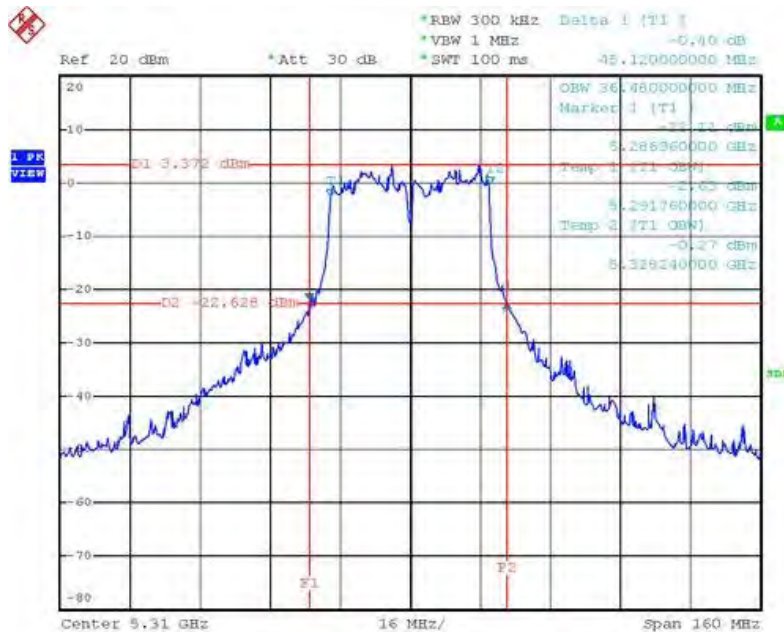
Date: 6.APR.2011 20:05:55

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5270 MHz



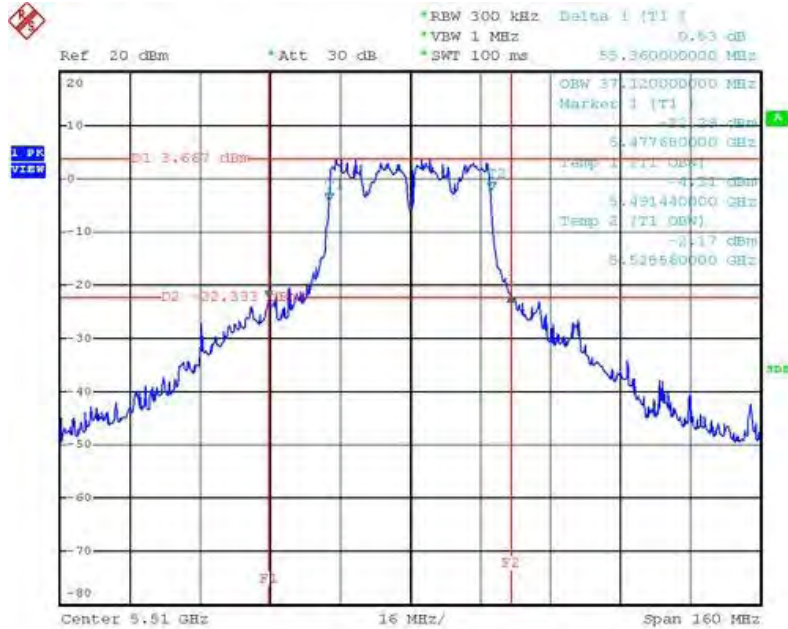
Date: 10.APR.2011 10:11:56

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5310 MHz



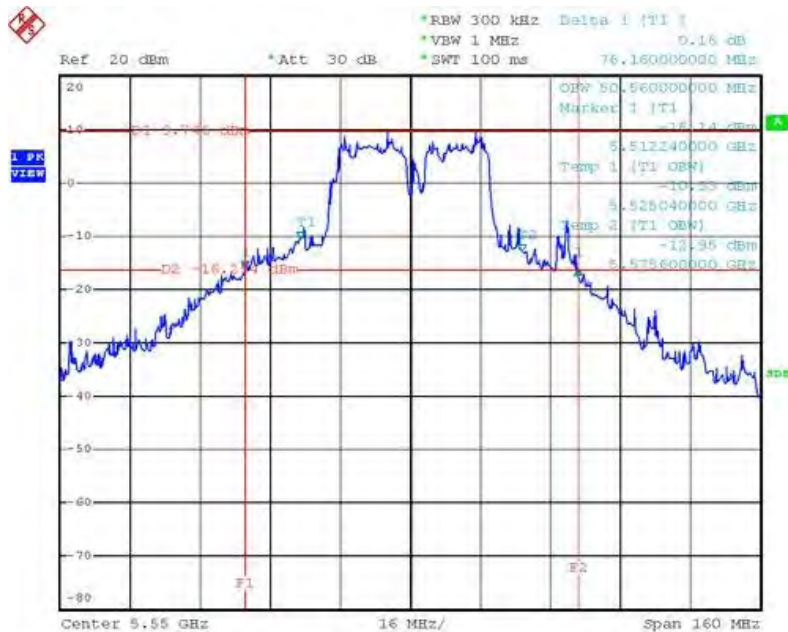
Date: 10.APR.2011 10:09:46

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5510MHz



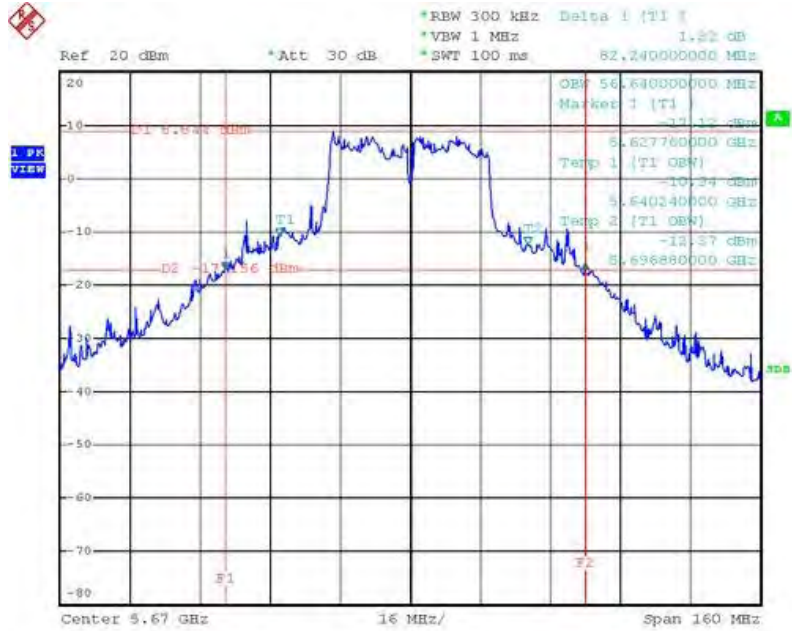
Date: 10.APR.2011 10:08:18

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5550 MHz



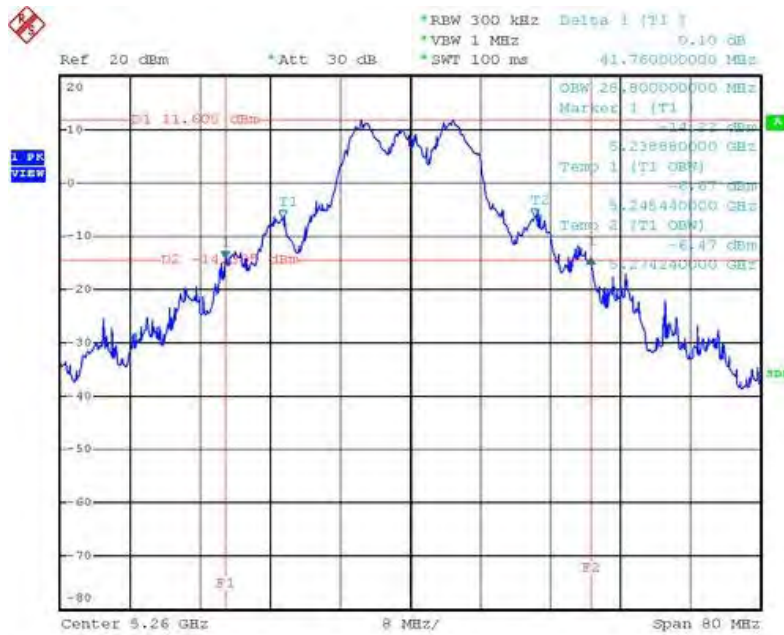
Date: 10.APR.2011 10:07:11

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 /
5670 MHz



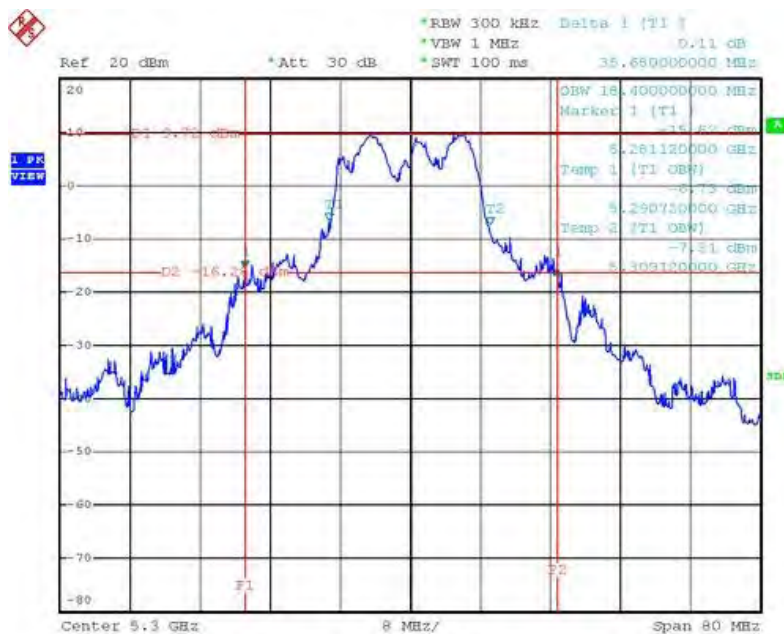
Date: 6.APR.2011 20:20:19

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5260 MHz



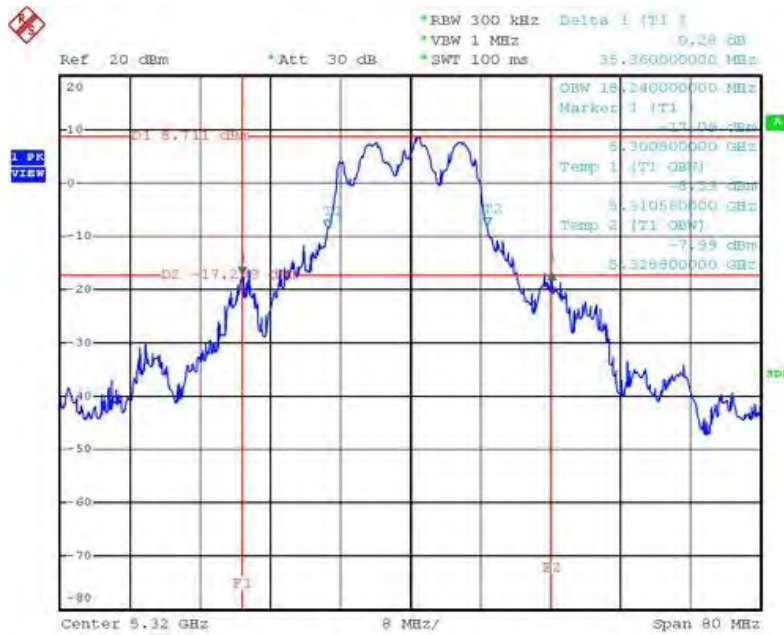
Date: 6.APR.2011 19:32:48

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5300 MHz



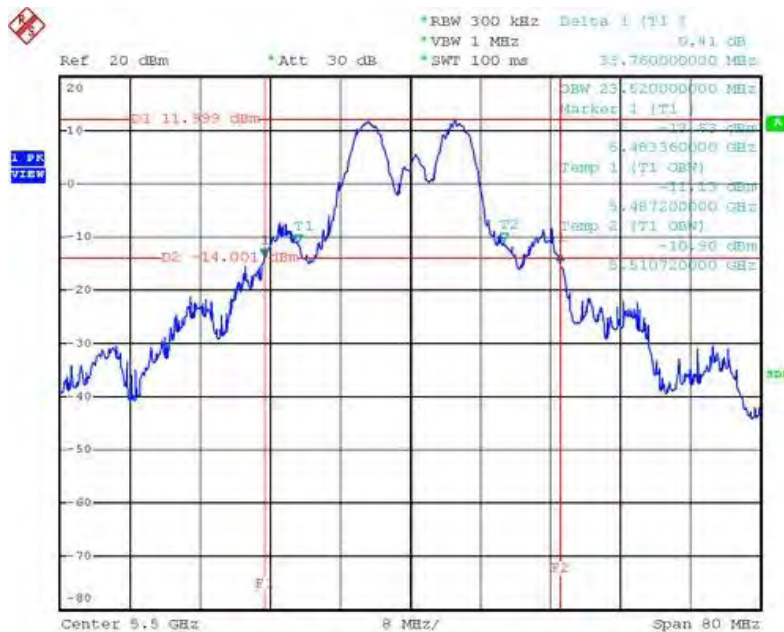
Date: 10.APR.2011 11:23:22

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5320 MHz



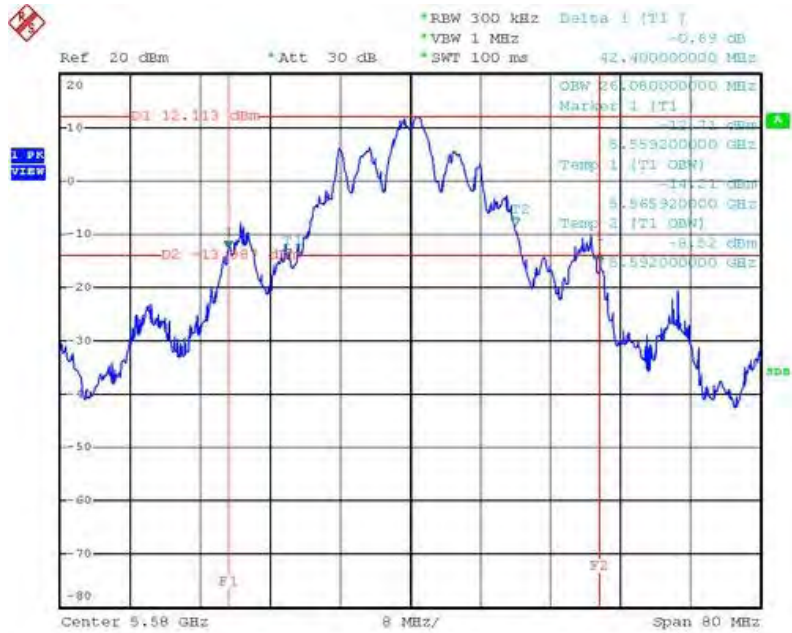
Date: 10.APR.2011 11:17:28

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5500 MHz



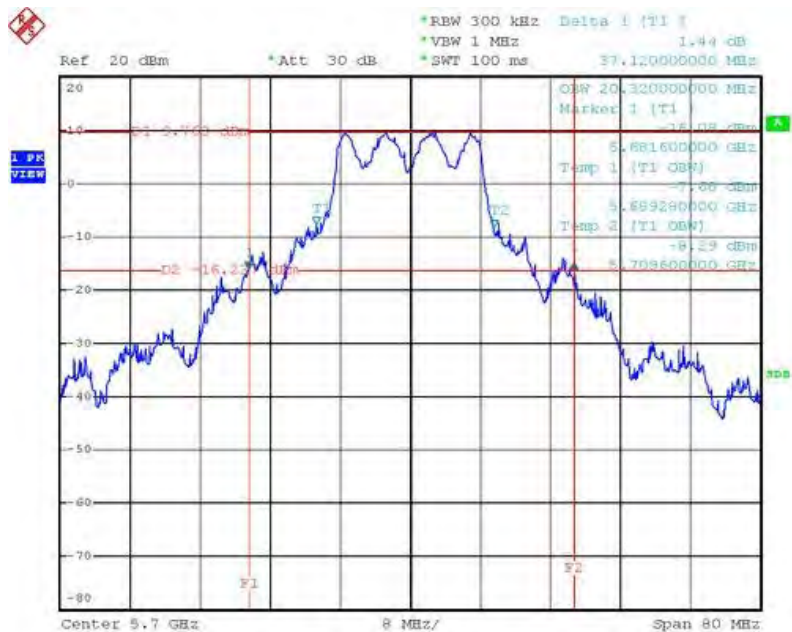
Date: 10.APR.2011 11:33:36

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5580 MHz



Date: 10.APR.2011 11:25:19

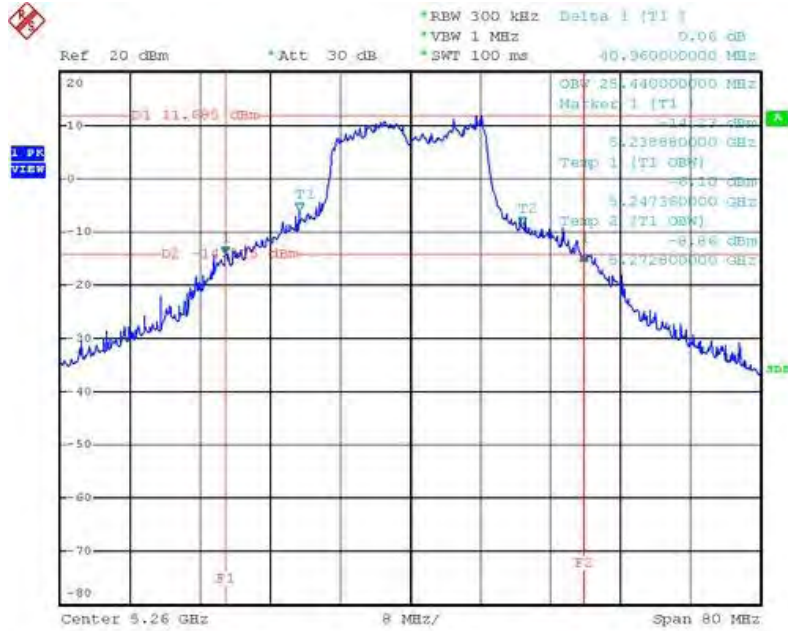
26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5700 MHz



Date: 10.APR.2011 11:34:56

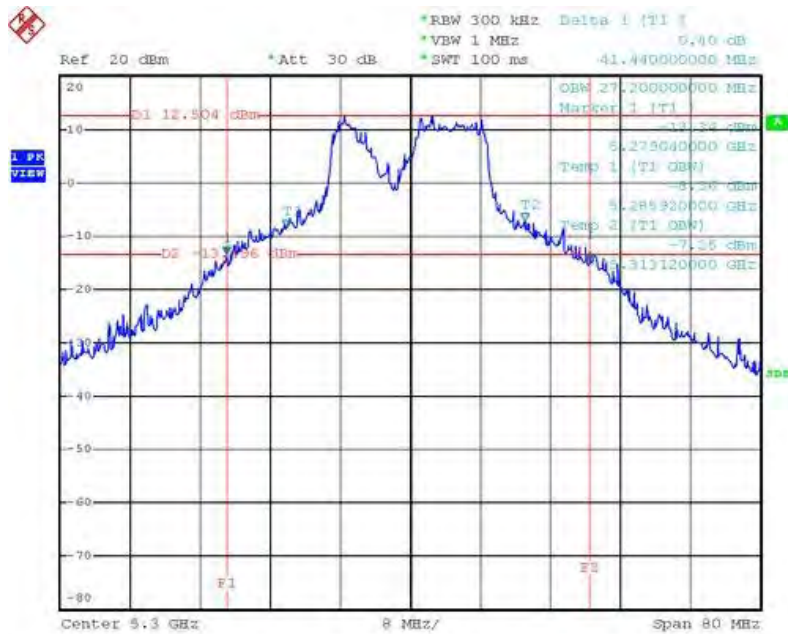
<For External Antenna / Ant. 6>

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5260 MHz



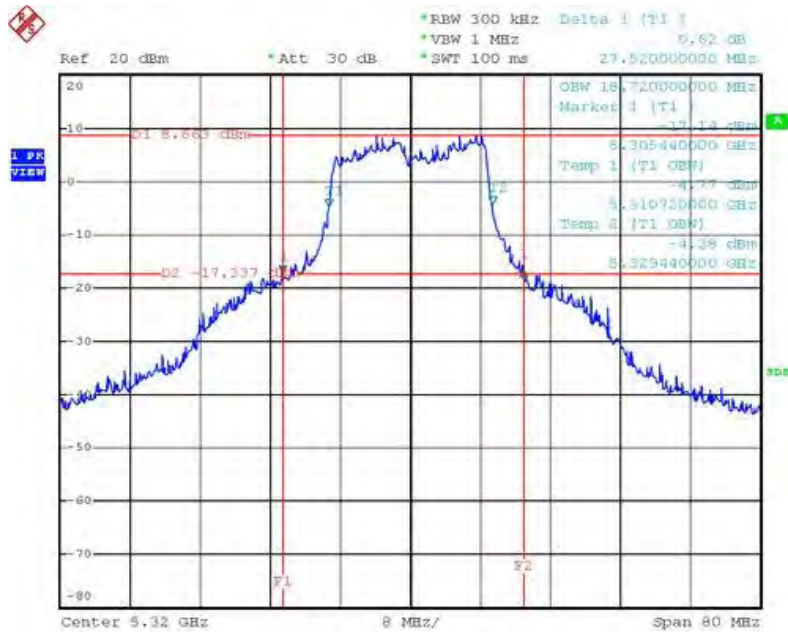
Date: 6.APR.2011 19:56:43

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5300 MHz



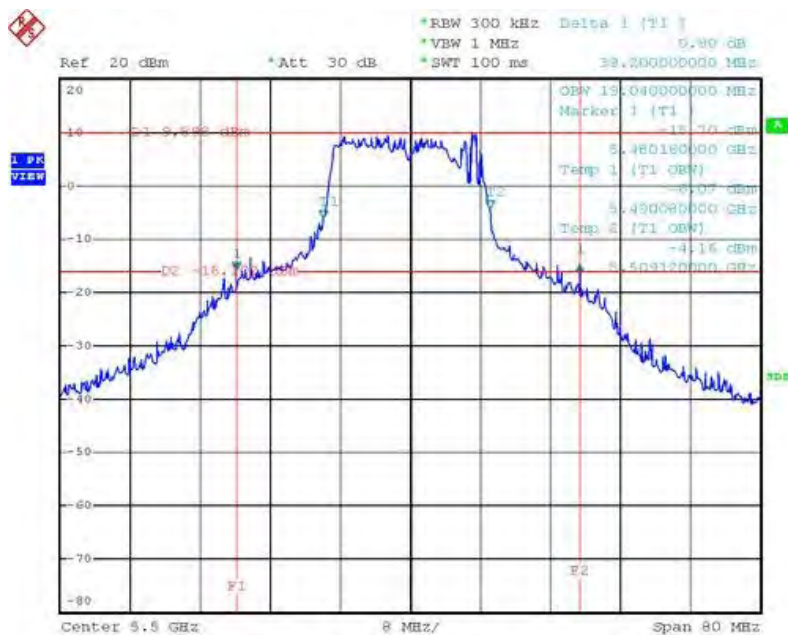
Date: 6.APR.2011 19:59:07

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5320 MHz



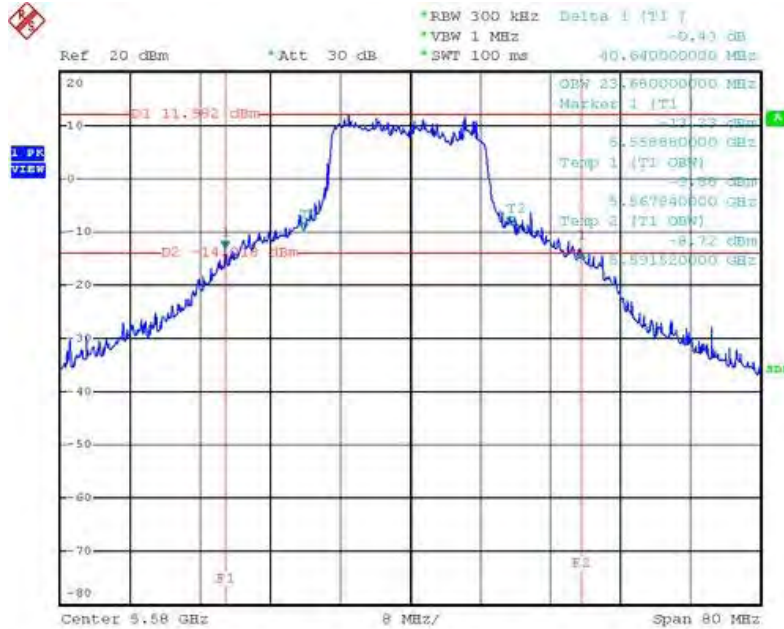
Date: 6.APR.2011 20:00:11

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5500 MHz



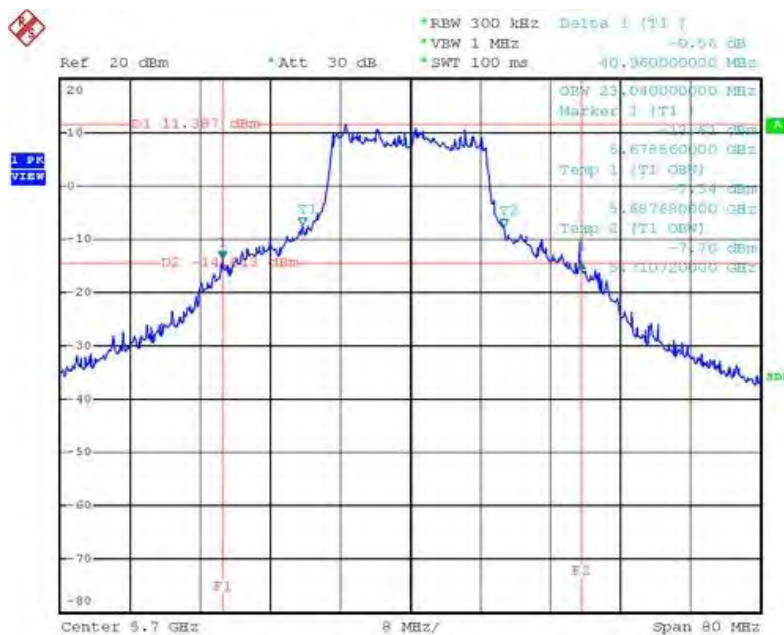
Date: 6.APR.2011 20:03:05

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5580 MHz



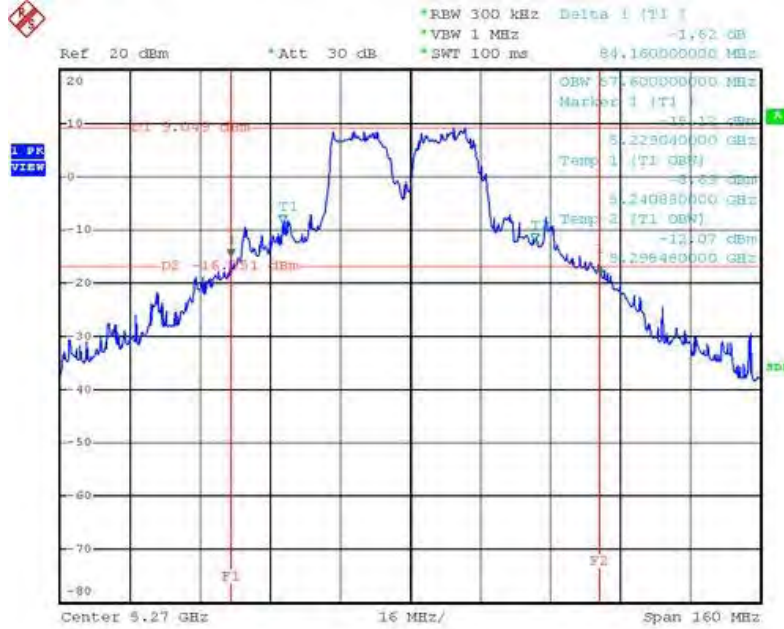
Date: 6.APR.2011 20:04:45

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5700 MHz



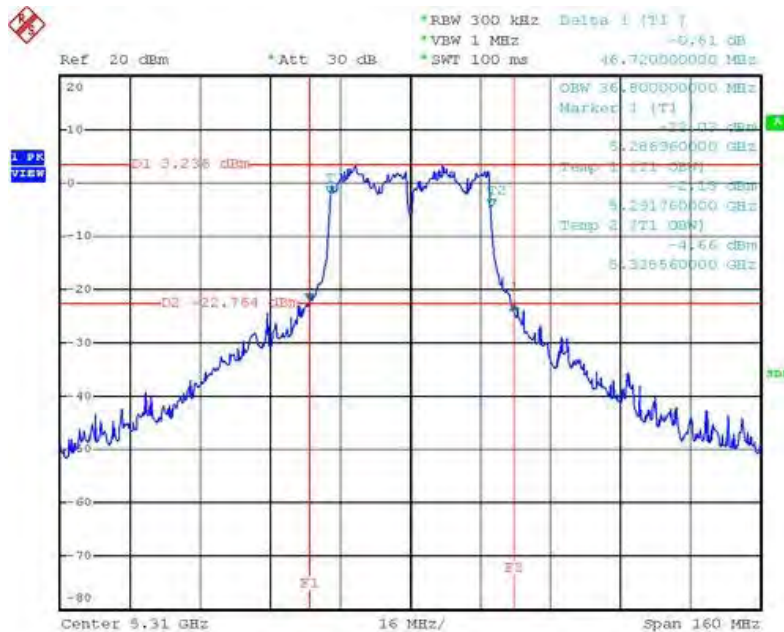
Date: 6.APR.2011 20:05:55

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5270 MHz



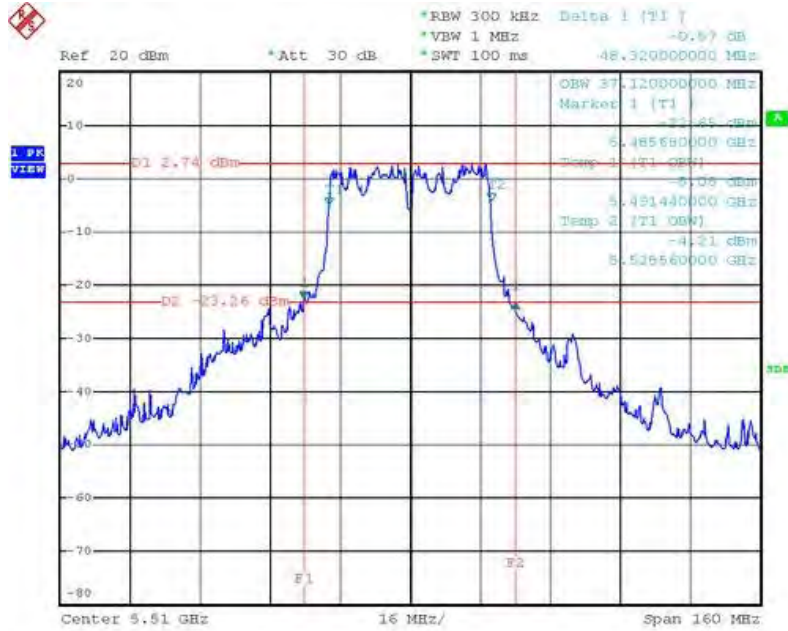
Date: 6.APR.2011 20:13:30

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5310 MHz



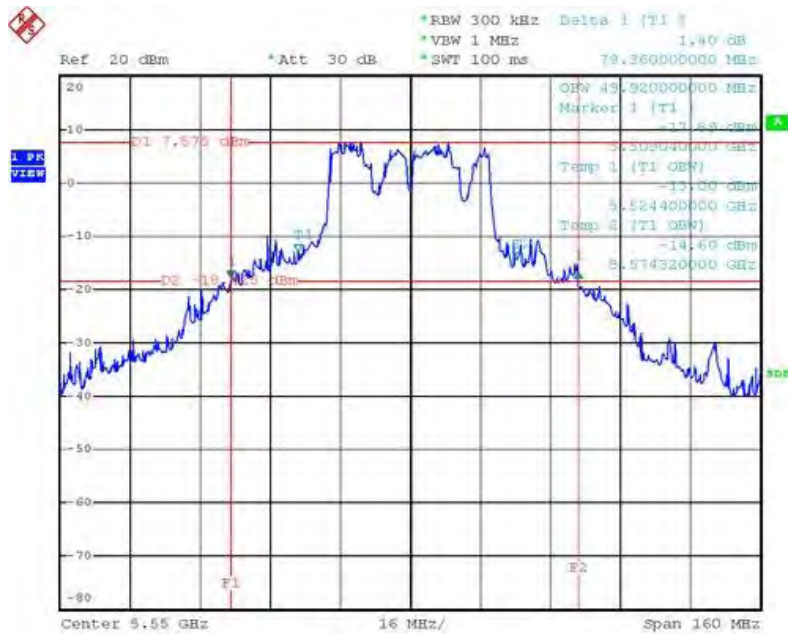
Date: 6.APR.2011 20:14:37

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5510MHz



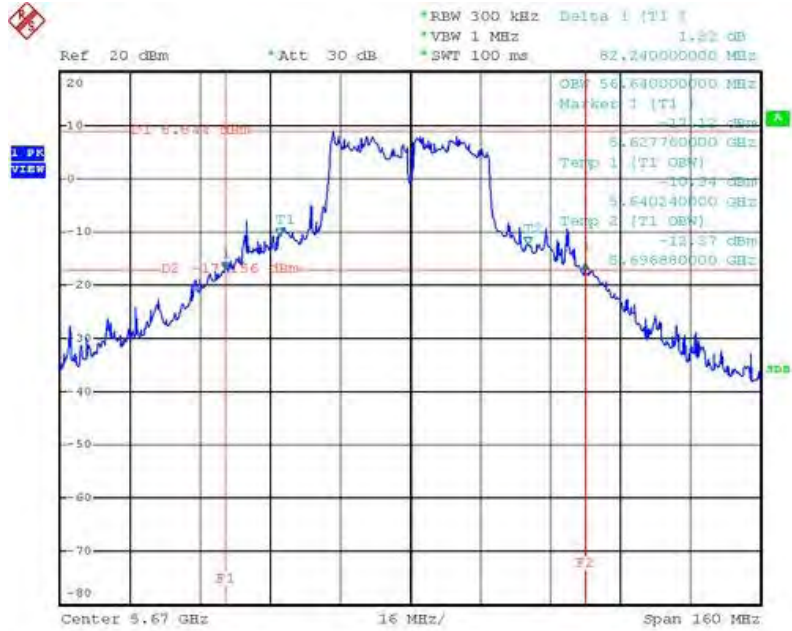
Date: 6.APR.2011 20:17:54

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5550 MHz



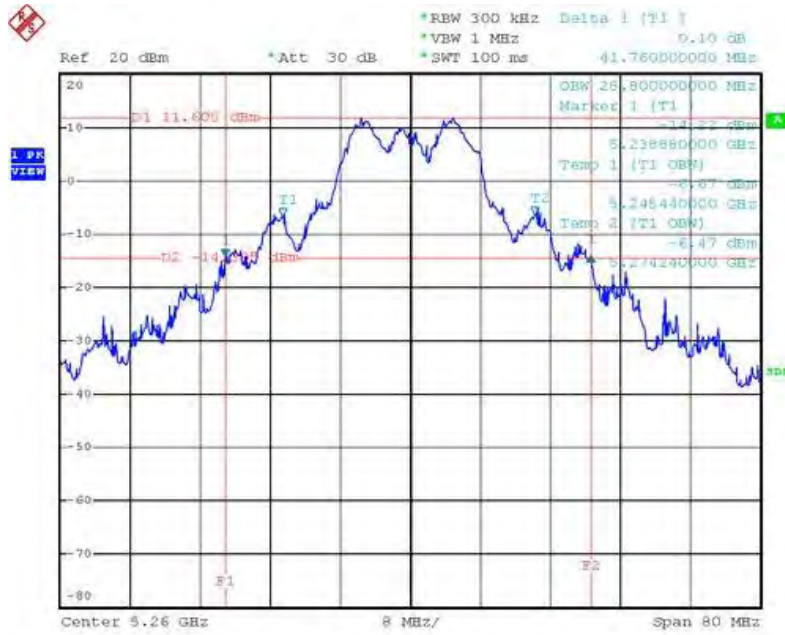
Date: 6.APR.2011 20:19:04

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 /
5670 MHz



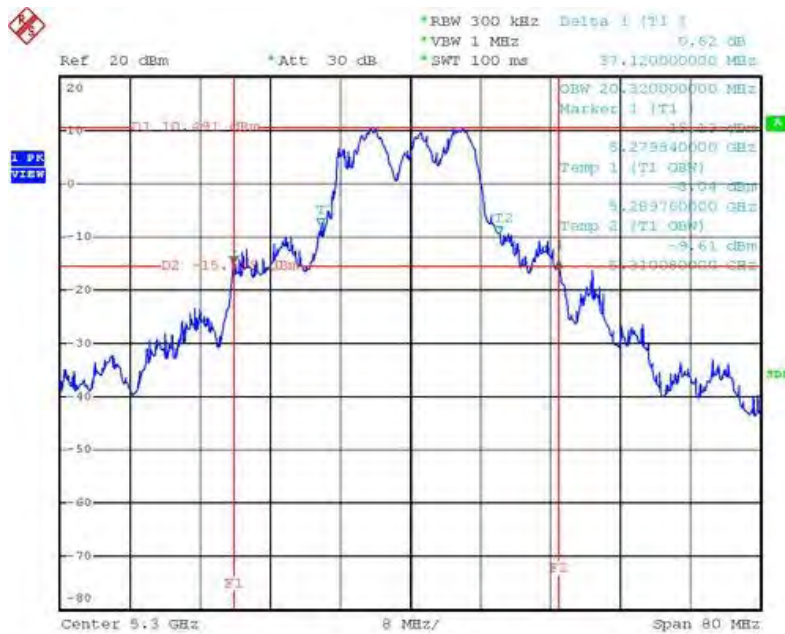
Date: 6.APR.2011 20:20:19

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5260 MHz



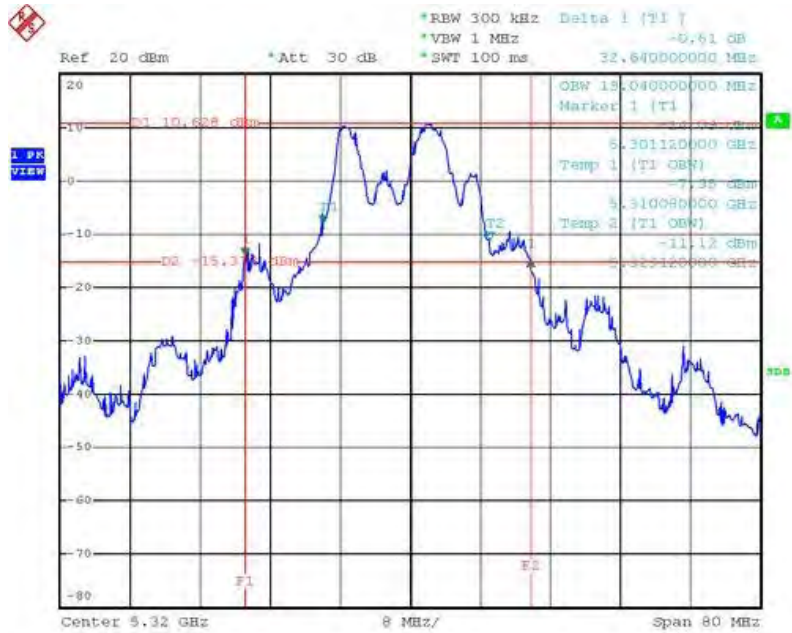
Date: 6.APR.2011 19:32:48

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5300 MHz



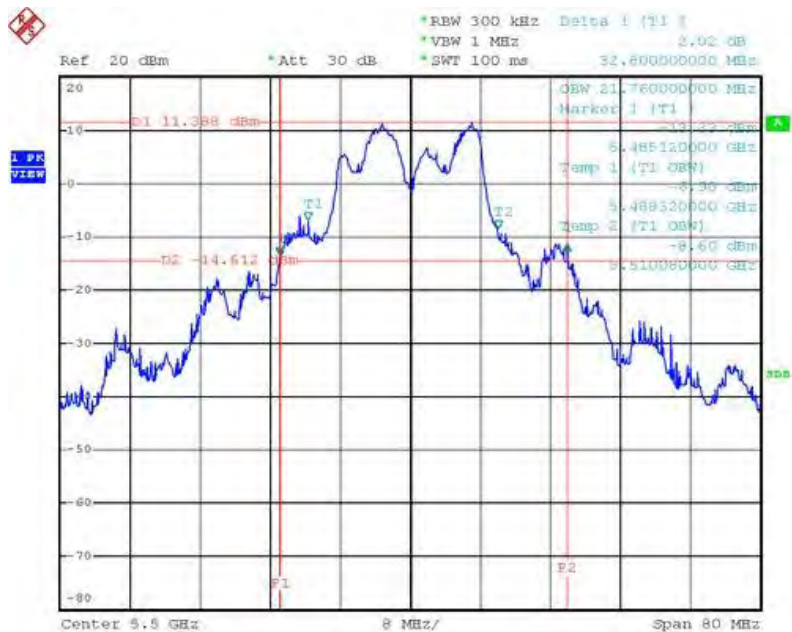
Date: 10.APR.2011 11:22:24

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5320 MHz



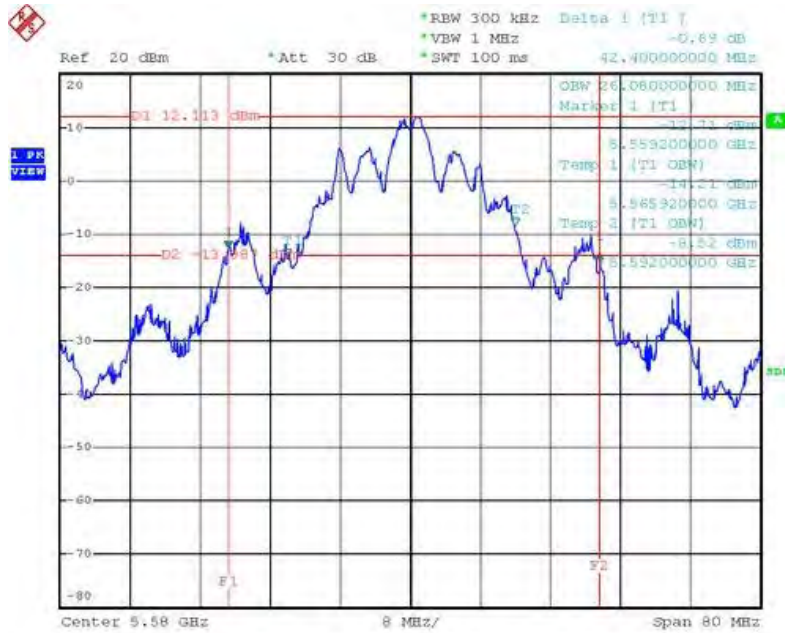
Date: 6.APR.2011 19:36:56

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5500 MHz



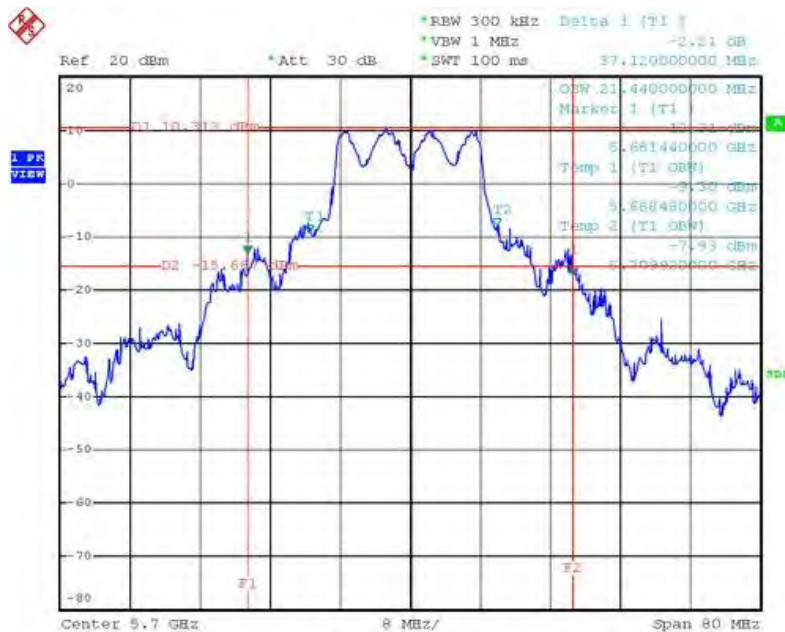
Date: 6.APR.2011 19:38:01

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5580 MHz



Date: 10.APR.2011 11:25:19

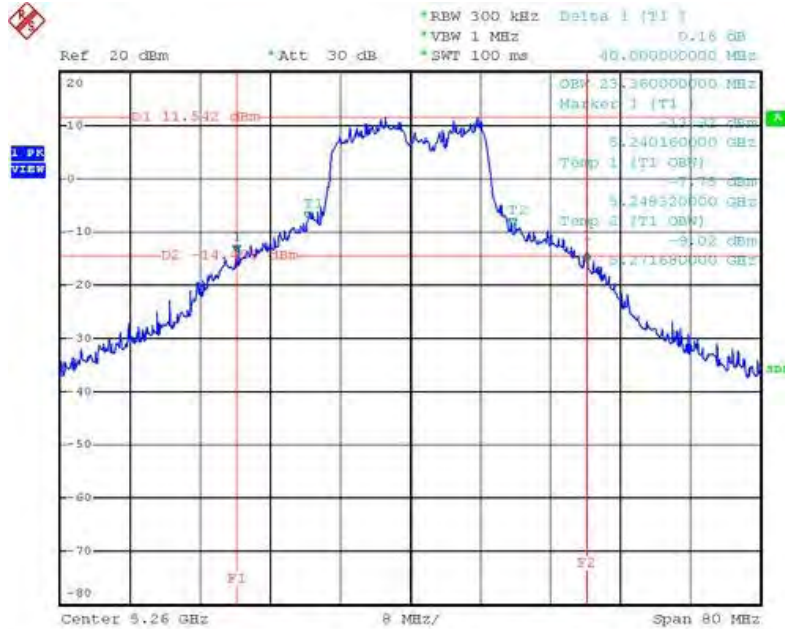
26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5700 MHz



Date: 10.APR.2011 11:36:57

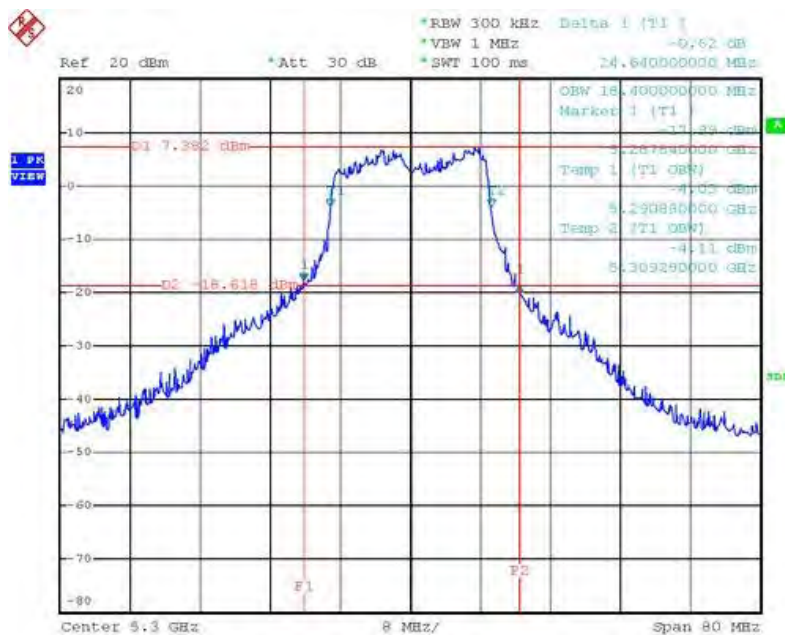
<For Internal Antenna / Ant. 8>

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5260 MHz



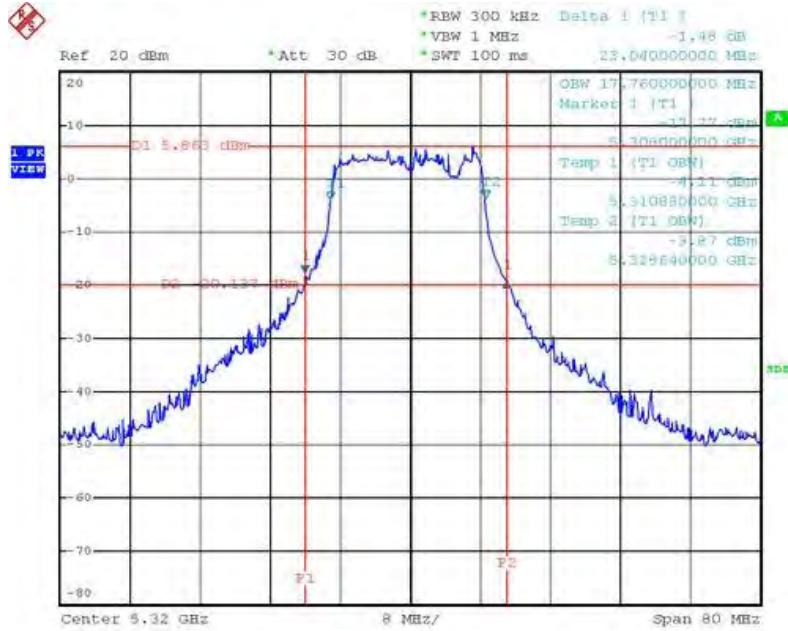
Date: 6.APR.2011 21:36:04

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5300 MHz



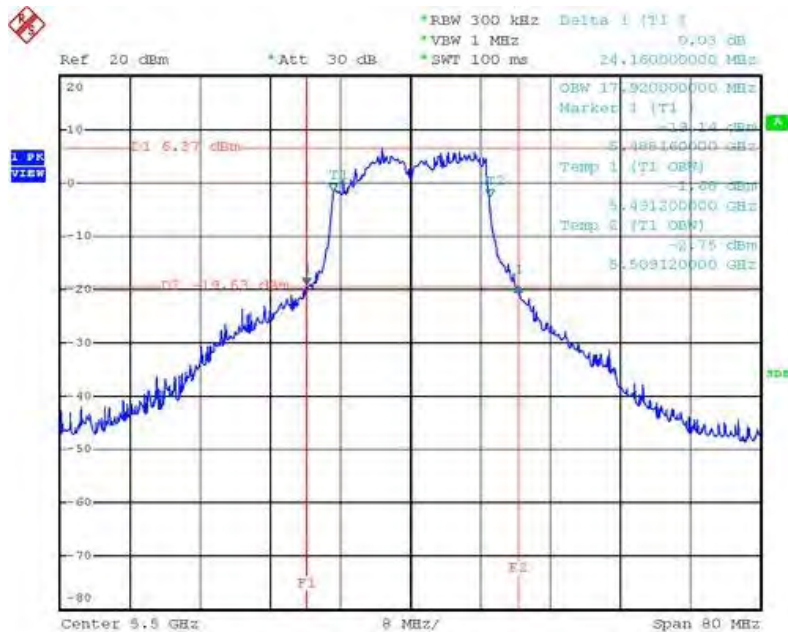
Date: 6.APR.2011 21:37:04

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5320 MHz



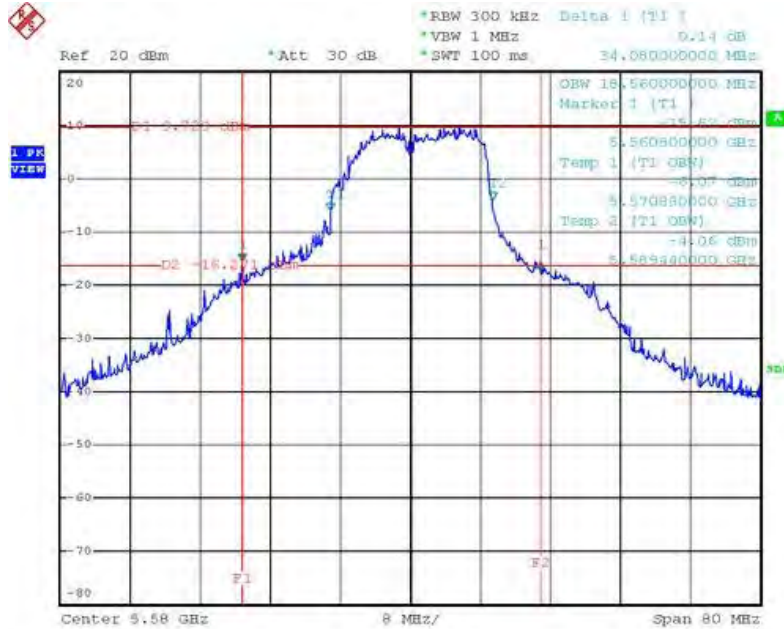
Date: 6.APR.2011 21:38:06

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5500 MHz



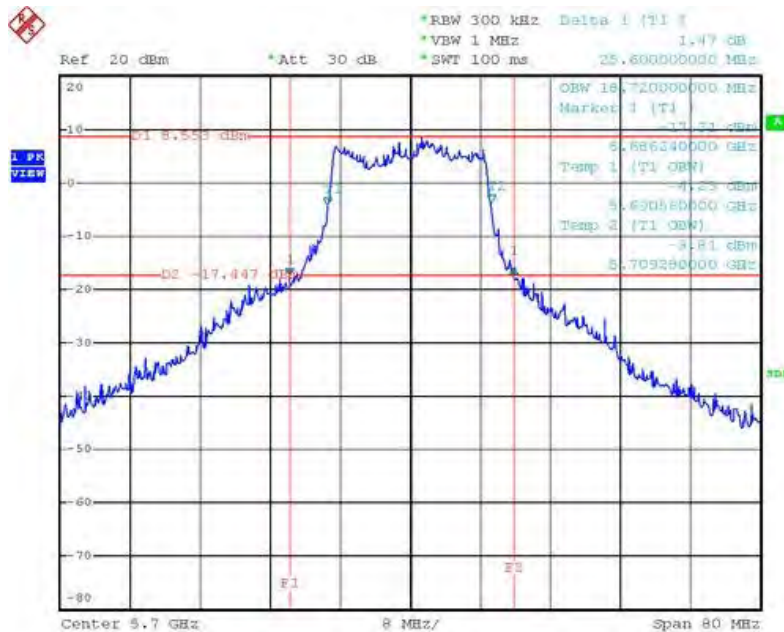
Date: 6.APR.2011 21:40:11

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5580 MHz



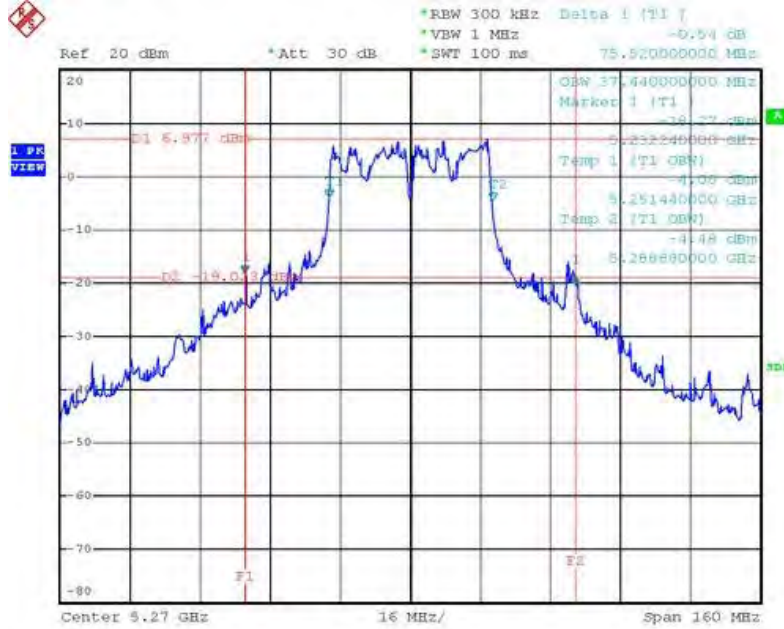
Date: 6.APR.2011 21:41:18

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5700 MHz



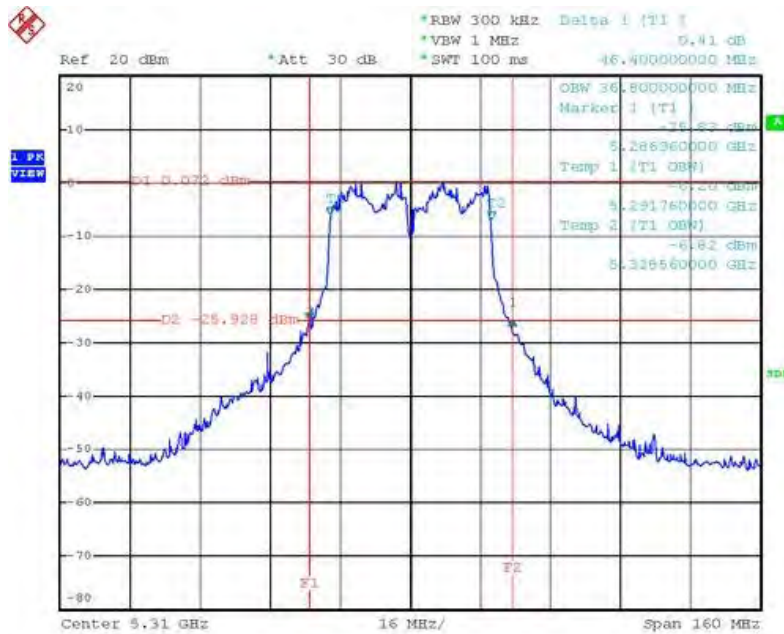
Date: 6.APR.2011 21:42:23

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5270 MHz



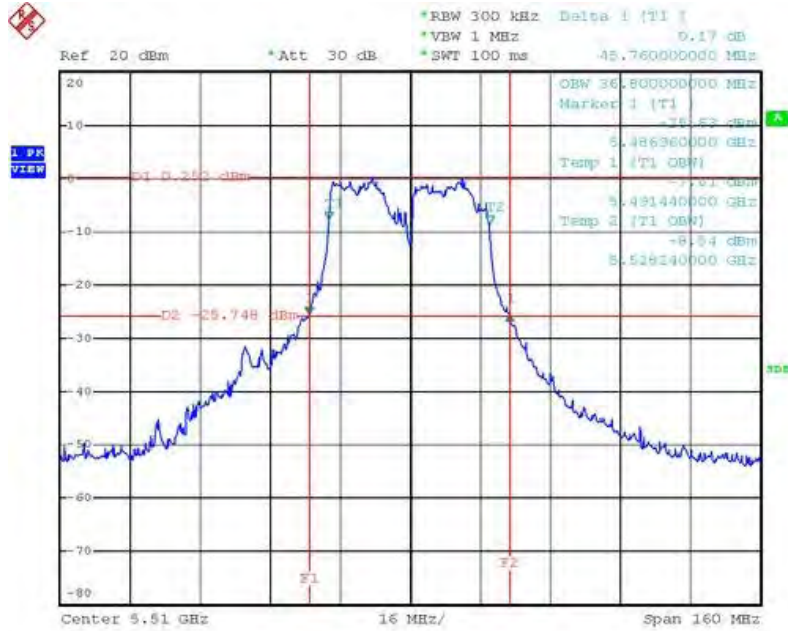
Date: 6.APR.2011 21:43:43

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5310 MHz



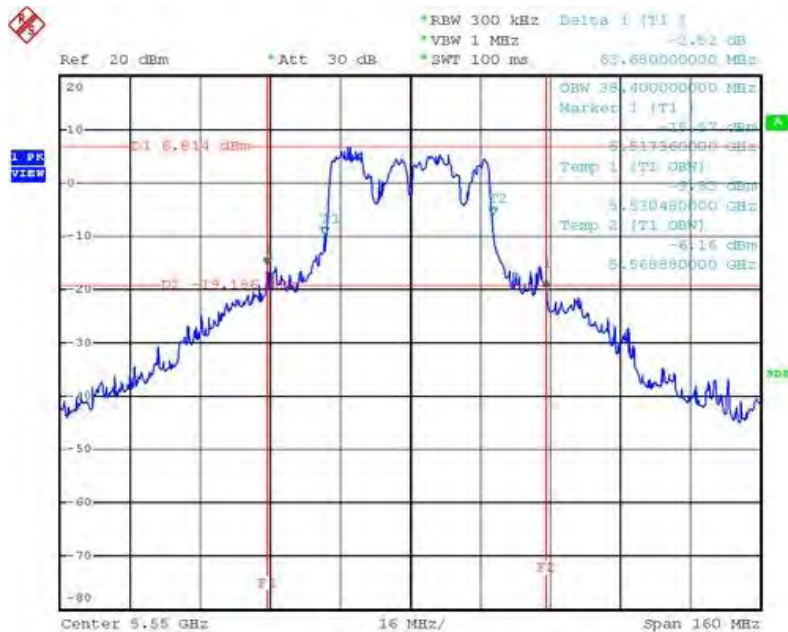
Date: 6.APR.2011 21:44:45

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5510MHz



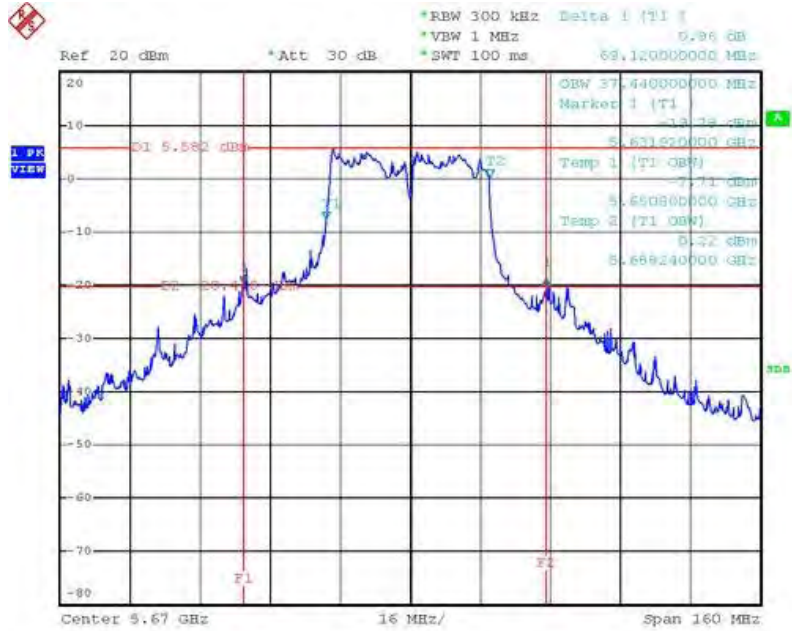
Date: 6.APR.2011 21:45:50

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 / 5550 MHz



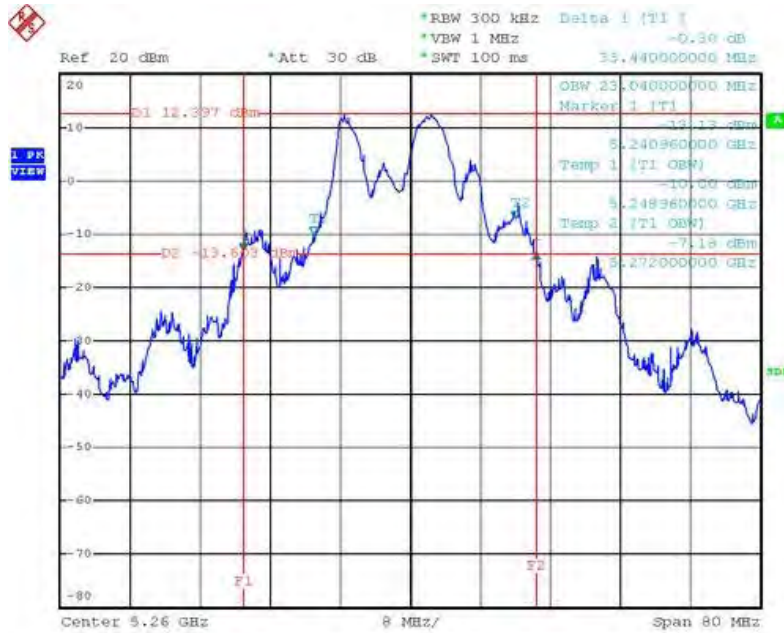
Date: 6.APR.2011 21:46:51

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4 /
5670 MHz



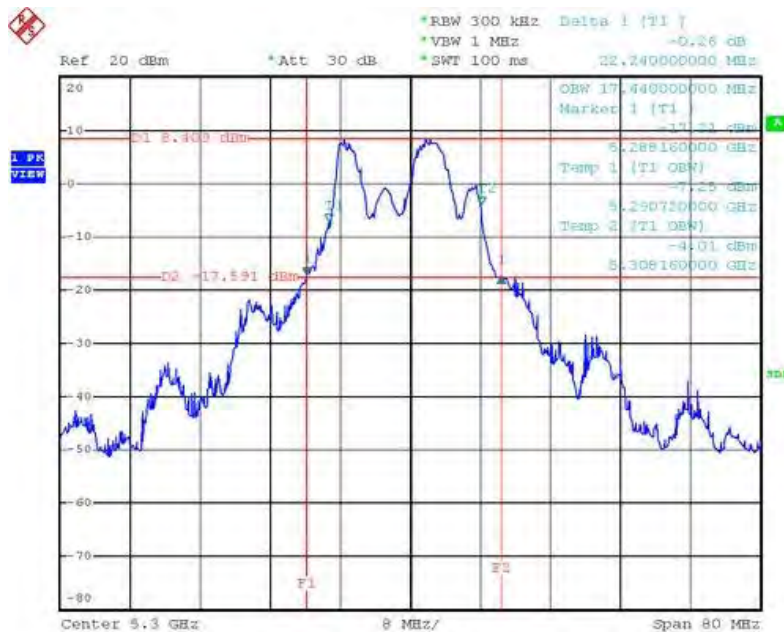
Date: 6.APR.2011 21:47:58

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5260 MHz



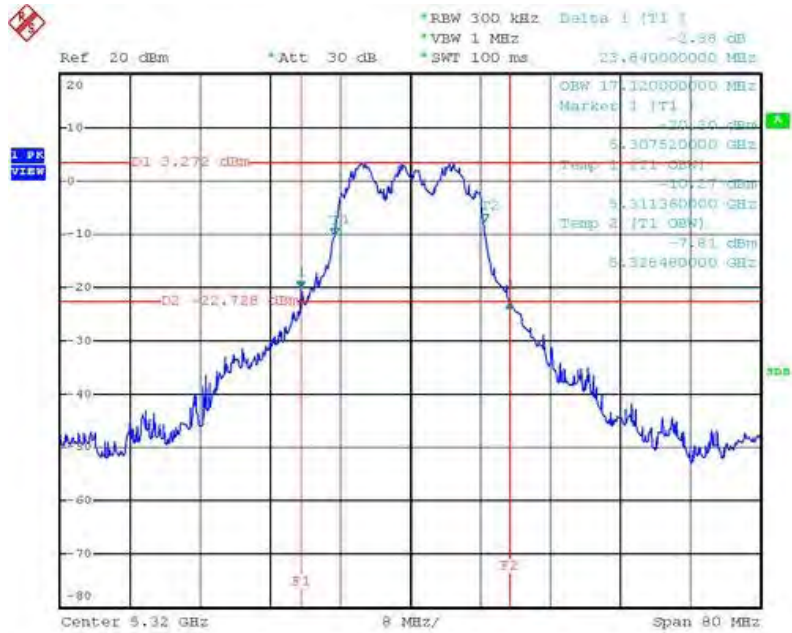
Date: 6.APR.2011 21:24:35

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5300 MHz



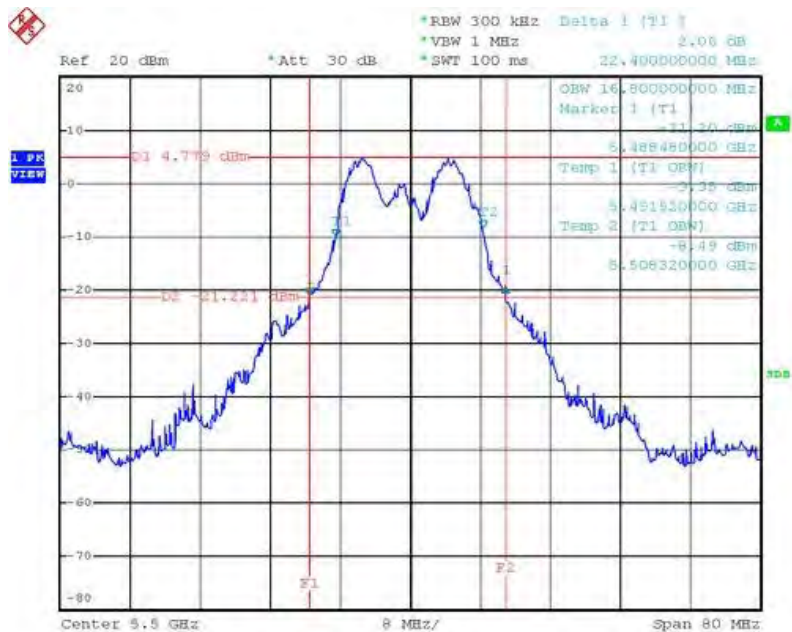
Date: 6.APR.2011 21:25:40

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5320 MHz



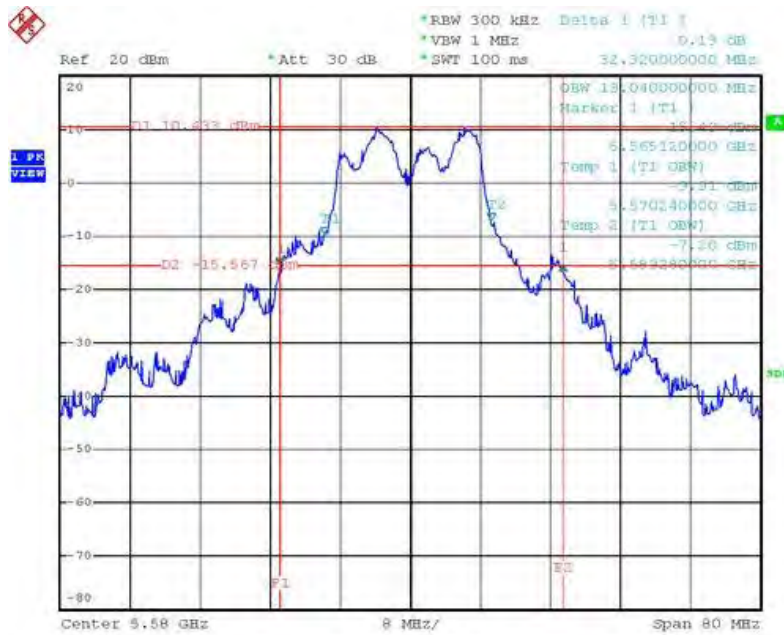
Date: 6.APR.2011 21:26:39

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5500 MHz



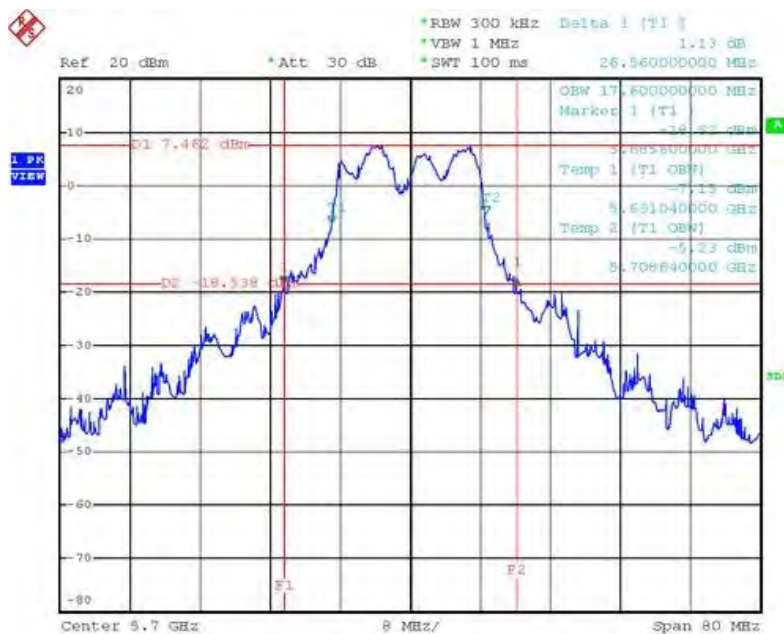
Date: 6.APR.2011 21:28:50

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5580 MHz



Date: 6.APR.2011 21:33:27

26 dB Bandwidth Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5700 MHz



Date: 6.APR.2011 21:34:31

4.3.7. Test Result of Maximum Conducted Output Power

<For External Antenna / Ant. 5>

| | | | |
|---------------|---------------|----------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 5 |
| Test Date | Mar. 08, 2011 | | |

Configuration IEEE 802.11n MCS8 20MHz Connector J2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 17.97 | 24.00 | Complies |
| 60 | 5300 MHz | 18.23 | 24.00 | Complies |
| 64 | 5320 MHz | 14.97 | 24.00 | Complies |
| 100 | 5500 MHz | 17.95 | 24.00 | Complies |
| 116 | 5580 MHz | 18.74 | 24.00 | Complies |
| 140 | 5700 MHz | 19.04 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 20MHz Connector J3

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.26 | 24.00 | Complies |
| 60 | 5300 MHz | 18.52 | 24.00 | Complies |
| 64 | 5320 MHz | 14.69 | 24.00 | Complies |
| 100 | 5500 MHz | 18.51 | 24.00 | Complies |
| 116 | 5580 MHz | 18.80 | 24.00 | Complies |
| 140 | 5700 MHz | 18.97 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 20MHz Connector J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.43 | 24.00 | Complies |
| 60 | 5300 MHz | 19.33 | 24.00 | Complies |
| 64 | 5320 MHz | 15.51 | 24.00 | Complies |
| 100 | 5500 MHz | 18.94 | 24.00 | Complies |
| 116 | 5580 MHz | 19.18 | 24.00 | Complies |
| 140 | 5700 MHz | 19.31 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 23.00 | 24.00 | Complies |
| 60 | 5300 MHz | 23.49 | 24.00 | Complies |
| 64 | 5320 MHz | 19.84 | 24.00 | Complies |
| 100 | 5500 MHz | 23.26 | 24.00 | Complies |
| 116 | 5580 MHz | 23.68 | 24.00 | Complies |
| 140 | 5700 MHz | 23.88 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 40MHz Connector J2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 17.64 | 24.00 | Complies |
| 62 | 5310 MHz | 13.06 | 24.00 | Complies |
| 102 | 5510MHz | 13.67 | 24.00 | Complies |
| 110 | 5550 MHz | 17.98 | 24.00 | Complies |
| 134 | 5670 MHz | 18.60 | 24.00 | Complies |

Configuration IEEE 802.11nMCS8 40MHz Connector J3

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 17.69 | 24.00 | Complies |
| 62 | 5310 MHz | 12.74 | 24.00 | Complies |
| 102 | 5510MHz | 14.60 | 24.00 | Complies |
| 110 | 5550 MHz | 18.50 | 24.00 | Complies |
| 134 | 5670 MHz | 18.51 | 24.00 | Complies |

Configuration IEEE 802.11nMCS8 40MHz Connector J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 17.93 | 24.00 | Complies |
| 62 | 5310 MHz | 14.00 | 24.00 | Complies |
| 102 | 5510MHz | 14.81 | 24.00 | Complies |
| 110 | 5550 MHz | 19.01 | 24.00 | Complies |
| 134 | 5670 MHz | 19.12 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 22.53 | 24.00 | Complies |
| 62 | 5310 MHz | 18.07 | 24.00 | Complies |
| 102 | 5510MHz | 19.16 | 24.00 | Complies |
| 110 | 5550 MHz | 23.29 | 24.00 | Complies |
| 134 | 5670 MHz | 23.52 | 24.00 | Complies |

| | | | |
|----------------------|---------------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 5 |
| Test Date | Mar. 08, 2011 | | |

Configuration IEEE 802.11a Connector J2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.43 | 24.00 | Complies |
| 60 | 5300 MHz | 16.94 | 24.00 | Complies |
| 64 | 5320 MHz | 16.27 | 24.00 | Complies |
| 100 | 5500 MHz | 18.01 | 24.00 | Complies |
| 116 | 5580 MHz | 18.89 | 24.00 | Complies |
| 140 | 5700 MHz | 17.91 | 24.00 | Complies |

Configuration IEEE 802.11a Connector J3

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.77 | 24.00 | Complies |
| 60 | 5300 MHz | 17.00 | 24.00 | Complies |
| 64 | 5320 MHz | 16.32 | 24.00 | Complies |
| 100 | 5500 MHz | 18.54 | 24.00 | Complies |
| 116 | 5580 MHz | 19.15 | 24.00 | Complies |
| 140 | 5700 MHz | 17.88 | 24.00 | Complies |

Configuration IEEE 802.11a Connector J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.86 | 24.00 | Complies |
| 60 | 5300 MHz | 17.78 | 24.00 | Complies |
| 64 | 5320 MHz | 16.93 | 24.00 | Complies |
| 100 | 5500 MHz | 18.97 | 24.00 | Complies |
| 116 | 5580 MHz | 19.37 | 24.00 | Complies |
| 140 | 5700 MHz | 18.21 | 24.00 | Complies |

Configuration IEEE 802.11a Connector J2 + J3 + J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 23.46 | 24.00 | Complies |
| 60 | 5300 MHz | 22.03 | 24.00 | Complies |
| 64 | 5320 MHz | 21.29 | 24.00 | Complies |
| 100 | 5500 MHz | 23.30 | 24.00 | Complies |
| 116 | 5580 MHz | 23.91 | 24.00 | Complies |
| 140 | 5700 MHz | 22.77 | 24.00 | Complies |

<For External Antenna / Ant. 6>

| | | | |
|----------------------|---------------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 6 |
| Test Date | Mar. 08, 2011 | | |

Configuration IEEE 802.11n MCS8 20MHz Connector J2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.71 | 24.00 | Complies |
| 60 | 5300 MHz | 18.09 | 24.00 | Complies |
| 64 | 5320 MHz | 14.97 | 24.00 | Complies |
| 100 | 5500 MHz | 15.58 | 24.00 | Complies |
| 116 | 5580 MHz | 18.74 | 24.00 | Complies |
| 140 | 5700 MHz | 19.04 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 20MHz Connector J3

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 19.36 | 24.00 | Complies |
| 60 | 5300 MHz | 18.33 | 24.00 | Complies |
| 64 | 5320 MHz | 14.69 | 24.00 | Complies |
| 100 | 5500 MHz | 16.36 | 24.00 | Complies |
| 116 | 5580 MHz | 18.80 | 24.00 | Complies |
| 140 | 5700 MHz | 18.97 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 20MHz Connector J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 19.08 | 24.00 | Complies |
| 60 | 5300 MHz | 18.92 | 24.00 | Complies |
| 64 | 5320 MHz | 15.51 | 24.00 | Complies |
| 100 | 5500 MHz | 16.44 | 24.00 | Complies |
| 116 | 5580 MHz | 19.18 | 24.00 | Complies |
| 140 | 5700 MHz | 19.31 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 23.83 | 24.00 | Complies |
| 60 | 5300 MHz | 23.23 | 24.00 | Complies |
| 64 | 5320 MHz | 19.84 | 24.00 | Complies |
| 100 | 5500 MHz | 20.91 | 24.00 | Complies |
| 116 | 5580 MHz | 23.68 | 24.00 | Complies |
| 140 | 5700 MHz | 23.88 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 40MHz Connector J2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 18.19 | 24.00 | Complies |
| 62 | 5310 MHz | 12.04 | 24.00 | Complies |
| 102 | 5510MHz | 11.77 | 24.00 | Complies |
| 110 | 5550 MHz | 16.95 | 24.00 | Complies |
| 134 | 5670 MHz | 18.6 | 24.00 | Complies |

Configuration IEEE 802.11nMCS8 40MHz Connector J3

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 18.32 | 24.00 | Complies |
| 62 | 5310 MHz | 11.64 | 24.00 | Complies |
| 102 | 5510MHz | 12.16 | 24.00 | Complies |
| 110 | 5550 MHz | 17.51 | 24.00 | Complies |
| 134 | 5670 MHz | 18.51 | 24.00 | Complies |

Configuration IEEE 802.11nMCS8 40MHz Connector J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 18.52 | 24.00 | Complies |
| 62 | 5310 MHz | 12.92 | 24.00 | Complies |
| 102 | 5510MHz | 12.74 | 24.00 | Complies |
| 110 | 5550 MHz | 18.24 | 24.00 | Complies |
| 134 | 5670 MHz | 19.12 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 23.12 | 24.00 | Complies |
| 62 | 5310 MHz | 17.00 | 24.00 | Complies |
| 102 | 5510MHz | 17.01 | 24.00 | Complies |
| 110 | 5550 MHz | 22.37 | 24.00 | Complies |
| 134 | 5670 MHz | 23.52 | 24.00 | Complies |

| | | | |
|----------------------|---------------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 6 |
| Test Date | Mar. 08, 2011 | | |

Configuration IEEE 802.11a Connector J2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.43 | 24.00 | Complies |
| 60 | 5300 MHz | 17.76 | 24.00 | Complies |
| 64 | 5320 MHz | 15.21 | 24.00 | Complies |
| 100 | 5500 MHz | 15.88 | 24.00 | Complies |
| 116 | 5580 MHz | 18.89 | 24.00 | Complies |
| 140 | 5700 MHz | 18.68 | 24.00 | Complies |

Configuration IEEE 802.11a Connector J3

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.77 | 24.00 | Complies |
| 60 | 5300 MHz | 17.64 | 24.00 | Complies |
| 64 | 5320 MHz | 15.04 | 24.00 | Complies |
| 100 | 5500 MHz | 16.85 | 24.00 | Complies |
| 116 | 5580 MHz | 19.15 | 24.00 | Complies |
| 140 | 5700 MHz | 18.76 | 24.00 | Complies |

Configuration IEEE 802.11a Connector J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.86 | 24.00 | Complies |
| 60 | 5300 MHz | 18.37 | 24.00 | Complies |
| 64 | 5320 MHz | 16.05 | 24.00 | Complies |
| 100 | 5500 MHz | 16.96 | 24.00 | Complies |
| 116 | 5580 MHz | 19.37 | 24.00 | Complies |
| 140 | 5700 MHz | 18.91 | 24.00 | Complies |

Configuration IEEE 802.11a Connector J2 + J3 + J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 23.46 | 24.00 | Complies |
| 60 | 5300 MHz | 22.71 | 24.00 | Complies |
| 64 | 5320 MHz | 20.23 | 24.00 | Complies |
| 100 | 5500 MHz | 21.36 | 24.00 | Complies |
| 116 | 5580 MHz | 23.91 | 24.00 | Complies |
| 140 | 5700 MHz | 23.56 | 24.00 | Complies |

<For Internal Antenna / Ant. 8>

| | | | |
|----------------------|---------------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 8 |
| Test Date | Mar. 08, 2011 | | |

Configuration IEEE 802.11n MCS8 20MHz Connector J2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 17.81 | 24.00 | Complies |
| 60 | 5300 MHz | 14.20 | 24.00 | Complies |
| 64 | 5320 MHz | 12.25 | 24.00 | Complies |
| 100 | 5500 MHz | 14.18 | 24.00 | Complies |
| 116 | 5580 MHz | 17.07 | 24.00 | Complies |
| 140 | 5700 MHz | 15.56 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 20MHz Connector J3

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.67 | 24.00 | Complies |
| 60 | 5300 MHz | 14.94 | 24.00 | Complies |
| 64 | 5320 MHz | 12.89 | 24.00 | Complies |
| 100 | 5500 MHz | 13.77 | 24.00 | Complies |
| 116 | 5580 MHz | 17.06 | 24.00 | Complies |
| 140 | 5700 MHz | 15.39 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 20MHz Connector J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 18.60 | 24.00 | Complies |
| 60 | 5300 MHz | 15.24 | 24.00 | Complies |
| 64 | 5320 MHz | 13.13 | 24.00 | Complies |
| 100 | 5500 MHz | 13.82 | 24.00 | Complies |
| 116 | 5580 MHz | 17.34 | 24.00 | Complies |
| 140 | 5700 MHz | 15.32 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 23.15 | 24.00 | Complies |
| 60 | 5300 MHz | 19.59 | 24.00 | Complies |
| 64 | 5320 MHz | 17.54 | 24.00 | Complies |
| 100 | 5500 MHz | 18.70 | 24.00 | Complies |
| 116 | 5580 MHz | 21.93 | 24.00 | Complies |
| 140 | 5700 MHz | 20.20 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 40MHz Connector J2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 15.25 | 24.00 | Complies |
| 62 | 5310 MHz | 9.43 | 24.00 | Complies |
| 102 | 5510MHz | 10.25 | 24.00 | Complies |
| 110 | 5550 MHz | 16.39 | 24.00 | Complies |
| 134 | 5670 MHz | 15.64 | 24.00 | Complies |

Configuration IEEE 802.11nMCS8 40MHz Connector J3

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 16.30 | 24.00 | Complies |
| 62 | 5310 MHz | 9.67 | 24.00 | Complies |
| 102 | 5510MHz | 10.39 | 24.00 | Complies |
| 110 | 5550 MHz | 16.2 | 24.00 | Complies |
| 134 | 5670 MHz | 15.8 | 24.00 | Complies |

Configuration IEEE 802.11nMCS8 40MHz Connector J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 15.99 | 24.00 | Complies |
| 62 | 5310 MHz | 10.47 | 24.00 | Complies |
| 102 | 5510MHz | 10.7 | 24.00 | Complies |
| 110 | 5550 MHz | 16.1 | 24.00 | Complies |
| 134 | 5670 MHz | 15.65 | 24.00 | Complies |

Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 54 | 5270 MHz | 20.64 | 24.00 | Complies |
| 62 | 5310 MHz | 14.65 | 24.00 | Complies |
| 102 | 5510MHz | 15.22 | 24.00 | Complies |
| 110 | 5550 MHz | 21.00 | 24.00 | Complies |
| 134 | 5670 MHz | 20.47 | 24.00 | Complies |

| | | | |
|----------------------|---------------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 8 |
| Test Date | Mar. 08, 2011 | | |

Configuration IEEE 802.11a Connector J2

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 16.51 | 24.00 | Complies |
| 60 | 5300 MHz | 13.35 | 24.00 | Complies |
| 64 | 5320 MHz | 11.13 | 24.00 | Complies |
| 100 | 5500 MHz | 11.58 | 24.00 | Complies |
| 116 | 5580 MHz | 16.50 | 24.00 | Complies |
| 140 | 5700 MHz | 15.07 | 24.00 | Complies |

Configuration IEEE 802.11a Connector J3

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 17.96 | 24.00 | Complies |
| 60 | 5300 MHz | 13.88 | 24.00 | Complies |
| 64 | 5320 MHz | 11.62 | 24.00 | Complies |
| 100 | 5500 MHz | 11.69 | 24.00 | Complies |
| 116 | 5580 MHz | 16.49 | 24.00 | Complies |
| 140 | 5700 MHz | 14.34 | 24.00 | Complies |

Configuration IEEE 802.11a Connector J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 52 | 5260 MHz | 17.78 | 24.00 | Complies |
| 60 | 5300 MHz | 14.21 | 24.00 | Complies |
| 64 | 5320 MHz | 11.72 | 24.00 | Complies |
| 100 | 5500 MHz | 12.12 | 24.00 | Complies |
| 116 | 5580 MHz | 16.88 | 24.00 | Complies |
| 140 | 5700 MHz | 14.73 | 24.00 | Complies |

Configuration IEEE 802.11a Connector J2 + J3 + J4

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|----------------|------------------|----------------------------------|-----------------------------|-----------------|
| 52 | 5260 MHz | 22.23 | 24.00 | Complies |
| 60 | 5300 MHz | 18.60 | 24.00 | Complies |
| 64 | 5320 MHz | 16.27 | 24.00 | Complies |
| 100 | 5500 MHz | 16.57 | 24.00 | Complies |
| 116 | 5580 MHz | 21.40 | 24.00 | Complies |
| 140 | 5700 MHz | 19.49 | 24.00 | Complies |

4.4. Power Spectral Density Measurement

4.4.1. Limit

The power spectral density is defined as the highest level of power in dBm per MHz generated by the transmitter within the power envelope. The following table is power spectral density limits and decrease power density limit rule refer to section 4.3.1.

| Frequency Range | Power Spectral Density limit (dBm/MHz) |
|-----------------|--|
| 5.25-5.35 GHz | 11 |
| 5470-5725 GHz | 11 |

4.4.2. Measuring Instruments and Setting

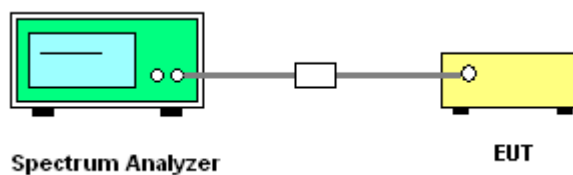
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting |
|--------------------|--|
| Attenuation | Auto |
| Span Frequency | Encompass the entire emissions bandwidth (EBW) of the signal |
| RB | 1000 kHz |
| VB | 3000 kHz |
| Detector | SAMPLE |
| Trace | AVERAGE |
| Sweep Time | Auto |
| Trace Average | 100 times |

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 1000kHz and VBW to 3000kHz. Set Detector to Peak, Trace to Max Hold. Mark the frequency with maximum peak power as the center of the display of the spectrum.
3. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

<For External Antenna / Ant. 5>

| | | | |
|---------------|-----------|----------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 5 |

Configuration IEEE 802.11n MCS8 20MHz

| Frequency | Power Density (dBm) | | | Total Power Density (dBm) | Max. Limit (dBm) | Result |
|-----------|---------------------|--------------|--------------|---------------------------|------------------|----------|
| | Connector J2 | Connector J3 | Connector J4 | | | |
| 5260 MHz | 0.63 | 1.01 | 0.78 | 5.58 | 11.00 | Complies |
| 5300 MHz | 1.57 | 1.64 | 2.04 | 6.53 | 11.00 | Complies |
| 5320 MHz | -2.11 | -0.88 | 0.04 | 3.88 | 11.00 | Complies |
| 5500 MHz | 1.09 | 1.08 | 1.88 | 6.14 | 11.00 | Complies |
| 5580 MHz | 1.52 | 0.89 | 1.48 | 6.08 | 11.00 | Complies |
| 5700 MHz | 0.72 | 0.58 | 1.40 | 5.69 | 11.00 | Complies |

Configuration IEEE 802.11n MCS8 40MHz

| Frequency | Power Density (dBm) | | | Total Power Density (dBm) | Max. Limit (dBm) | Result |
|-----------|---------------------|--------------|--------------|---------------------------|------------------|----------|
| | Connector J2 | Connector J3 | Connector J4 | | | |
| 5270 MHz | -1.72 | -3.16 | -3.33 | 2.10 | 11.00 | Complies |
| 5310 MHz | -7.47 | -7.30 | -7.08 | -2.51 | 11.00 | Complies |
| 5510MHz | -7.41 | -7.55 | -6.80 | -2.47 | 11.00 | Complies |
| 5550 MHz | -2.45 | -2.51 | -1.46 | 2.66 | 11.00 | Complies |
| 5670 MHz | -3.34 | -3.50 | -2.95 | 1.51 | 11.00 | Complies |

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 5 |

Configuration IEEE 802.11a

| Frequency | Power Density (dBm) | | | Total Power Density (dBm) | Max. Limit (dBm) | Result |
|-----------|---------------------|--------------|--------------|---------------------------|------------------|-----------------|
| | Connector J2 | Connector J3 | Connector J4 | | | |
| 5260 MHz | 3.13 | 3.00 | 2.97 | 7.81 | 8.03 | Complies |
| 5300 MHz | 3.04 | 2.26 | 2.22 | 7.29 | 8.03 | Complies |
| 5320 MHz | 1.79 | 0.82 | 0.87 | 5.95 | 8.03 | Complies |
| 5500 MHz | 2.50 | 3.46 | 2.97 | 7.77 | 8.03 | Complies |
| 5580 MHz | 2.95 | 2.96 | 2.97 | 7.73 | 8.03 | Complies |
| 5700 MHz | 1.16 | 1.48 | 0.70 | 5.90 | 8.03 | Complies |

Note: All the test values were listed in the report.

For plots, only the worse case of OFDM modulation was listed in the report.

<For External Antenna / Ant. 6>

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 6 |

Configuration IEEE 802.11n MCS8 20MHz

| Frequency | Power Density (dBm) | | | Total Power Density (dBm) | Max. Limit (dBm) | Result |
|-----------|---------------------|--------------|--------------|---------------------------|------------------|----------|
| | Connector J2 | Connector J3 | Connector J4 | | | |
| 5260 MHz | 1.25 | 1.40 | 1.28 | 6.08 | 11.00 | Complies |
| 5300 MHz | 1.51 | 1.41 | 1.23 | 6.16 | 11.00 | Complies |
| 5320 MHz | -2.11 | -0.88 | 0.04 | 3.88 | 11.00 | Complies |
| 5500 MHz | -1.22 | -0.59 | -0.12 | 4.15 | 11.00 | Complies |
| 5580 MHz | 1.52 | 0.89 | 1.48 | 6.08 | 11.00 | Complies |
| 5700 MHz | 0.72 | 0.58 | 1.40 | 5.69 | 11.00 | Complies |

Configuration IEEE 802.11n MCS8 40MHz

| Frequency | Power Density (dBm) | | | Total Power Density (dBm) | Max. Limit (dBm) | Result |
|-----------|---------------------|--------------|--------------|---------------------------|------------------|----------|
| | Connector J2 | Connector J3 | Connector J4 | | | |
| 5270 MHz | -2.21 | -2.20 | -3.90 | 2.07 | 11.00 | Complies |
| 5310 MHz | -8.52 | -8.70 | -8.46 | -3.79 | 11.00 | Complies |
| 5510MHz | -8.03 | -8.09 | -7.16 | -2.97 | 11.00 | Complies |
| 5550 MHz | -2.61 | -3.51 | -2.27 | 2.01 | 11.00 | Complies |
| 5670 MHz | -3.34 | -3.50 | -2.95 | 1.51 | 11.00 | Complies |

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 6 |

Configuration IEEE 802.11a

| Frequency | Power Density (dBm) | | | Total Power Density (dBm) | Max. Limit (dBm) | Result |
|-----------|---------------------|--------------|--------------|---------------------------|------------------|----------|
| | Connector J2 | Connector J3 | Connector J4 | | | |
| 5260 MHz | 3.13 | 3.00 | 2.97 | 7.81 | 9.53 | Complies |
| 5300 MHz | 2.72 | 2.61 | 2.30 | 7.32 | 9.53 | Complies |
| 5320 MHz | -0.39 | 0.40 | 0.87 | 5.10 | 9.53 | Complies |
| 5500 MHz | 0.46 | 1.52 | 1.33 | 5.90 | 9.53 | Complies |
| 5580 MHz | 2.95 | 2.96 | 2.97 | 7.73 | 9.53 | Complies |
| 5700 MHz | 1.10 | 1.64 | 1.99 | 6.36 | 9.53 | Complies |

Note: All the test values were listed in the report.

For plots, only the worse case of OFDM modulation was listed in the report.

<For Internal Antenna / Ant. 8>

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 8 |

Configuration IEEE 802.11n MCS8 20MHz

| Frequency | Power Density (dBm) | | | Total Power Density (dBm) | Max. Limit (dBm) | Result |
|-----------|---------------------|--------------|--------------|---------------------------|------------------|----------|
| | Connector J2 | Connector J3 | Connector J4 | | | |
| 5260 MHz | 0.43 | 0.41 | 0.38 | 5.18 | 11.00 | Complies |
| 5300 MHz | -3.50 | -3.11 | -3.18 | 1.51 | 11.00 | Complies |
| 5320 MHz | -5.04 | -5.89 | -5.47 | -0.68 | 11.00 | Complies |
| 5500 MHz | -3.65 | -3.57 | -3.32 | 1.26 | 11.00 | Complies |
| 5580 MHz | -1.18 | -0.89 | 0.03 | 4.12 | 11.00 | Complies |
| 5700 MHz | -3.67 | -3.82 | -3.81 | 1.01 | 11.00 | Complies |

Configuration IEEE 802.11n MCS8 40MHz

| Frequency | Power Density (dBm) | | | Total Power Density (dBm) | Max. Limit (dBm) | Result |
|-----------|---------------------|--------------|--------------|---------------------------|------------------|----------|
| | Connector J2 | Connector J3 | Connector J4 | | | |
| 5270 MHz | -5.02 | -5.67 | -4.95 | -0.43 | 11.00 | Complies |
| 5310 MHz | -9.94 | -11.24 | -10.53 | -5.77 | 11.00 | Complies |
| 5510MHz | -10.79 | -11.35 | -9.90 | -5.87 | 11.00 | Complies |
| 5550 MHz | -5.41 | -4.47 | -3.74 | 0.28 | 11.00 | Complies |
| 5670 MHz | -6.59 | -7.63 | -6.48 | -2.10 | 11.00 | Complies |

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 8 |

Configuration IEEE 802.11a

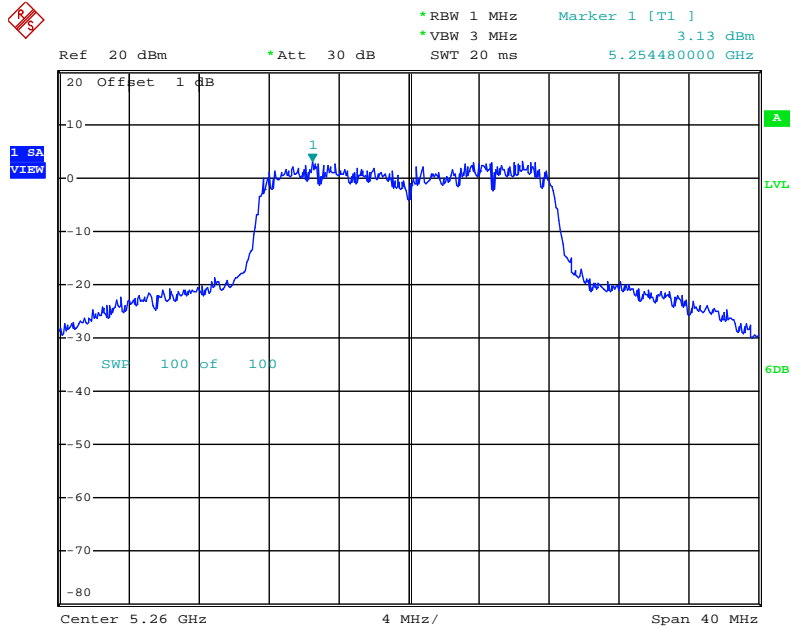
| Frequency | Power Density (dBm) | | | Total Power Density (dBm) | Max. Limit (dBm) | Result |
|-----------|---------------------|--------------|--------------|---------------------------|------------------|-----------------|
| | Connector J2 | Connector J3 | Connector J4 | | | |
| 5260 MHz | 0.47 | 1.28 | 1.32 | 5.81 | 7.73 | Complies |
| 5300 MHz | -3.15 | -3.57 | -2.76 | 1.62 | 7.73 | Complies |
| 5320 MHz | -4.15 | -4.66 | -4.38 | 0.38 | 7.73 | Complies |
| 5500 MHz | -4.76 | -4.95 | -5.10 | -0.16 | 7.73 | Complies |
| 5580 MHz | 0.50 | 1.23 | 0.92 | 5.66 | 7.73 | Complies |
| 5700 MHz | -2.30 | -2.43 | -2.81 | 2.26 | 7.73 | Complies |

Note: All the test values were listed in the report.

For plots, only the worse case of OFDM modulation was listed in the report.

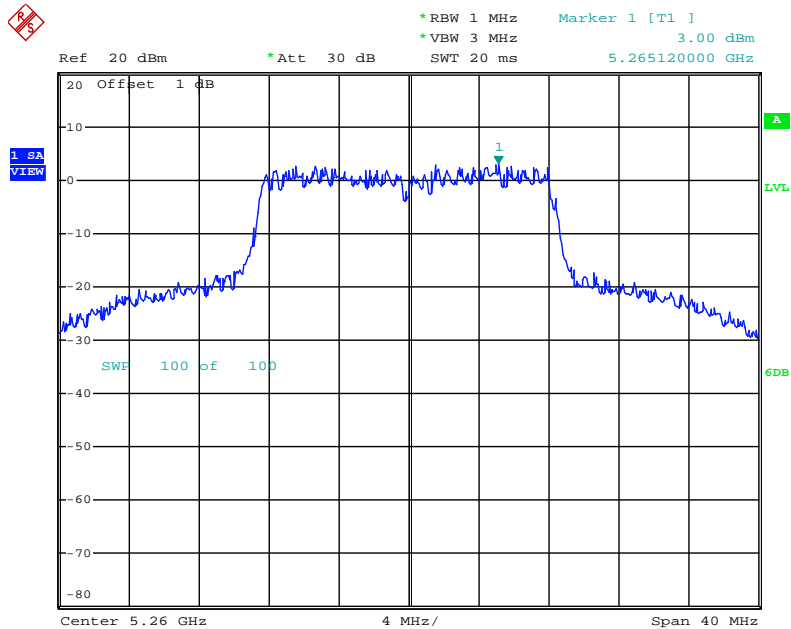
<For External Antenna / Ant. 5>

Power Density Plot on Configuration IEEE 802.11a Connector J2 / 5260 MHz



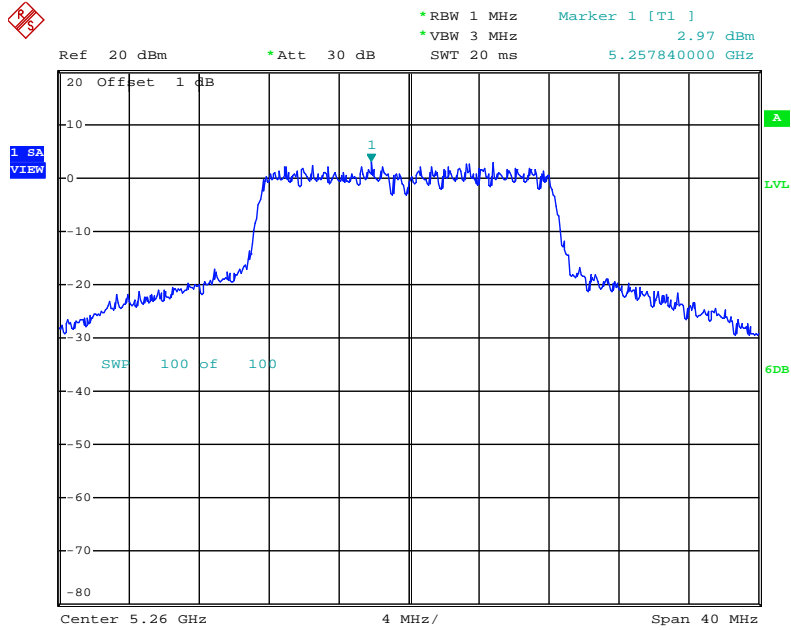
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Power Density Plot on Configuration IEEE 802.11a Connector J3 / 5260 MHz



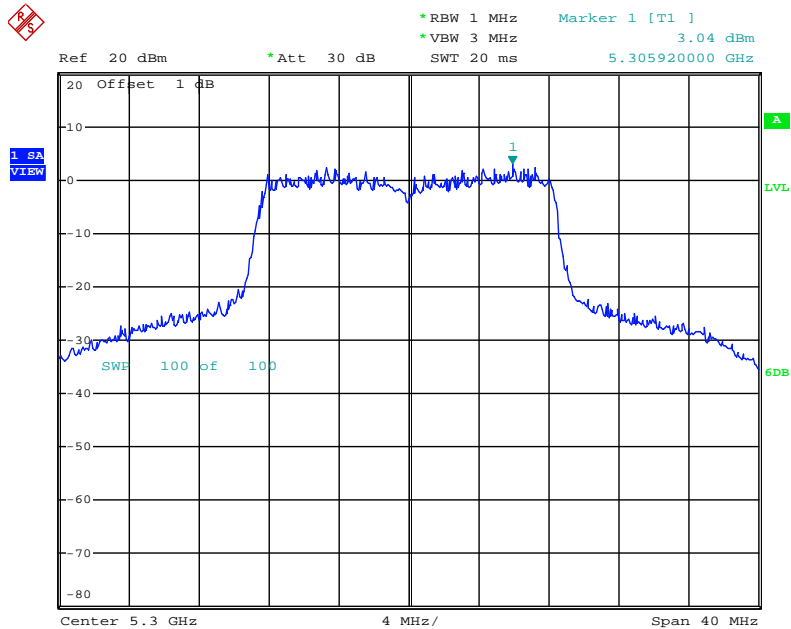
Date: 18.JUN.2011 15:02:42

Power Density Plot on Configuration IEEE 802.11a Connector J4 / 5260 MHz



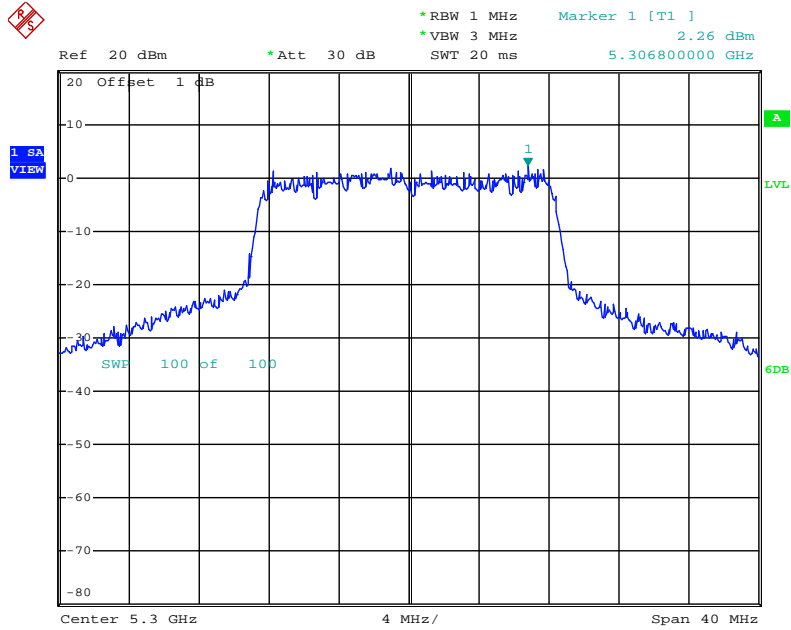
Date: 18.JUN.2011 15:02:09

Power Density Plot on Configuration IEEE 802.11a Connector J2 / 5300 MHz



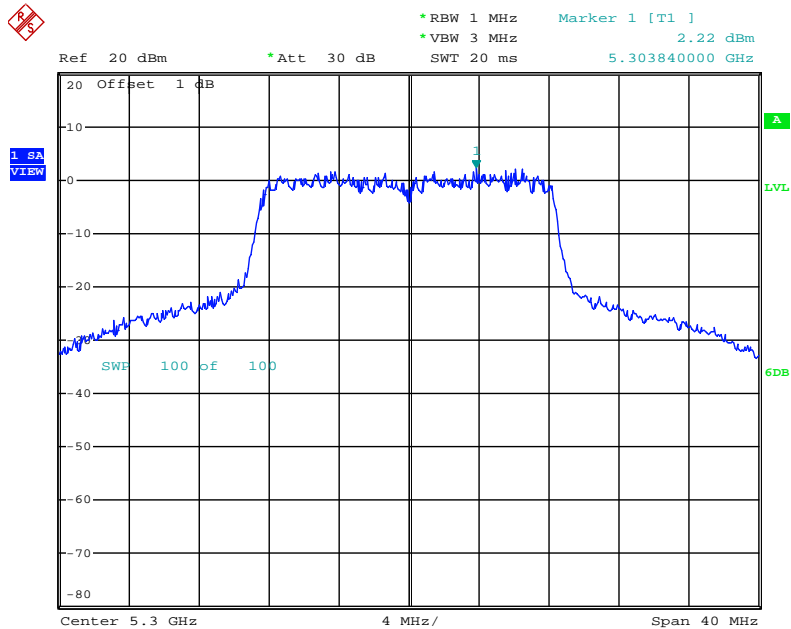
Date: 18.JUN.2011 15:06:32

Power Density Plot on Configuration IEEE 802.11a Connector J3 / 5300 MHz



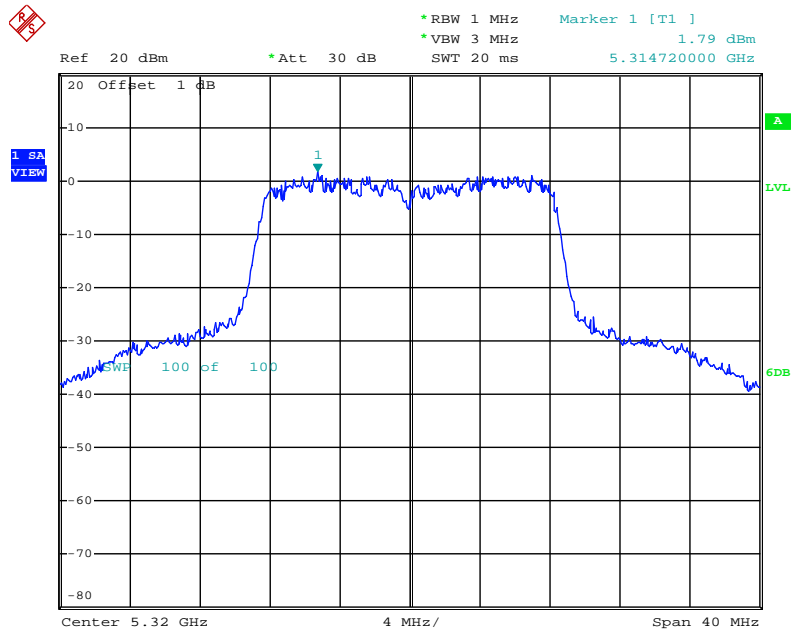
Date: 18.JUN.2011 15:06:52

Power Density Plot on Configuration IEEE 802.11a Connector J4 / 5300 MHz



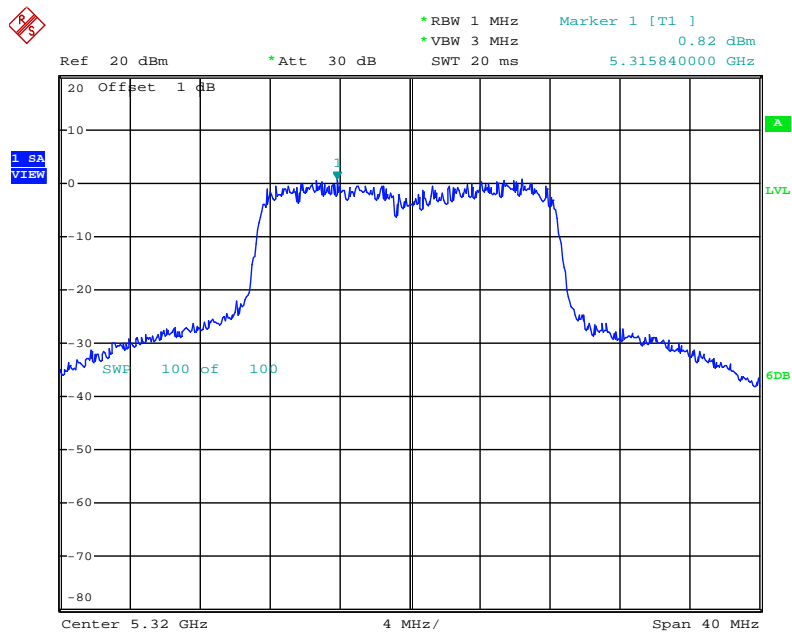
Date: 18.JUN.2011 15:07:28

Power Density Plot on Configuration IEEE 802.11a Connector J2 / 5320 MHz



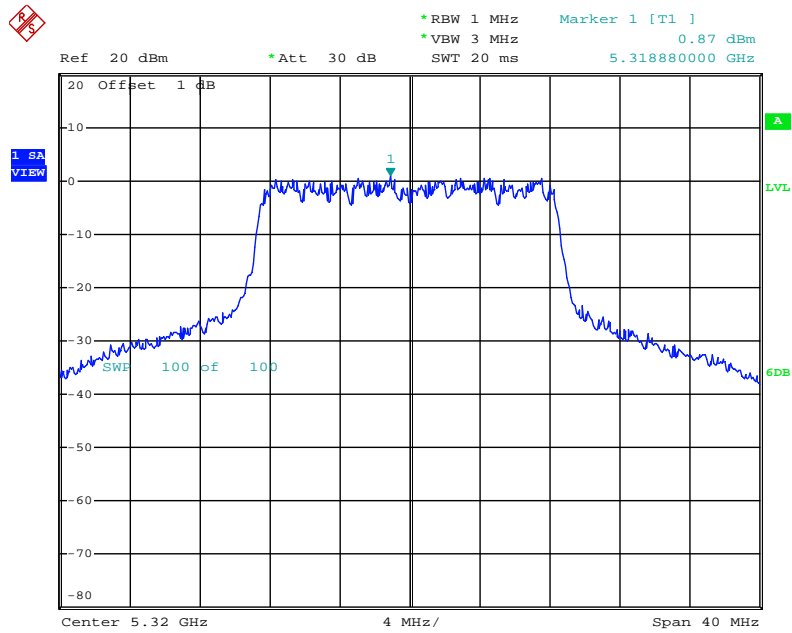
Date: 18.JUN.2011 15:09:05

Power Density Plot on Configuration IEEE 802.11a Connector J3 / 5320 MHz



Date: 18.JUN.2011 15:08:42

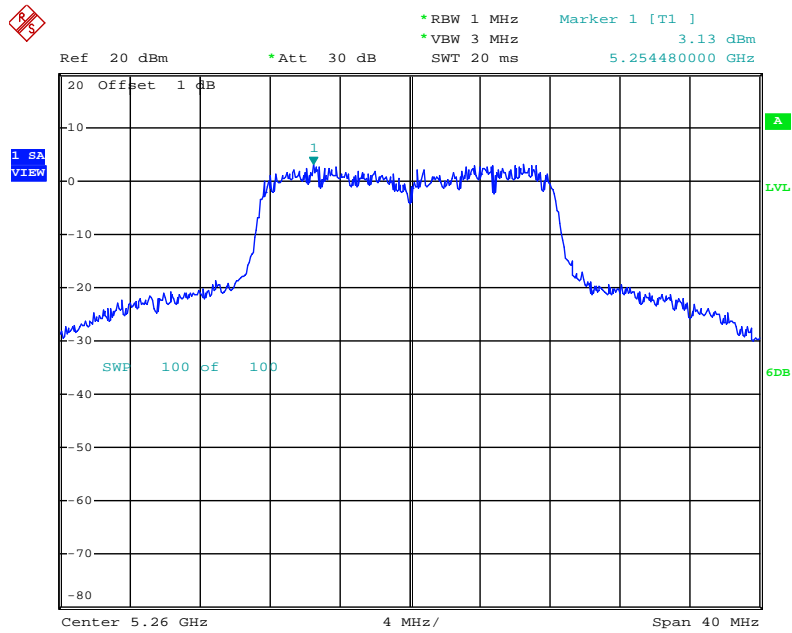
Power Density Plot on Configuration IEEE 802.11a Connector J4 / 5320 MHz



Date: 18.JUN.2011 15:08:19

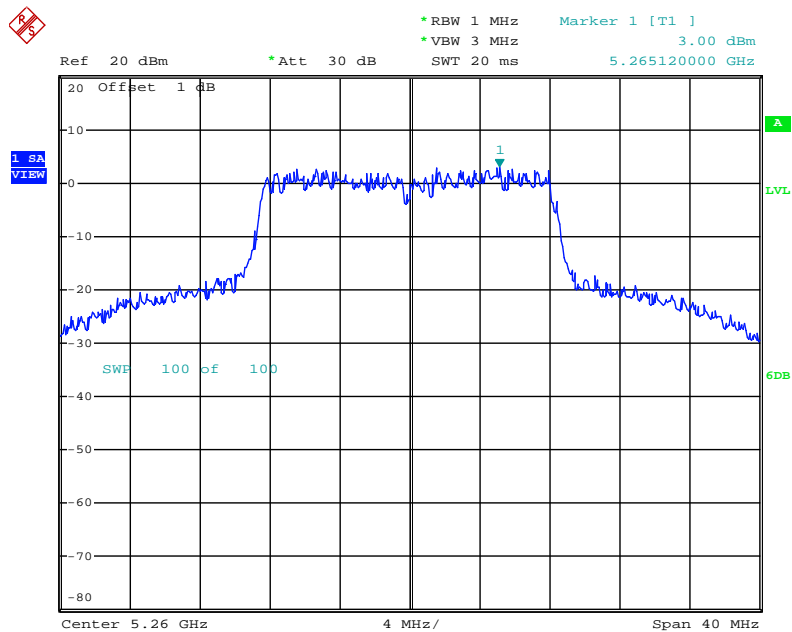
<For External Antenna / Ant. 6>

Power Density Plot on Configuration IEEE 802.11a Connector J2 / 5260 MHz



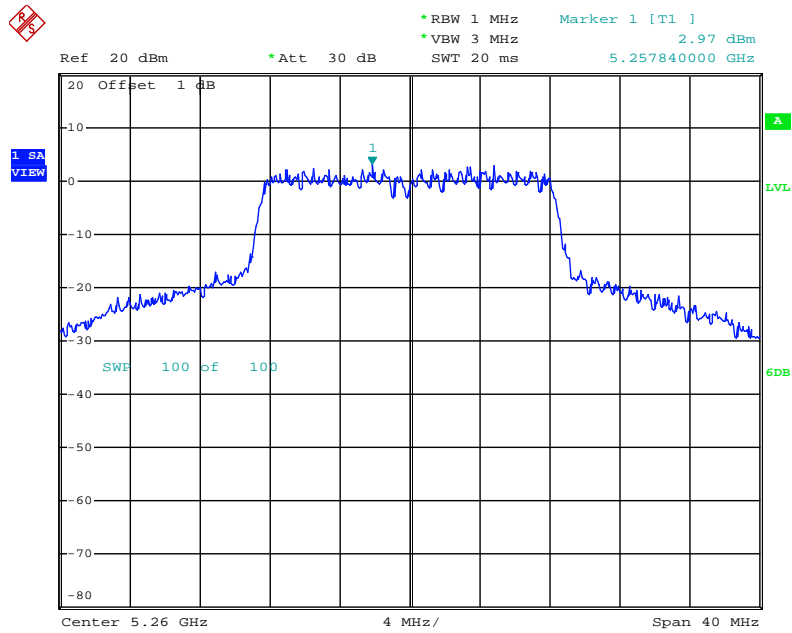
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Power Density Plot on Configuration IEEE 802.11a Connector J3 / 5260 MHz



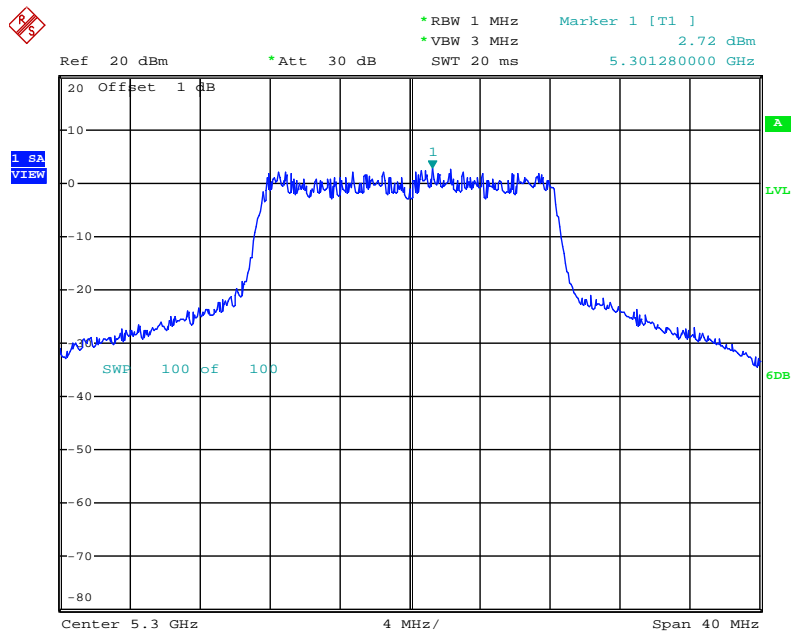
Date: 18.JUN.2011 15:02:42

Power Density Plot on Configuration IEEE 802.11a Connector J4 / 5260 MHz



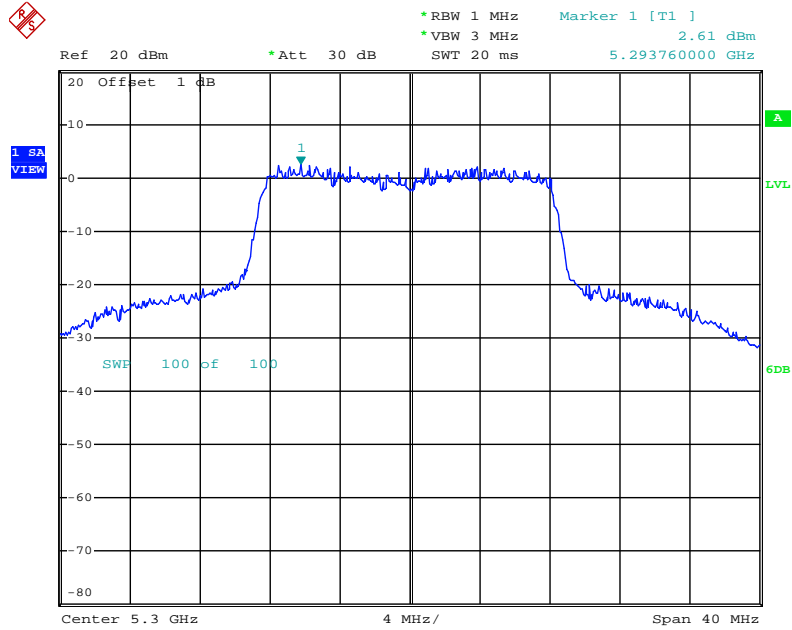
Date: 18.JUN.2011 15:02:09

Power Density Plot on Configuration IEEE 802.11a Connector J2 / 5300 MHz



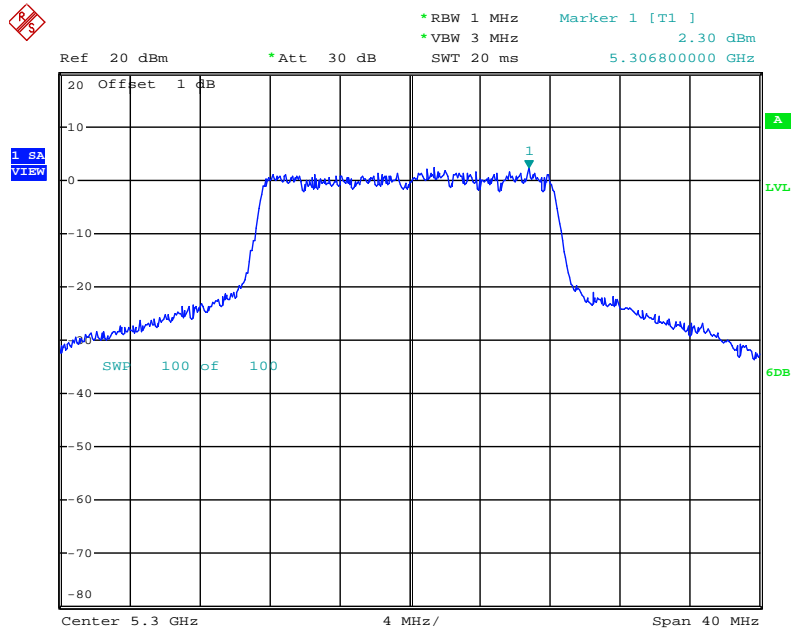
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Power Density Plot on Configuration IEEE 802.11a Connector J3 / 5300 MHz



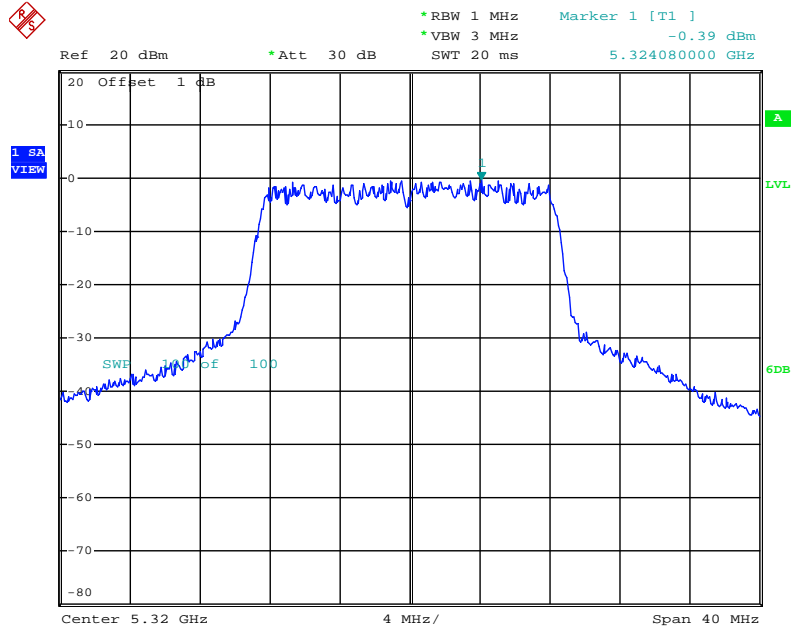
Date: 18.JUN.2011 16:37:07

Power Density Plot on Configuration IEEE 802.11a Connector J4 / 5300 MHz



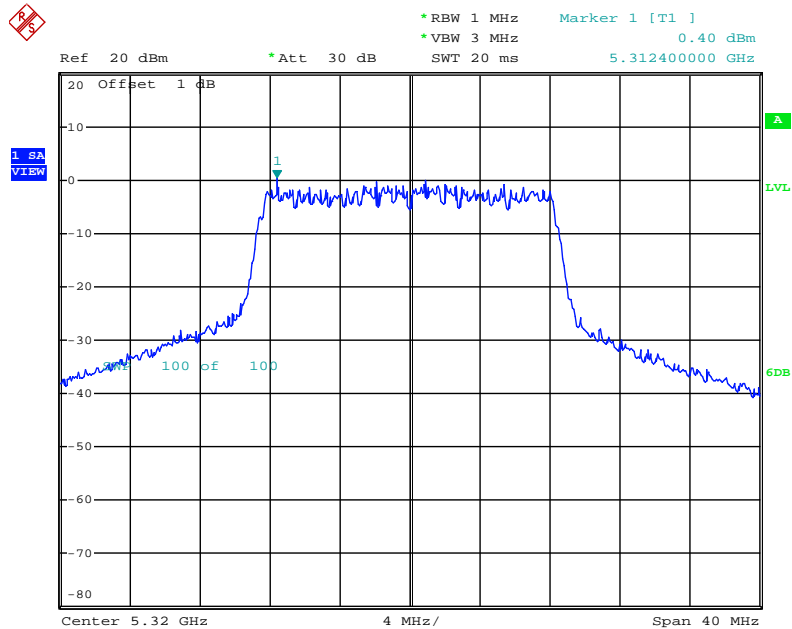
Date: 18.JUN.2011 16:35:23

Power Density Plot on Configuration IEEE 802.11a Connector J2 / 5320 MHz



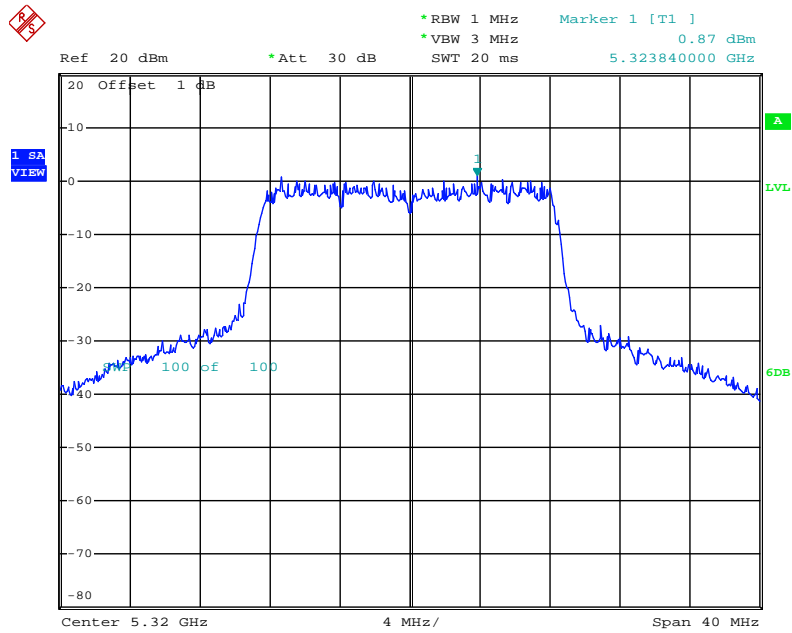
Date: 18.JUN.2011 16:39:42

Power Density Plot on Configuration IEEE 802.11a Connector J3 / 5320 MHz



Date: 18.JUN.2011 16:40:05

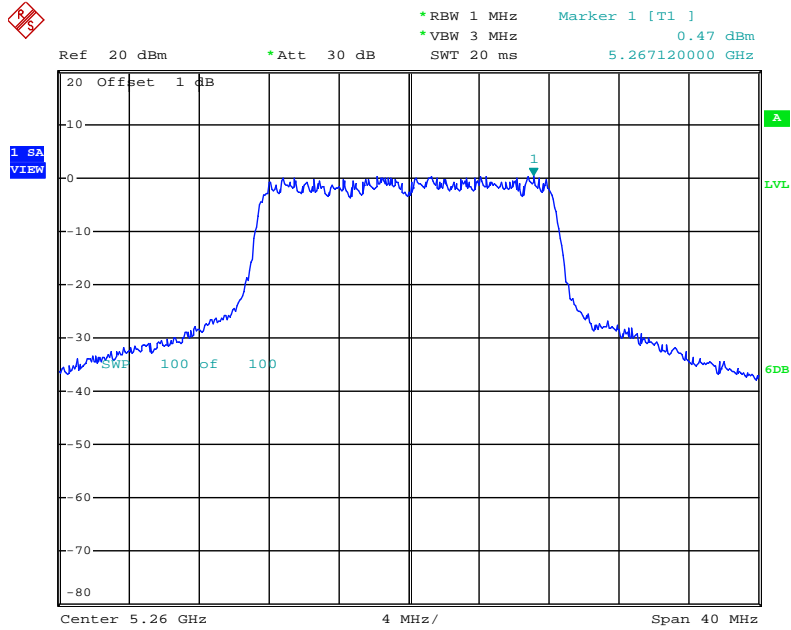
Power Density Plot on Configuration IEEE 802.11a Connector J4 / 5320 MHz



Date: 18.JUN.2011 16:40:24

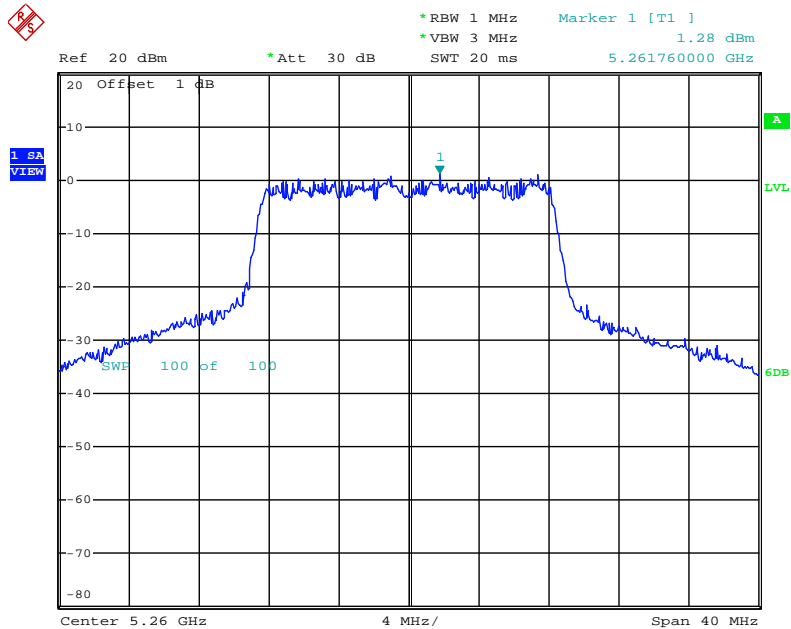
<For Internal Antenna / Ant. 8>

Power Density Plot on Configuration IEEE 802.11a Connector J2 / 5260 MHz



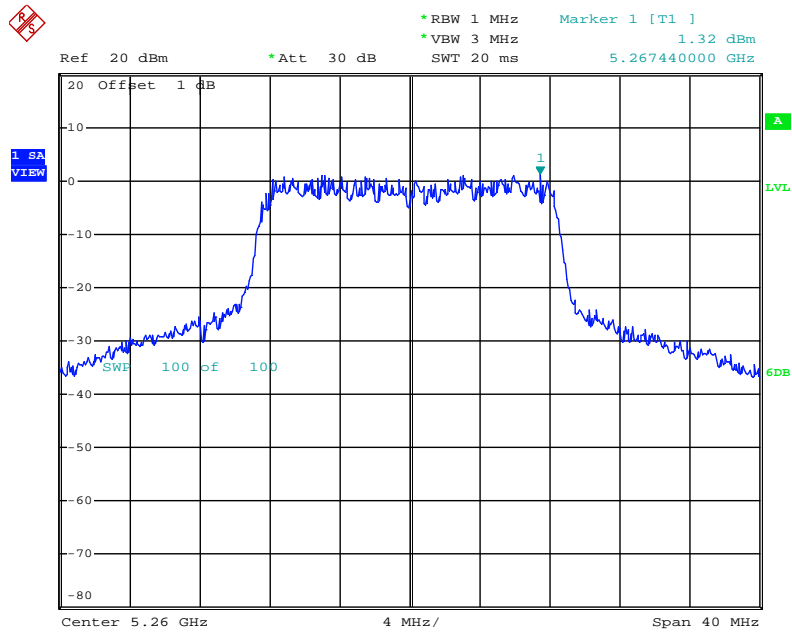
Date: 18.JUN.2011 16:58:08

Power Density Plot on Configuration IEEE 802.11a Connector J3 / 5260 MHz



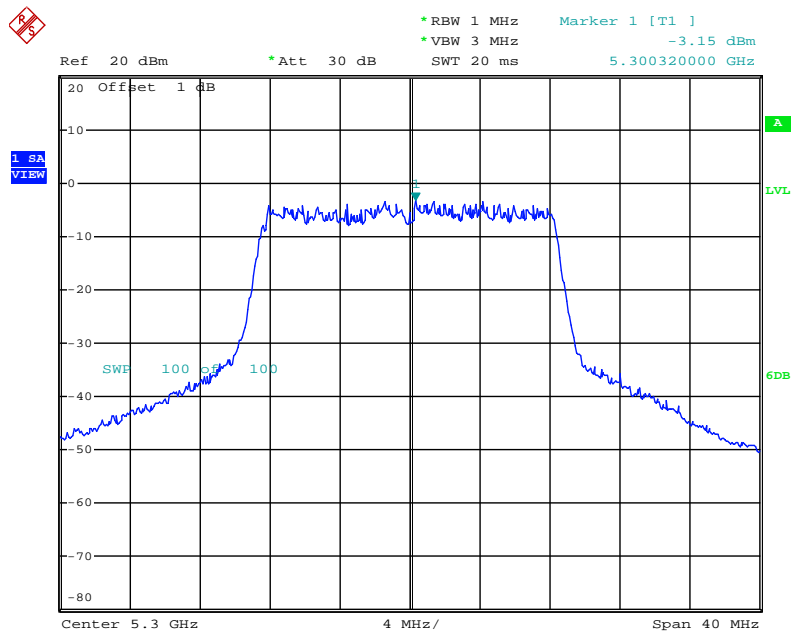
Date: 18.JUN.2011 16:58:31

Power Density Plot on Configuration IEEE 802.11a Connector J4 / 5260 MHz



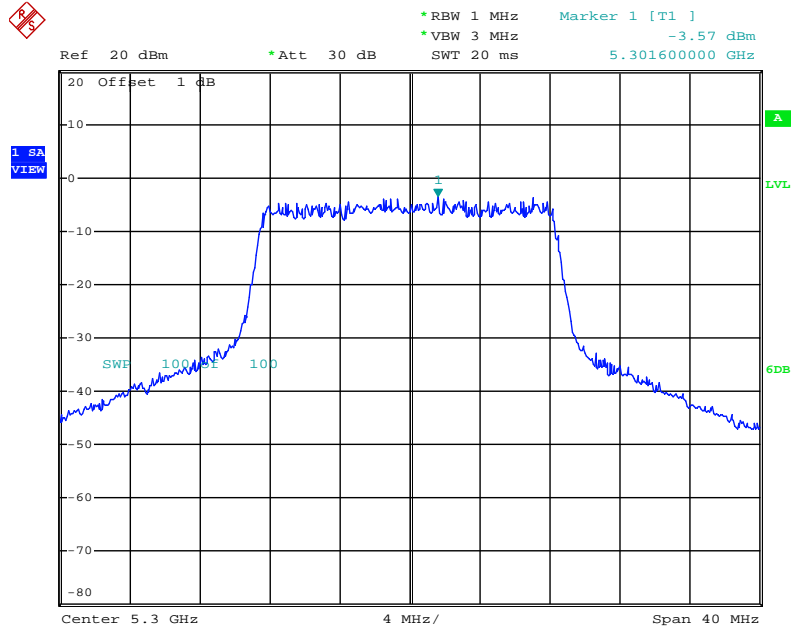
Date: 18.JUN.2011 16:58:45

Power Density Plot on Configuration IEEE 802.11a Connector J2 / 5300 MHz



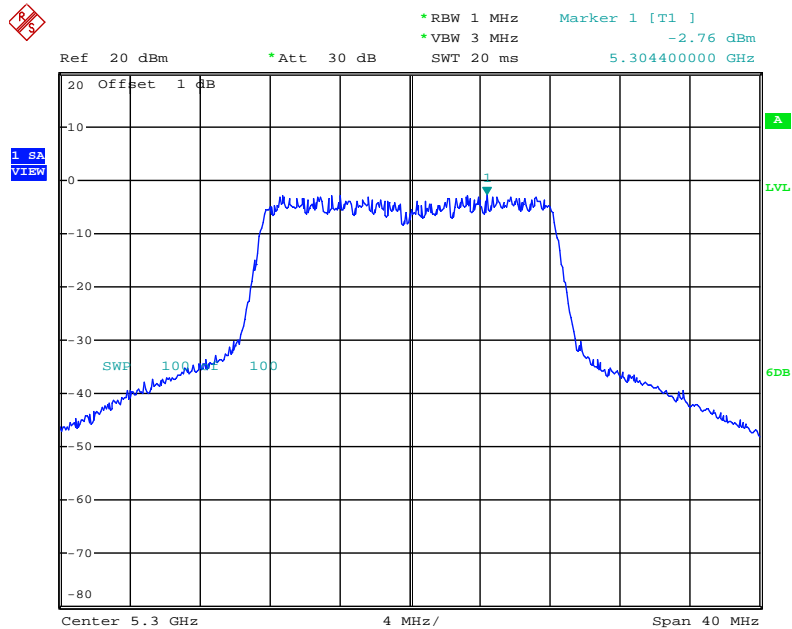
Date: 18.JUN.2011 16:57:20

Power Density Plot on Configuration IEEE 802.11a Connector J3 / 5300 MHz



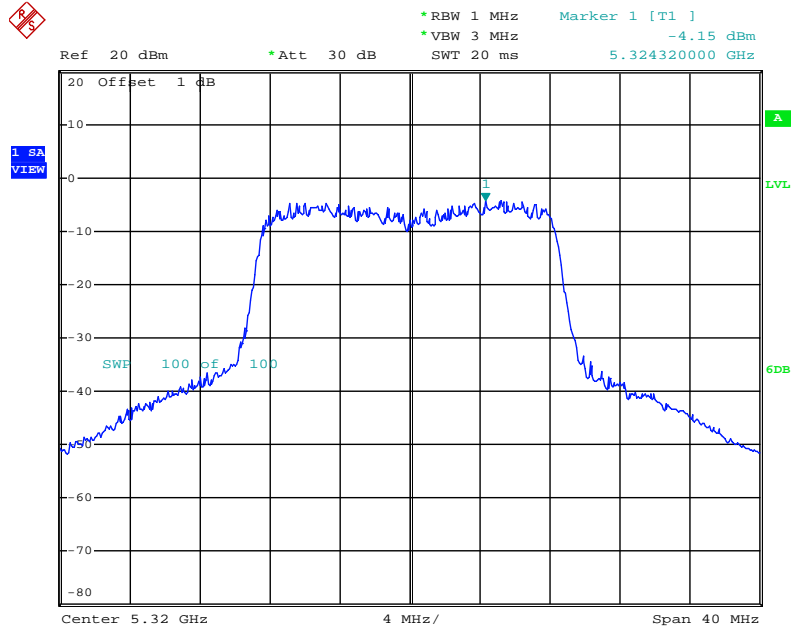
Date: 18.JUN.2011 16:56:53

Power Density Plot on Configuration IEEE 802.11a Connector J4 / 5300 MHz



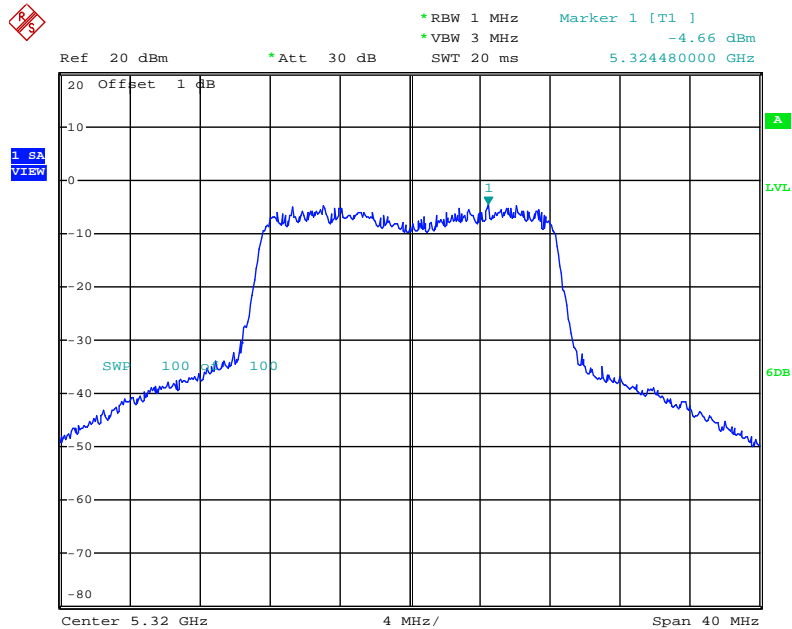
Date: 18.JUN.2011 16:56:32

Power Density Plot on Configuration IEEE 802.11a Connector J2 / 5320 MHz



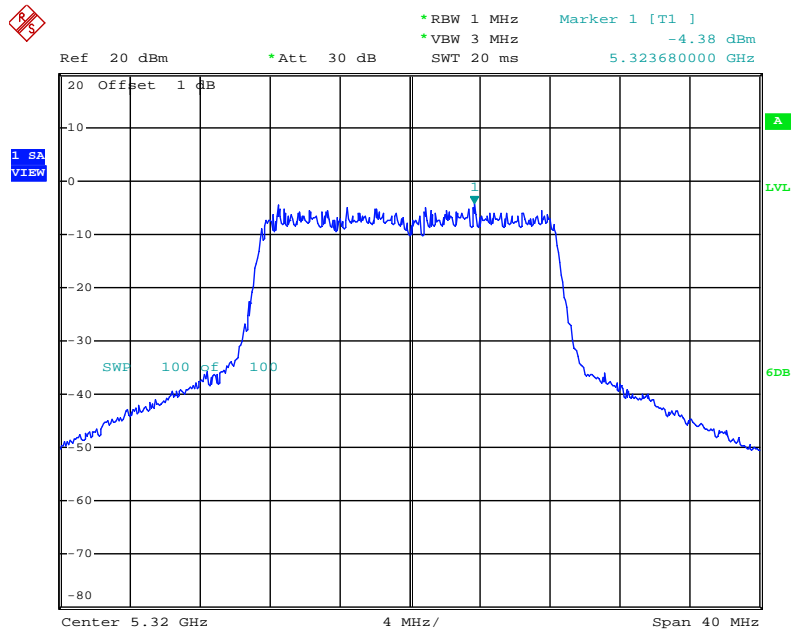
Date: 18.JUN.2011 16:55:35

Power Density Plot on Configuration IEEE 802.11a Connector J3 / 5320 MHz



Date: 18.JUN.2011 16:55:06

Power Density Plot on Configuration IEEE 802.11a Connector J4 / 5320 MHz



Date: 18.JUN.2011 16:55:57

4.5. Peak Excursion Measurement

4.5.1. Limit

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.

4.5.2. Measuring Instruments and Setting

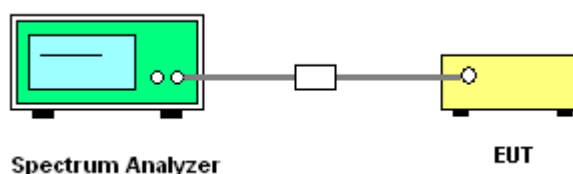
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting |
|--------------------|--|
| Attenuation | Auto |
| Span Frequency | Encompass the entire emissions bandwidth (EBW) of the signal |
| RB | 1000 kHz (Peak Trace) / 1000 kHz (Average Trace) |
| VB | 3000 kHz (Peak Trace) / 300 kHz (Average Trace) |
| Detector | Peak (Peak Trace) / Sample (Average Trace) |
| Trace | Max Hold |
| Sweep Time | 60s |

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set the spectrum analyzer span to view the entire emissions bandwidth. The largest difference between the following two traces (Peak Trace and Average Trace) must be ≤ 13 dB for all frequencies across the emissions bandwidth. Submit a plot.
3. Peak Trace: Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and max-hold settings.
4. Average Trace: Method #3—video averaging with max hold--and sum power across the band. Set span to encompass the entire emissions bandwidth (EBW) of the signal. Set sweep trigger to "free run". Set RBW = 1 MHz. Set VBW $\geq 1/T$ (IEEE 802.11nVBW = 300kHz $\geq 1/4\mu$ s). Use sample detector mode if bin width (i.e., span/number of points in spectrum) < 0.5 RBW. Otherwise use peak detector mode. Set max hold. Allow max hold to run for 60 seconds.
5. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Peak Excursion

<For External Antenna / Ant. 5>

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 5 |

Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4

| Channel | Frequency | Peak Excursion (dB) | Max. Limit (dB) | Result |
|---------|-----------|---------------------|-----------------|----------|
| 52 | 5260 MHz | 5.17 | 13 | Complies |
| 60 | 5300 MHz | 4.86 | 13 | Complies |
| 64 | 5320 MHz | 4.20 | 13 | Complies |
| 100 | 5500 MHz | 5.20 | 13 | Complies |
| 116 | 5580 MHz | 6.21 | 13 | Complies |
| 140 | 5700 MHz | 5.45 | 13 | Complies |

Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4

| Channel | Frequency | Peak Excursion (dB) | Max. Limit (dB) | Result |
|---------|-----------|---------------------|-----------------|----------|
| 54 | 5270 MHz | 6.10 | 13 | Complies |
| 62 | 5310 MHz | 6.09 | 13 | Complies |
| 102 | 5510MHz | 5.73 | 13 | Complies |
| 110 | 5550 MHz | 4.78 | 13 | Complies |
| 134 | 5670 MHz | 5.65 | 13 | Complies |

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 5 |

Configuration IEEE 802.11a Connector J2 + J3 + J4

| Channel | Frequency | Peak Excursion (dB) | Max. Limit (dB) | Result |
|---------|-----------|---------------------|-----------------|----------|
| 52 | 5260 MHz | 6.20 | 13 | Complies |
| 60 | 5300 MHz | 5.81 | 13 | Complies |
| 64 | 5320 MHz | 6.36 | 13 | Complies |
| 100 | 5500 MHz | 6.05 | 13 | Complies |
| 116 | 5580 MHz | 5.91 | 13 | Complies |
| 140 | 5700 MHz | 4.73 | 13 | Complies |

Note: All the test values were listed in the report.

For plots, only the worse case of OFDM modulation was listed in the report.

<For External Antenna / Ant. 6>

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 6 |

Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4

| Channel | Frequency | Peak Excursion (dB) | Max. Limit (dB) | Result |
|---------|-----------|---------------------|-----------------|----------|
| 52 | 5260 MHz | 5.98 | 13 | Complies |
| 60 | 5300 MHz | 4.33 | 13 | Complies |
| 64 | 5320 MHz | 4.20 | 13 | Complies |
| 100 | 5500 MHz | 5.03 | 13 | Complies |
| 116 | 5580 MHz | 6.21 | 13 | Complies |
| 140 | 5700 MHz | 5.45 | 13 | Complies |

Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4

| Channel | Frequency | Peak Excursion (dB) | Max. Limit (dB) | Result |
|---------|-----------|---------------------|-----------------|----------|
| 54 | 5270 MHz | 5.13 | 13 | Complies |
| 62 | 5310 MHz | 5.89 | 13 | Complies |
| 102 | 5510MHz | 4.97 | 13 | Complies |
| 110 | 5550 MHz | 6.06 | 13 | Complies |
| 134 | 5670 MHz | 5.65 | 13 | Complies |

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 6 |

Configuration IEEE 802.11a Connector J2 + J3 + J4

| Channel | Frequency | Peak Excursion (dB) | Max. Limit (dB) | Result |
|---------|-----------|---------------------|-----------------|-----------------|
| 52 | 5260 MHz | 6.20 | 13 | Complies |
| 60 | 5300 MHz | 4.80 | 13 | Complies |
| 64 | 5320 MHz | 5.09 | 13 | Complies |
| 100 | 5500 MHz | 5.44 | 13 | Complies |
| 116 | 5580 MHz | 5.91 | 13 | Complies |
| 140 | 5700 MHz | 4.78 | 13 | Complies |

Note: All the test values were listed in the report.

For plots, only the worse case of OFDM modulation was listed in the report.

<For Internal Antenna / Ant. 8>

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 8 |

Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4

| Channel | Frequency | Peak Excursion (dB) | Max. Limit (dB) | Result |
|---------|-----------|---------------------|-----------------|----------|
| 52 | 5260 MHz | 5.10 | 13 | Complies |
| 60 | 5300 MHz | 5.73 | 13 | Complies |
| 64 | 5320 MHz | 3.27 | 13 | Complies |
| 100 | 5500 MHz | 6.51 | 13 | Complies |
| 116 | 5580 MHz | 6.54 | 13 | Complies |
| 140 | 5700 MHz | 5.21 | 13 | Complies |

Configuration IEEE 802.11n MCS8 40MHz Connector J2 + J3 + J4

| Channel | Frequency | Peak Excursion (dB) | Max. Limit (dB) | Result |
|---------|-----------|---------------------|-----------------|----------|
| 54 | 5270 MHz | 4.62 | 13 | Complies |
| 62 | 5310 MHz | 5.98 | 13 | Complies |
| 102 | 5510MHz | 3.97 | 13 | Complies |
| 110 | 5550 MHz | 5.39 | 13 | Complies |
| 134 | 5670 MHz | 5.49 | 13 | Complies |

| | | | |
|----------------------|-----------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 8 |

Configuration IEEE 802.11a Connector J2 + J3 + J4

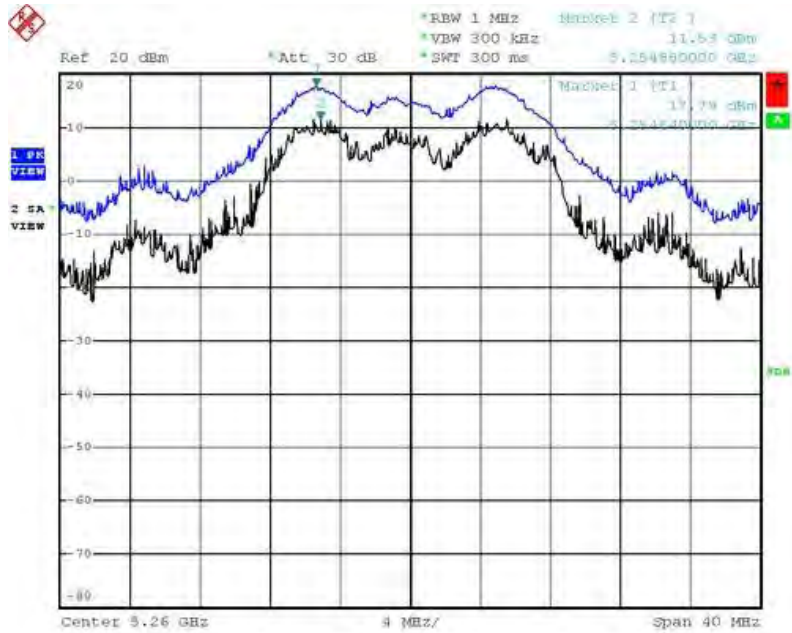
| Channel | Frequency | Peak Excursion (dB) | Max. Limit (dB) | Result |
|---------|-----------|---------------------|-----------------|----------|
| 52 | 5260 MHz | 5.18 | 13 | Complies |
| 60 | 5300 MHz | 5.39 | 13 | Complies |
| 64 | 5320 MHz | 5.30 | 13 | Complies |
| 100 | 5500 MHz | 5.85 | 13 | Complies |
| 116 | 5580 MHz | 5.00 | 13 | Complies |
| 140 | 5700 MHz | 5.55 | 13 | Complies |

Note: All the test values were listed in the report.

For plots, only the worse case of OFDM modulation was listed in the report.

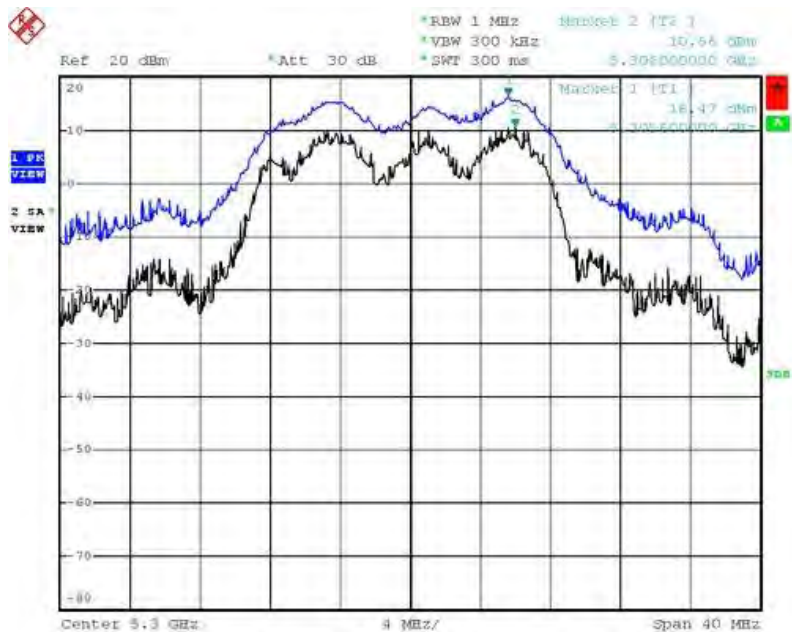
<For External Antenna / Ant. 5>

Peak Excursion Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5260 MHz



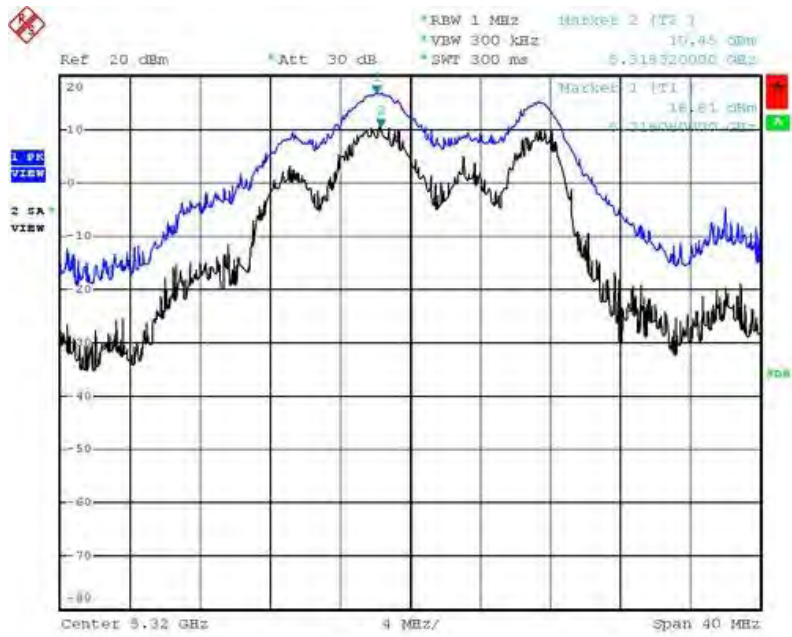
Date: 5.APR.2011 19:33:11

Peak Excursion Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5300 MHz



Date: 10.APR.2011 11:23:37

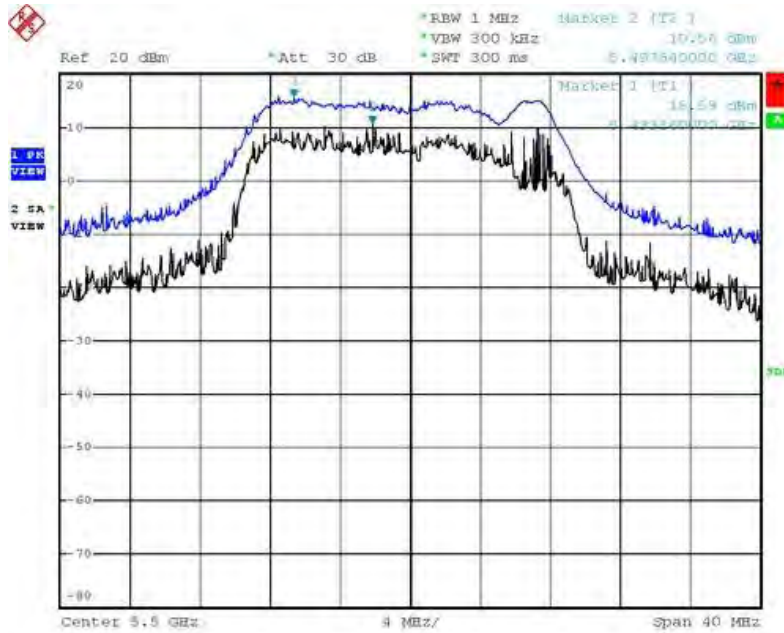
Peak Excursion Plot on Configuration IEEE 802.11a Connector J2 + J3 + J4 / 5320 MHz



Date: 10.APR.2011 12:21:09

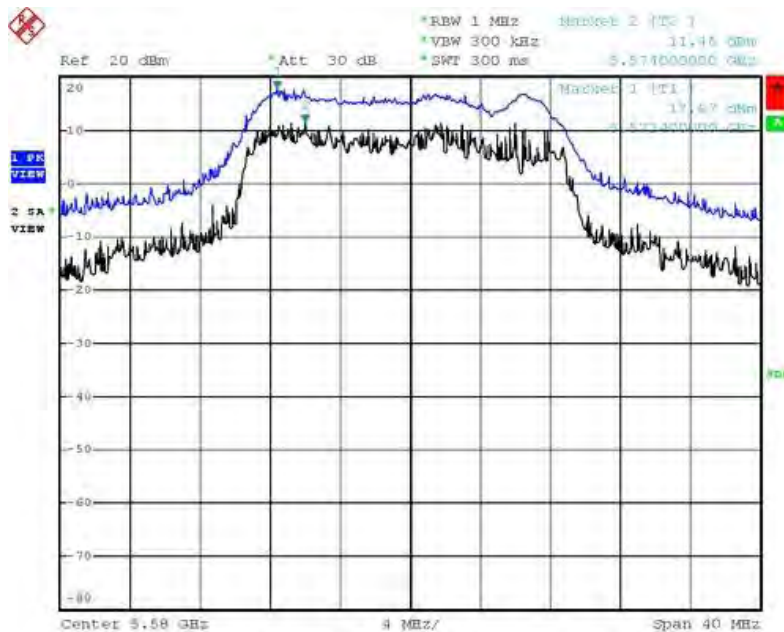
<For External Antenna / Ant. 6>

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5500 MHz



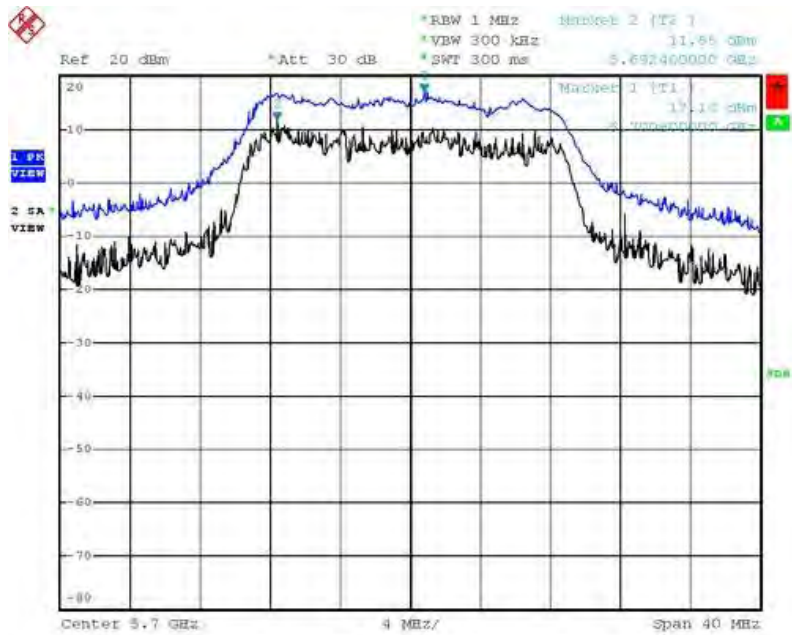
Date: 5.APR.2011 20:03:31

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5580 MHz



Date: 5.APR.2011 20:05:11

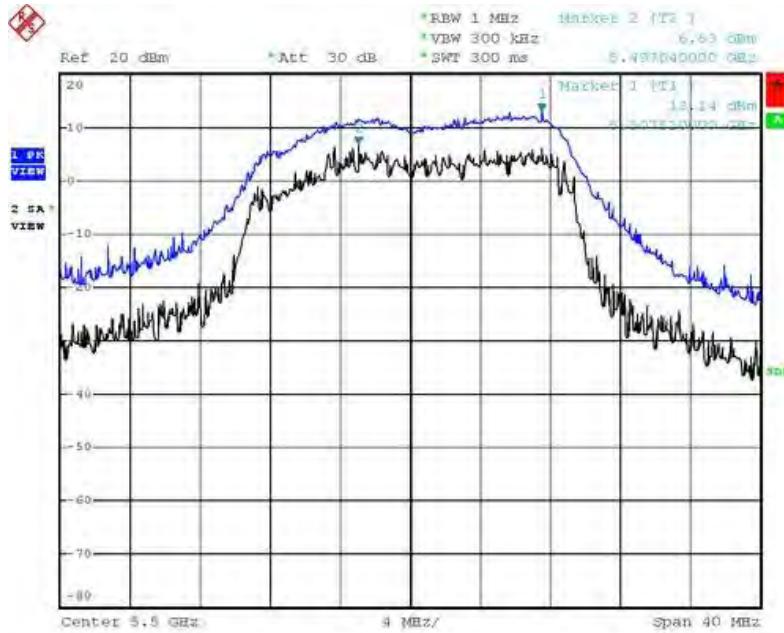
Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5700 MHz



Date: 5.APR.2011 20:06:21

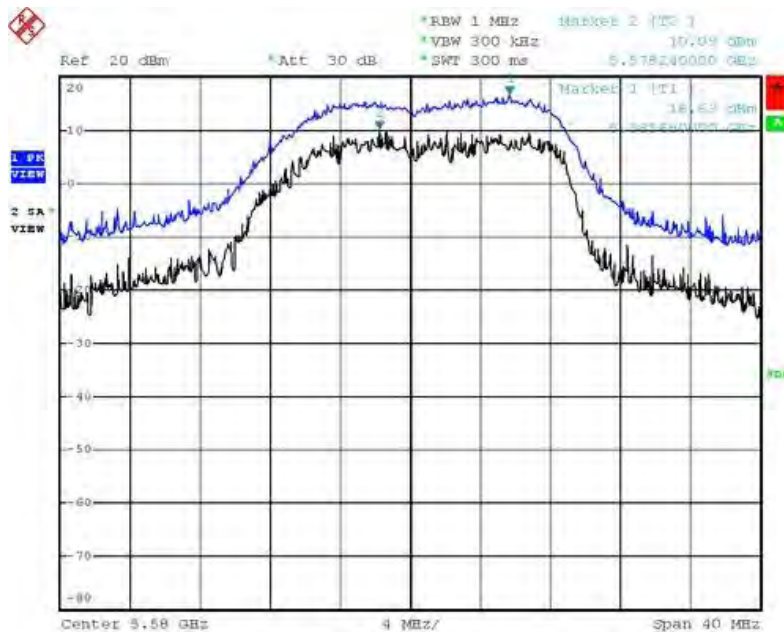
<For Internal Antenna / Ant. 8>

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5500 MHz



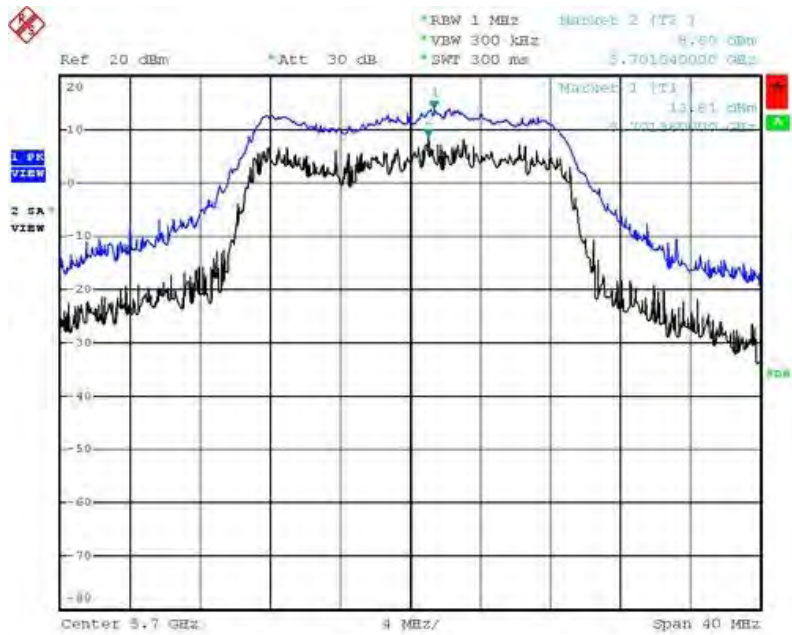
Date: 5.APR.2011 21:40:37

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5580 MHz



Date: 5.APR.2011 21:41:44

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz Connector J2 + J3 + J4 / 5700 MHz



Date: 5.APR.2011 21:42:48

4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.470-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (micровolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

| Spectrum Parameter | Setting |
|---|--|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 40 GHz |
| RB / VB (Emission in restricted band) | 1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average |
| RB / VB (Emission in non-restricted band) | 1000KHz / 1000KHz for peak |

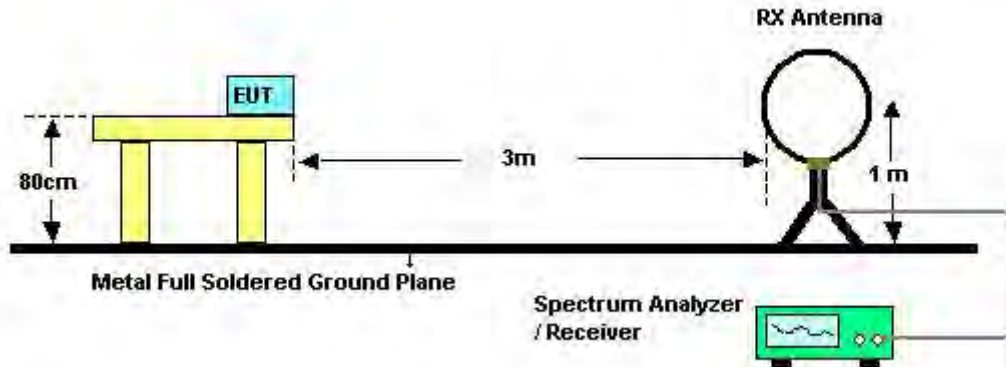
| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

4.6.3. Test Procedures

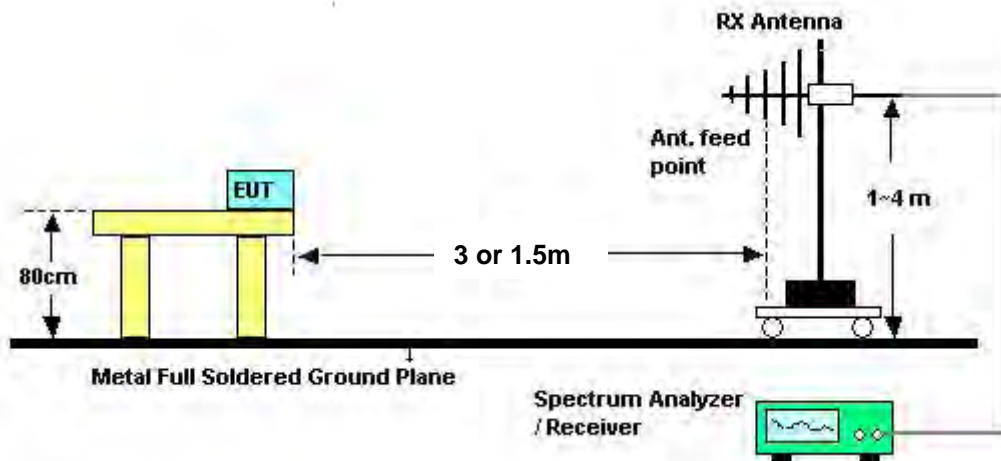
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.6.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1.5m.

Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1.5m]})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Results of Radiated Emissions (9kHz~30MHz)

| | | | |
|----------------------|---------------|-----------------------|-------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | Normal Link |
| Test Date | Mar. 09, 2011 | | |

| Freq. (MHz) | Level (dBuV) | Over Limit (dB) | Limit Line (dBuV) | Remark |
|--------------------|---------------------|------------------------|--------------------------|---------------|
| - | - | - | - | See Note |

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

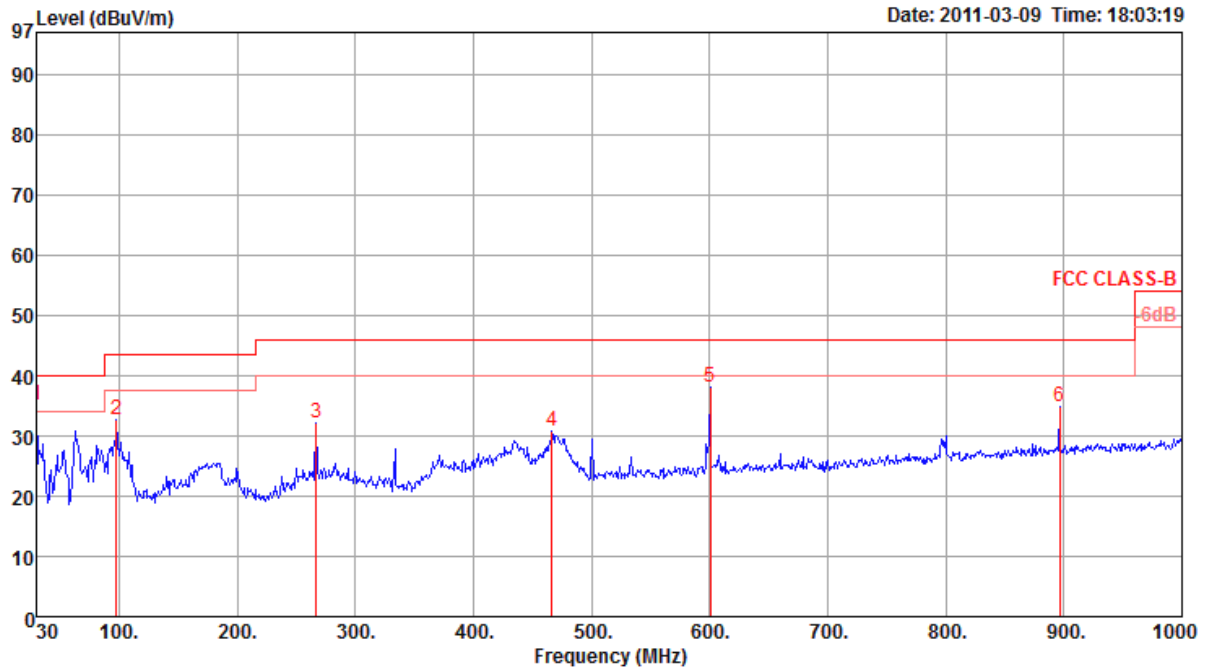
Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.6.8. Results of Radiated Emissions (30MHz~1GHz)

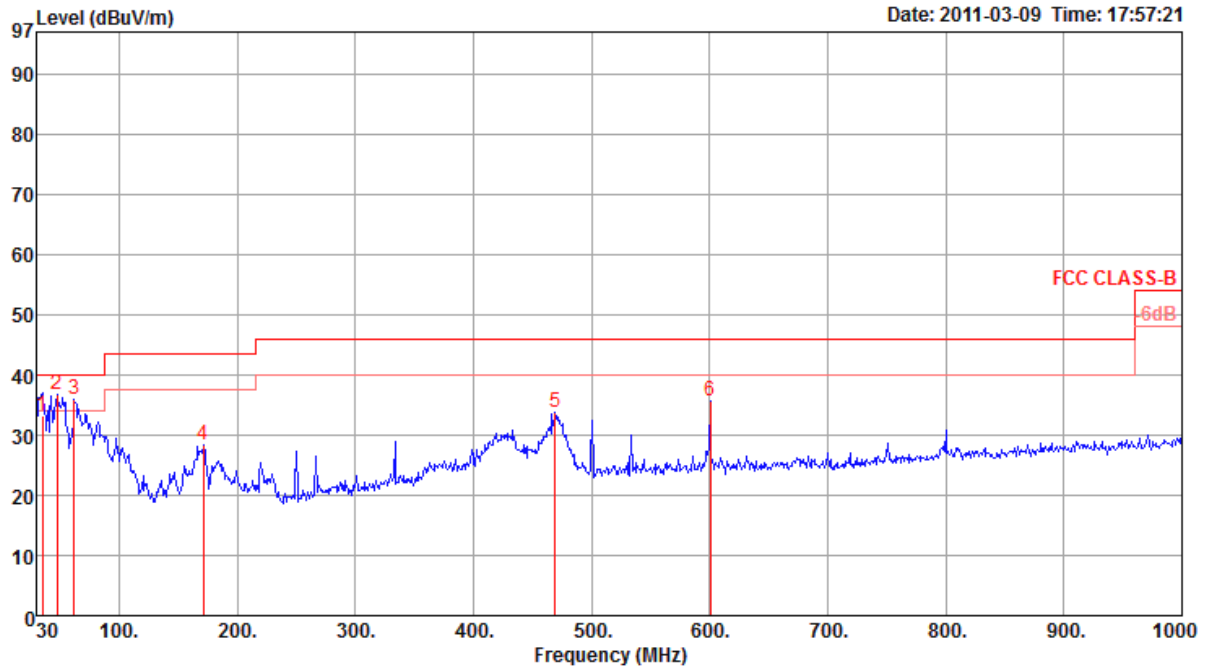
| | | | |
|---------------|---------|----------------|----------------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | Normal Link / Mode 2 |

Horizontal



| | Freq | Level | Limit | Over | Read | Cable | Preamp | Antenna | T/Pos | A/Pos | Remark | Pol/Phase |
|-----|--------|--------|--------|--------|-------|-------|--------|---------|-------|-------|--------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB | dB/m | deg | cm | | |
| 1 p | 30.00 | 35.03 | 40.00 | -4.97 | 43.92 | 0.50 | 27.80 | 18.41 | 0 | 100 | Peak | HORIZONTAL |
| 2 | 97.90 | 32.74 | 43.50 | -10.76 | 48.76 | 1.16 | 27.61 | 10.43 | 0 | 100 | Peak | HORIZONTAL |
| 3 | 266.68 | 32.16 | 46.00 | -13.84 | 44.23 | 1.97 | 26.97 | 12.93 | 0 | 100 | Peak | HORIZONTAL |
| 4 | 466.50 | 30.81 | 46.00 | -15.19 | 38.99 | 2.63 | 27.93 | 17.12 | 0 | 100 | Peak | HORIZONTAL |
| 5 | 600.36 | 38.12 | 46.00 | -7.88 | 44.50 | 2.90 | 28.10 | 18.82 | 0 | 100 | Peak | HORIZONTAL |
| 6 | 896.21 | 34.84 | 46.00 | -11.16 | 37.53 | 3.58 | 27.41 | 21.14 | 0 | 100 | Peak | HORIZONTAL |

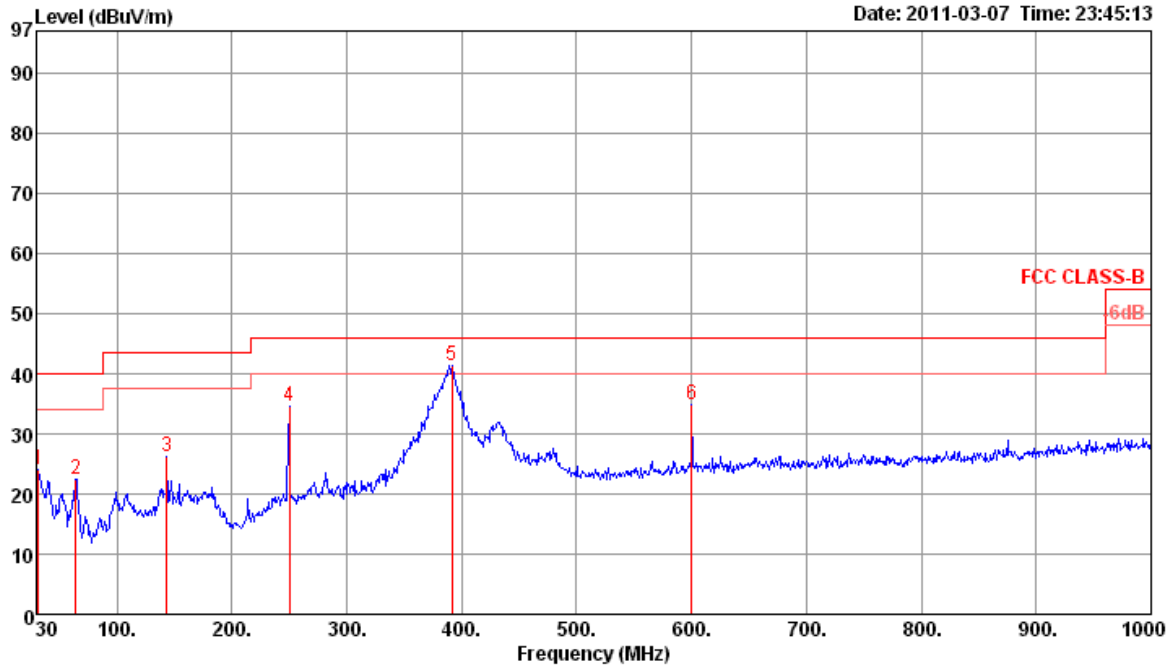
Vertical



| | Freq | Level | Limit | Over | Read | Cable | Preamp | Antenna | T/Pos | A/Pos | Remark | Pol/Phase |
|---|------|--------|--------|-------|--------|-------|--------|---------|-------|-------|----------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB | dB/m | deg | cm | | |
| 1 | q | 34.85 | 33.30 | 40.00 | -6.70 | 45.27 | 0.50 | 27.80 | 15.33 | 256 | 135 QP | VERTICAL |
| 2 | p | 47.46 | 36.87 | 40.00 | -3.13 | 55.47 | 0.70 | 27.80 | 8.50 | 0 | 400 Peak | VERTICAL |
| 3 | l | 62.01 | 36.03 | 40.00 | -3.97 | 56.67 | 0.84 | 27.75 | 6.27 | 0 | 400 Peak | VERTICAL |
| 4 | | 171.62 | 28.37 | 43.50 | -15.13 | 44.73 | 1.56 | 27.24 | 9.32 | 0 | 400 Peak | VERTICAL |
| 5 | | 469.41 | 33.86 | 46.00 | -12.14 | 42.01 | 2.64 | 27.95 | 17.16 | 0 | 400 Peak | VERTICAL |
| 6 | | 600.36 | 35.78 | 46.00 | -10.22 | 42.16 | 2.90 | 28.10 | 18.82 | 0 | 400 Peak | VERTICAL |

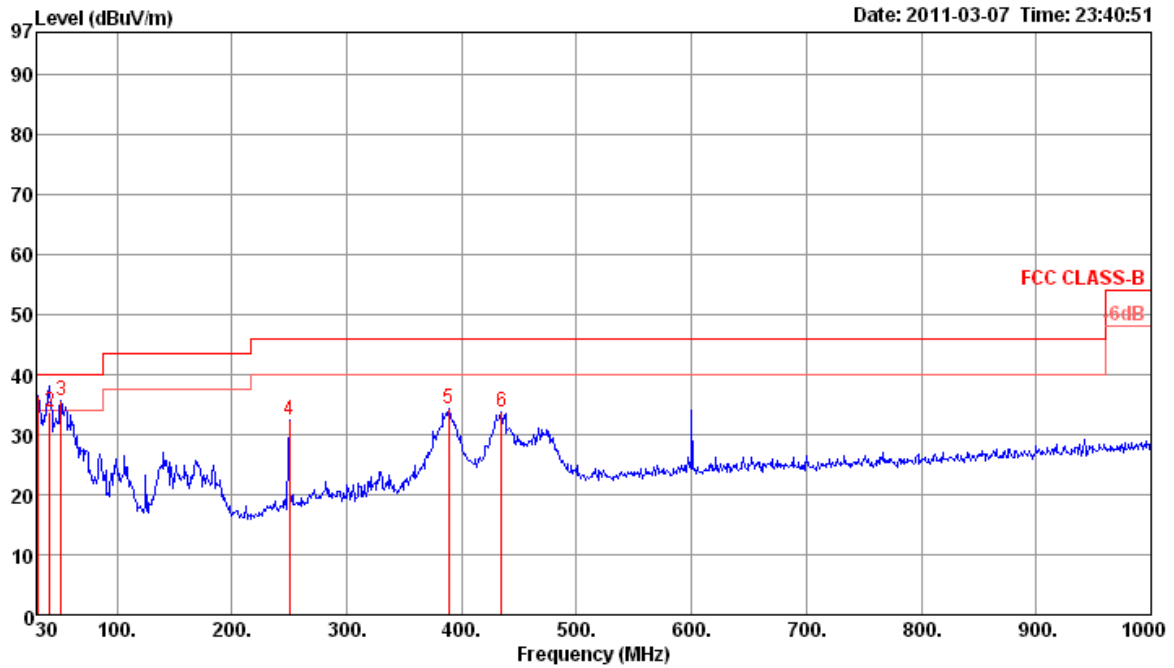
| | | | |
|---------------|---------|----------------|----------------------|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | Normal Link / Mode 4 |

Horizontal



| | Freq | Level | Limit | Over | Read | Cable | Preamp | Antenna | T/Pos | A/Pos | Remark | Pol/Phase |
|-----|--------|--------|--------|--------|-------|-------|--------|---------|-------|-------|--------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB | dB/m | deg | cm | | |
| 1 | 31.94 | 24.02 | 40.00 | -15.98 | 33.63 | 0.50 | 27.80 | 17.69 | 0 | 100 | Peak | HORIZONTAL |
| 2 | 63.95 | 22.54 | 40.00 | -17.46 | 42.68 | 0.88 | 27.74 | 6.72 | 0 | 100 | Peak | HORIZONTAL |
| 3 | 143.49 | 26.10 | 43.50 | -17.40 | 39.89 | 1.42 | 27.38 | 12.17 | 0 | 100 | Peak | HORIZONTAL |
| 4 | 250.19 | 34.53 | 46.00 | -11.47 | 46.86 | 1.90 | 27.00 | 12.77 | 0 | 100 | Peak | HORIZONTAL |
| 5 P | 391.81 | 41.35 | 46.00 | -4.65 | 50.77 | 2.28 | 27.55 | 15.85 | 0 | 100 | Peak | HORIZONTAL |
| 6 | 600.36 | 34.72 | 46.00 | -11.28 | 41.15 | 2.90 | 28.10 | 18.77 | 0 | 100 | Peak | HORIZONTAL |

Vertical



| | Freq | Level | Limit | Over | Read | Cable | Preamp | Antenna | T/Pos | A/Pos | Remark | Pol/Phase |
|-----|--------|--------|--------|--------|-------|-------|--------|---------|-------|-------|--------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB | dB/m | deg | cm | | |
| 1 p | 30.97 | 36.59 | 40.00 | -3.41 | 45.67 | 0.50 | 27.80 | 18.22 | 0 | 400 | Peak | VERTICAL |
| 2 q | 41.63 | 33.89 | 40.00 | -6.11 | 49.00 | 0.70 | 27.80 | 11.99 | 178 | 100 | QP | VERTICAL |
| 3 l | 51.34 | 35.66 | 40.00 | -4.34 | 54.38 | 0.72 | 27.79 | 8.35 | 0 | 400 | Peak | VERTICAL |
| 4 | 250.19 | 32.53 | 46.00 | -13.47 | 44.86 | 1.90 | 27.00 | 12.77 | 0 | 400 | Peak | VERTICAL |
| 5 | 388.90 | 34.33 | 46.00 | -11.67 | 43.80 | 2.28 | 27.52 | 15.77 | 0 | 400 | Peak | VERTICAL |
| 6 | 434.49 | 33.70 | 46.00 | -12.30 | 42.36 | 2.51 | 27.77 | 16.60 | 0 | 400 | Peak | VERTICAL |

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.6.9. Results for Radiated Emissions (1GHz~40GHz)

<For External Antenna / Ant. 5>

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 52 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15779.93 | 61.11 | 80.00 | -18.89 | 52.98 | 6.14 | 37.41 | 35.42 | 239 | 100 | Peak | HORIZONTAL |
| 2 | 15780.50 | 49.22 | 60.00 | -10.78 | 41.09 | 6.14 | 37.41 | 35.42 | 239 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15780.10 | 57.78 | 80.00 | -22.22 | 49.65 | 6.14 | 37.41 | 35.42 | 204 | 100 | Peak | VERTICAL |
| 2 | 15780.44 | 45.13 | 60.00 | -14.87 | 37.00 | 6.14 | 37.41 | 35.42 | 204 | 100 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 60 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10600.00 | 56.62 | 60.00 | -3.38 | 48.65 | 5.01 | 38.38 | 35.42 | 293 | 100 | Average | HORIZONTAL |
| 2 | 10600.00 | 68.72 | 80.00 | -11.28 | 60.75 | 5.01 | 38.38 | 35.42 | 293 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10600.00 | 53.91 | 60.00 | -6.09 | 45.94 | 5.01 | 38.38 | 35.42 | 293 | 104 | Average | VERTICAL |
| 2 | 10600.00 | 65.61 | 80.00 | -14.39 | 57.64 | 5.01 | 38.38 | 35.42 | 293 | 104 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 64 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10639.59 | 50.23 | 60.00 | -9.77 | 42.24 | 5.01 | 38.37 | 35.39 | 293 | 100 | Average | HORIZONTAL |
| 2 | 10640.32 | 64.28 | 80.00 | -15.72 | 56.29 | 5.01 | 38.37 | 35.39 | 293 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10639.69 | 59.77 | 80.00 | -20.23 | 51.78 | 5.01 | 38.37 | 35.39 | 293 | 100 | Peak | VERTICAL |
| 2 | 10640.07 | 46.09 | 60.00 | -13.91 | 38.10 | 5.01 | 38.37 | 35.39 | 293 | 100 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 100 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10999.83 | 62.66 | 80.00 | -17.34 | 54.43 | 5.01 | 38.32 | 35.10 | 240 | 100 | Peak | HORIZONTAL |
| 2 | 10999.85 | 46.12 | 60.00 | -13.88 | 37.89 | 5.01 | 38.32 | 35.10 | 240 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10999.53 | 40.76 | 60.00 | -19.24 | 32.55 | 5.01 | 38.30 | 35.10 | 289 | 100 | Average | VERTICAL |
| 2 | 11000.38 | 53.89 | 80.00 | -26.11 | 45.68 | 5.01 | 38.30 | 35.10 | 289 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 116 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 11159.74 | 53.99 | 60.00 | -6.01 | 45.65 | 5.04 | 38.47 | 35.17 | 232 | 100 Average | HORIZONTAL |
| 2 | 11159.79 | 65.63 | 80.00 | -14.37 | 57.29 | 5.04 | 38.47 | 35.17 | 232 | 100 Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 11159.92 | 65.49 | 80.00 | -14.51 | 57.15 | 5.04 | 38.47 | 35.17 | 287 | 100 Peak | VERTICAL |
| 2 | 11160.41 | 52.69 | 60.00 | -7.31 | 44.35 | 5.04 | 38.47 | 35.17 | 287 | 100 Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 140 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 11400.37 | 55.14 | 60.00 | -4.86 | 46.59 | 5.10 | 38.70 | 35.25 | 291 | 100 Average | HORIZONTAL |
| 2 | 11400.47 | 68.48 | 80.00 | -11.52 | 59.93 | 5.10 | 38.70 | 35.25 | 291 | 100 Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 11399.91 | 63.56 | 80.00 | -16.44 | 55.01 | 5.10 | 38.70 | 35.25 | 240 | 100 Peak | VERTICAL |
| 2 | 11400.15 | 51.02 | 60.00 | -8.98 | 42.47 | 5.10 | 38.70 | 35.25 | 240 | 100 Average | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 54 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 15810.08 | 42.16 | 60.00 | -17.84 | 34.06 | 6.14 | 37.39 | 35.43 | 238 | 100 Average | HORIZONTAL |
| 2 | 15810.50 | 54.41 | 80.00 | -25.59 | 46.33 | 6.14 | 37.37 | 35.43 | 238 | 100 Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 15809.67 | 51.88 | 80.00 | -28.12 | 43.78 | 6.14 | 37.39 | 35.43 | 230 | 100 Peak | VERTICAL |
| 2 | 15809.92 | 39.85 | 60.00 | -20.15 | 31.75 | 6.14 | 37.39 | 35.43 | 230 | 100 Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 62 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 10619.59 | 44.21 | 60.00 | -15.79 | 36.24 | 5.01 | 38.38 | 35.42 | 293 | 100 Average | HORIZONTAL |
| 2 | 10619.99 | 58.77 | 80.00 | -21.23 | 50.80 | 5.01 | 38.38 | 35.42 | 293 | 100 Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 10619.83 | 54.57 | 80.00 | -25.43 | 46.60 | 5.01 | 38.38 | 35.42 | 260 | 100 Peak | VERTICAL |
| 2 | 10620.30 | 40.33 | 60.00 | -19.67 | 32.36 | 5.01 | 38.38 | 35.42 | 260 | 100 Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 102 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 11019.55 | 42.05 | 60.00 | -17.95 | 33.81 | 5.02 | 38.33 | 35.11 | 240 | 100 Average | HORIZONTAL |
| 2 | 11019.96 | 59.40 | 80.00 | -20.60 | 51.16 | 5.02 | 38.33 | 35.11 | 240 | 100 Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 11019.57 | 38.54 | 60.00 | -21.46 | 30.31 | 5.02 | 38.32 | 35.11 | 152 | 100 Average | VERTICAL |
| 2 | 11019.80 | 52.39 | 80.00 | -27.61 | 44.16 | 5.02 | 38.32 | 35.11 | 152 | 100 Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 110 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11099.64 | 59.59 | 80.00 | -20.41 | 51.30 | 5.03 | 38.40 | 35.14 | 245 | 100 | Peak | HORIZONTAL |
| 2 | 11100.50 | 46.44 | 60.00 | -13.56 | 38.15 | 5.03 | 38.40 | 35.14 | 245 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11099.82 | 59.23 | 80.00 | -20.77 | 50.94 | 5.03 | 38.40 | 35.14 | 154 | 150 | Peak | VERTICAL |
| 2 | 11100.31 | 42.77 | 60.00 | -17.23 | 34.48 | 5.03 | 38.40 | 35.14 | 154 | 150 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 134 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11339.78 | 66.93 | 80.00 | -13.07 | 58.46 | 5.08 | 38.63 | 35.24 | 124 | 103 | Peak | HORIZONTAL |
| 2 | 11340.08 | 52.26 | 60.00 | -7.74 | 43.79 | 5.08 | 38.63 | 35.24 | 124 | 103 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11339.87 | 62.59 | 80.00 | -17.41 | 54.12 | 5.08 | 38.63 | 35.24 | 290 | 100 | Peak | VERTICAL |
| 2 | 11340.29 | 48.07 | 60.00 | -11.93 | 39.59 | 5.09 | 38.63 | 35.24 | 290 | 100 | Average | VERTICAL |

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 52 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15780.27 | 65.01 | 80.00 | -14.99 | 56.88 | 6.14 | 37.41 | 35.42 | 240 | 105 | Peak | HORIZONTAL |
| 2 | 15780.42 | 51.62 | 60.00 | -8.38 | 43.49 | 6.14 | 37.41 | 35.42 | 240 | 105 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15779.80 | 60.15 | 80.00 | -19.85 | 52.02 | 6.14 | 37.41 | 35.42 | 230 | 114 | Peak | VERTICAL |
| 2 | 15780.19 | 47.28 | 60.00 | -12.72 | 39.15 | 6.14 | 37.41 | 35.42 | 230 | 114 | Average | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 60 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10600.43 | 74.30 | 80.00 | -5.70 | 66.33 | 5.01 | 38.38 | 35.42 | 294 | 100 | Peak | HORIZONTAL |
| 2 | 10600.45 | 59.03 | 60.00 | -0.97 | 51.06 | 5.01 | 38.38 | 35.42 | 294 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10600.45 | 71.41 | 80.00 | -8.59 | 63.44 | 5.01 | 38.38 | 35.42 | 293 | 100 | Peak | VERTICAL |
| 2 | 10600.46 | 57.13 | 60.00 | -2.87 | 49.16 | 5.01 | 38.38 | 35.42 | 293 | 100 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 64 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10640.22 | 69.26 | 80.00 | -10.74 | 61.27 | 5.01 | 38.37 | 35.39 | 295 | 100 | Peak | HORIZONTAL |
| 2 | 10640.47 | 55.60 | 60.00 | -4.40 | 47.61 | 5.01 | 38.37 | 35.39 | 295 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10640.42 | 64.83 | 80.00 | -15.17 | 56.84 | 5.01 | 38.37 | 35.39 | 294 | 100 | Peak | VERTICAL |
| 2 | 10640.48 | 51.20 | 60.00 | -8.80 | 43.21 | 5.01 | 38.37 | 35.39 | 294 | 100 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 100 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11000.45 | 59.68 | 80.00 | -20.32 | 51.45 | 5.01 | 38.32 | 35.10 | 294 | 100 | Peak | HORIZONTAL |
| 2 | 11000.47 | 47.41 | 60.00 | -12.59 | 39.18 | 5.01 | 38.32 | 35.10 | 294 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11000.32 | 45.47 | 60.00 | -14.53 | 37.26 | 5.01 | 38.30 | 35.10 | 270 | 100 | Average | VERTICAL |
| 2 | 11000.45 | 58.35 | 80.00 | -21.65 | 50.14 | 5.01 | 38.30 | 35.10 | 270 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 116 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|-------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 11159.78 | 58.11 | 60.00 | -1.89 | 49.77 | 5.04 | 38.47 | 35.17 | 246 | 100 Average | HORIZONTAL |
| 2 | 11160.21 | 72.29 | 80.00 | -7.71 | 63.95 | 5.04 | 38.47 | 35.17 | 246 | 100 Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 11159.62 | 68.64 | 80.00 | -11.36 | 60.30 | 5.04 | 38.47 | 35.17 | 288 | 100 Peak | VERTICAL |
| 2 | 11159.85 | 55.53 | 60.00 | -4.47 | 47.19 | 5.04 | 38.47 | 35.17 | 288 | 100 Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 140 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11399.51 | 58.22 | 60.00 | -1.78 | 49.67 | 5.10 | 38.70 | 35.25 | 292 | 100 | Average | HORIZONTAL |
| 2 | 11399.65 | 73.04 | 80.00 | -6.96 | 64.49 | 5.10 | 38.70 | 35.25 | 292 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11399.50 | 54.40 | 60.00 | -5.60 | 45.85 | 5.10 | 38.70 | 35.25 | 295 | 100 | Average | VERTICAL |
| 2 | 11399.64 | 68.22 | 80.00 | -11.78 | 59.67 | 5.10 | 38.70 | 35.25 | 295 | 100 | Peak | VERTICAL |

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

<For External Antenna / Ant. 6>

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 52 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10518.70 | 53.49 | 74.00 | -20.51 | 45.58 | 5.01 | 38.40 | 35.50 | 33 | 100 | Average | HORIZONTAL |
| 2 | 10519.91 | 70.19 | 94.00 | -23.81 | 62.28 | 5.01 | 38.40 | 35.50 | 33 | 100 | Peak | HORIZONTAL |
| 3 | 15778.78 | 61.90 | 80.00 | -18.10 | 53.77 | 6.14 | 37.41 | 35.42 | 295 | 107 | Peak | HORIZONTAL |
| 4 | 15782.32 | 47.51 | 60.00 | -12.49 | 39.38 | 6.14 | 37.41 | 35.42 | 295 | 107 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10519.94 | 66.80 | 94.00 | -27.20 | 58.90 | 5.01 | 38.39 | 35.50 | 67 | 100 | Peak | VERTICAL |
| 2 | 10520.78 | 50.23 | 74.00 | -23.77 | 42.33 | 5.01 | 38.39 | 35.50 | 67 | 100 | Average | VERTICAL |
| 3 | 15782.20 | 51.69 | 60.00 | -8.31 | 43.56 | 6.14 | 37.41 | 35.42 | 322 | 112 | Average | VERTICAL |
| 4 | 15782.87 | 66.82 | 80.00 | -13.18 | 58.69 | 6.14 | 37.41 | 35.42 | 322 | 112 | Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 60 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10600.87 | 51.61 | 60.00 | -8.39 | 43.64 | 5.01 | 38.38 | 35.42 | 4 | 100 | Average | HORIZONTAL |
| 2 | 10601.08 | 67.02 | 80.00 | -12.98 | 59.05 | 5.01 | 38.38 | 35.42 | 4 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10600.00 | 63.32 | 80.00 | -16.68 | 55.35 | 5.01 | 38.38 | 35.42 | 66 | 100 | Peak | VERTICAL |
| 2 | 10600.39 | 48.14 | 60.00 | -11.86 | 40.17 | 5.01 | 38.38 | 35.42 | 66 | 100 | Average | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 64 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10639.19 | 64.28 | 80.00 | -15.72 | 56.29 | 5.01 | 38.37 | 35.39 | 5 | 100 | Peak | HORIZONTAL |
| 2 | 10640.78 | 48.68 | 60.00 | -11.32 | 40.69 | 5.01 | 38.37 | 35.39 | 5 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10641.14 | 59.73 | 80.00 | -20.27 | 51.74 | 5.01 | 38.37 | 35.39 | 300 | 100 | Peak | VERTICAL |
| 2 | 10642.39 | 45.01 | 60.00 | -14.99 | 37.02 | 5.01 | 38.37 | 35.39 | 300 | 100 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 100 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10996.18 | 60.15 | 80.00 | -19.85 | 51.92 | 5.01 | 38.32 | 35.10 | 52 | 100 | Peak | HORIZONTAL |
| 2 | 10998.64 | 45.57 | 60.00 | -14.43 | 37.34 | 5.01 | 38.32 | 35.10 | 52 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10998.45 | 42.00 | 60.00 | -18.00 | 33.79 | 5.01 | 38.30 | 35.10 | 305 | 113 | Average | VERTICAL |
| 2 | 10999.88 | 56.99 | 80.00 | -23.01 | 48.78 | 5.01 | 38.30 | 35.10 | 305 | 113 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 116 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11158.52 | 52.54 | 60.00 | -7.46 | 44.20 | 5.04 | 38.47 | 35.17 | 295 | 100 | Average | HORIZONTAL |
| 2 | 11159.33 | 67.94 | 80.00 | -12.06 | 59.60 | 5.04 | 38.47 | 35.17 | 295 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11158.51 | 49.43 | 60.00 | -10.57 | 41.09 | 5.04 | 38.47 | 35.17 | 301 | 100 | Average | VERTICAL |
| 2 | 11161.38 | 63.54 | 80.00 | -16.46 | 55.20 | 5.04 | 38.47 | 35.17 | 301 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 140 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11398.68 | 58.83 | 60.00 | -1.17 | 50.28 | 5.10 | 38.70 | 35.25 | 278 | 104 | Average | HORIZONTAL |
| 2 | 11399.00 | 75.27 | 80.00 | -4.73 | 66.72 | 5.10 | 38.70 | 35.25 | 278 | 104 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11396.19 | 50.79 | 60.00 | -9.21 | 42.26 | 5.10 | 38.68 | 35.25 | 274 | 100 | Average | VERTICAL |
| 2 | 11397.45 | 65.95 | 80.00 | -14.05 | 57.40 | 5.10 | 38.70 | 35.25 | 274 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 54 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10539.88 | 66.24 | 94.00 | -27.76 | 58.32 | 5.01 | 38.39 | 35.48 | 5 | 100 | Peak | HORIZONTAL |
| 2 | 10540.59 | 48.66 | 74.00 | -25.34 | 40.74 | 5.01 | 38.39 | 35.48 | 5 | 100 | Average | HORIZONTAL |
| 3 | 15803.03 | 41.44 | 60.00 | -18.56 | 33.34 | 6.14 | 37.39 | 35.43 | 307 | 107 | Average | HORIZONTAL |
| 4 | 15803.63 | 55.08 | 80.00 | -24.92 | 46.98 | 6.14 | 37.39 | 35.43 | 307 | 107 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10540.98 | 45.21 | 74.00 | -28.79 | 37.29 | 5.01 | 38.39 | 35.48 | 299 | 100 | Average | VERTICAL |
| 2 | 10541.01 | 61.46 | 94.00 | -32.54 | 53.54 | 5.01 | 38.39 | 35.48 | 299 | 100 | Peak | VERTICAL |
| 3 | 15802.97 | 44.70 | 60.00 | -15.30 | 36.60 | 6.14 | 37.39 | 35.43 | 320 | 110 | Average | VERTICAL |
| 4 | 15803.58 | 58.80 | 80.00 | -21.20 | 50.70 | 6.14 | 37.39 | 35.43 | 320 | 110 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 62 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10619.84 | 59.20 | 80.00 | -20.80 | 51.23 | 5.01 | 38.38 | 35.42 | 35 | 100 | Peak | HORIZONTAL |
| 2 | 10620.86 | 42.76 | 60.00 | -17.24 | 34.79 | 5.01 | 38.38 | 35.42 | 35 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10621.13 | 40.46 | 60.00 | -19.54 | 32.49 | 5.01 | 38.38 | 35.42 | 301 | 100 | Average | VERTICAL |
| 2 | 10621.29 | 56.68 | 80.00 | -23.32 | 48.71 | 5.01 | 38.38 | 35.42 | 301 | 100 | Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 102 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | Cable | Antenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|-------|---------|--------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11018.47 | 39.35 | 60.00 | -20.65 | 31.11 | 5.02 | 38.33 | 35.11 | 57 | 100 | Average | HORIZONTAL |
| 2 | 11019.80 | 53.08 | 80.00 | -26.92 | 44.84 | 5.02 | 38.33 | 35.11 | 57 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | Cable | Antenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|-------|---------|--------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11022.72 | 38.15 | 60.00 | -21.85 | 29.91 | 5.02 | 38.33 | 35.11 | 169 | 100 | Average | VERTICAL |
| 2 | 11026.37 | 50.43 | 80.00 | -29.57 | 42.19 | 5.02 | 38.33 | 35.11 | 169 | 100 | Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 110 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11098.68 | 60.56 | 80.00 | -19.44 | 52.27 | 5.03 | 38.40 | 35.14 | 137 | 100 | Peak | HORIZONTAL |
| 2 | 11104.73 | 45.55 | 60.00 | -14.45 | 37.26 | 5.03 | 38.40 | 35.14 | 137 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11098.02 | 40.76 | 60.00 | -19.24 | 32.47 | 5.03 | 38.40 | 35.14 | 232 | 100 | Average | VERTICAL |
| 2 | 11099.96 | 56.16 | 80.00 | -23.84 | 47.87 | 5.03 | 38.40 | 35.14 | 232 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 134 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11339.88 | 75.26 | 80.00 | -4.74 | 66.79 | 5.08 | 38.63 | 35.24 | 278 | 102 | Peak | HORIZONTAL |
| 2 | 11340.87 | 56.55 | 60.00 | -3.45 | 48.07 | 5.09 | 38.63 | 35.24 | 278 | 102 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11338.58 | 48.05 | 60.00 | -11.95 | 39.58 | 5.08 | 38.63 | 35.24 | 276 | 100 | Average | VERTICAL |
| 2 | 11339.83 | 65.86 | 80.00 | -14.14 | 57.39 | 5.08 | 38.63 | 35.24 | 276 | 100 | Peak | VERTICAL |

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 52 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10521.13 | 55.54 | 74.00 | -18.46 | 47.63 | 5.01 | 38.40 | 35.50 | 360 | 100 | Average | HORIZONTAL |
| 2 | 10521.16 | 69.85 | 94.00 | -24.15 | 61.94 | 5.01 | 38.40 | 35.50 | 360 | 100 | Peak | HORIZONTAL |
| 3 | 15781.94 | 51.39 | 60.00 | -8.61 | 43.26 | 6.14 | 37.41 | 35.42 | 300 | 106 | Average | HORIZONTAL |
| 4 | 15782.11 | 64.90 | 80.00 | -15.10 | 56.77 | 6.14 | 37.41 | 35.42 | 300 | 106 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10520.67 | 65.76 | 94.00 | -28.24 | 57.86 | 5.01 | 38.39 | 35.50 | 72 | 100 | Peak | VERTICAL |
| 2 | 10521.53 | 52.06 | 74.00 | -21.94 | 44.16 | 5.01 | 38.39 | 35.50 | 72 | 100 | Average | VERTICAL |
| 3 | 15781.19 | 68.77 | 80.00 | -11.23 | 60.64 | 6.14 | 37.41 | 35.42 | 321 | 111 | Peak | VERTICAL |
| 4 | 15781.25 | 54.36 | 60.00 | -5.64 | 46.23 | 6.14 | 37.41 | 35.42 | 321 | 111 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 60 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10600.96 | 72.00 | 80.00 | -8.00 | 64.03 | 5.01 | 38.38 | 35.42 | 5 | 100 | Peak | HORIZONTAL |
| 2 | 10600.98 | 57.39 | 60.00 | -2.61 | 49.42 | 5.01 | 38.38 | 35.42 | 5 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10601.33 | 52.70 | 60.00 | -7.30 | 44.73 | 5.01 | 38.38 | 35.42 | 66 | 100 | Average | VERTICAL |
| 2 | 10601.68 | 67.36 | 80.00 | -12.64 | 59.39 | 5.01 | 38.38 | 35.42 | 66 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 64 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10640.62 | 52.08 | 60.00 | -7.92 | 44.09 | 5.01 | 38.37 | 35.39 | 0 | 100 | Average | HORIZONTAL |
| 2 | 10640.74 | 67.33 | 80.00 | -12.67 | 59.34 | 5.01 | 38.37 | 35.39 | 0 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10640.39 | 50.24 | 60.00 | -9.76 | 42.25 | 5.01 | 38.37 | 35.39 | 295 | 100 | Average | VERTICAL |
| 2 | 10640.52 | 63.85 | 80.00 | -16.15 | 55.86 | 5.01 | 38.37 | 35.39 | 295 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 100 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10998.52 | 62.13 | 80.00 | -17.87 | 53.90 | 5.01 | 38.32 | 35.10 | 129 | 100 | Peak | HORIZONTAL |
| 2 | 11000.26 | 47.93 | 60.00 | -12.07 | 39.70 | 5.01 | 38.32 | 35.10 | 129 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11003.65 | 43.58 | 60.00 | -16.42 | 35.37 | 5.01 | 38.30 | 35.10 | 302 | 100 | Average | VERTICAL |
| 2 | 11004.37 | 57.28 | 80.00 | -22.72 | 49.07 | 5.01 | 38.30 | 35.10 | 302 | 100 | Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 116 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11158.61 | 55.84 | 60.00 | -4.16 | 47.50 | 5.04 | 38.47 | 35.17 | 136 | 100 | Average | HORIZONTAL |
| 2 | 11159.07 | 73.15 | 80.00 | -6.85 | 64.81 | 5.04 | 38.47 | 35.17 | 136 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11158.84 | 68.20 | 80.00 | -11.80 | 59.86 | 5.04 | 38.47 | 35.17 | 300 | 112 | Peak | VERTICAL |
| 2 | 11159.45 | 51.56 | 60.00 | -8.44 | 43.22 | 5.04 | 38.47 | 35.17 | 300 | 112 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 140 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11401.33 | 75.07 | 80.00 | -4.93 | 66.52 | 5.10 | 38.70 | 35.25 | 279 | 100 | Peak | HORIZONTAL |
| 2 | 11402.32 | 59.68 | 60.00 | -0.32 | 51.13 | 5.10 | 38.70 | 35.25 | 279 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11398.03 | 69.46 | 80.00 | -10.54 | 60.91 | 5.10 | 38.70 | 35.25 | 196 | 100 | Peak | VERTICAL |
| 2 | 11398.12 | 52.83 | 60.00 | -7.17 | 44.28 | 5.10 | 38.70 | 35.25 | 196 | 100 | Average | VERTICAL |

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

<For Internal Antenna / Ant. 8>

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 52 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15779.68 | 56.69 | 80.00 | -23.31 | 48.56 | 6.14 | 37.41 | 35.42 | 344 | 100 | Peak | HORIZONTAL |
| 2 | 15779.69 | 43.81 | 60.00 | -16.19 | 35.68 | 6.14 | 37.41 | 35.42 | 344 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15779.61 | 57.78 | 80.00 | -22.22 | 49.65 | 6.14 | 37.41 | 35.42 | 337 | 105 | Peak | VERTICAL |
| 2 | 15779.93 | 44.67 | 60.00 | -15.33 | 36.54 | 6.14 | 37.41 | 35.42 | 337 | 105 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 60 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 10600.04 | 44.51 | 60.00 | -15.49 | 36.54 | 5.01 | 38.38 | 35.42 | 59 | 106 Average | HORIZONTAL |
| 2 | 10600.04 | 58.51 | 80.00 | -21.49 | 50.54 | 5.01 | 38.38 | 35.42 | 59 | 106 Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 10600.03 | 41.93 | 60.00 | -18.07 | 33.96 | 5.01 | 38.38 | 35.42 | 275 | 100 Average | VERTICAL |
| 2 | 10600.04 | 55.66 | 80.00 | -24.34 | 47.69 | 5.01 | 38.38 | 35.42 | 275 | 100 Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 64 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10640.17 | 53.84 | 80.00 | -26.16 | 45.85 | 5.01 | 38.37 | 35.39 | 73 | 100 | Peak | HORIZONTAL |
| 2 | 10640.42 | 40.44 | 60.00 | -19.56 | 32.45 | 5.01 | 38.37 | 35.39 | 73 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10639.88 | 53.10 | 80.00 | -26.90 | 45.11 | 5.01 | 38.37 | 35.39 | 287 | 100 | Peak | VERTICAL |
| 2 | 10640.28 | 38.61 | 60.00 | -21.39 | 30.62 | 5.01 | 38.37 | 35.39 | 287 | 100 | Average | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 100 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 10999.79 | 45.96 | 60.00 | -14.04 | 37.73 | 5.01 | 38.32 | 35.10 | 293 | 100 Average | HORIZONTAL |
| 2 | 10999.88 | 60.92 | 80.00 | -19.08 | 52.69 | 5.01 | 38.32 | 35.10 | 293 | 100 Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | |
| 1 | 11000.04 | 53.19 | 80.00 | -26.81 | 44.98 | 5.01 | 38.30 | 35.10 | 82 | 100 Peak | VERTICAL |
| 2 | 11000.44 | 39.61 | 60.00 | -20.39 | 31.40 | 5.01 | 38.30 | 35.10 | 82 | 100 Average | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 116 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11160.07 | 61.99 | 80.00 | -18.01 | 53.65 | 5.04 | 38.47 | 35.17 | 62 | 100 | Peak | HORIZONTAL |
| 2 | 11160.22 | 46.52 | 60.00 | -13.48 | 38.18 | 5.04 | 38.47 | 35.17 | 62 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11159.50 | 44.01 | 60.00 | -15.99 | 35.67 | 5.04 | 38.47 | 35.17 | 30 | 100 | Average | VERTICAL |
| 2 | 11159.86 | 59.98 | 80.00 | -20.02 | 51.64 | 5.04 | 38.47 | 35.17 | 30 | 100 | Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 140 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11399.92 | 62.34 | 80.00 | -17.66 | 53.79 | 5.10 | 38.70 | 35.25 | 302 | 100 | Peak | HORIZONTAL |
| 2 | 11400.17 | 45.50 | 60.00 | -14.50 | 36.95 | 5.10 | 38.70 | 35.25 | 302 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11399.50 | 53.44 | 80.00 | -26.56 | 44.89 | 5.10 | 38.70 | 35.25 | 90 | 100 | Peak | VERTICAL |
| 2 | 11400.42 | 40.17 | 60.00 | -19.83 | 31.62 | 5.10 | 38.70 | 35.25 | 90 | 100 | Average | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 54 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15809.59 | 52.23 | 80.00 | -27.77 | 44.13 | 6.14 | 37.39 | 35.43 | 205 | 100 | Peak | HORIZONTAL |
| 2 | 15810.45 | 39.98 | 60.00 | -20.02 | 31.90 | 6.14 | 37.37 | 35.43 | 205 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15809.77 | 41.09 | 60.00 | -18.91 | 32.99 | 6.14 | 37.39 | 35.43 | 122 | 100 | Average | VERTICAL |
| 2 | 15810.01 | 53.04 | 80.00 | -26.96 | 44.94 | 6.14 | 37.39 | 35.43 | 122 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 62 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10619.61 | 37.38 | 60.00 | -22.62 | 29.41 | 5.01 | 38.38 | 35.42 | 220 | 100 | Average | HORIZONTAL |
| 2 | 10619.88 | 50.17 | 80.00 | -29.83 | 42.20 | 5.01 | 38.38 | 35.42 | 220 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10619.89 | 37.74 | 60.00 | -22.26 | 29.77 | 5.01 | 38.38 | 35.42 | 146 | 100 | Average | VERTICAL |
| 2 | 10620.04 | 49.41 | 80.00 | -30.59 | 41.44 | 5.01 | 38.38 | 35.42 | 146 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 102 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11019.64 | 38.01 | 60.00 | -21.99 | 29.77 | 5.02 | 38.33 | 35.11 | 233 | 100 | Average | HORIZONTAL |
| 2 | 11019.99 | 51.84 | 80.00 | -28.16 | 43.60 | 5.02 | 38.33 | 35.11 | 233 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase | |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11019.64 | 37.83 | 60.00 | -22.17 | 29.60 | 5.02 | 38.32 | 35.11 | 157 | 100 | Average | VERTICAL |
| 2 | 11020.10 | 50.05 | 80.00 | -29.95 | 41.82 | 5.02 | 38.32 | 35.11 | 157 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 110 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11099.97 | 61.44 | 80.00 | -18.56 | 53.15 | 5.03 | 38.40 | 35.14 | 51 | 100 | Peak | HORIZONTAL |
| 2 | 11100.36 | 43.56 | 60.00 | -16.44 | 35.27 | 5.03 | 38.40 | 35.14 | 51 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11099.52 | 41.11 | 60.00 | -18.89 | 32.82 | 5.03 | 38.40 | 35.14 | 25 | 100 | Average | VERTICAL |
| 2 | 11099.86 | 58.16 | 80.00 | -21.84 | 49.87 | 5.03 | 38.40 | 35.14 | 25 | 100 | Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 134 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11339.85 | 56.89 | 80.00 | -23.11 | 48.42 | 5.08 | 38.63 | 35.24 | 140 | 100 | Peak | HORIZONTAL |
| 2 | 11339.97 | 41.99 | 60.00 | -18.01 | 33.52 | 5.08 | 38.63 | 35.24 | 140 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11339.60 | 41.88 | 60.00 | -18.12 | 33.41 | 5.08 | 38.63 | 35.24 | 179 | 100 | Average | VERTICAL |
| 2 | 11340.00 | 55.99 | 80.00 | -24.01 | 47.52 | 5.08 | 38.63 | 35.24 | 179 | 100 | Peak | VERTICAL |

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 52 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|---------------|---------------|---------------|----------------------|-------------------|------------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15778.63 | 57.91 | 80.00 | -22.09 | 49.78 | 6.14 | 37.41 | 35.42 | 342 | 100 | Peak | HORIZONTAL |
| 2 | 15779.00 | 43.70 | 60.00 | -16.30 | 35.57 | 6.14 | 37.41 | 35.42 | 342 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|---------------|---------------|---------------|----------------------|-------------------|------------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 15783.52 | 44.70 | 60.00 | -15.30 | 36.57 | 6.14 | 37.41 | 35.42 | 14 | 102 | Average | VERTICAL |
| 2 | 15783.78 | 58.93 | 80.00 | -21.07 | 50.80 | 6.14 | 37.41 | 35.42 | 14 | 102 | Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 60 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 10600.80 | 45.38 | 60.00 | -14.62 | 37.41 | 5.01 | 38.38 | 35.42 | 58 | 100 Average | HORIZONTAL |
| 2 | 10600.80 | 57.90 | 80.00 | -22.10 | 49.93 | 5.01 | 38.38 | 35.42 | 58 | 100 Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 10600.44 | 41.50 | 60.00 | -18.50 | 33.53 | 5.01 | 38.38 | 35.42 | 76 | 101 Average | VERTICAL |
| 2 | 10600.44 | 53.82 | 80.00 | -26.18 | 45.85 | 5.01 | 38.38 | 35.42 | 76 | 101 Peak | VERTICAL |

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 64 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10640.02 | 54.99 | 80.00 | -25.01 | 47.00 | 5.01 | 38.37 | 35.39 | 61 | 100 | Peak | HORIZONTAL |
| 2 | 10640.37 | 41.66 | 60.00 | -18.34 | 33.67 | 5.01 | 38.37 | 35.39 | 61 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10640.02 | 39.13 | 60.00 | -20.87 | 31.14 | 5.01 | 38.37 | 35.39 | 79 | 100 | Average | VERTICAL |
| 2 | 10640.26 | 52.13 | 80.00 | -27.87 | 44.14 | 5.01 | 38.37 | 35.39 | 79 | 100 | Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 100 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10999.59 | 57.47 | 80.00 | -22.53 | 49.24 | 5.01 | 38.32 | 35.10 | 297 | 100 | Peak | HORIZONTAL |
| 2 | 11000.21 | 44.26 | 60.00 | -15.74 | 36.03 | 5.01 | 38.32 | 35.10 | 297 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 10999.54 | 51.06 | 80.00 | -28.94 | 42.85 | 5.01 | 38.30 | 35.10 | 34 | 104 | Peak | VERTICAL |
| 2 | 10999.77 | 39.43 | 60.00 | -20.57 | 31.22 | 5.01 | 38.30 | 35.10 | 34 | 104 | Average | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 116 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11159.94 | 60.95 | 80.00 | -19.05 | 52.61 | 5.04 | 38.47 | 35.17 | 303 | 100 | Peak | HORIZONTAL |
| 2 | 11160.30 | 47.72 | 60.00 | -12.28 | 39.38 | 5.04 | 38.47 | 35.17 | 303 | 100 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11159.52 | 43.50 | 60.00 | -16.50 | 35.16 | 5.04 | 38.47 | 35.17 | 342 | 100 | Average | VERTICAL |
| 2 | 11159.63 | 57.72 | 80.00 | -22.28 | 49.38 | 5.04 | 38.47 | 35.17 | 342 | 100 | Peak | VERTICAL |



| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 140 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11399.58 | 48.38 | 60.00 | -11.62 | 39.83 | 5.10 | 38.70 | 35.25 | 285 | 100 | Average | HORIZONTAL |
| 2 | 11399.67 | 62.69 | 80.00 | -17.31 | 54.14 | 5.10 | 38.70 | 35.25 | 285 | 100 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|----------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 11399.72 | 54.45 | 80.00 | -25.55 | 45.90 | 5.10 | 38.70 | 35.25 | 183 | 100 | Peak | VERTICAL |
| 2 | 11399.82 | 41.24 | 60.00 | -18.76 | 32.69 | 5.10 | 38.70 | 35.25 | 183 | 100 | Average | VERTICAL |

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

4.7. Band Edge Emissions Measurement

4.7.1. Limit

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.25-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.470-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (micровolts/meter) | Measurement Distance (meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

4.7.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting |
|---|---|
| Attenuation | Auto |
| Span Frequency | 100 MHz |
| RB / VB (Emission in restricted band) | 1 MHz / 1MHz for Peak, 1 MHz / 10Hz for Average |
| RB / VB (Emission in non-restricted band) | 1 MHz / 1 MHz for Peak |

4.7.3. Test Procedures

1. The test procedure is the same as section 4.6.3, only the frequency range investigated is limited to 100MHz around bandedges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

4.7.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.6.4.

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

<For External Antenna / Ant. 5>

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 52, 60, 64 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Channel 52

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 5119.60 | 54.53 | 60.00 | -5.47 | 17.49 | 3.43 | 33.61 | 0.00 | 63 | 100 Average | VERTICAL |
| 2 | 5119.60 | 67.38 | 80.00 | -12.62 | 30.34 | 3.43 | 33.61 | 0.00 | 63 | 100 Peak | VERTICAL |
| 3 | 5263.62 | 119.23 | 94.00 | | | 3.46 | 33.88 | 0.00 | 63 | 100 Peak | VERTICAL |
| 4 | 5267.96 | 107.64 | 74.00 | | | 3.46 | 33.88 | 0.00 | 63 | 100 Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|--------|-------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 5298.84 | 107.33 | 74.00 | | | 3.48 | 33.94 | 0.00 | 360 | 115 Average | VERTICAL |
| 2 | 5305.79 | 119.61 | 94.00 | | | 3.48 | 33.94 | 0.00 | 360 | 115 Peak | VERTICAL |
| 3 | 5350.00 | 59.83 | 60.00 | -0.17 | 22.31 | 3.49 | 34.03 | 0.00 | 360 | 115 Average | VERTICAL |
| 4 | 5350.29 | 75.72 | 80.00 | -4.28 | 38.20 | 3.49 | 34.03 | 0.00 | 360 | 115 Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|--------|-------|-------|--------------|--------|-------|-------|-------------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 5312.04 | 104.40 | 74.00 | | | 3.48 | 33.94 | 0.00 | 19 | 137 Average | HORIZONTAL |
| 2 | 5312.33 | 117.31 | 94.00 | | | 3.48 | 33.94 | 0.00 | 19 | 137 Peak | HORIZONTAL |
| 3 | 5350.00 | 59.31 | 60.00 | -0.69 | 21.79 | 3.49 | 34.03 | 0.00 | 19 | 137 Average | HORIZONTAL |
| 4 | 5351.59 | 75.00 | 80.00 | -5.00 | 37.48 | 3.49 | 34.03 | 0.00 | 19 | 137 Peak | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5320 MHz.

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 100, 116, 140 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Channel 100

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5457.54 | 74.66 | 80.00 | -5.34 | 36.93 | 3.52 | 34.21 | 0.00 | 53 | 121 | Peak | VERTICAL |
| 2 | 5460.00 | 59.38 | 60.00 | -0.62 | 21.65 | 3.52 | 34.21 | 0.00 | 53 | 121 | Average | VERTICAL |
| 3 | 5505.79 | 114.62 | 94.00 | | | 3.54 | 34.28 | 0.00 | 53 | 121 | Peak | VERTICAL |
| 4 | 5507.09 | 102.65 | 74.00 | | | 3.54 | 34.28 | 0.00 | 53 | 121 | Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5500 MHz.

Channel 116

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5120.40 | 55.01 | 60.00 | -4.99 | 17.97 | 3.43 | 33.61 | 0.00 | 0 | 118 | Average | VERTICAL |
| 2 | 5120.40 | 66.50 | 80.00 | -13.50 | 29.46 | 3.43 | 33.61 | 0.00 | 0 | 118 | Peak | VERTICAL |
| 3 | 5578.60 | 120.46 | 94.00 | | | 3.56 | 34.31 | 0.00 | 0 | 118 | Peak | VERTICAL |
| 4 | 5581.40 | 109.28 | 74.00 | | | 3.56 | 34.31 | 0.00 | 0 | 118 | Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5580 MHz.

Channel 140

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5119.60 | 54.38 | 60.00 | -5.62 | 17.34 | 3.43 | 33.61 | 0.00 | 6 | 100 | Average | HORIZONTAL |
| 2 | 5119.60 | 66.24 | 80.00 | -13.76 | 29.20 | 3.43 | 33.61 | 0.00 | 6 | 100 | Peak | HORIZONTAL |
| 3 | 5704.30 | 116.31 | 94.00 | | | 3.59 | 34.34 | 0.00 | 6 | 100 | Peak | HORIZONTAL |
| 4 | 5706.50 | 104.96 | 74.00 | | | 3.60 | 34.34 | 0.00 | 6 | 100 | Average | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5700 MHz.

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 54, 62 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Channel 54

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|----------------------|-------------------|------------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5277.24 | 101.70 | 74.00 | | | 3.47 | 33.88 | 0.00 | 0 | 154 | Average | VERTICAL |
| 2 | 5280.42 | 115.57 | 94.00 | | | 3.47 | 33.91 | 0.00 | 0 | 154 | Peak | VERTICAL |
| 3 | 5350.00 | 59.93 | 60.00 | -0.07 | 22.41 | 3.49 | 34.03 | 0.00 | 0 | 154 | Average | VERTICAL |
| 4 | 5350.29 | 73.34 | 80.00 | -6.66 | 35.82 | 3.49 | 34.03 | 0.00 | 0 | 154 | Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|----------------------|-------------------|------------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5305.66 | 98.84 | 74.00 | | | 3.48 | 33.94 | 0.00 | -1 | 117 | Average | VERTICAL |
| 2 | 5305.66 | 112.95 | 94.00 | | | 3.48 | 33.94 | 0.00 | -1 | 117 | Peak | VERTICAL |
| 3 | 5350.00 | 59.19 | 60.00 | -0.81 | 21.67 | 3.49 | 34.03 | 0.00 | -1 | 117 | Average | VERTICAL |
| 4 | 5350.00 | 74.68 | 80.00 | -5.32 | 37.16 | 3.49 | 34.03 | 0.00 | -1 | 117 | Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5310 MHz.

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 102, 110, 134 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Channel 102

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5460.00 | 59.44 | 60.00 | -0.56 | 21.71 | 3.52 | 34.21 | 0.00 | 358 | 149 | Average | VERTICAL |
| 2 | 5460.00 | 74.46 | 80.00 | -5.54 | 36.73 | 3.52 | 34.21 | 0.00 | 358 | 149 | Peak | VERTICAL |
| 3 | 5507.40 | 110.39 | 94.00 | | | 3.54 | 34.28 | 0.00 | 358 | 149 | Peak | VERTICAL |
| 4 | 5525.92 | 96.17 | 74.00 | | | 3.54 | 34.30 | 0.00 | 358 | 149 | Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5510MHz.

Channel 110

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5457.40 | 75.17 | 80.00 | -4.83 | 37.44 | 3.52 | 34.21 | 0.00 | 355 | 112 | Peak | VERTICAL |
| 2 | 5460.00 | 59.96 | 60.00 | -0.04 | 22.23 | 3.52 | 34.21 | 0.00 | 355 | 112 | Average | VERTICAL |
| 3 | 5545.08 | 101.60 | 74.00 | | | 3.55 | 34.31 | 0.00 | 355 | 112 | Average | VERTICAL |
| 4 | 5546.24 | 115.39 | 94.00 | | | 3.55 | 34.31 | 0.00 | 355 | 112 | Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 5550 MHz.

Channel 134

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 4921.10 | 56.19 | 60.00 | -3.81 | 19.61 | 3.35 | 33.23 | 0.00 | 18 | 140 | Average | VERTICAL |
| 2 | 4921.10 | 66.36 | 80.00 | -13.64 | 29.78 | 3.35 | 33.23 | 0.00 | 18 | 140 | Peak | VERTICAL |
| 3 | 5663.50 | 115.72 | 94.00 | | | 3.59 | 34.33 | 0.00 | 18 | 140 | Peak | VERTICAL |
| 4 | 5685.20 | 102.61 | 74.00 | | | 3.59 | 34.33 | 0.00 | 18 | 140 | Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5670 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 52, 60, 64 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Channel 52

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5119.62 | 56.44 | 60.00 | -3.56 | 19.40 | 3.43 | 33.61 | 0.00 | 351 | 140 | Average | VERTICAL |
| 2 | 5119.72 | 67.19 | 80.00 | -12.81 | 30.15 | 3.43 | 33.61 | 0.00 | 351 | 140 | Peak | VERTICAL |
| 3 | 5262.17 | 119.39 | 94.00 | | | 3.46 | 33.85 | 0.00 | 351 | 140 | Peak | VERTICAL |
| 4 | 5262.89 | 109.50 | 74.00 | | | 3.46 | 33.88 | 0.00 | 351 | 140 | Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5306.66 | 122.11 | 94.00 | | | 3.48 | 33.94 | 0.00 | 0 | 118 | Peak | VERTICAL |
| 2 | 5306.95 | 112.49 | 74.00 | | | 3.48 | 33.94 | 0.00 | 0 | 118 | Average | VERTICAL |
| 3 | 5350.00 | 59.91 | 60.00 | -0.09 | 22.39 | 3.49 | 34.03 | 0.00 | 0 | 118 | Average | VERTICAL |
| 4 | 5356.95 | 76.49 | 80.00 | -3.51 | 38.97 | 3.49 | 34.03 | 0.00 | 0 | 118 | Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5317.54 | 115.85 | 94.00 | | | 3.48 | 33.97 | 0.00 | 297 | 104 | Peak | HORIZONTAL |
| 2 | 5327.67 | 105.55 | 74.00 | | | 3.49 | 33.97 | 0.00 | 297 | 104 | Average | HORIZONTAL |
| 3 | 5350.00 | 59.85 | 60.00 | -0.15 | 22.33 | 3.49 | 34.03 | 0.00 | 297 | 104 | Average | HORIZONTAL |
| 4 | 5350.43 | 79.69 | 80.00 | -0.31 | 42.17 | 3.49 | 34.03 | 0.00 | 297 | 104 | Peak | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5320 MHz.

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 100, 116, 140 / Ant. 5 / Connector J2 + J3 + J4 |
| Test Date | Mar. 30, 2011 | | |

Channel 100

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5458.41 | 76.28 | 80.00 | -3.72 | 38.57 | 3.52 | 34.19 | 0.00 | 14 | 138 | Peak | HORIZONTAL |
| 2 | 5459.71 | 59.47 | 60.00 | -0.53 | 21.76 | 3.52 | 34.19 | 0.00 | 14 | 138 | Average | HORIZONTAL |
| 3 | 5498.41 | 105.13 | 74.00 | | | 3.53 | 34.23 | 0.00 | 14 | 138 | Average | HORIZONTAL |
| 4 | 5499.13 | 115.52 | 94.00 | | | 3.53 | 34.23 | 0.00 | 14 | 138 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5500 MHz.

Channel 116

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5119.80 | 54.90 | 60.00 | -5.10 | 17.86 | 3.43 | 33.61 | 0.00 | 0 | 115 | Average | VERTICAL |
| 2 | 5119.80 | 66.28 | 80.00 | -13.72 | 29.24 | 3.43 | 33.61 | 0.00 | 0 | 115 | Peak | VERTICAL |
| 3 | 5572.80 | 121.80 | 94.00 | | | 3.55 | 34.31 | 0.00 | 0 | 115 | Peak | VERTICAL |
| 4 | 5582.90 | 111.53 | 74.00 | | | 3.56 | 34.31 | 0.00 | 0 | 115 | Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5580 MHz.

Channel 140

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5079.90 | 54.41 | 60.00 | -5.59 | 17.45 | 3.41 | 33.55 | 0.00 | 4 | 100 | Average | VERTICAL |
| 2 | 5079.90 | 66.09 | 80.00 | -13.91 | 29.13 | 3.41 | 33.55 | 0.00 | 4 | 100 | Peak | VERTICAL |
| 3 | 5693.50 | 112.53 | 74.00 | | | 3.59 | 34.34 | 0.00 | 4 | 100 | Average | VERTICAL |
| 4 | 5695.70 | 122.27 | 94.00 | | | 3.59 | 34.34 | 0.00 | 4 | 100 | Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 5700 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

<For External Antenna / Ant. 6>

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 52, 60, 64 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 52

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5119.62 | 67.68 | 80.00 | -12.32 | 30.64 | 3.43 | 33.61 | 0.00 | 351 | 100 | Peak | VERTICAL |
| 2 | 5119.89 | 58.02 | 60.00 | -1.98 | 20.98 | 3.43 | 33.61 | 0.00 | 351 | 100 | Average | VERTICAL |
| 3 | 5265.79 | 110.61 | 74.00 | | | 3.46 | 33.88 | 0.00 | 351 | 100 | Average | VERTICAL |
| 4 | 5265.79 | 121.56 | 94.00 | | | 3.46 | 33.88 | 0.00 | 351 | 100 | Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5292.19 | 109.01 | 94.00 | | | 3.47 | 33.91 | 0.00 | 141 | 100 | Peak | VERTICAL |
| 2 | 5292.76 | 122.36 | 74.00 | | | 3.47 | 33.91 | 0.00 | 141 | 100 | Average | VERTICAL |
| 3 | 5350.00 | 59.75 | 60.00 | -0.25 | 22.23 | 3.49 | 34.03 | 0.00 | 141 | 100 | Average | VERTICAL |
| 4 | 5350.29 | 73.81 | 80.00 | -6.19 | 36.29 | 3.49 | 34.03 | 0.00 | 141 | 100 | Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5326.80 | 105.07 | 74.00 | | | 3.49 | 33.97 | 0.00 | 142 | 100 | Average | VERTICAL |
| 2 | 5327.53 | 118.60 | 94.00 | | | 3.49 | 33.97 | 0.00 | 142 | 100 | Peak | VERTICAL |
| 3 | 5350.00 | 59.79 | 60.00 | -0.21 | 22.27 | 3.49 | 34.03 | 0.00 | 142 | 100 | Average | VERTICAL |
| 4 | 5350.16 | 77.02 | 80.00 | -2.98 | 39.50 | 3.49 | 34.03 | 0.00 | 142 | 100 | Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5320 MHz.

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 100, 116, 140 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 100

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5459.71 | 77.11 | 80.00 | -2.89 | 39.38 | 3.52 | 34.21 | 0.00 | 221 | 100 | Peak | VERTICAL |
| 2 | 5460.00 | 59.55 | 60.00 | -0.45 | 21.82 | 3.52 | 34.21 | 0.00 | 221 | 100 | Average | VERTICAL |
| 3 | 5507.09 | 105.43 | 74.00 | | | 3.54 | 34.28 | 0.00 | 221 | 100 | Average | VERTICAL |
| 4 | 5507.24 | 119.49 | 94.00 | | | 3.54 | 34.28 | 0.00 | 221 | 100 | Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 5500 MHz.

Channel 116

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5119.80 | 67.75 | 80.00 | -12.25 | 30.71 | 3.43 | 33.61 | 0.00 | 351 | 100 | Peak | VERTICAL |
| 2 | 5119.83 | 57.81 | 60.00 | -2.19 | 20.77 | 3.43 | 33.61 | 0.00 | 351 | 100 | Average | VERTICAL |
| 3 | 5585.80 | 109.98 | 74.00 | | | 3.56 | 34.31 | 0.00 | 351 | 100 | Average | VERTICAL |
| 4 | 5585.80 | 121.07 | 94.00 | | | 3.56 | 34.31 | 0.00 | 351 | 100 | Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 5580 MHz.

Channel 140

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5119.46 | 67.80 | 80.00 | -12.20 | 30.76 | 3.43 | 33.61 | 0.00 | 358 | 100 | Peak | VERTICAL |
| 2 | 5119.79 | 55.16 | 60.00 | -4.84 | 18.12 | 3.43 | 33.61 | 0.00 | 358 | 100 | Average | VERTICAL |
| 3 | 5697.80 | 116.77 | 94.00 | | | 3.59 | 34.34 | 0.00 | 358 | 100 | Peak | VERTICAL |
| 4 | 5700.00 | 105.92 | 74.00 | | | 3.59 | 34.34 | 0.00 | 358 | 100 | Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5700 MHz.

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 54, 62 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 54

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|--------|-------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 5281.00 | 104.36 | 74.00 | | | 3.47 | 33.91 | 0.00 | 137 | 100 Average | VERTICAL |
| 2 | 5282.16 | 119.15 | 94.00 | | | 3.47 | 33.91 | 0.00 | 137 | 100 Peak | VERTICAL |
| 3 | 5350.00 | 59.97 | 60.00 | -0.03 | 22.45 | 3.49 | 34.03 | 0.00 | 137 | 100 Average | VERTICAL |
| 4 | 5350.29 | 75.46 | 80.00 | -4.54 | 37.94 | 3.49 | 34.03 | 0.00 | 137 | 100 Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|--------|-------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | deg | cm | | |
| 1 | 5305.66 | 99.01 | 74.00 | | | 3.48 | 33.94 | 0.00 | 136 | 100 Average | VERTICAL |
| 2 | 5305.66 | 114.90 | 94.00 | | | 3.48 | 33.94 | 0.00 | 136 | 100 Peak | VERTICAL |
| 3 | 5350.00 | 59.69 | 60.00 | -0.31 | 22.17 | 3.49 | 34.03 | 0.00 | 136 | 100 Average | VERTICAL |
| 4 | 5355.50 | 74.39 | 80.00 | -5.61 | 36.87 | 3.49 | 34.03 | 0.00 | 136 | 100 Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5310 MHz.

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 102, 110, 134 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 102

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5459.42 | 76.59 | 80.00 | -3.41 | 38.86 | 3.52 | 34.21 | 0.00 | 189 | 100 | Peak | VERTICAL |
| 2 | 5460.00 | 59.40 | 60.00 | -0.60 | 21.67 | 3.52 | 34.21 | 0.00 | 189 | 100 | Average | VERTICAL |
| 3 | 5499.87 | 113.05 | 94.00 | | | 3.53 | 34.26 | 0.00 | 189 | 100 | Peak | VERTICAL |
| 4 | 5521.00 | 98.44 | 74.00 | | | 3.54 | 34.30 | 0.00 | 189 | 100 | Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5510MHz.

Channel 110

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5458.84 | 77.47 | 80.00 | -2.53 | 39.74 | 3.52 | 34.21 | 0.00 | 221 | 100 | Peak | VERTICAL |
| 2 | 5460.00 | 59.74 | 60.00 | -0.26 | 22.01 | 3.52 | 34.21 | 0.00 | 221 | 100 | Average | VERTICAL |
| 3 | 5553.47 | 104.17 | 74.00 | | | 3.55 | 34.31 | 0.00 | 221 | 100 | Average | VERTICAL |
| 4 | 5553.47 | 119.19 | 94.00 | | | 3.55 | 34.31 | 0.00 | 221 | 100 | Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 5550 MHz.

Channel 134

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 4919.85 | 58.24 | 60.00 | -1.76 | 21.66 | 3.35 | 33.23 | 0.00 | 101 | 108 | Average | VERTICAL |
| 2 | 4920.03 | 69.63 | 80.00 | -10.37 | 33.05 | 3.35 | 33.23 | 0.00 | 101 | 108 | Peak | VERTICAL |
| 3 | 4999.81 | 68.41 | 80.00 | -11.59 | 31.62 | 3.39 | 33.40 | 0.00 | 353 | 100 | Peak | VERTICAL |
| 4 | 4999.89 | 57.85 | 60.00 | -2.15 | 21.06 | 3.39 | 33.40 | 0.00 | 353 | 100 | Average | VERTICAL |
| 5 | 5663.50 | 107.08 | 74.00 | | | 3.59 | 34.33 | 0.00 | 101 | 108 | Average | VERTICAL |
| 6 | 5665.70 | 118.01 | 94.00 | | | 3.59 | 34.33 | 0.00 | 101 | 108 | Peak | VERTICAL |

Item 5, 6 are the fundamental frequency at 5670 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 52, 60, 64 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 52

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5119.54 | 68.37 | 80.00 | -11.63 | 31.33 | 3.43 | 33.61 | 0.00 | 350 | 100 | Peak | VERTICAL |
| 2 | 5119.86 | 59.73 | 60.00 | -0.27 | 22.69 | 3.43 | 33.61 | 0.00 | 350 | 100 | Average | VERTICAL |
| 3 | 5254.93 | 111.02 | 74.00 | | | 3.46 | 33.85 | 0.00 | 350 | 100 | Average | VERTICAL |
| 4 | 5254.93 | 121.16 | 94.00 | | | 3.46 | 33.85 | 0.00 | 350 | 100 | Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5295.08 | 113.54 | 74.00 | | | 3.47 | 33.91 | 0.00 | 220 | 100 | Average | VERTICAL |
| 2 | 5295.08 | 124.05 | 94.00 | | | 3.47 | 33.91 | 0.00 | 220 | 100 | Peak | VERTICAL |
| 3 | 5350.00 | 59.60 | 60.00 | -0.40 | 22.08 | 3.49 | 34.03 | 0.00 | 220 | 100 | Average | VERTICAL |
| 4 | 5356.95 | 78.87 | 80.00 | -1.13 | 41.35 | 3.49 | 34.03 | 0.00 | 220 | 100 | Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5317.97 | 120.29 | 94.00 | | | 3.48 | 33.97 | 0.00 | 141 | 100 | Peak | VERTICAL |
| 2 | 5318.41 | 109.96 | 74.00 | | | 3.48 | 33.97 | 0.00 | 141 | 100 | Average | VERTICAL |
| 3 | 5350.00 | 59.22 | 60.00 | -0.78 | 21.70 | 3.49 | 34.03 | 0.00 | 141 | 100 | Average | VERTICAL |
| 4 | 5350.00 | 75.08 | 80.00 | -4.92 | 37.56 | 3.49 | 34.03 | 0.00 | 141 | 100 | Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 5320 MHz.

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 100, 116, 140 / Ant. 6 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 100

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5459.96 | 59.86 | 60.00 | -0.14 | 22.13 | 3.52 | 34.21 | 0.00 | 124 | 100 | Average | VERTICAL |
| 2 | 5460.00 | 79.36 | 80.00 | -0.64 | 41.63 | 3.52 | 34.21 | 0.00 | 124 | 100 | Peak | VERTICAL |
| 3 | 5498.70 | 118.15 | 94.00 | | | 3.53 | 34.26 | 0.00 | 124 | 100 | Peak | VERTICAL |
| 4 | 5499.28 | 107.71 | 74.00 | | | 3.53 | 34.26 | 0.00 | 124 | 100 | Average | VERTICAL |

Item 3, 4 are the fundamental frequency at 5500 MHz.

Channel 116

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5119.84 | 56.97 | 60.00 | -3.03 | 19.93 | 3.43 | 33.61 | 0.00 | 351 | 100 | Average | VERTICAL |
| 2 | 5120.05 | 69.46 | 80.00 | -10.54 | 32.42 | 3.43 | 33.61 | 0.00 | 351 | 100 | Peak | VERTICAL |
| 3 | 5581.40 | 111.33 | 74.00 | | | 3.56 | 34.31 | 0.00 | 351 | 100 | Average | VERTICAL |
| 4 | 5582.90 | 120.44 | 94.00 | | | 3.56 | 34.31 | 0.00 | 351 | 100 | Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 5580 MHz.

Channel 140

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 4999.87 | 59.14 | 60.00 | -0.86 | 22.35 | 3.39 | 33.40 | 0.00 | 233 | 100 | Average | VERTICAL |
| 2 | 4999.90 | 68.86 | 80.00 | -11.14 | 32.07 | 3.39 | 33.40 | 0.00 | 233 | 100 | Peak | VERTICAL |
| 3 | 5697.80 | 112.86 | 74.00 | | | 3.59 | 34.34 | 0.00 | 233 | 100 | Average | VERTICAL |
| 4 | 5706.50 | 121.73 | 94.00 | | | 3.60 | 34.34 | 0.00 | 233 | 100 | Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 5700 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

<For Internal Antenna / Ant. 8>

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 52, 60, 64 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 52

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5040.03 | 59.15 | 60.00 | -0.85 | 22.30 | 3.40 | 33.45 | 0.00 | 295 | 100 | Average | HORIZONTAL |
| 2 | 5137.70 | 68.45 | 80.00 | -11.55 | 31.38 | 3.43 | 33.64 | 0.00 | 295 | 100 | Peak | HORIZONTAL |
| 3 | 5254.93 | 115.93 | 74.00 | | | 3.46 | 33.85 | 0.00 | 295 | 100 | Average | HORIZONTAL |
| 4 | 5267.96 | 127.14 | 94.00 | | | 3.46 | 33.88 | 0.00 | 295 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5296.24 | 124.04 | 94.00 | | | 3.47 | 33.91 | 0.00 | 296 | 100 | Peak | HORIZONTAL |
| 2 | 5297.11 | 109.61 | 74.00 | | | 3.48 | 33.94 | 0.00 | 296 | 100 | Average | HORIZONTAL |
| 3 | 5352.32 | 72.26 | 80.00 | -7.74 | 34.74 | 3.49 | 34.03 | 0.00 | 296 | 100 | Peak | HORIZONTAL |
| 4 | 5359.84 | 59.31 | 60.00 | -0.69 | 21.79 | 3.49 | 34.03 | 0.00 | 296 | 100 | Average | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5313.63 | 122.18 | 94.00 | | | 3.48 | 33.94 | 0.00 | 61 | 100 | Peak | HORIZONTAL |
| 2 | 5315.95 | 107.37 | 74.00 | | | 3.48 | 33.97 | 0.00 | 61 | 100 | Average | HORIZONTAL |
| 3 | 5353.33 | 71.87 | 80.00 | -8.13 | 34.35 | 3.49 | 34.03 | 0.00 | 61 | 100 | Peak | HORIZONTAL |
| 4 | 5359.84 | 59.48 | 60.00 | -0.52 | 21.96 | 3.49 | 34.03 | 0.00 | 61 | 100 | Average | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5320 MHz.

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 20MHz Ch 100, 116, 140 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 100

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5460.00 | 59.71 | 60.00 | -0.29 | 22.00 | 3.52 | 34.19 | 0.00 | 299 | 100 | Average | HORIZONTAL |
| 2 | 5460.00 | 74.05 | 80.00 | -5.95 | 36.34 | 3.52 | 34.19 | 0.00 | 299 | 100 | Peak | HORIZONTAL |
| 3 | 5497.11 | 108.76 | 74.00 | | | 3.53 | 34.23 | 0.00 | 299 | 100 | Average | HORIZONTAL |
| 4 | 5498.70 | 123.01 | 94.00 | | | 3.53 | 34.23 | 0.00 | 299 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5500 MHz.

Channel 116

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5360.00 | 69.35 | 80.00 | -10.65 | 31.83 | 3.49 | 34.03 | 0.00 | 301 | 100 | Peak | HORIZONTAL |
| 2 | 5360.14 | 59.69 | 60.00 | -0.31 | 22.17 | 3.49 | 34.03 | 0.00 | 301 | 100 | Average | HORIZONTAL |
| 3 | 5587.24 | 114.28 | 74.00 | | | 3.56 | 34.32 | 0.00 | 301 | 100 | Average | HORIZONTAL |
| 4 | 5587.24 | 125.11 | 94.00 | | | 3.56 | 34.32 | 0.00 | 301 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5580 MHz.

Channel 140

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5360.00 | 69.78 | 80.00 | -10.22 | 32.26 | 3.49 | 34.03 | 0.00 | 306 | 100 | Peak | HORIZONTAL |
| 2 | 5360.10 | 59.47 | 60.00 | -0.53 | 21.95 | 3.49 | 34.03 | 0.00 | 306 | 100 | Average | HORIZONTAL |
| 3 | 5691.30 | 112.13 | 74.00 | | | 3.59 | 34.34 | 0.00 | 306 | 100 | Average | HORIZONTAL |
| 4 | 5692.80 | 122.80 | 94.00 | | | 3.59 | 34.34 | 0.00 | 306 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5700 MHz.



| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 54, 62 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 54

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5268.00 | 123.69 | 94.00 | | | 3.46 | 33.88 | 0.00 | 300 | 100 | Peak | HORIZONTAL |
| 2 | 5287.20 | 107.46 | 74.00 | | | 3.47 | 33.91 | 0.00 | 300 | 100 | Average | HORIZONTAL |
| 3 | 5357.20 | 73.79 | 80.00 | -6.21 | 36.27 | 3.49 | 34.03 | 0.00 | 300 | 100 | Peak | HORIZONTAL |
| 4 | 5360.40 | 59.74 | 60.00 | -0.26 | 22.22 | 3.49 | 34.03 | 0.00 | 300 | 100 | Average | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5298.00 | 118.32 | 94.00 | | | 3.48 | 33.94 | 0.00 | 303 | 100 | Peak | HORIZONTAL |
| 2 | 5298.40 | 101.48 | 74.00 | | | 3.48 | 33.94 | 0.00 | 303 | 100 | Average | HORIZONTAL |
| 3 | 5350.00 | 59.76 | 60.00 | -0.24 | 22.24 | 3.49 | 34.03 | 0.00 | 303 | 100 | Average | HORIZONTAL |
| 4 | 5350.00 | 73.04 | 80.00 | -6.96 | 35.52 | 3.49 | 34.03 | 0.00 | 303 | 100 | Peak | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5310 MHz.

| | | | |
|----------------------|---------------|-----------------------|---|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11n MCS8 40MHz Ch 102, 110, 134 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 102

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5460.00 | 59.88 | 60.00 | -0.12 | 22.17 | 3.52 | 34.19 | 0.00 | 300 | 100 | Average | HORIZONTAL |
| 2 | 5460.00 | 75.71 | 80.00 | -4.29 | 38.00 | 3.52 | 34.19 | 0.00 | 300 | 100 | Peak | HORIZONTAL |
| 3 | 5525.20 | 102.43 | 74.00 | | | 3.54 | 34.27 | 0.00 | 300 | 100 | Average | HORIZONTAL |
| 4 | 5526.00 | 119.34 | 94.00 | | | 3.54 | 34.27 | 0.00 | 300 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5510MHz.

Channel 110

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5360.00 | 59.74 | 60.00 | -0.26 | 22.22 | 3.49 | 34.03 | 0.00 | 298 | 100 | Average | HORIZONTAL |
| 2 | 5360.00 | 69.16 | 80.00 | -10.84 | 31.64 | 3.49 | 34.03 | 0.00 | 298 | 100 | Peak | HORIZONTAL |
| 3 | 5534.10 | 109.75 | 74.00 | | | 3.55 | 34.27 | 0.00 | 298 | 100 | Average | HORIZONTAL |
| 4 | 5557.20 | 122.34 | 94.00 | | | 3.55 | 34.31 | 0.00 | 298 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5550 MHz.

Channel 134

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5360.00 | 59.59 | 60.00 | -0.41 | 22.07 | 3.49 | 34.03 | 0.00 | 300 | 100 | Average | HORIZONTAL |
| 2 | 5360.00 | 69.18 | 80.00 | -10.82 | 31.66 | 3.49 | 34.03 | 0.00 | 300 | 100 | Peak | HORIZONTAL |
| 3 | 5665.70 | 109.54 | 74.00 | | | 3.59 | 34.33 | 0.00 | 300 | 100 | Average | HORIZONTAL |
| 4 | 5665.70 | 122.93 | 94.00 | | | 3.59 | 34.33 | 0.00 | 300 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5670 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 52, 60, 64 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 52

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5000.00 | 59.41 | 60.00 | -0.59 | 22.63 | 3.39 | 33.39 | 0.00 | 294 | 100 | Average | HORIZONTAL |
| 2 | 5000.00 | 68.62 | 80.00 | -11.38 | 31.84 | 3.39 | 33.39 | 0.00 | 294 | 100 | Peak | HORIZONTAL |
| 3 | 5258.60 | 116.76 | 74.00 | | | 3.46 | 33.85 | 0.00 | 294 | 100 | Average | HORIZONTAL |
| 4 | 5258.60 | 126.43 | 94.00 | | | 3.46 | 33.85 | 0.00 | 294 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5302.03 | 113.54 | 74.00 | | | 3.48 | 33.94 | 0.00 | 298 | 100 | Average | HORIZONTAL |
| 2 | 5302.32 | 125.78 | 94.00 | | | 3.48 | 33.94 | 0.00 | 298 | 100 | Peak | HORIZONTAL |
| 3 | 5350.00 | 71.33 | 80.00 | -8.67 | 33.81 | 3.49 | 34.03 | 0.00 | 298 | 100 | Peak | HORIZONTAL |
| 4 | 5351.45 | 59.51 | 60.00 | -0.49 | 21.99 | 3.49 | 34.03 | 0.00 | 298 | 100 | Average | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5320.72 | 121.75 | 94.00 | | | 3.48 | 33.97 | 0.00 | 59 | 100 | Peak | HORIZONTAL |
| 2 | 5321.30 | 109.49 | 74.00 | | | 3.48 | 33.97 | 0.00 | 59 | 100 | Average | HORIZONTAL |
| 3 | 5361.74 | 71.78 | 80.00 | -8.22 | 34.26 | 3.49 | 34.03 | 0.00 | 59 | 100 | Peak | HORIZONTAL |
| 4 | 5364.91 | 59.16 | 60.00 | -0.84 | 21.61 | 3.49 | 34.06 | 0.00 | 59 | 100 | Average | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 5320 MHz.

| | | | |
|----------------------|---------------|-----------------------|--|
| Temperature | 23°C | Humidity | 61% |
| Test Engineer | Sean Ku | Configurations | IEEE 802.11a Ch 100, 116, 140 / Ant. 8 / Connector J2 + J3 + J4 |
| Test Date | Mar. 29, 2011 | | |

Channel 100

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5454.60 | 59.86 | 60.00 | -0.14 | 22.15 | 3.52 | 34.19 | 0.00 | 65 | 100 | Average | HORIZONTAL |
| 2 | 5454.80 | 71.91 | 80.00 | -8.09 | 34.20 | 3.52 | 34.19 | 0.00 | 65 | 100 | Peak | HORIZONTAL |
| 3 | 5499.00 | 108.99 | 74.00 | | | 3.53 | 34.23 | 0.00 | 65 | 100 | Average | HORIZONTAL |
| 4 | 5499.40 | 121.31 | 94.00 | | | 3.53 | 34.23 | 0.00 | 65 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5500 MHz.

Channel 116

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5360.00 | 59.31 | 60.00 | -0.69 | 21.79 | 3.49 | 34.03 | 0.00 | 301 | 100 | Average | HORIZONTAL |
| 2 | 5360.00 | 70.18 | 80.00 | -9.82 | 32.66 | 3.49 | 34.03 | 0.00 | 301 | 100 | Peak | HORIZONTAL |
| 3 | 5581.45 | 125.57 | 94.00 | | | 3.56 | 34.31 | 0.00 | 301 | 100 | Peak | HORIZONTAL |
| 4 | 5582.17 | 115.93 | 74.00 | | | 3.56 | 34.31 | 0.00 | 301 | 100 | Average | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5580 MHz.

Channel 140

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | T/Pos | A/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | deg | cm | | |
| 1 | 5358.00 | 59.62 | 60.00 | -0.38 | 22.10 | 3.49 | 34.03 | 0.00 | 308 | 100 | Average | HORIZONTAL |
| 2 | 5400.00 | 67.31 | 80.00 | -12.69 | 29.68 | 3.51 | 34.12 | 0.00 | 308 | 100 | Peak | HORIZONTAL |
| 3 | 5696.00 | 110.27 | 74.00 | | | 3.59 | 34.34 | 0.00 | 308 | 100 | Average | HORIZONTAL |
| 4 | 5696.00 | 121.54 | 94.00 | | | 3.59 | 34.34 | 0.00 | 308 | 100 | Peak | HORIZONTAL |

Item 3, 4 are the fundamental frequency at 5700 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

4.8. Frequency Stability Measurement

4.8.1. Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emissions is maintained within the band of operation under all conditions of normal operation as specified in the user's manual or $\pm 20\text{ppm}$ (IEEE 802.11 specification).

4.8.2. Measuring Instruments and Setting

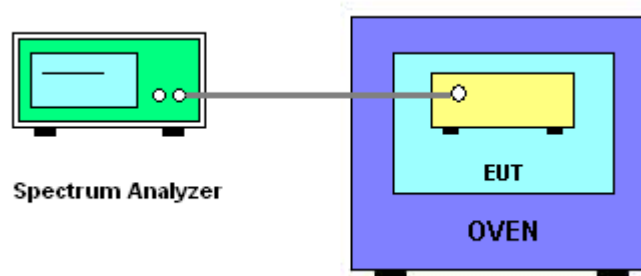
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting |
|--------------------|--|
| Attenuation | Auto |
| Span Frequency | Entire absence of modulation emissions bandwidth |
| RB | 10 kHz |
| VB | 10 kHz |
| Sweep Time | Auto |

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than $\pm 20\text{ppm}$ (IEEE 802.11 specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature rule is $-30^\circ\text{C} \sim 50^\circ\text{C}$.
8. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

4.8.7. Test Result of Frequency Stability

<For External Antenna / Ant. 5>

Voltage vs. Frequency Stability

| Voltage | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (V) | 5300 |
| 126.50 | 5300.021100 |
| 110.00 | 5300.013200 |
| 93.50 | 5300.020000 |
| Max. Deviation (MHz) | 0.021100 |
| Max. Deviation (ppm) | 3.98 |

Temperature vs. Frequency Stability

| Temperature | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (°C) | 5300 |
| -30 | 5300.048710 |
| -20 | 5300.041210 |
| -10 | 5300.039410 |
| 0 | 5300.012320 |
| 10 | 5300.002310 |
| 20 | 5299.991120 |
| 30 | 5299.987320 |
| 40 | 5299.986742 |
| 50 | 5299.978310 |
| Max. Deviation (MHz) | 0.048710 |
| Max. Deviation (ppm) | 9.1906 |

<For External Antenna / Ant. 6>

Voltage vs. Frequency Stability

| Voltage | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (V) | 5300 |
| 126.50 | 5300.021100 |
| 110.00 | 5300.013200 |
| 93.50 | 5300.020000 |
| Max. Deviation (MHz) | 0.021100 |
| Max. Deviation (ppm) | 3.98 |

Temperature vs. Frequency Stability

| Temperature | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (°C) | 5300 |
| -30 | 5300.048710 |
| -20 | 5300.041210 |
| -10 | 5300.039410 |
| 0 | 5300.012320 |
| 10 | 5300.002310 |
| 20 | 5299.991120 |
| 30 | 5299.987320 |
| 40 | 5299.986742 |
| 50 | 5299.978310 |
| Max. Deviation (MHz) | 0.048710 |
| Max. Deviation (ppm) | 9.1906 |

<For Internal Antenna / Ant. 8>

Voltage vs. Frequency Stability

| Voltage | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (V) | 5300 |
| 126.50 | 5300.021100 |
| 110.00 | 5300.013200 |
| 93.50 | 5300.020000 |
| Max. Deviation (MHz) | 0.021100 |
| Max. Deviation (ppm) | 3.98 |

Temperature vs. Frequency Stability

| Temperature | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (°C) | 5300 |
| -30 | 5300.048710 |
| -20 | 5300.041210 |
| -10 | 5300.039410 |
| 0 | 5300.012320 |
| 10 | 5300.002310 |
| 20 | 5299.991120 |
| 30 | 5299.987320 |
| 40 | 5299.986742 |
| 50 | 5299.978310 |
| Max. Deviation (MHz) | 0.048710 |
| Max. Deviation (ppm) | 9.1906 |

4.9. Antenna Requirements

4.9.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.9.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|----------------------------|--------------|------------------|-------------|------------------|------------------|-----------------------|
| EMI Test Receiver | R&S | ESCS 30 | 100377 | 9kHz ~ 2.75GHz | Sep. 01, 2010 | Conduction (CO01-CB) |
| LISN | F.C.C. | FCC-LISN-50-16-2 | 04083 | 150kHz ~ 100MHz | Apr. 24, 2010 | Conduction (CO01-CB) |
| V- LISN | Schwarzbeck | NSLK 8127 | 8127-478 | 9K ~ 30MHz | Oct. 30, 2010 | Conduction (CO01-CB) |
| PULSE LIMITER | R&S | ESH3-Z2 | 100430 | 9K~30MHz | Jan. 04, 2010 | Conduction (CO01-CB) |
| PULSE LIMITER | R&S | ESH3-Z2 | 100430 | 9K~30MHz | Jan. 04, 2011 | Conduction (CO01-CB) |
| COND Cable | - | Cable | - | 0.15MHz~30MHz | Dec. 01, 2010 | Conduction (CO01-CB) |
| BILOG ANTENNA | Schaffner | CBL6112D | 22021 | 20MHz ~ 2GHz | Oct. 17, 2010 | Radiation (03CH01-CB) |
| Horn Antenna | EMCO | 3115 | 00075790 | 750MHz~18GHz | Nov. 13, 2010 | Radiation (03CH01-CB) |
| Horn Antenna | SCHWARZBEAK | BBHA 9170 | BBHA9170252 | 15GHz ~ 40GHz | Oct. 08, 2010 | Radiation (03CH01-CB) |
| Pre-Amplifier | Agilent | 8447D | 2944A10991 | 0.1MHz ~ 1.3GHz | Nov. 17, 2010 | Radiation (03CH01-CB) |
| Pre-Amplifier | Agilent | 8449B | 3008A02310 | 1GHz ~ 26.5GHz | Nov. 06, 2010 | Radiation (03CH01-CB) |
| Pre-Amplifier | WM | TF-130N-R1 | 923365 | 26.5GHz ~ 40GHz | Nov. 17, 2010 | Radiation (03CH01-CB) |
| Spectrum analyzer | R&S | FSP | 100304 | 9kHz ~ 40GHz | Nov. 06, 2010 | Radiation (03CH01-CB) |
| EMI Test Receiver | R&S | ESCS 30 | 100355 | 9KHz ~ 2.75GHz | Mar. 06, 2011 | Radiation (03CH01-CB) |
| Loop Antenna | R&S | HFH2-Z2 | 860004/001 | 9 kHz - 30 MHz | Sep. 09, 2010* | Radiation (03CH01-CB) |
| Turn Table | INN CO | CO 2000 | N/A | 0 ~ 360 degree | N/A | Radiation (03CH01-CB) |
| Antenna Mast | INN CO | CO2000 | N/A | 1 m - 4 m | N/A | Radiation (03CH01-CB) |
| RF Cable-low | Woken | Low Cable-1 | - | 30 MHz - 1 GHz | Nov. 17, 2010 | Radiation (03CH01-CB) |
| RF Cable-high | Woken | High Cable-1 | - | 1 GHz – 26.5 GHz | Nov. 17, 2010 | Radiation (03CH01-CB) |
| RF Cable-high | Woken | High Cable-2 | - | 1 GHz – 26.5 GHz | Nov. 17, 2010 | Radiation (03CH01-CB) |
| RF Cable-high | Woken | High Cable-3 | - | 1 GHz - 40 GHz | Nov. 17, 2010 | Radiation (03CH01-CB) |
| RF Cable-high | Woken | High Cable-4 | - | 1 GHz - 40 GHz | Nov. 17, 2010 | Radiation (03CH01-CB) |
| Spectrum analyzer | R&S | FSP30 | 100023 | 9KHz~30GHz | Mar. 05, 2011 | Conducted (TH01-CB) |
| Temp. and Humidity Chamber | TEN BILLION | TTH-D3SP | TBN-931011 | -30~100°C | May 21, 2010 | Conducted (TH01-CB) |
| Temp. and Humidity Chamber | TEN BILLION | TTH-D3SP | TBN-931011 | -30~100°C | May 21, 2011 | Conducted (TH01-CB) |
| Signal Generator | R&S | SMR40 | 100302 | 10MHz-40GHz | Mar. 09, 2011 | Conducted (TH01-CB) |



| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|-------------------|--------------|---------------|------------|------------------|------------------|---------------------|
| RF Power Divider | HP | 11636A | 00306 | 2GHz ~ 18GHz | N/A | Conducted (TH01-CB) |
| RF Power Splitter | Anaren | 44100 | 1839 | 2GHz ~ 18GHz | N/A | Conducted (TH01-CB) |
| RF Power Splitter | Anaren | 42100 | 17930 | 2GHz ~ 18GHz | N/A | Conducted (TH01-CB) |
| Signal generator | R&S | SMU200A | 102782 | 10MHz-40GHz | Mar. 09, 2011 | Conducted (TH01-CB) |
| Horn Antenna | COM-POWER | AH-118 | 071187 | 1GHz – 18GHz | Apr. 16, 2010 | Conducted (TH01-CB) |
| Horn Antenna | COM-POWER | AH-118 | 071187 | 1GHz – 18GHz | Apr. 16, 2011 | Conducted (TH01-CB) |
| Horn Antenna | COM-POWER | AH-118 | 071042 | 1GHz – 18GHz | Oct. 14, 2010 | Conducted (TH01-CB) |
| RF Cable-high | Woken | High Cable-7 | - | 1 GHz – 26.5 GHz | Nov. 17, 2010 | Conducted (TH01-CB) |
| RF Cable-high | Woken | High Cable-8 | - | 1 GHz – 26.5 GHz | Nov. 17, 2010 | Conducted (TH01-CB) |
| RF Cable-high | Woken | High Cable-9 | - | 1 GHz – 26.5 GHz | Nov. 17, 2010 | Conducted (TH01-CB) |
| RF Cable-high | Woken | High Cable-10 | - | 1 GHz – 26.5 GHz | Nov. 17, 2010 | Conducted (TH01-CB) |
| RF Cable-high | Woken | High Cable-11 | - | 1 GHz – 26.5 GHz | Nov. 17, 2010 | Conducted (TH01-CB) |
| RF Cable-high | Woken | High Cable-12 | - | 1 GHz – 26.5 GHz | Nov. 17, 2010 | Conducted (TH01-CB) |
| RF Cable-high | Woken | High Cable-13 | - | 1 GHz – 26.5 GHz | Nov. 17, 2010 | Conducted (TH01-CB) |
| Power Sensor | Anritsu | MA2411B | 0917223 | 300MHz~40GHz | Sep. 13, 2010 | Conducted (TH01-CB) |
| Power Meter | Anritsu | ML2495A | 1035008 | 300MHz~40GHz | Sep. 08, 2010 | Conducted (TH01-CB) |

Note: Calibration Interval of instruments listed above is one year.

* Calibration Interval of instruments listed above is two year.

NCR means Non-Calibration required.

6. TEST LOCATION

| | |
|--------|--|
| SHIJR | ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255 |
| HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055 |
| LINKOU | ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 886-2-2601-1640 FAX : 886-2-2601-1695 |
| DUNGHU | ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740 |
| JUNGHE | ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626 |
| NEIHU | ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777 |
| JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085 |

7. TAF CERTIFICATE OF ACCREDITATION



Certificate No. : L1190-091230

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

| | |
|---------------------------------------|--|
| Accreditation Criteria | : ISO/IEC 17025:2005 |
| Accreditation Number | : 1190 |
| Originally Accredited | : December 15, 2003 |
| Effective Period | : January 10, 2010 to January 09, 2013 |
| Accredited Scope | : Testing Field, see described in the Appendix |
| Specific Accreditation Program | : Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities |

Jay-san Chen

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : December 30, 2009

Pl, total 22 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix

Appendix A. Test Photos

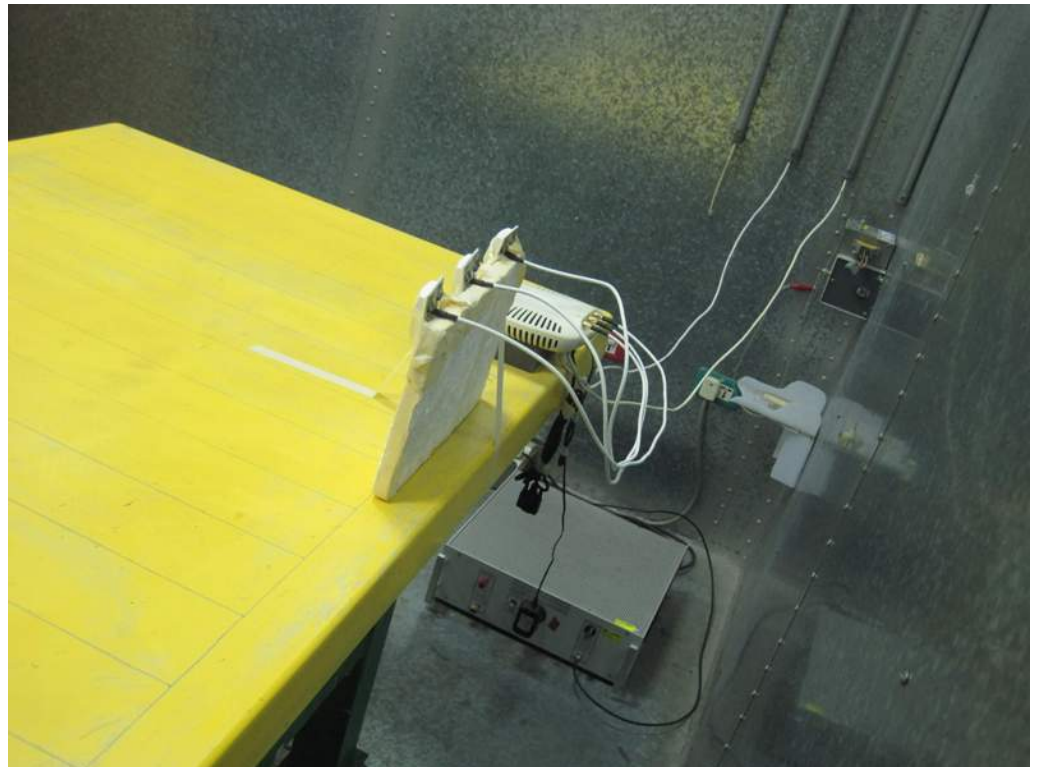
1. Photographs of Conducted Emissions Test Configuration

Test Mode: Mode 1

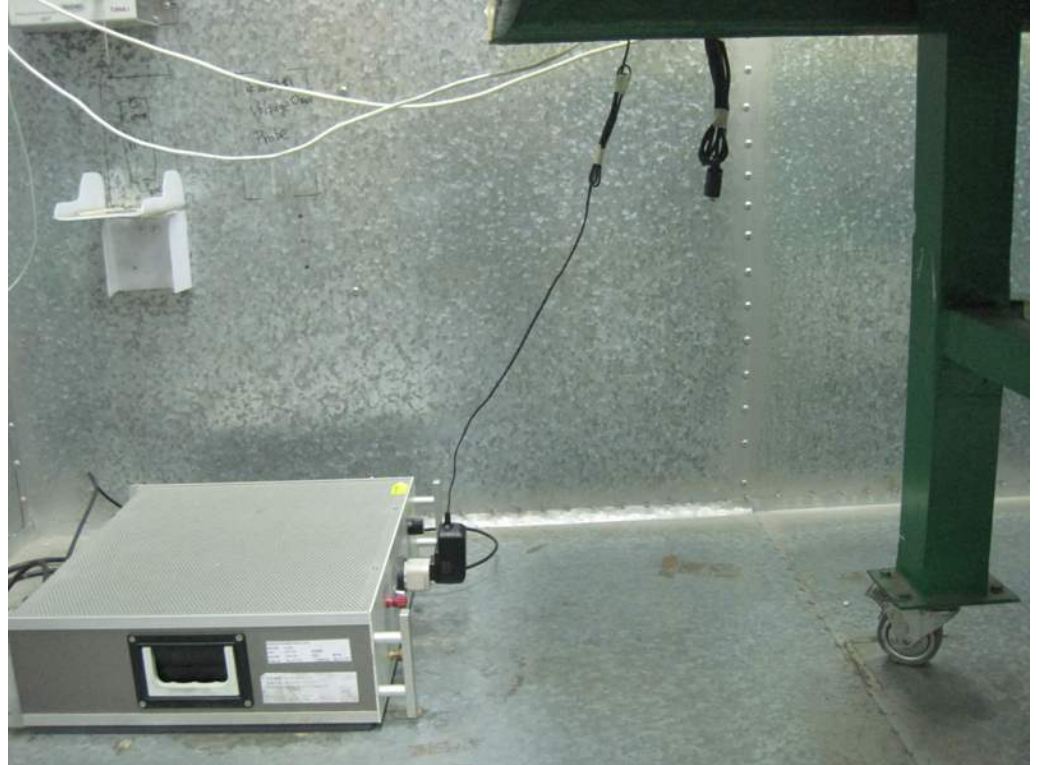
FRONT VIEW



REAR VIEW



SIDE VIEW

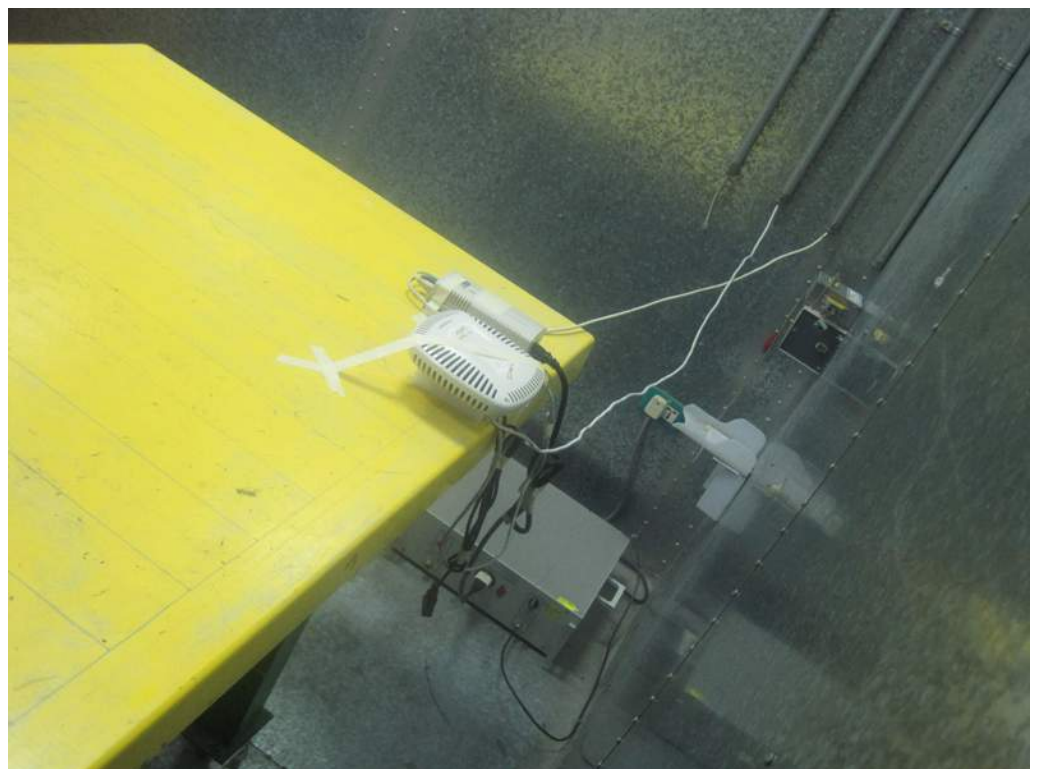


Test Mode: Mode 4

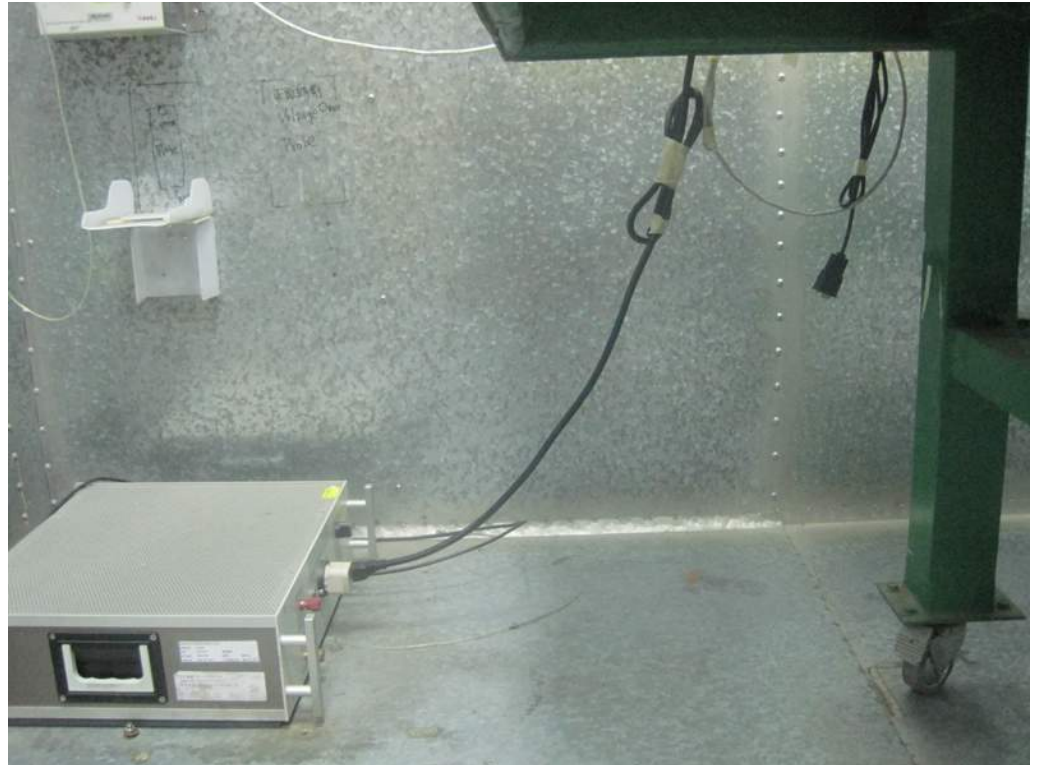
FRONT VIEW



REAR VIEW



SIDE VIEW



2. Photographs of Radiated Emissions Test Configuration

Test Configuration: 9kHz ~30MHz

FRONT VIEW



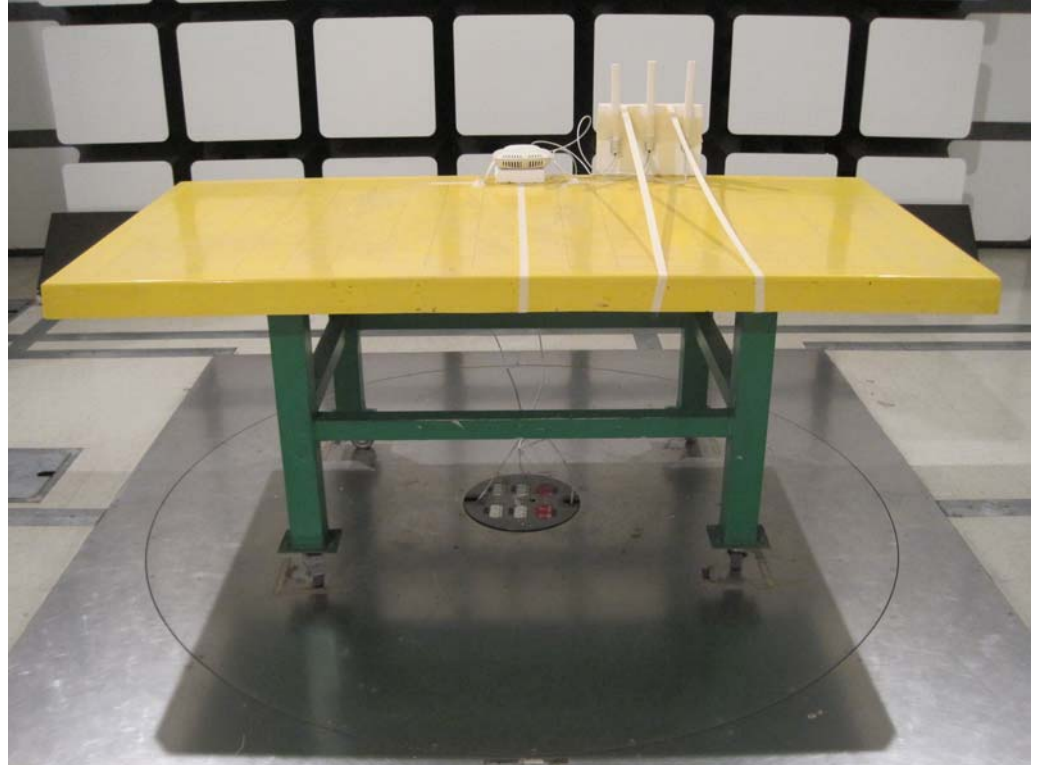
REAR VIEW



Test Configuration: 30MHz~1GHz

Test Mode: Mode 2

FRONT VIEW



REAR VIEW



Test Mode: Mode 4

FRONT VIEW

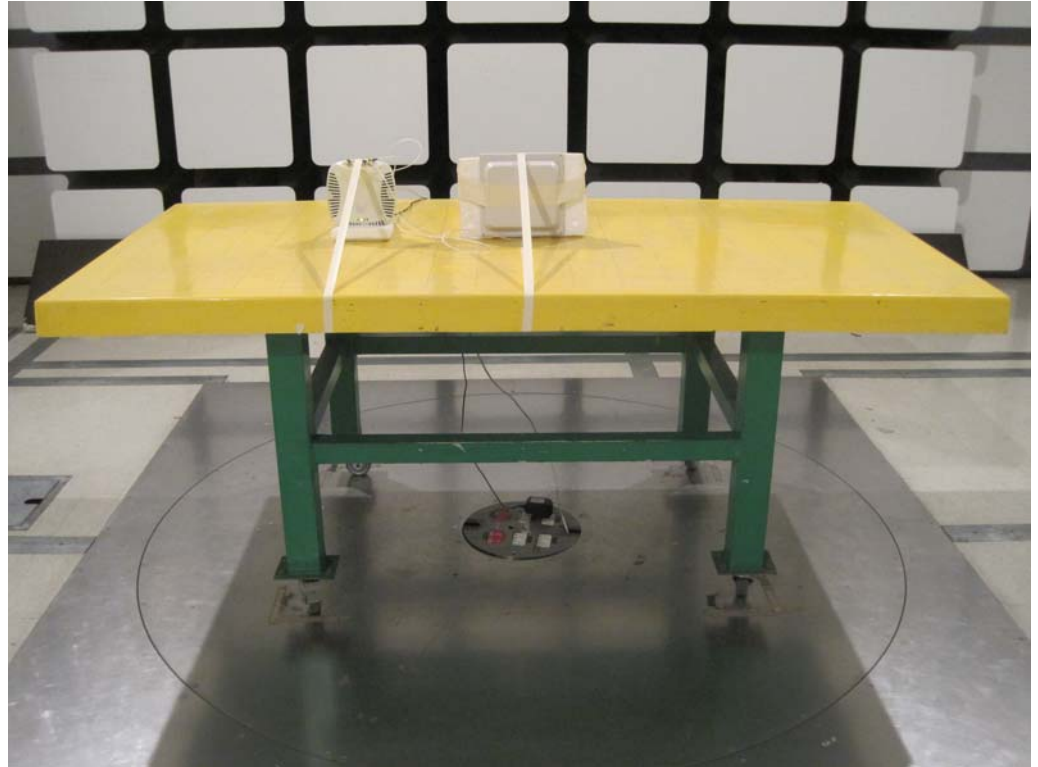


REAR VIEW



Test Configuration: Above 1GHz
<For External Antenna / Ant. 5>

FRONT VIEW

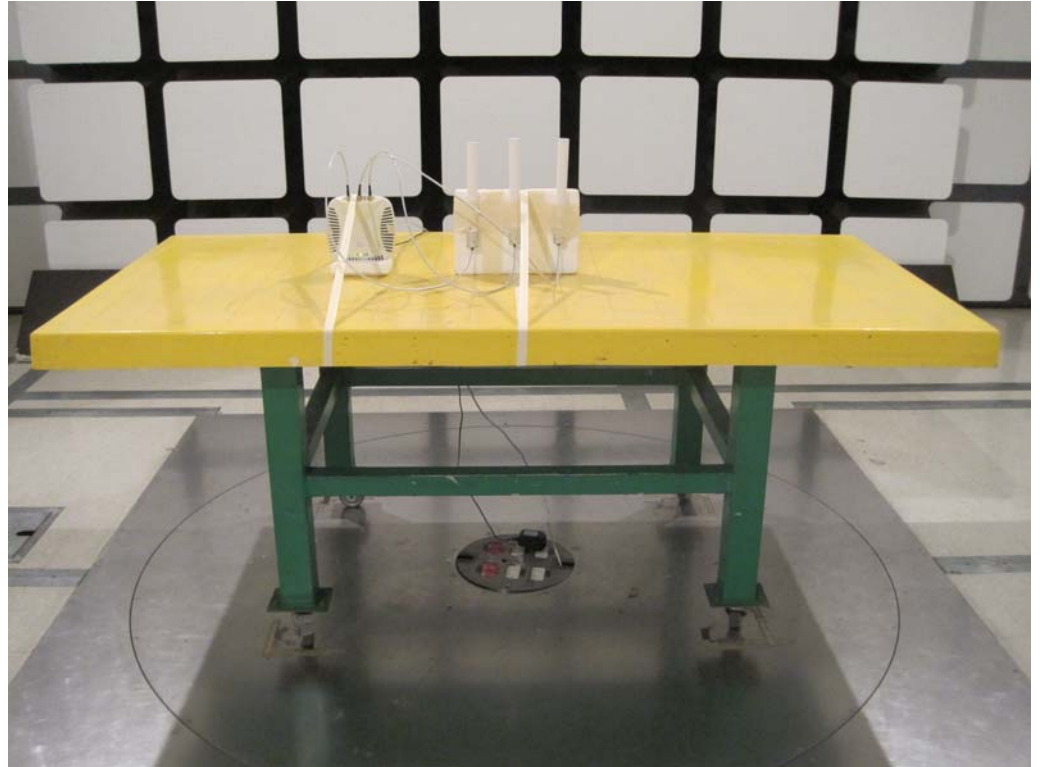


REAR VIEW



<For External Antenna / Ant. 6>

FRONT VIEW

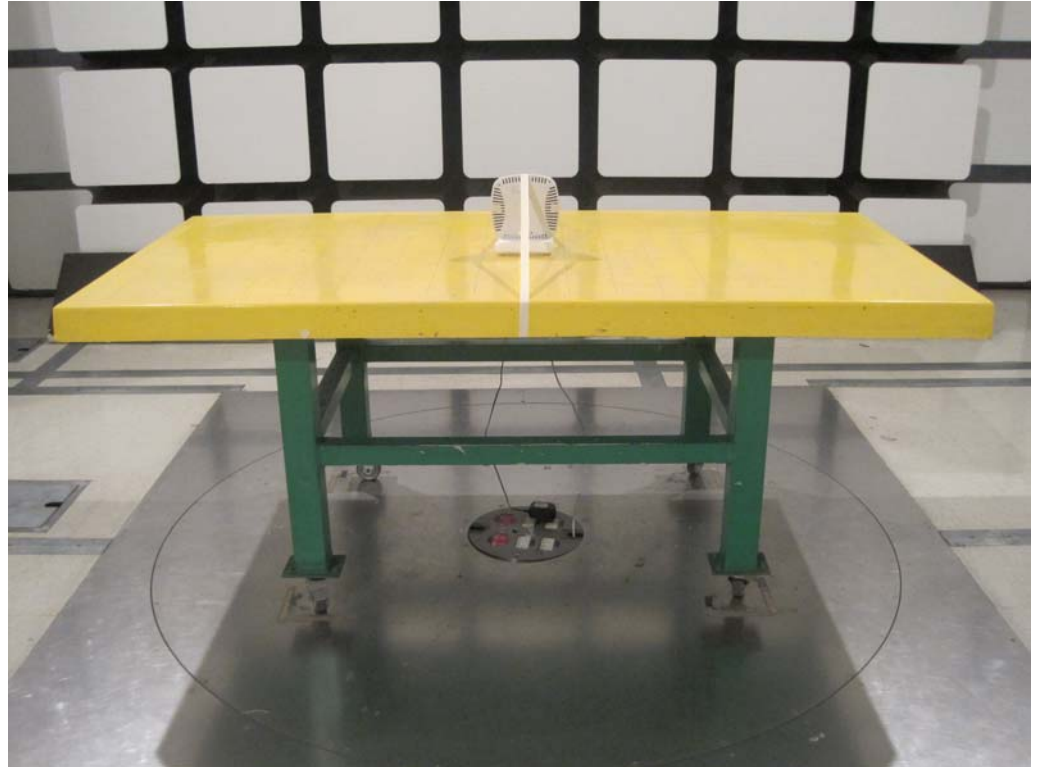


REAR VIEW



<For Internal Antenna / Ant. 8>

FRONT VIEW



REAR VIEW



Appendix B. Maximum Permissible Exposure

1. Maximum Permissible Exposure

1.1. Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.25 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm ²) | Averaging Time E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|--|---|
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842 / f | 4.89 / f | (900 / f)* | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | | | F/300 | 6 |
| 1500-100,000 | | | 5 | 6 |

(B) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm ²) | Averaging Time E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|--|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | F/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

Note: f = frequency in MHz ; *Plane-wave equivalent power density

1.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.4m, as well as the gain of the used antenna, the RF power density can be obtained.

1.3. Calculated Result and Limit

<For External Antenna / Ant. 5>

Antenna Type : Directional Antenna

Max Conducted Power for IEEE 802.11a / Connector J2 + J3 + J4: 23.91dBm

| Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm ²) | Limit of Power Density (S) (mW/cm ²) | Test Result |
|--------------------|------------------------|-------------------------|--------------------------|---|--|-------------|
| 4.20 | 2.6303 | 23.9123 | 246.1672 | 0.032220 | 1 | Complies |

<For External Antenna / Ant. 6>

Antenna Type : Omni Antenna

Max Conducted Power for IEEE 802.11a / Connector J2 + J3 + J4: 23.91dBm

| Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm ²) | Limit of Power Density (S) (mW/cm ²) | Test Result |
|--------------------|------------------------|-------------------------|--------------------------|---|--|-------------|
| 2.70 | 1.8621 | 23.9123 | 246.1672 | 0.022810 | 1 | Complies |

<For Internal Antenna / Ant. 8>

Antenna Type : Embedded Antenna

Max Conducted Power for IEEE 802.11n MCS8 20MHz / Connector J2 + J3 + J4: 23.15dBm

| Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm ²) | Limit of Power Density (S) (mW/cm ²) | Test Result |
|--------------------|------------------------|-------------------------|--------------------------|---|--|-------------|
| 4.50 | 2.8184 | 23.1483 | 206.4592 | 0.028955 | 1 | Complies |

Appendix C. New Power Measurement for MIMO Device

1. New Power Measurement for MIMO Device

In order to comply with latest FCC regulations(KDB662911) the RF power in legacy modes (802.11 a/b/g) must be added the additional antenna gain by 4.77 dB ($10\log(N)$, $N=3$). It is re-calculated the RF output power in legacy mode in below table. For the In-band PSD and out-Band Measurement, it is measured by original power value so that it is over-estimated so it is not measured again.

1.1 Test Result of Maximum Conducted Output Power for legacy mode

| | | | |
|----------------------|--------------------------------|-----------------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11a / Ant. 5 |
| Test Date | May. 08, 2011 & April 29, 2011 | | |

Power Parameters of IEEE 802.11a

| Test Software Version | ART2-GUI 2.13 | | | | | |
|-----------------------|---------------|----------|----------|----------|----------|----------|
| Frequency | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz |
| 802.11a | 17.5 | 18 | 18 | 18 | 18 | 17.5 |

Configuration IEEE 802.11a

| Channel | Frequency | Power output (dBm) | | | Total power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|--------------------|--------------|--------------|-------------------|------------------|----------|
| | | Connector J2 | Connector J3 | Connector J4 | | | |
| 52 | 5260 MHz | 16.3 | 15.36 | 16.28 | 20.77 | 21.03 | Complies |
| 60 | 5300 MHz | 15.61 | 15.05 | 16.36 | 20.48 | 21.03 | Complies |
| 64 | 5320 MHz | 15.7 | 15.55 | 16.21 | 20.60 | 21.03 | Complies |
| 100 | 5500 MHz | 15.22 | 15.62 | 16.02 | 20.40 | 21.03 | Complies |
| 116 | 5580 MHz | 16.13 | 15.99 | 16.39 | 20.94 | 21.03 | Complies |
| 140 | 5700 MHz | 16.02 | 15.65 | 16.44 | 20.82 | 21.03 | Complies |

Directional gain = $4.2\text{dBi} + 10\log(3) = 8.97\text{dBi} > 6\text{dBi}$, so the conducted output power limit should be reduced to $24 - (8.97 - 6) = 21.03\text{dBm}$

| | | | |
|---------------|--------------------------------|----------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 6 |
| Test Date | Mar. 08, 2011 & April 29, 2011 | | |

Power Parameters of IEEE 802.11a

| Test Software Version | ART2-GUI 2.13 | | | | | |
|-----------------------|---------------|----------|----------|----------|----------|----------|
| Frequency | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz |
| 802.11a | 19.5 | 19.5 | 17 | 18.5 | 19.5 | 19 |

Configuration IEEE 802.11a

| Channel | Frequency | Power output (dBm) | | | Total power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|--------------------|--------------|--------------|-------------------|------------------|----------|
| | | Connector J2 | Connector J3 | Connector J4 | | | |
| 52 | 5260 MHz | 17.46 | 17.82 | 17.71 | 22.44 | 22.53 | Complies |
| 60 | 5300 MHz | 17.25 | 17 | 17.9 | 22.17 | 22.53 | Complies |
| 64 | 5320 MHz | 15.21 | 15.04 | 16.05 | 20.23 | 22.53 | Complies |
| 100 | 5500 MHz | 15.88 | 16.85 | 16.96 | 21.36 | 22.53 | Complies |
| 116 | 5580 MHz | 17.53 | 17.78 | 17.91 | 22.51 | 22.53 | Complies |
| 140 | 5700 MHz | 17.17 | 16.7 | 17.53 | 21.92 | 22.53 | Complies |

Directional gain = $2.7\text{dBi} + 10\log(3) = 7.47\text{dBi} > 6\text{dBi}$, so the conducted output power limit should be reduced to $24 - (7.47 - 6) = 22.53\text{dBm}$

| | | | |
|---------------|--------------------------------|----------------|-----------------------|
| Temperature | 22°C | Humidity | 65% |
| Test Engineer | Allen Liu | Configurations | IEEE 802.11n / Ant. 8 |
| Test Date | Mar. 08, 2011 & April 29, 2011 | | |

Power Parameters of IEEE 802.11a

| Test Software Version | ART2-GUI 2.13 | | | | | |
|-----------------------|---------------|----------|----------|----------|----------|----------|
| Frequency | 5260 MHz | 5300 MHz | 5320 MHz | 5500 MHz | 5580 MHz | 5700 MHz |
| 802.11a | 16 | 14 | 12 | 12 | 16.5 | 14.5 |

Configuration IEEE 802.11a

| Channel | Frequency | Power output (dBm) | | | Total power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|--------------------|--------------|--------------|-------------------|------------------|----------|
| | | Connector J2 | Connector J3 | Connector J4 | | | |
| 52 | 5260 MHz | 14.86 | 16.28 | 16.04 | 20.54 | 20.73 | Complies |
| 60 | 5300 MHz | 13.35 | 13.88 | 14.21 | 18.60 | 20.73 | Complies |
| 64 | 5320 MHz | 11.13 | 11.62 | 11.72 | 16.27 | 20.73 | Complies |
| 100 | 5500 MHz | 11.58 | 11.69 | 12.12 | 16.57 | 20.73 | Complies |
| 116 | 5580 MHz | 15.81 | 15.77 | 15.67 | 20.52 | 20.73 | Complies |
| 140 | 5700 MHz | 15.07 | 14.34 | 14.73 | 19.49 | 20.73 | Complies |

Directional gain = $4.5\text{dBi} + 10\log(3) = 9.27\text{dBi} > 6\text{dBi}$, so the conducted output power limit should be reduced to $24 - (9.27 - 6) = 20.73\text{dBm}$