# RADIO TEST REPORT

## Test Report No. : 10604551H-B-R1

| | | |
|---|---|---|
| **Applicant** | : | **silex technology, Inc.** |
| **Type of Equipment** | : | **PCI Express Half mini card WLAN module** |
| **Model No.** | : | **SX-PCEAN2** |
| **FCC ID** | : | **N6C-SXPCEAN2** |
| **Test regulation** | : | **FCC Part 15 Subpart E: 2015** |
| **Test Result** | : | **Complied** |

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with above regulation.
4. The test results in this report are traceable to the national or international standards.
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6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 10604551H-B. 10604551H-B is replaced with this report.

**Date of test:** February 20 to March 12, 2015

**Representative test engineer:**
Kazuya Yoshioka
Engineer
Consumer Technology Division

**Approved by:**
Takahiro Hatakeda
Leader
Consumer Technology Division

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This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

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# REVISION HISTORY

## Original Test Report No.: 10604551H-B

| Revision | Test report No. | Date | Page revised | Contents |
|---|---|---|---|---|
| - (Original) | 10604551H-B | April 1, 2015 | - | - |
| 1 | 10604551H-B-R1 | April 17, 2015 | P.8 | Addition of explanatory note for software |
| 1 | 10604551H-B-R1 | April 17, 2015 | P.33-35, 39-41 | Correction of test data |
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**CONTENTS** **PAGE**

# SECTION 1: Customer information

| | | |
|---|---|---|
| Company Name | : | silex technology, Inc. |
| Address | : | 2-3-1 Hikaridai, Seika-cho, Kyoto 619-0237, Japan |
| Telephone Number | : | +81-774-98-3878 |
| Facsimile Number | : | +81-774-98-3758 |
| Contact Person | : | Toshiro Kometani |

# SECTION 2: Equipment under test (E.U.T.)

## 2.1 Identification of E.U.T.

| | | |
|---|---|---|
| Type of Equipment | : | PCI Express Half mini card WLAN module |
| Model No. | : | SX-PCEAN2 |
| Serial No. | : | Refer to Clause 4.2 |
| Rating | : | DC3.3V |
| Receipt Date of Sample | : | February 12, 2015 |
| Country of Mass-production | : | Japan |
| Condition of EUT | : | Production prototype<br>(Not for Sale: This sample is equivalent to mass-produced items.) |
| Modification of EUT | : | No Modification by the test lab |

## 2.2 Product Description

Model No: SX-PCEAN2 (referred to as the EUT in this report) is the PCI Express Half mini card WLAN module.

**General Specification**

| | | |
|---|---|---|
| Clock frequency(ies) in the system | : | 40MHz |

**Radio Specification**

| | | |
|---|---|---|
| Radio Type | : | Transceiver |
| Method of Frequency Generation | : | Synthesizer |
| Power Supply (inner) | : | DC1.2V |

**Radio Specification**

| | **IEEE802.11b** | **IEEE802.11g/n (20 M band)** | **IEEE802.11a/n (20 M band)** | **IEEE802.11n (40 M band)** |
|---|---|---|---|---|
| Frequency of operation | 2412-2462MHz | 2412-2462MHz | 5180-5240MHz *1)<br>5260-5320MHz *1)<br>5500-5700MHz *1)<br>5745-5825MHz | 2422-2452MHz<br>5190-5230MHz *1)<br>5270-5310MHz *1)<br>5510-5670MHz *1)<br>5755-5795MHz |
| Type of modulation | DSSS<br>(CCK, DQPSK, DBPSK) | OFDM-CCK<br>(64QAM, 16QAM, QPSK, BPSK) | OFDM<br>(64QAM, 16QAM, QPSK, BPSK) | |
| Channel spacing | 5MHz | | 20MHz | 2.4GHz: 5MHz<br>5GHz: 40MHz |
| Antenna type | WiFi Dual Band PCB antenna | | | |
| Antenna Gain | 2.4GHz: 1.8dBi<br>5GHz: 3.9dBi | | | |
| Antenna Connector type | U.FL Alternative connector | | | |

*1) 5180-5240MHz, 5190-5230MHz, 5270-5310MHz, 5260-5320MHz, 5500-5700MHz, and 5510-5670MHz are applied for this test report.

# SECTION 3: Test specification, procedures & results

## 3.1 Test Specification

| | | |
|---|---|---|
| Test Specification | : | FCC Part 15 Subpart E: 2015, final revised on January 21, 2015 |
| Title | : | FCC 47CFR Part15 Radio Frequency Device Subpart E<br>Unlicensed National Information Infrastructure Devices<br>Section 15.407 General technical requirements |

## 3.2 Procedures and results

| Item | Test Procedure | Specification | Worst margin | Results | Remarks |
|---|---|---|---|---|---|
| Conducted Emission | **FCC :**ANSI C63.4:2009 | **FCC:** 15.407(b)(6) / 15.207 | **QP**<br>21.8dB, 4.46340MHz, N<br>**AV**<br>21.6dB, 4.46340MHz, N<br>4.48494MHz, L | Complied | - |
| | **IC:** RSS-Gen 8.8 | **IC:** RSS-Gen 8.8 | | | |
| 26dB Emission Bandwidth | **FCC :**ANSI C63.4:2009,<br>FCC KDB Publication Number 789033 | **FCC :** 15.407(a)(1)(2)(3) | See data | N/A | Conducted |
| | **IC:** - | **IC:** - | | | |
| Maximum Conducted Output Power | **FCC :**ANSI C63.4:2009,<br>FCC KDB Publication Number 789033 | **FCC :** 15.407(a)(1)(2)(3) | | Complied | Conducted |
| | **IC:** - | **IC:** RSS-210 A9.2(1)(2)(3) | | | |
| Maximum Power Spectral Density | **FCC :**ANSI C63.4:2009,<br>FCC KDB Publication Number 789033 | **FCC :** 15.407(a)(1)(2)(3) | | Complied | Conducted |
| | **IC:** - | **IC:** RSS-210 A9.2(1)(2)(3) | | | |
| Spurious Emission Restricted Band Edge | **FCC:** ANSI C63.4:2009 | **FCC :** 15.407(b), 15.205 and 15.209 | 2.8dB<br>5150.000MHz, AV, Vert. | Complied | Conducted / Radiated |
| | **IC:** - | **IC:** RSS-210 A.9.2(1)(2)(3) | | | |
| 20dB Emission Bandwidth | **FCC :**ANSI C63.4:2009 | **FCC :** 15.215(c) | See data | Complied | Conducted |
| Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.<br>* For DFS tests, please see the test report number 10604551H-C issued by UL Japan, Inc. | | | | | |

**FCC 15.31 (e)**
The RF Module has own regulator.
The RF Module is constantly provided voltage through own regulator regardless of input voltage (DC3.3V).
Therefore, this EUT complies with the requirement.

**FCC Part 15.203/212 Antenna requirement**
The EUT has a unique antenna connector (U.FL on the Module).
Therefore the equipment complies with the requirement of 15.203/212.

## 3.3 Addition to standard

| Item | Test Procedure | Specification | Worst margin | Results | Remarks |
|---|---|---|---|---|---|
| 99% Occupied Band Width | RSS-Gen 6.6 | RSS-210 A9.2 (1)(2)(3) | N/A | N/A | Conducted |

Other than above, no addition, exclusion nor deviation has been made from the standard.

## 3.4 Uncertainty

**EMI**

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

| Test room (semi-anechoic chamber) | Conducted emission (±dB) |
|---|---|
| | 150kHz-30MHz |
| No.1 | 3.5dB |
| No.2 | 3.5dB |
| No.3 | 3.4dB |
| No.4 | 3.5dB |

| Test room (semi-anechoic chamber) | Radiated emission | | | | | | |
|---|---|---|---|---|---|---|---|
| | (3m*)(±dB) | | | | (1m*)(±dB) | | (0.5m*)(±dB) |
| | 9kHz -30MHz | 30MHz -300MHz | 300MHz -1GHz | 1GHz -10GHz | 10GHz -18GHz | 18GHz -26.5GHz | 26.5GHz -40GHz |
| No.1 | 4.3dB | 5.5dB | 6.3dB | 5.5dB | 5.8dB | 5.8dB | 4.3dB |
| No.2 | 4.2dB | 5.4dB | 6.3dB | 5.4dB | 5.7dB | 5.9dB | 5.6dB |
| No.3 | 4.4dB | 5.4dB | 6.4dB | 5.2dB | 5.5dB | 5.8dB | 5.5dB |
| No.4 | 4.7dB | 5.6dB | 6.4dB | 5.3dB | 5.7dB | 5.9dB | 5.5dB |

*3m/1m/0.5m = Measurement distance

| Antenna terminal conducted emission and Power density (±dB) | | | Antenna terminal conducted emission (±dB) | | Channel power (±dB) |
|---|---|---|---|---|---|
| Below 1GHz | 1GHz-3GHz | 3GHz-18GHz | 18GHz-26.5GHz | 26.5GHz-40GHz | |
| 1.5dB | 1.7dB | 2.8dB | 2.8dB | 2.9dB | 2.6dB |

Conducted Emission test

The data listed in this test report has enough margin, more than the site margin.

Radiated emission test(3m)

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

### 3.5 Test Location

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| | IC Registration Number | Width x Depth x Height (m) | Size of reference ground plane (m) / horizontal conducting plane | Other rooms |
|---|---|---|---|---|
| No.1 semi-anechoic chamber | 2973C-1 | 19.2 x 11.2 x 7.7m | 7.0 x 6.0m | No.1 Power source room |
| No.2 semi-anechoic chamber | 2973C-2 | 7.5 x 5.8 x 5.2m | 4.0 x 4.0m | - |
| No.3 semi-anechoic chamber | 2973C-3 | 12.0 x 8.5 x 5.9m | 6.8 x 5.75m | No.3 Preparation room |
| No.3 shielded room | - | 4.0 x 6.0 x 2.7m | N/A | - |
| No.4 semi-anechoic chamber | 2973C-4 | 12.0 x 8.5 x 5.9m | 6.8 x 5.75m | No.4 Preparation room |
| No.4 shielded room | - | 4.0 x 6.0 x 2.7m | N/A | - |
| No.5 semi-anechoic chamber | - | 6.0 x 6.0 x 3.9m | 6.0 x 6.0m | - |
| No.6 shielded room | - | 4.0 x 4.5 x 2.7m | 4.0 x 4.5 m | - |
| No.6 measurement room | - | 4.75 x 5.4 x 3.0m | 4.75 x 4.15 m | - |
| No.7 shielded room | - | 4.7 x 7.5 x 2.7m | 4.7 x 7.5m | - |
| No.8 measurement room | - | 3.1 x 5.0 x 2.7m | N/A | - |
| No.9 measurement room | - | 8.8 x 4.6 x 2.8m | 2.4 x 2.4m | - |
| No.11 measurement room | - | 6.2 x 4.7 x 3.0m | 4.8 x 4.6m | - |

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

### 3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

# SECTION 4: Operation of E.U.T. during testing

## 4.1 Operating Modes

Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing - Managing Complex Regulatory Approvals - " of TCB Council Workshop October 2009.

| Mode | Remarks* |
|---|---|
| IEEE 802.11a (11a) | 18Mbps, PN9 |
| IEEE 802.11n MIMO 20MHz BW (11n-20) | MCS 12 (Short GI), PN9 |
| IEEE 802.11n MIMO 40MHz BW (11n-40) | MCS 11 (Long GI), PN9 |
| *The worst antenna(Ant: 0) and condition was determined based on the test result of Maximum Conducted Output Power. | |
| *The power value of the EUT was set for testing as follows (setting value might be different from product specification value);<br>Power settings: Refer to the following table<br>Software: Atheros Radio Test Tool (ART2-GUI) Version 2.28.6<br>*This setting of software is the worst case.<br>Any conditions under the normal use do not exceed the condition of setting.<br>In addition, end users cannot change the settings of the output power of the product. | |

[Power setting]

| Operation | Rate | Frequency | Power Setting [dBm] |
|---|---|---|---|
| 11a | 18Mbps | 5180MHz | 13.5 |
| | | 5220MHz | 13.5 |
| | | 5240MHz | 13.5 |
| | | 5260MHz | 13.5 |
| | | 5300MHz | 13.5 |
| | | 5320MHz | 13.5 |
| | | 5500MHz | 13.5 |
| | | 5580MHz | 13.5 |
| | | 5700MHz | 13.5 |
| 11n MIMO 20Mband | MCS 12 (Short GI) | 5180MHz | 14.5 |
| | | 5220MHz | 14.5 |
| | | 5240MHz | 14.5 |
| | | 5260MHz | 14.5 |
| | | 5300MHz | 14.5 |
| | | 5320MHz | 14.5 |
| | | 5500MHz | 14.0 |
| | | 5580MHz | 14.0 |
| | | 5700MHz | 14.0 |
| 11n MIMO 40Mband | MCS 11 (Long GI) | 5190MHz | 12.0 |
| | | 5230MHz | 12.0 |
| | | 5270MHz | 12.0 |
| | | 5310MHz | 12.0 |
| | | 5510MHz | 12.0 |
| | | 5550MHz | 12.0 |
| | | 5670MHz | 12.0 |

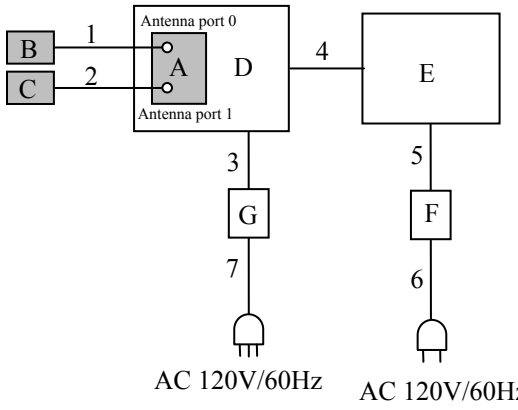
*The details of Operating mode(s)

| Test Item | Operating Mode | Tested Antenna port | Tested Frequency | | |
|---|---|---|---|---|---|
| | | | Lower Band | Middle Band | Additional Band |
| Conducted emission | 11n-20 Tx *1) | 0+1 | - | 5260MHz *1) | - |
| 26dB Emission Bandwidth | 11a Tx<br>11n-20 Tx | 0 *2) | - | 5260MHz<br>5300MHz<br>5320MHz | 5500MHz<br>5580MHz<br>5700MHz |
| | 11n-40 Tx | 0 *2) | - | 5270MHz<br>5310MHz | 5510MHz<br>5550MHz<br>5670MHz |
| 99% Occupied Bandwidth,<br>20dB Bandwidth, | 11a Tx<br>11n-20 Tx | 0 *2) | 5180MHz<br>5220MHz<br>5240MHz | 5260MHz<br>5300MHz<br>5320MHz | 5500MHz<br>5580MHz<br>5700MHz |
| | 11n-40 Tx | 0 *2) | 5190MHz<br>5230MHz | 5270MHz<br>5310MHz | 5510MHz<br>5550MHz<br>5670MHz |
| Maximum Conducted Output Power,<br>Maximum Power Spectral Density | 11a Tx | 0, 1 | 5180MHz<br>5220MHz<br>5240MHz | 5260MHz<br>5300MHz<br>5320MHz | 5500MHz<br>5580MHz<br>5700MHz |
| | 11n-20 Tx | 0, 1, 0+1 | 5180MHz<br>5220MHz<br>5240MHz | 5260MHz<br>5300MHz<br>5320MHz | 5500MHz<br>5580MHz<br>5700MHz |
| | 11n-40 Tx | 0, 1, 0+1 | 5190MHz<br>5230MHz | 5270MHz<br>5310MHz | 5510MHz<br>5550MHz<br>5670MHz |
| Radiated Spurious Emission<br>(Below 1GHz) | 11n-20 Tx *1) | 0+1 | - | 5260MHz *1) | - |
| Radiated Spurious Emission<br>(Above 1GHz) | 11n-20 Tx *3) | 0+1 | 5180MHz | 5260MHz<br>5320MHz | 5500MHz<br>5580MHz<br>5700MHz |
| | 11n-40 Tx | 0+1 | 5190MHz | 5270MHz<br>5310MHz | 5510MHz<br>5550MHz<br>5670MHz |
| Conducted Spurious Emission | 11n-20 Tx *1) | 0 *2) | - | 5260MHz *1) | - |

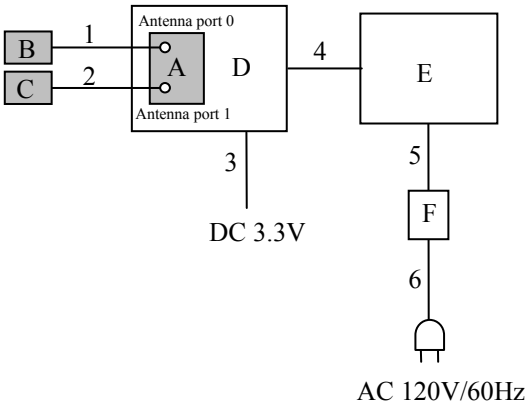
*1) The operating mode and tested frequency were tested as a representative, because it had the highest power at antenna terminal test.
*2) After the comparison between Antenna port 0 and Antenna port 1, test was performed with the antenna that had higher power as a representative.
*3) Since 11a and 11n-20 have the same modulation method and no differences in transmitting specification, test was performed on the representative mode that had the highest conductedc output power.

### 4.2 Configuration and peripherals

**[Conducted emission]**




**[Radiated emission / Antenna terminal conducted tests]**




* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.
* The test was performed using a typical evaluation board (Jig board).

**Description of EUT**

| No. | Item | Model number | Serial number | Manufacturer | Remarks |
|---|---|---|---|---|---|
| A | PCI Express Half Mini Card WLAN Module | SX-PCEAN2 | 001 | Silex | EUT |
| B | Antenna | H2B1PC1A1C | 001 | Unictron Technologies Corporation | EUT |
| C | Antenna | H2B1PC1A1C | 002 | Unictron Technologies Corporation | EUT |
| D | Jig board | - | - | - | - |
| E | Laptop PC | HP ProBook 6550 b | CNU1242 MQ0 | HP | - |
| F | AC Adapter | Series PPP009L-E | CT: WBGST0A1R0PJ9u | HP | - |
| G | Regulated DC Power Supply | PW16-5ADP | 171116437 | TEXO | - |

**List of cables used**

| No. | Name | Length (m) | Shield | | Remarks |
|---|---|---|---|---|---|
| | | | Cable | Connector | |
| 1 | Antenna Cable | 0.15 | Shielded | Shielded | - |
| 2 | Antenna Cable | 0.15 | Shielded | Shielded | - |
| 3 | DC Cable | 2.7 | Unshielded | Unshielded | - |
| 4 | Mini PCI Cable | 0.3 | Shielded | Shielded | - |
| 5 | DC Cable | 1.8 | Unshielded | Unshielded | - |
| 6 | AC Cable | 1.8 | Unshielded | Unshielded | - |
| 7 | AC Cable | 1.8 | Unshielded | Unshielded | - |

## SECTION 5: Conducted Emission

**Test Procedure**

EUT was placed on a wooden table of nominal size, 1.0m by 1.5m, raised 0.8m above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN)/ Artificial mains Network (AMN) and excess AC cable was bundled in center.

For the tests on EUT with other peripherals (as a whole system)
I/O cable and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. All unused 50ohm connectors of the LISN(AMN) were resistivity terminated in 50ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber or a Measurement Room.
The EUT was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.

**Detector** **: QP and CISPR AV**
**Measurement range** **: 0.15-30MHz**
**Test data** **: APPENDIX**
**Test result** **: Pass**

## SECTION 6: Radiated Spurious Emission and Band Edge Compliance

**Test Procedure**

EUT was placed on a urethane platform of nominal size, 0.5m by 1.0m, raised 0.8m above the conducting ground plane.
The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.
The height of the measuring antenna varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.
The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Below 1GHz
The result also satisfied with the general limits specified in section 15.209(a).

Above 1GHz

| | |
|---|---|
| Inside of restricted bands(Section 15.205): | Apply to limit in the Section 15.209(a). |
| Outside of the restricted bands: | Apply to limit 68.2dBuV/m(–27dBm e.i.r.p.*) in the Section 15.407(b)(1)(2)(3). |
| Restricted bandedge: | Apply to limit in the Section 15.209(a). Since this limit is severer than the limit of the inside of restricted bands. |

*Electric Field Strength to e.i.r.p. Conversion

$$E = \frac{1000000\sqrt{30P}}{3} \text{ (uV/m)} \qquad \text{:P is the e.i.r.p. (Watts)}$$

**Test Antennas are used as below;**

| Frequency | 30MHz to 300MHz | 300MHz to 1GHz | Above 1GHz |
|---|---|---|---|
| Antenna Type | Biconical | Logperiodic | Horn |

| Frequency | Below 1GHz | Above 1GHz | |
|---|---|---|---|
| Instrument used | Test Receiver | Spectrum Analyzer | |
| Detector | QP | PK | AV |
| IF Bandwidth | BW 120kHz(T/R) | RBW: 1MHz<br>VBW: 3MHz | Method AD *1)<br>RBW: 1MHz<br>VBW: 3MHz<br>Detector: Power Averaging (RMS)<br>Duty factor was added to the results. |
| Test Distance | 3m | 3m (below 10GHz),<br>1m*2) (above 10GHz),<br>0.5m*3) (above 26.5GHz) | |

*1) The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on June 6, 2014)".
*2) Distance Factor: 20 x log (3.0m/1.0m) = 9.5dB
*3) Distance Factor: 20 x log (3.0m/0.5m) = 15.6dB

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT (Antenna and Module) to see the position of maximum noise, and the test was made at the position that has the maximum noise.

The test results and limit are rounded off to one decimal place, so some differences might be observed.

**Measurement range : 30M-40GHz**
**Test data : APPENDIX**
**Test result : Pass**

# SECTION 7: Antenna Terminal Conducted Tests

**Test Procedure**

The tests were made with below setting connected to the antenna port with Spectrum Analyzer.

| Test | Span | RBW | VBW | Sweep time | Detector | Trace | Instrument used and Test method |
|---|---|---|---|---|---|---|---|
| 26dB Bandwidth | 40MHz, 80MHz | Close to 1% of EBW | Greater than RBW | Auto | Peak | Max Hold | Spectrum Analyzer |
| 99% Occupied Bandwidth *1) | Enough width to display emission skirts | 1 to 5% of OBW | ≥ 3 RBW | Auto | Peak | Max Hold | Spectrum Analyzer |
| 20dB Bandwidth | 40MHz, 80MHz | 100kHz | 300kHz | Auto | Peak | Max Hold | Spectrum Analyzer |
| Maximum Conducted Output Power | - | - | - | Auto | Averaging | - | Power Meter (Sensor: 50MHz BW) (Method PM-G) |
| Maximum Power Spectral Density | 40MHz, 80MHz | 1MHz | 3MHz | Auto | Power Averaging (200 times) | Clear Write | Spectrum Analyzer |
| Conducted Spurious Emission*2) | 9kHz-150kHz | 200Hz | 620Hz | Auto | Peak | Max Hold | Spectrum Analyzer |
| | 150kHz-30MHz | 9.1kHz | 27kHz | | | | |

* The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on June 6, 2014)".
*1) Peak hold was applied as Worst-case measurement.
*2) In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.
Then, wide-band noise near the limit was checked separately, however the noise was low enough as shown in the chart.(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=9.1kHz).
The test results and limit are rounded off to two decimals place, so some differences might be observed.

**Test data : APPENDIX**
**Test result : Pass**

# APPENDIX 1: Test data

## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

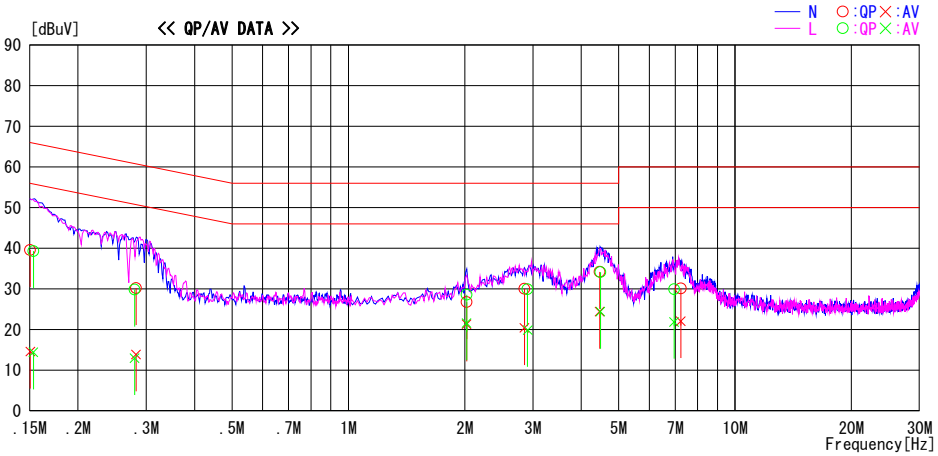
UL Japan, Inc. Ise EMC Lab. No.2 Semi Anechoic Chamber
Date : 2015/03/11

Report No. : 10604551H

Temp./Humi. : 22deg. C / 38% RH
Engineer : Kazuya Yoshioka

Mode / Remarks : WLAN 11n-20 5260MHz

LIMIT : FCC15.207 QP
FCC15.207 AV




| Frequency | Reading Level | | Corr. | Results | | Limit | | Margin | | Phase | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | QP | AV | Factor | QP | AV | QP | AV | QP | AV | | |
| [MHz] | [dBuV] | [dBuV] | [dB] | [dBuV] | [dBuV] | [dBuV] | [dBuV] | [dB] | [dB] | | |
| 0.15030 | 26.4 | 1.4 | 13.2 | 39.6 | 14.6 | 66.0 | 56.0 | 26.4 | 41.4 | N | |
| 0.28250 | 17.0 | 0.7 | 13.2 | 30.2 | 13.9 | 60.7 | 50.7 | 30.5 | 36.8 | N | |
| 2.02200 | 13.2 | 7.8 | 13.5 | 26.7 | 21.3 | 56.0 | 46.0 | 29.3 | 24.7 | N | |
| 2.85200 | 16.4 | 6.8 | 13.6 | 30.0 | 20.4 | 56.0 | 46.0 | 26.0 | 25.6 | N | |
| 4.46340 | 20.5 | 10.7 | 13.7 | 34.2 | 24.4 | 56.0 | 46.0 | 21.8 | 21.6 | N | |
| 7.24120 | 16.1 | 8.1 | 14.0 | 30.1 | 22.1 | 60.0 | 50.0 | 29.9 | 27.9 | N | |
| 0.15330 | 26.1 | 1.2 | 13.2 | 39.3 | 14.4 | 65.8 | 55.8 | 26.5 | 41.4 | L | |
| 0.28000 | 16.6 | -0.2 | 13.2 | 29.8 | 13.0 | 60.8 | 50.8 | 31.0 | 37.8 | L | |
| 2.02200 | 15.1 | 8.1 | 13.5 | 28.6 | 21.6 | 56.0 | 46.0 | 27.4 | 24.4 | L | |
| 2.90680 | 16.3 | 6.3 | 13.6 | 29.9 | 19.9 | 56.0 | 46.0 | 26.1 | 26.1 | L | |
| 4.48494 | 20.4 | 10.7 | 13.7 | 34.1 | 24.4 | 56.0 | 46.0 | 21.9 | 21.6 | L | |
| 6.95663 | 15.9 | 7.9 | 14.0 | 29.9 | 21.9 | 60.0 | 50.0 | 30.1 | 28.1 | L | |

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT=READING+C.F(LISN LOSS+ATT LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

# 26dB Emission Bandwidth and 99% Occupied Bandwidth

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/09/2015 |
| Temperature/ Humidity | 23deg. C / 33% RH |
| Engineer | Shinichi Miyazono |
| Mode | Tx |

11a Antenna port 0

| Frequency [MHz] | 26dB Emission Bandwidth [MHz] | 99% Occupied Bandwidth [MHz] | Limit [MHz] |
|---|---|---|---|
| 5180 | - | 16.8848 | - |
| 5220 | - | 16.9070 | - |
| 5240 | - | 16.9383 | - |
| 5260 | 21.455 | 16.9598 | - |
| 5300 | 21.306 | 16.9355 | - |
| 5320 | 21.473 | 16.9868 | - |
| 5500 | 21.285 | 16.9790 | - |
| 5580 | 21.174 | 16.9141 | - |
| 5700 | 21.492 | 16.8905 | - |

11n-20 Antenna port 0

| Frequency [MHz] | 26dB Emission Bandwidth [MHz] | 99% Occupied Bandwidth [MHz] | Limit [MHz] |
|---|---|---|---|
| 5180 | - | 17.9054 | - |
| 5220 | - | 17.9725 | - |
| 5240 | - | 17.8955 | - |
| 5260 | 21.017 | 17.9182 | - |
| 5300 | 21.359 | 17.8771 | - |
| 5320 | 21.434 | 17.8727 | - |
| 5500 | 21.464 | 17.9007 | - |
| 5580 | 21.263 | 17.8850 | - |
| 5700 | 21.387 | 17.9111 | - |

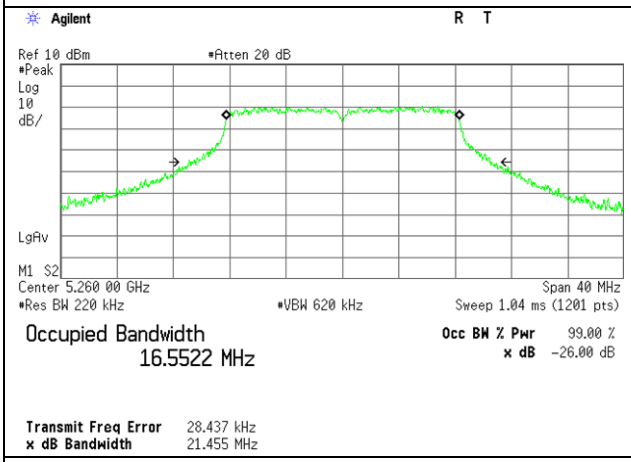
11n-40 Antenna port 0

| Frequency [MHz] | 26dB Emission Bandwidth [MHz] | 99% Occupied Bandwidth [MHz] | Limit [MHz] |
|---|---|---|---|
| 5190 | - | 36.8223 | - |
| 5230 | - | 36.7333 | - |
| 5270 | 43.164 | 36.6460 | - |
| 5310 | 43.367 | 36.6771 | - |
| 5510 | 43.265 | 36.7828 | - |
| 5550 | 43.969 | 36.7032 | - |
| 5670 | 43.245 | 36.7007 | - |

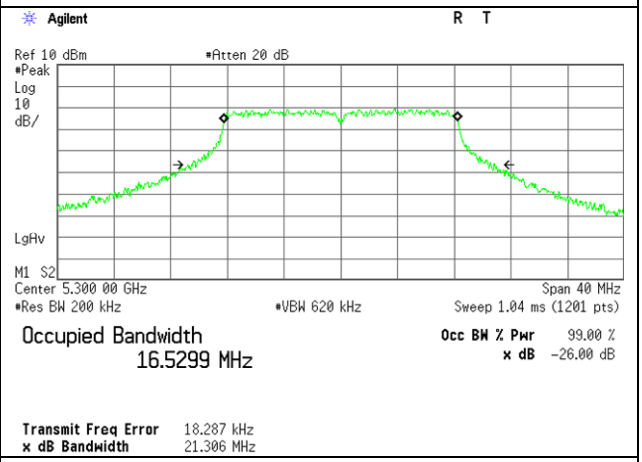
# 26dB Emission Bandwidth

## 11a Antenna port 0

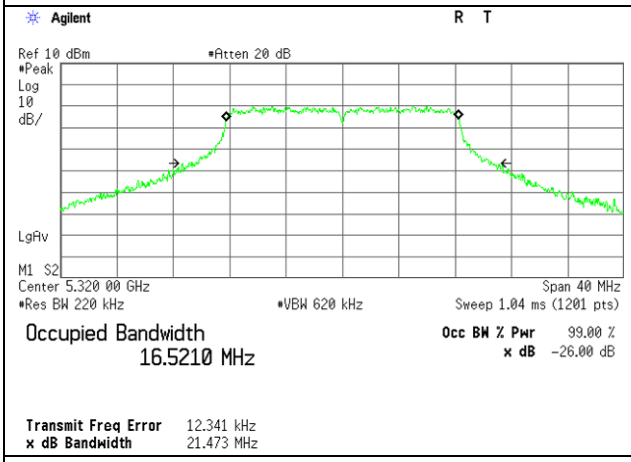
### 5260MHz



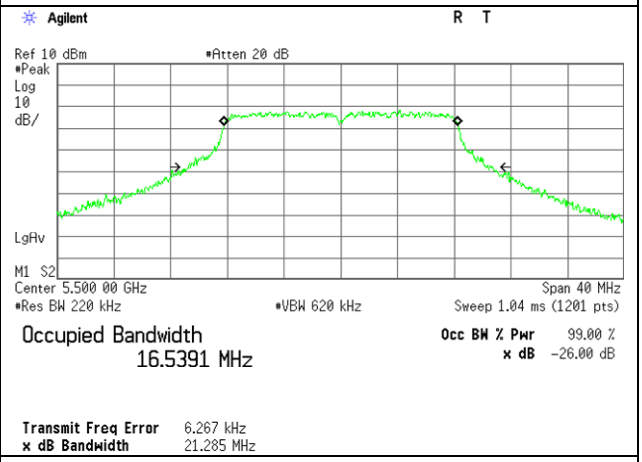

### 5300MHz



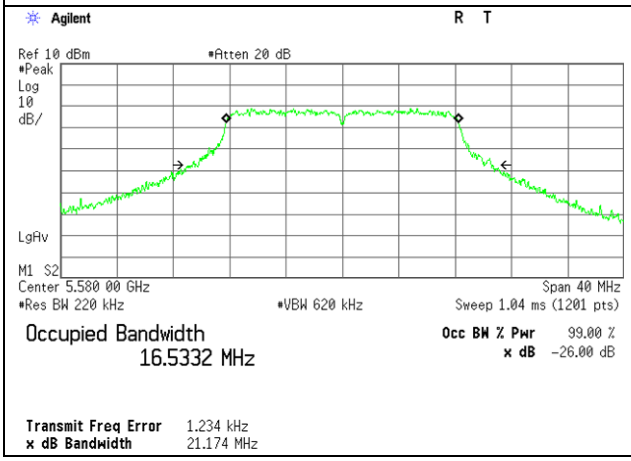

### 5320MHz



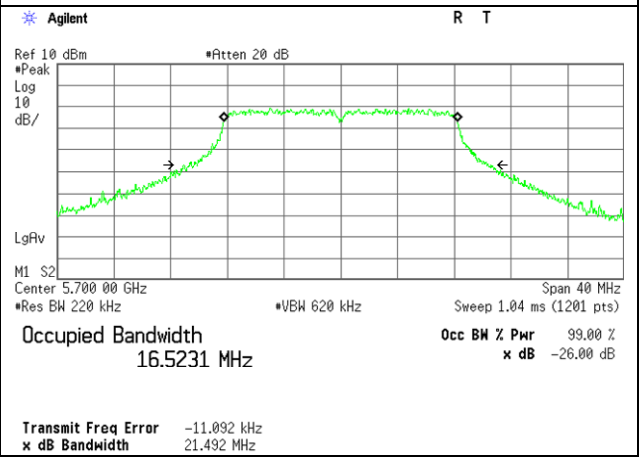

### 5500MHz




### 5580MHz



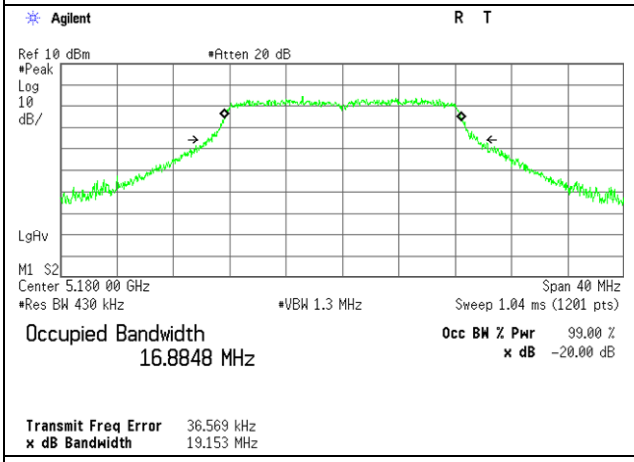

### 5700MHz



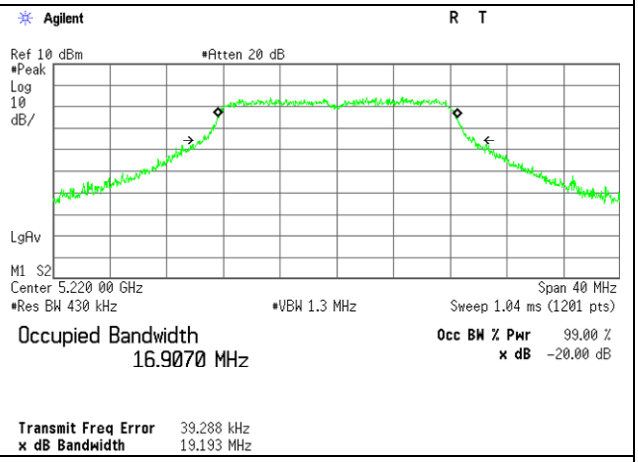
# 99% Occupied Bandwidth

## 11a Antenna port 0

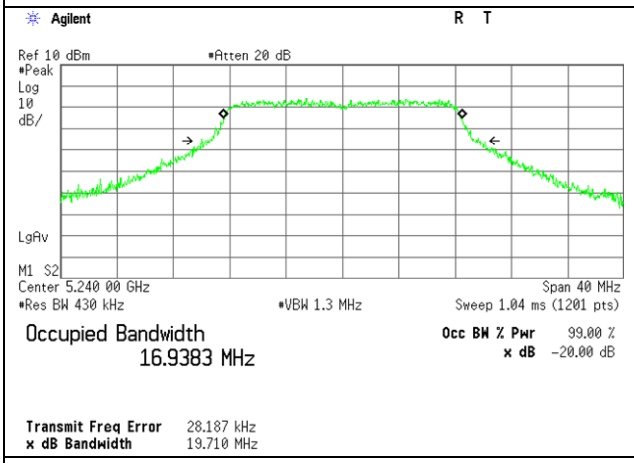
### 5180MHz



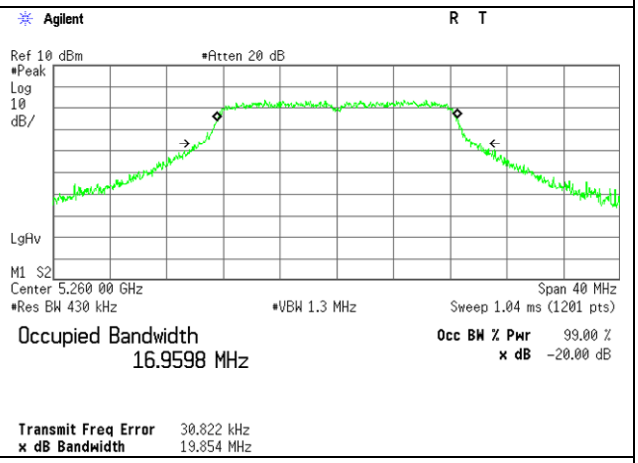

### 5220MHz



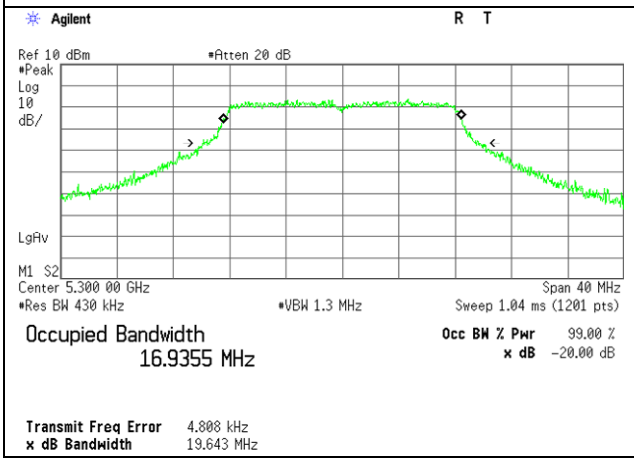

### 5240MHz



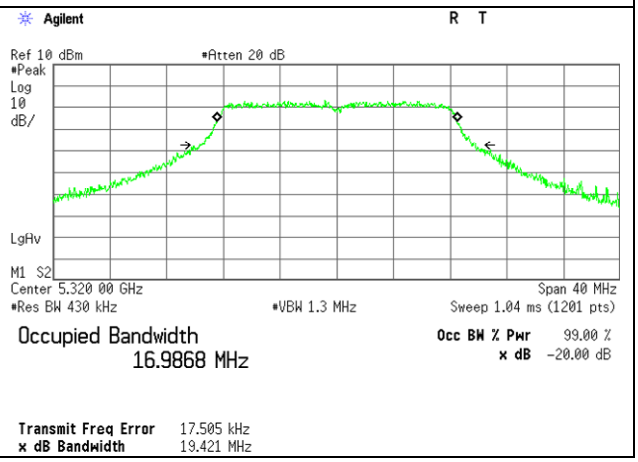

### 5260MHz




### 5300MHz



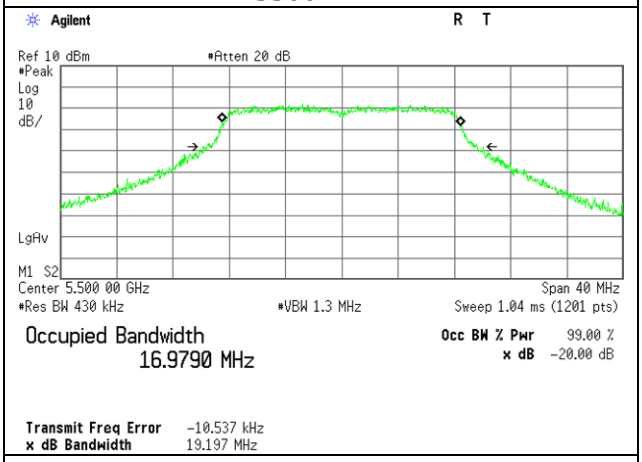

### 5320MHz



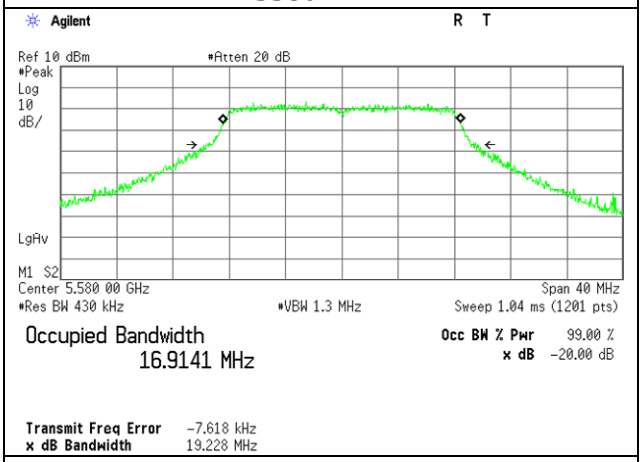
# 99% Occupied Bandwidth

## 11a Antenna port 0

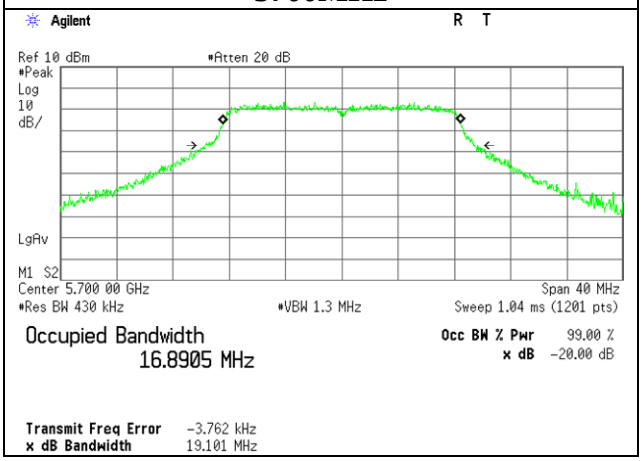
### 5500MHz




### 5580MHz



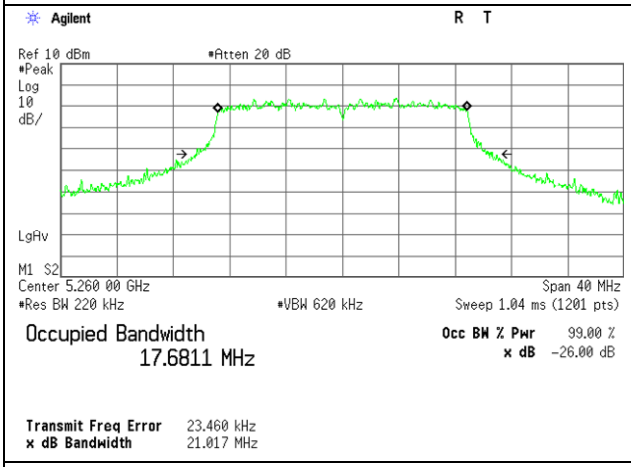

### 5700MHz



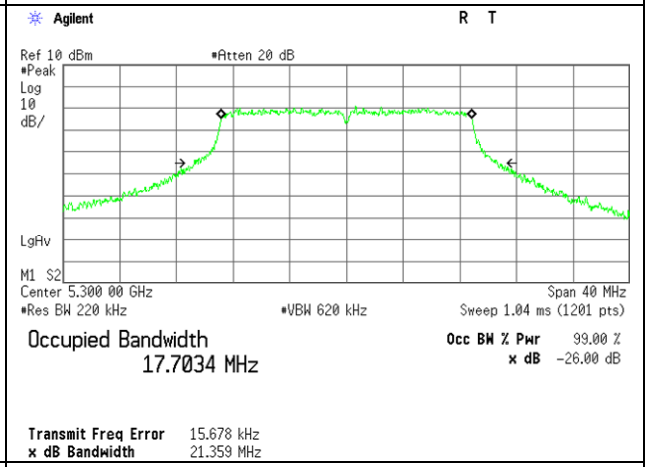
# 26dB Emission Bandwidth

## 11n-20 Antenna port 0

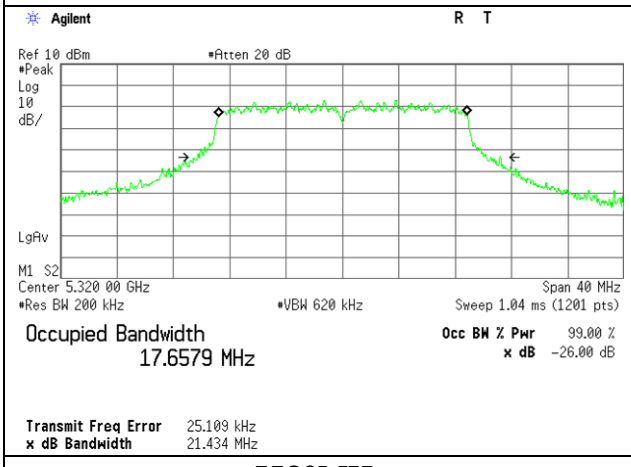
### 5260MHz



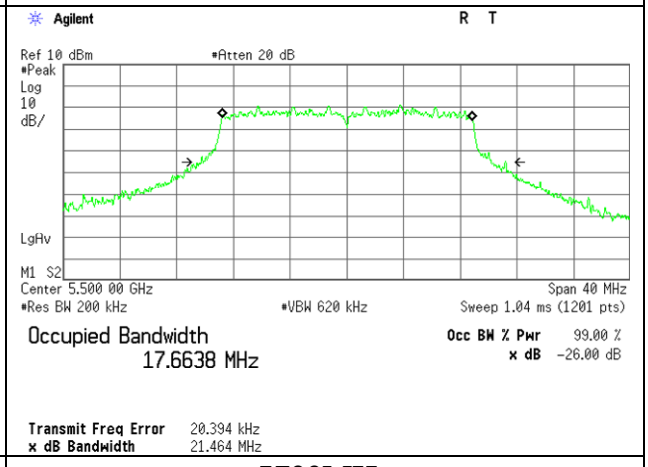

### 5300MHz



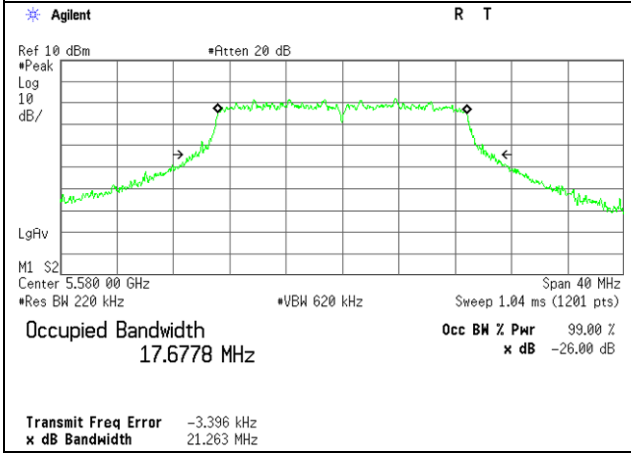

### 5320MHz



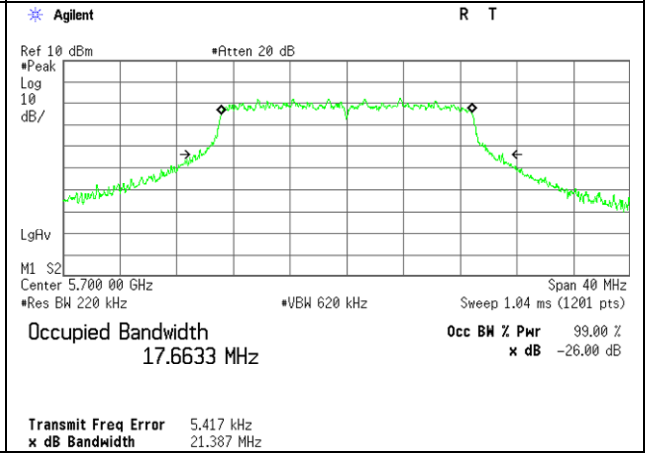

### 5500MHz




### 5580MHz



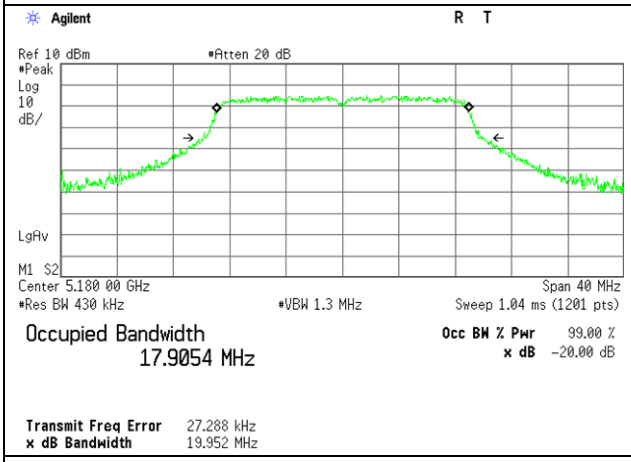

### 5700MHz



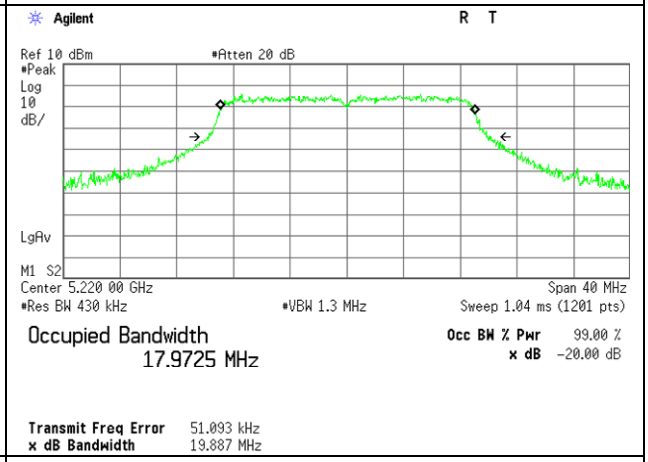
# 99% Occupied Bandwidth

## 11n-20 Antenna port 0

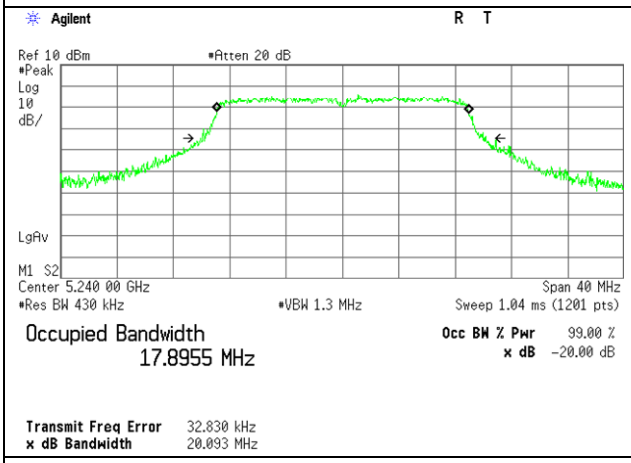
### 5180MHz



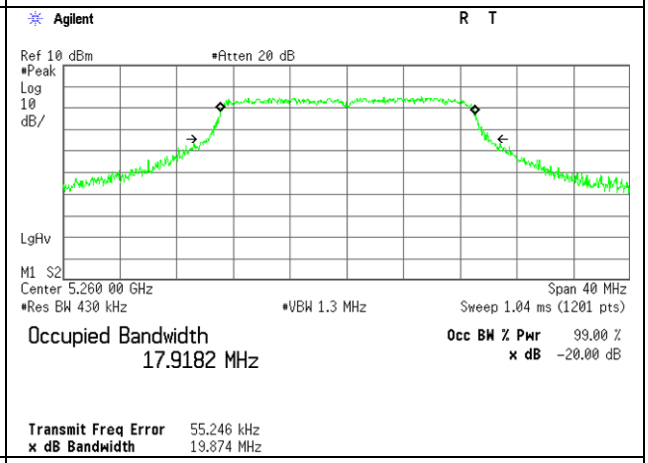

### 5220MHz



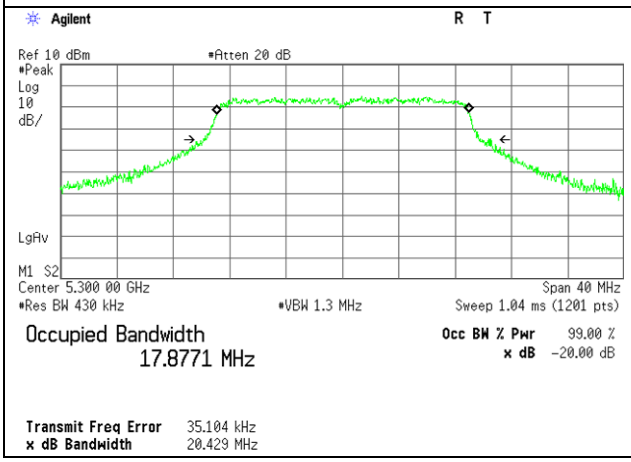

### 5240MHz



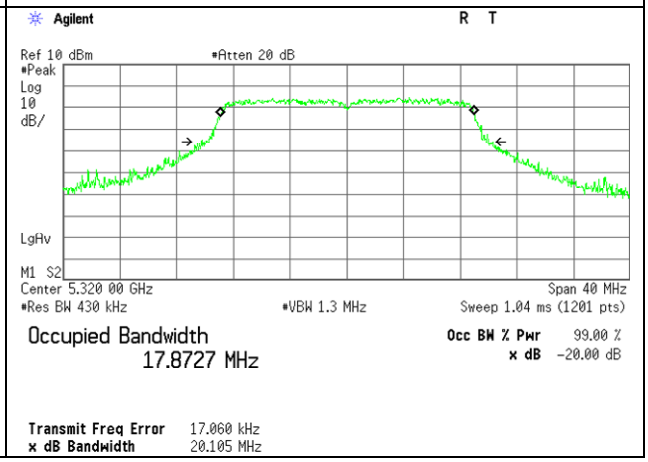

### 5260MHz




### 5300MHz



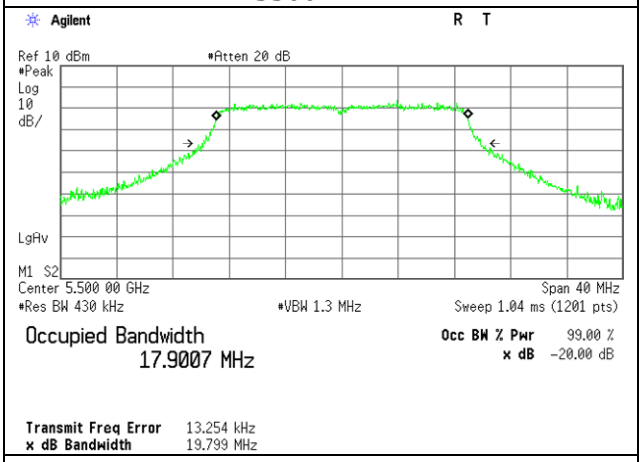

### 5320MHz



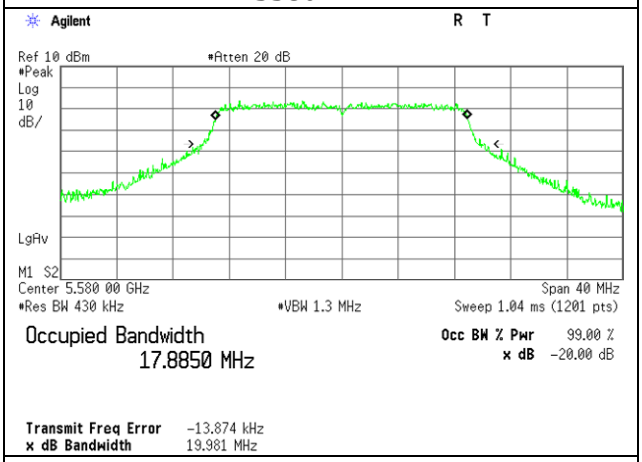
# 99% Occupied Bandwidth

## 11n-20 Antenna port 0

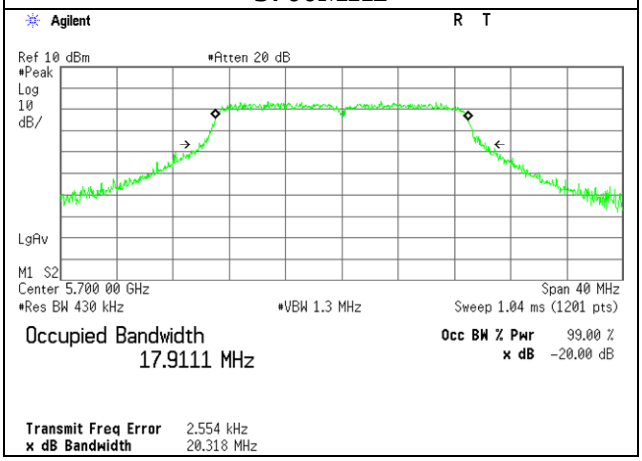
### 5500MHz




### 5580MHz



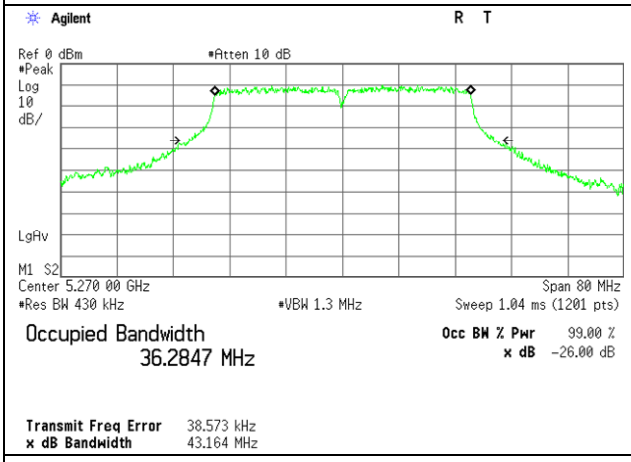

### 5700MHz



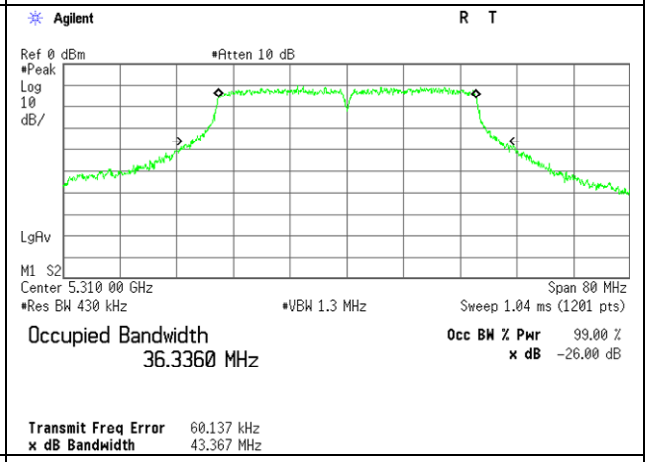
# 26dB Emission Bandwidth

## 11n-40 Antenna port 0

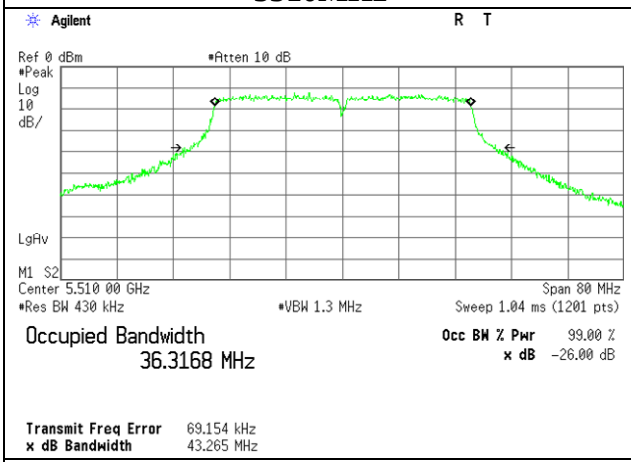
### 5270MHz



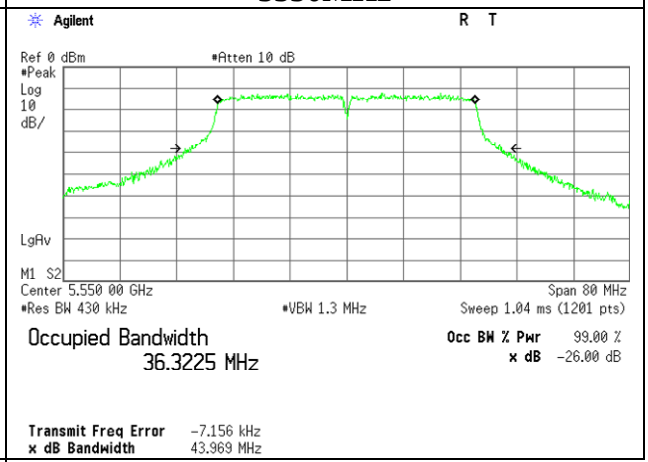

### 5310MHz



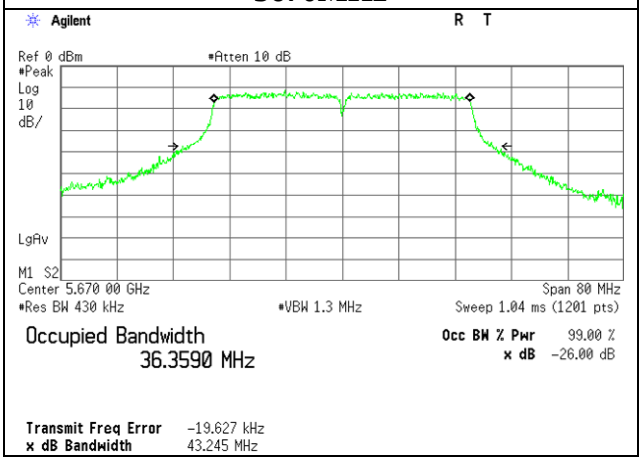

### 5510MHz




### 5550MHz



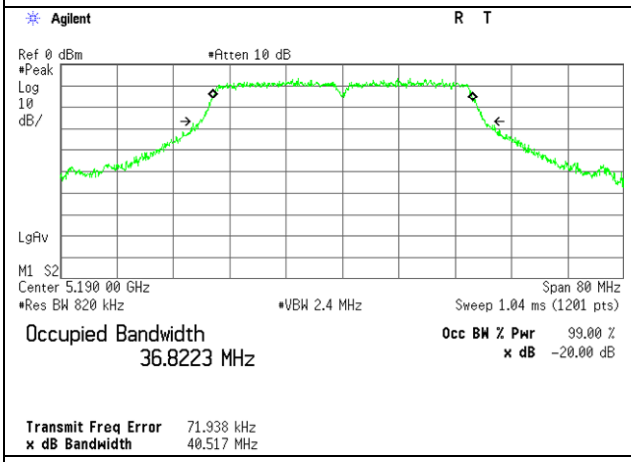

### 5670MHz



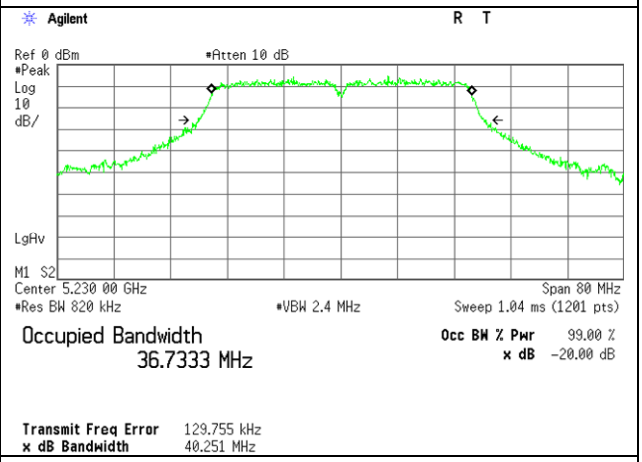
# 99% Occupied Bandwidth

## 11n-40 Antenna port 0

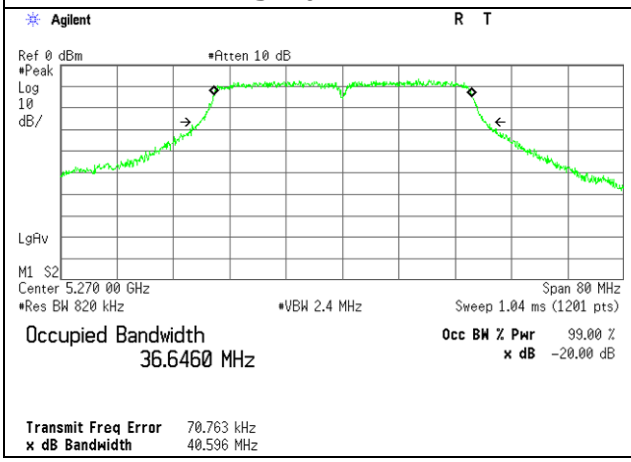
### 5190MHz



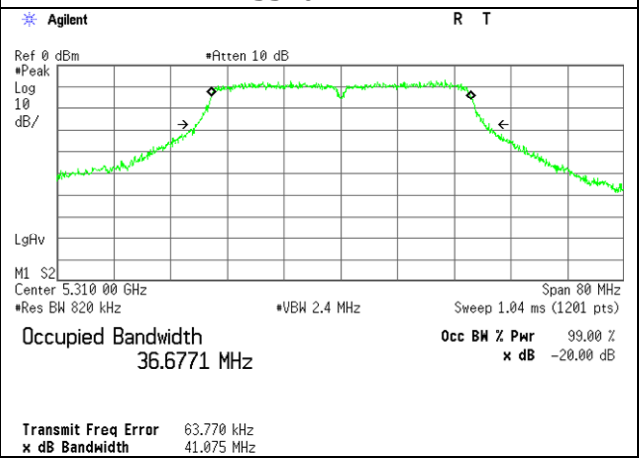

### 5230MHz




### 5270MHz



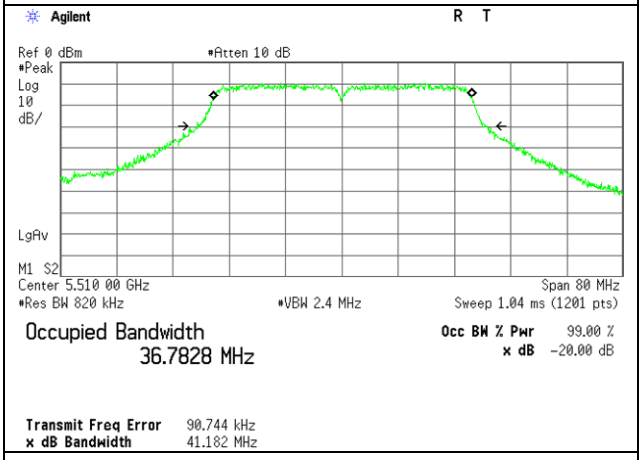

### 5310MHz



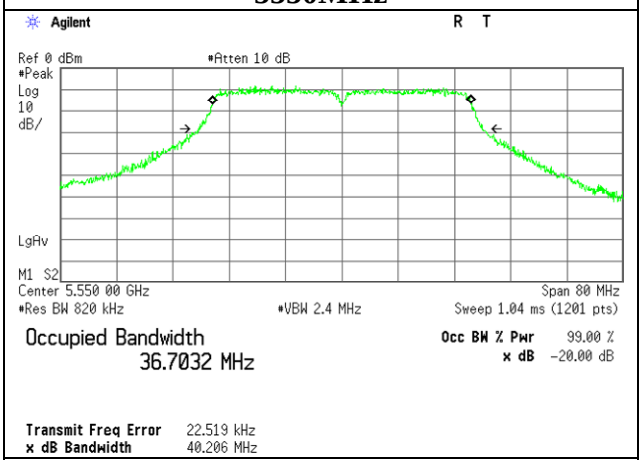
# 99% Occupied Bandwidth

## 11n-40 Antenna port 0

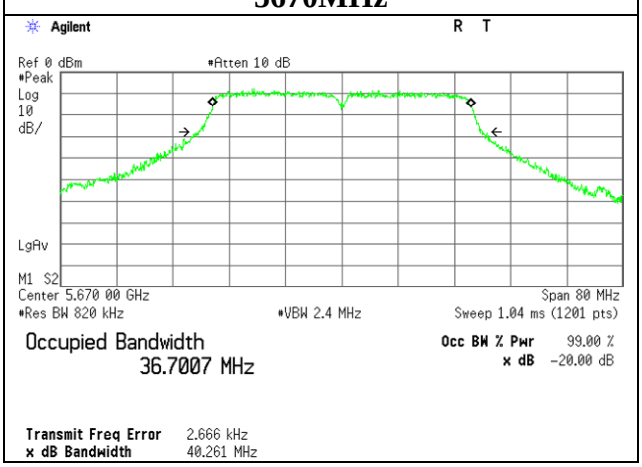
### 5510MHz




### 5550MHz




### 5670MHz



# 20dB Bandwidth

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/09/2015 |
| Temperature/ Humidity | 23deg. C / 33% RH |
| Engineer | Shinichi Miyazono |
| Mode | Tx |

11a Antenna port 0

| Frequency [MHz] | 20dB Emission Bandwidth [MHz] | Limit [MHz] |
|---|---|---|
| 5180 | 17.543 | - |
| 5220 | 17.571 | - |
| 5240 | 17.601 | - |
| 5260 | 17.693 | - |
| 5300 | 17.559 | - |
| 5320 | 17.524 | - |
| 5500 | 17.520 | - |
| 5580 | 17.523 | - |
| 5700 | 17.398 | - |

11n-20 Antenna port 0

| Frequency [MHz] | 20dB Emission Bandwidth [MHz] | Limit [MHz] |
|---|---|---|
| 5180 | 18.640 | - |
| 5220 | 18.441 | - |
| 5240 | 18.494 | - |
| 5260 | 18.591 | - |
| 5300 | 18.653 | - |
| 5320 | 18.481 | - |
| 5500 | 18.711 | - |
| 5580 | 18.676 | - |
| 5700 | 18.719 | - |

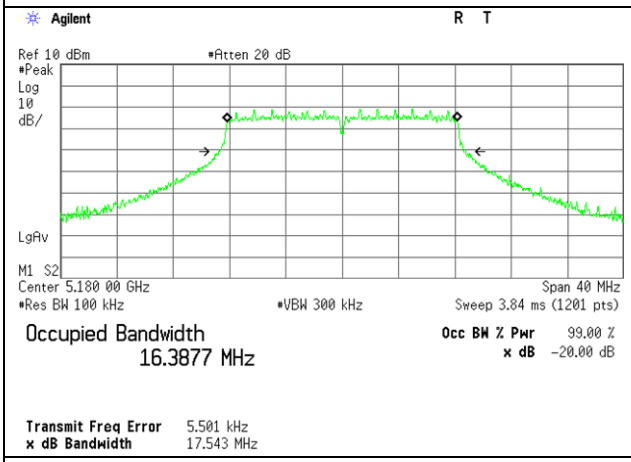
11n-40 Antenna Port 0

| Frequency [MHz] | 20dB Emission Bandwidth [MHz] | Limit [MHz] |
|---|---|---|
| 5190 | 37.267 | - |
| 5230 | 37.320 | - |
| 5270 | 37.344 | - |
| 5310 | 37.281 | - |
| 5510 | 37.226 | - |
| 5550 | 37.221 | - |
| 5670 | 37.296 | - |

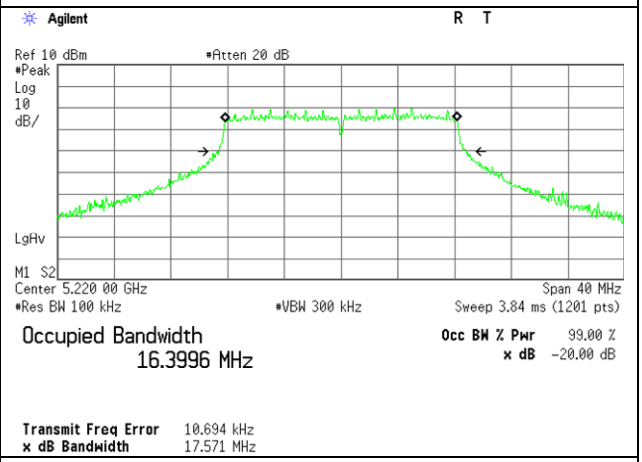
# 20dB Bandwidth

## 11a Antenna port 0

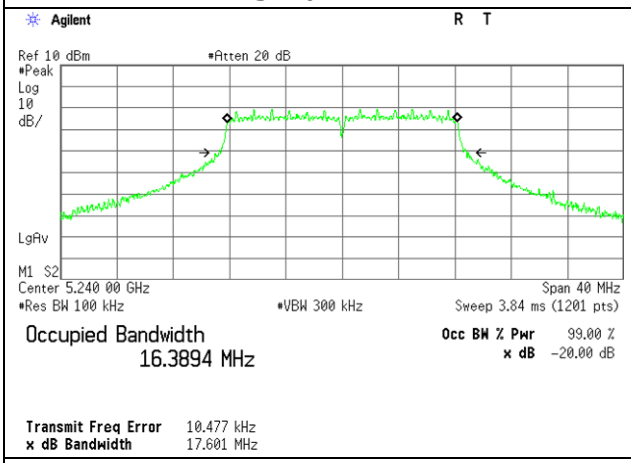
### 5180MHz



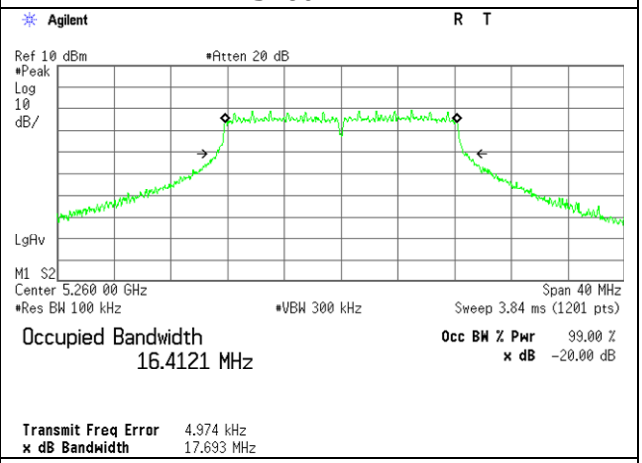

### 5220MHz



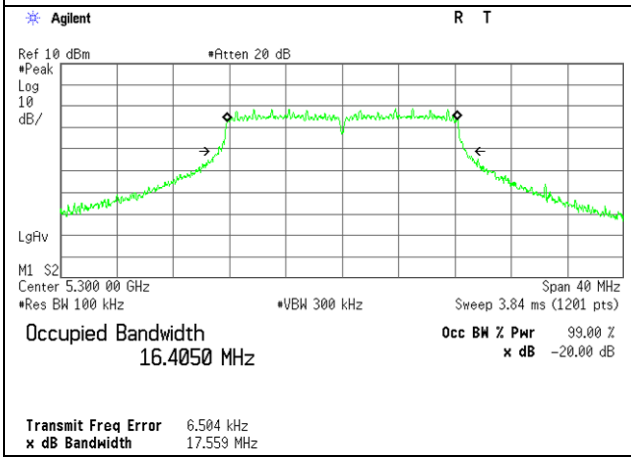

### 5240MHz



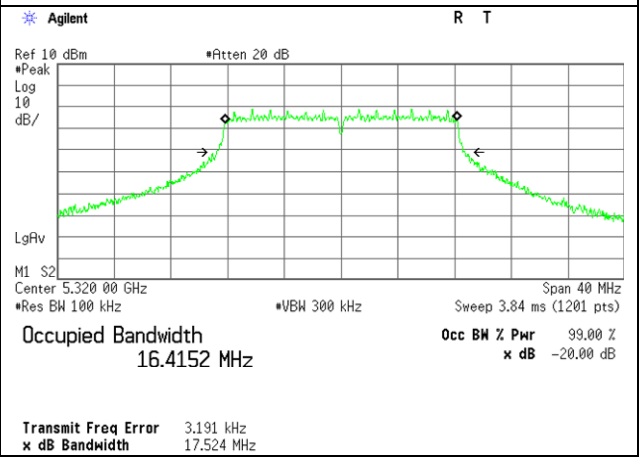

### 5260MHz




### 5300MHz



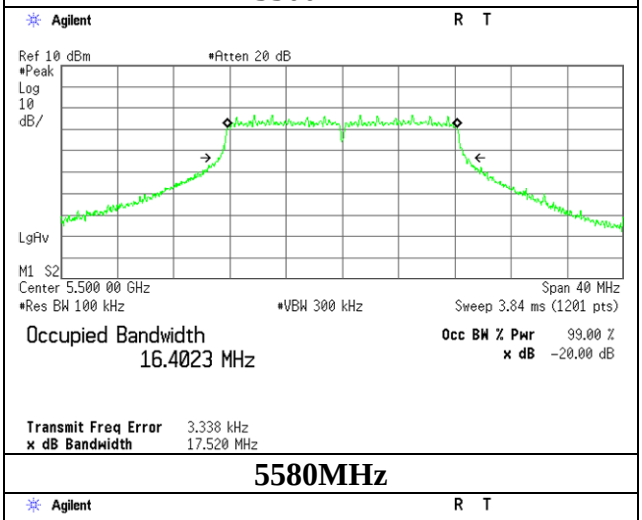

### 5320MHz



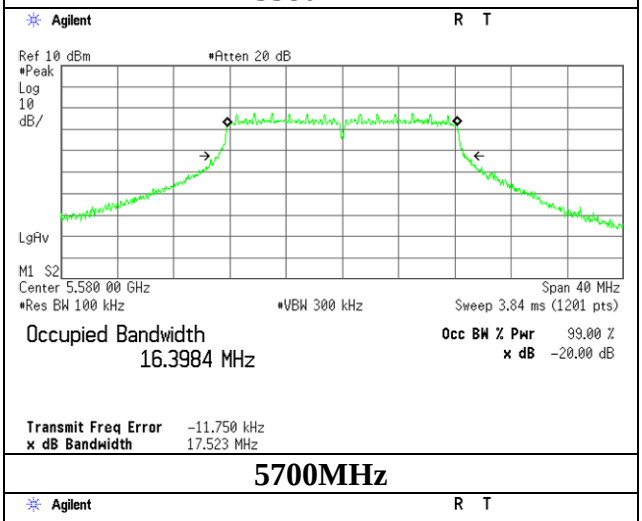
# 20dB Bandwidth

## 11a Antenna port 0

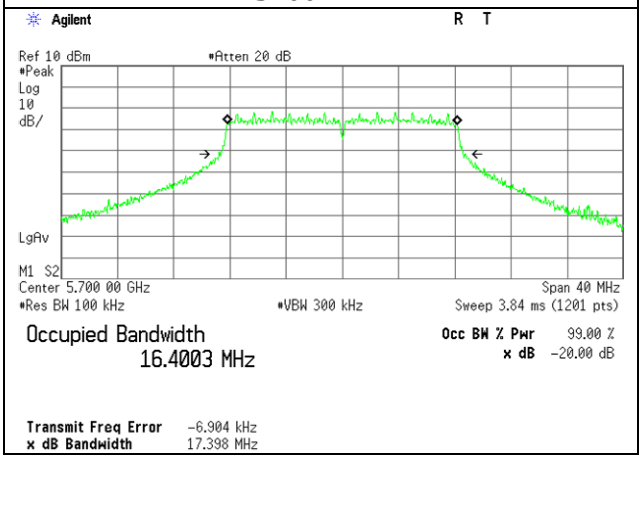
### 5500MHz




### 5580MHz



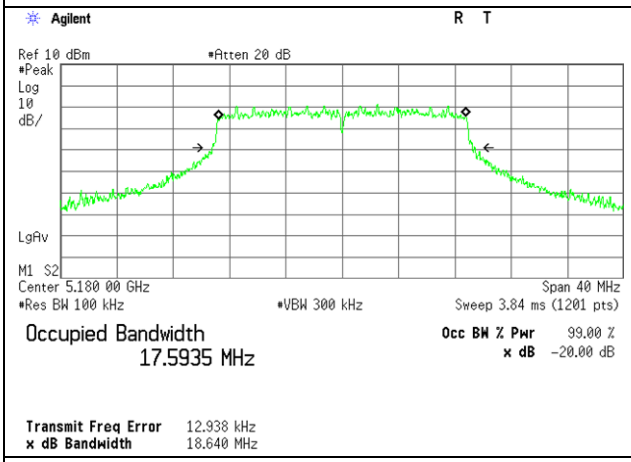

### 5700MHz



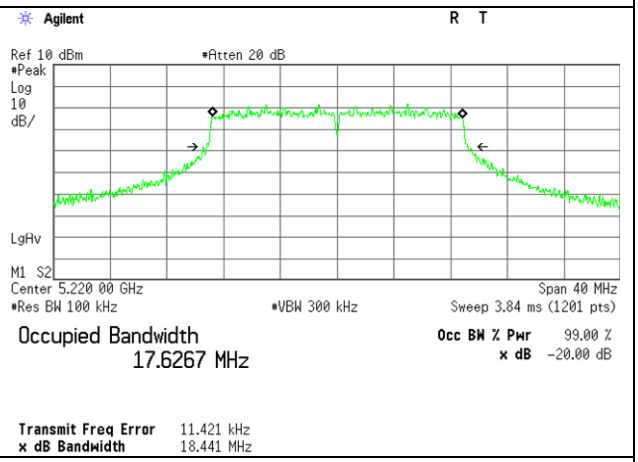
# 20dB Bandwidth

## 11n-20 Antenna port 0

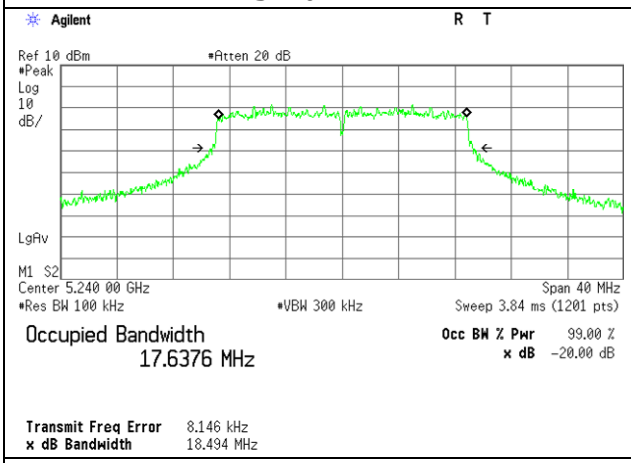
### 5180MHz



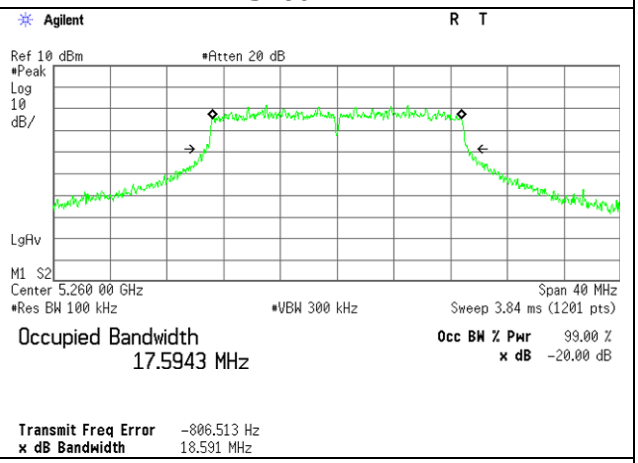

### 5220MHz



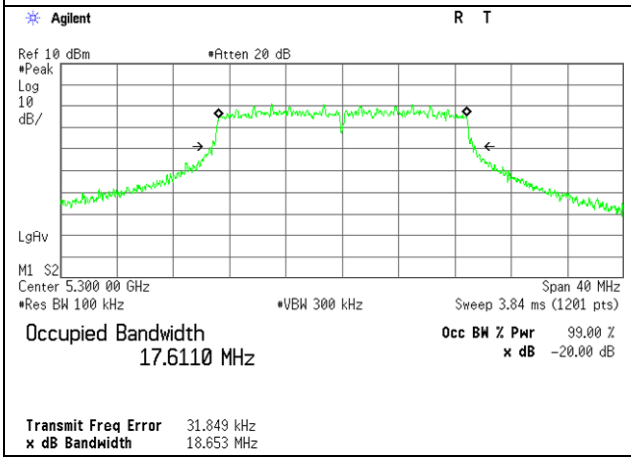

### 5240MHz



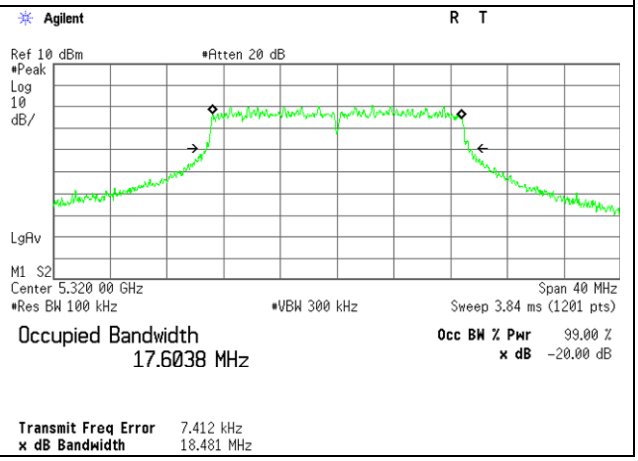

### 5260MHz




### 5300MHz



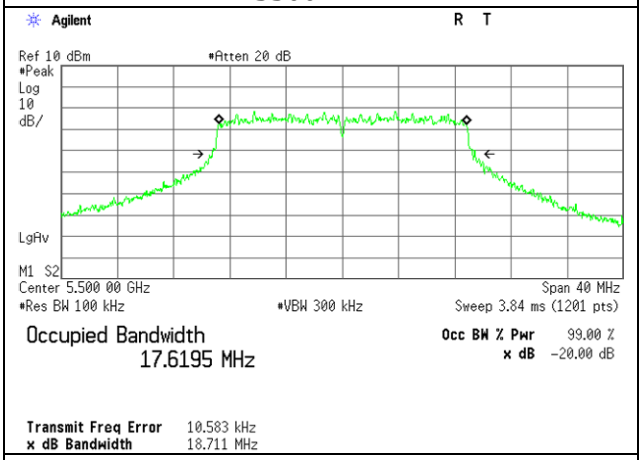

### 5320MHz



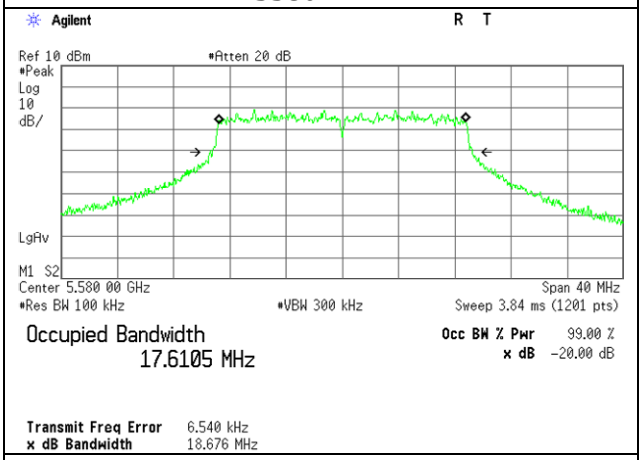
# 20dB Bandwidth

## 11n-20 Antenna port 0

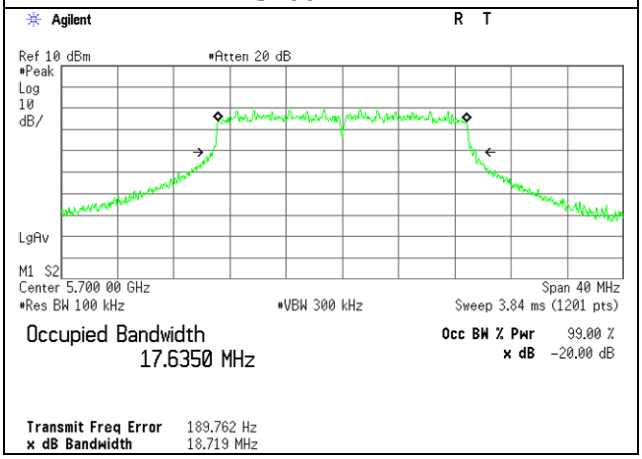
### 5500MHz




### 5580MHz



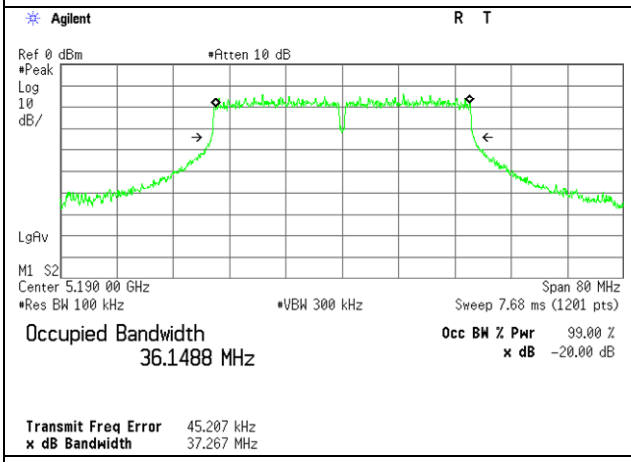

### 5700MHz



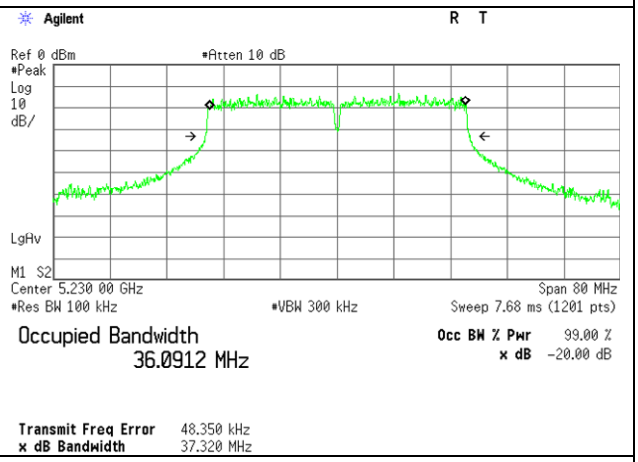
# 20dB Bandwidth

## 11n-40 Antenna port 0

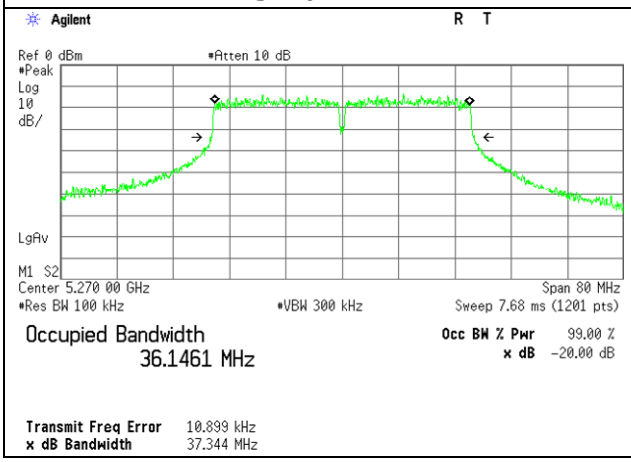
### 5190MHz



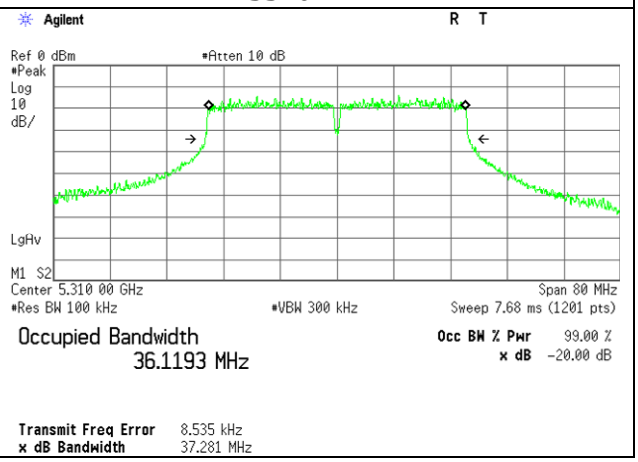

### 5230MHz




### 5270MHz



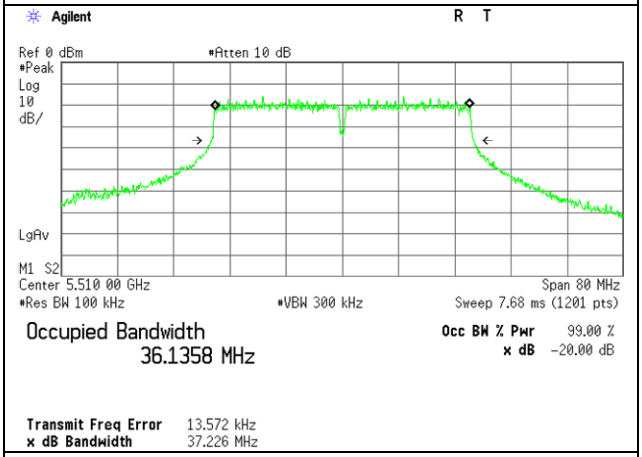

### 5310MHz



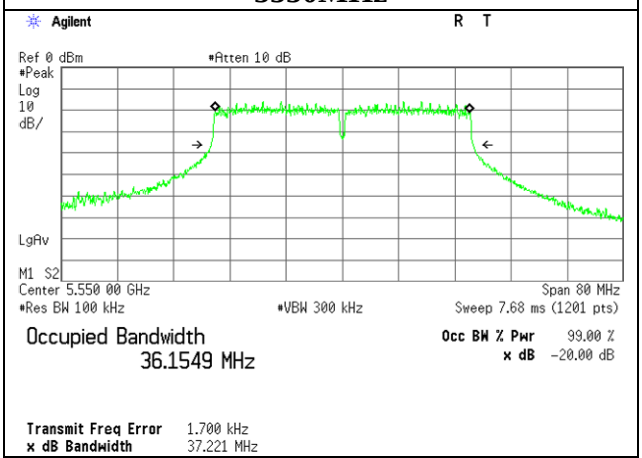
# 20dB Bandwidth

## 11n-40 Antenna port 0

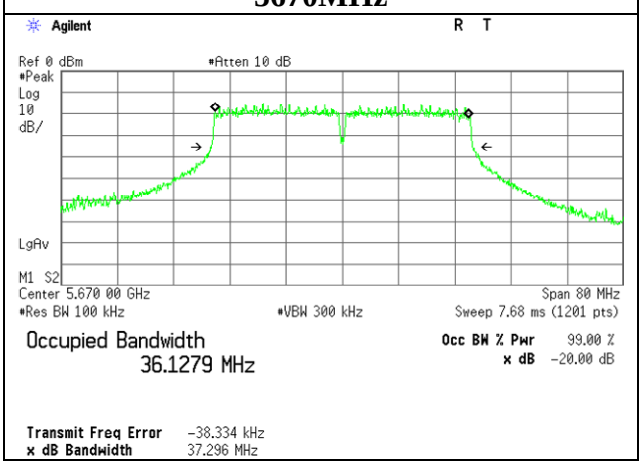
### 5510MHz




### 5550MHz




### 5670MHz



# Maximum Conducted Output Power

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/09/2015 |
| Temperature/ Humidity | 23deg. C / 33% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11a Tx |

**Antenna port 0**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | | Limit (Cond.) | | Limit (e.i.r.p.) | | Margin (Cond.) | Margin (e.i.r.p.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dB] | [dB] |
| 5180.0 | 2.44 | 1.23 | 10.11 | 3.90 | 13.78 | 23.88 | 17.68 | 58.61 | 23.97 | 250.00 | - | - | 10.19 | - |
| 5220.0 | 2.71 | 1.24 | 10.11 | 3.90 | 14.06 | 25.47 | 17.96 | 62.52 | 23.97 | 250.00 | - | - | 9.91 | - |
| 5240.0 | 2.61 | 1.24 | 10.11 | 3.90 | 13.96 | 24.89 | 17.86 | 61.09 | 23.97 | 250.00 | - | - | 10.01 | - |
| 5260.0 | 2.57 | 1.24 | 10.11 | 3.90 | 13.92 | 24.66 | 17.82 | 60.53 | 23.97 | 250.00 | - | - | 10.05 | - |
| 5300.0 | 2.25 | 1.25 | 10.11 | 3.90 | 13.61 | 22.96 | 17.51 | 56.36 | 23.97 | 250.00 | - | - | 10.36 | - |
| 5320.0 | 1.68 | 1.26 | 10.11 | 3.90 | 13.05 | 20.18 | 16.95 | 49.55 | 23.97 | 250.00 | - | - | 10.92 | - |
| 5500.0 | 1.51 | 1.29 | 10.12 | 3.90 | 12.92 | 19.59 | 16.82 | 48.08 | 23.97 | 250.00 | - | - | 11.05 | - |
| 5580.0 | 1.49 | 1.30 | 10.12 | 3.90 | 12.91 | 19.54 | 16.81 | 47.97 | 23.97 | 250.00 | - | - | 11.06 | - |
| 5700.0 | 1.58 | 1.31 | 10.11 | 3.90 | 13.00 | 19.95 | 16.90 | 48.98 | 23.97 | 250.00 | - | - | 10.97 | - |

Result(Cond.) = Reading + Cable Loss + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss + Atten.Loss + Antenna Gain
15.407(a)(1)(iv) Limit(Cond.) = 23.97dBm(250mW)
Although the EUT operates on Master mode, more strigent limit for Client device was applied.
15.407(a)(2) Limit(Cond.) = 23.97dBm(250mW) or 11 + 10log(26dB BW) dBm

**Antenna port 1**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | | Limit (Cond.) | | Limit (e.i.r.p.) | | Margin (Cond.) | Margin (e.i.r.p.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dB] | [dB] |
| 5180.0 | 1.45 | 1.23 | 10.11 | 3.90 | 12.79 | 19.01 | 16.69 | 46.67 | 23.97 | 250.00 | - | - | 11.18 | - |
| 5220.0 | 1.32 | 1.24 | 10.11 | 3.90 | 12.67 | 18.49 | 16.57 | 45.39 | 23.97 | 250.00 | - | - | 11.30 | - |
| 5240.0 | 1.24 | 1.24 | 10.11 | 3.90 | 12.59 | 18.16 | 16.49 | 44.57 | 23.97 | 250.00 | - | - | 11.38 | - |
| 5260.0 | 0.81 | 1.24 | 10.11 | 3.90 | 12.16 | 16.44 | 16.06 | 40.36 | 23.97 | 250.00 | - | - | 11.81 | - |
| 5300.0 | 0.93 | 1.25 | 10.11 | 3.90 | 12.29 | 16.94 | 16.19 | 41.59 | 23.97 | 250.00 | - | - | 11.68 | - |
| 5320.0 | 0.83 | 1.26 | 10.11 | 3.90 | 12.20 | 16.60 | 16.10 | 40.74 | 23.97 | 250.00 | - | - | 11.77 | - |
| 5500.0 | 1.06 | 1.29 | 10.12 | 3.90 | 12.47 | 17.66 | 16.37 | 43.35 | 23.97 | 250.00 | - | - | 11.50 | - |
| 5580.0 | 1.37 | 1.30 | 10.12 | 3.90 | 12.79 | 19.01 | 16.69 | 46.67 | 23.97 | 250.00 | - | - | 11.18 | - |
| 5700.0 | 0.91 | 1.31 | 10.11 | 3.90 | 12.33 | 17.10 | 16.23 | 41.98 | 23.97 | 250.00 | - | - | 11.64 | - |

Result(Cond.) = Reading + Cable Loss + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss + Atten.Loss + Antenna Gain
15.407(a)(1)(iv) Limit(Cond.) = 23.97dBm(250mW)
Although the EUT operates on Master mode, more strigent limit for Client device was applied.
15.407(a)(2) Limit(Cond.) = 23.97dBm(250mW) or 11 + 10log(26dB BW) dBm

# Maximum Conducted Output Power

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/09/2015 |
| Temperature/ Humidity | 23deg. C / 33% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11n-20 Tx |

**Antenna port 0+1**

| Freq. | Antenna Port 0 Result | | Antenna Port 1 Result | | Result Antenna Port 0+1 (Cond.) | | Result Antenna Port 0+1 (e.i.r.p) | | Limit (Cond.) | | Limit (e.i.r.p) | | Margin (Cond.) | Margin (e.i.r.p.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (Cond.) | (e.i.r.p.) | (Cond.) | (e.i.r.p.) | | | | | | | | | | |
| [MHz] | [mW] | [mW] | [mW] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dB] | [dB] |
| 5180.0 | 27.86 | 68.39 | 20.23 | 49.66 | 16.82 | 48.09 | 20.72 | 118.05 | 23.97 | 250.00 | - | - | 7.15 | - |
| 5220.0 | 27.99 | 68.71 | 19.86 | 48.75 | 16.80 | 47.85 | 20.70 | 117.46 | 23.97 | 250.00 | - | - | 7.17 | - |
| 5240.0 | 28.18 | 69.18 | 20.18 | 49.55 | 16.85 | 48.37 | 20.75 | 118.73 | 23.97 | 250.00 | - | - | 7.12 | - |
| 5260.0 | 28.38 | 69.66 | 20.14 | 49.43 | 16.86 | 48.52 | 20.76 | 119.09 | 23.97 | 250.00 | - | - | 7.11 | - |
| 5300.0 | 24.10 | 59.16 | 16.83 | 41.30 | 16.12 | 40.93 | 20.02 | 100.46 | 23.97 | 250.00 | - | - | 7.85 | - |
| 5320.0 | 23.82 | 58.48 | 18.41 | 45.19 | 16.26 | 42.23 | 20.16 | 103.66 | 23.97 | 250.00 | - | - | 7.71 | - |
| 5500.0 | 18.37 | 45.08 | 17.74 | 43.55 | 15.58 | 36.11 | 19.48 | 88.63 | 23.97 | 250.00 | - | - | 8.39 | - |
| 5600.0 | 21.78 | 53.46 | 20.75 | 50.93 | 16.29 | 42.53 | 20.19 | 104.39 | 23.97 | 250.00 | - | - | 7.68 | - |
| 5700.0 | 19.14 | 46.99 | 17.50 | 42.95 | 15.64 | 36.64 | 19.54 | 89.94 | 23.97 | 250.00 | - | - | 8.33 | - |

**Antenna port 0**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | | Limit (Cond.) | | Limit (e.i.r.p.) | | Margin (Cond.) | Margin (e.i.r.p.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dB] | [dB] |
| 5180.0 | 3.11 | 1.23 | 10.11 | 3.90 | 14.45 | 27.86 | 18.35 | 68.39 | 23.97 | 250.00 | - | - | 9.52 | - |
| 5220.0 | 3.12 | 1.24 | 10.11 | 3.90 | 14.47 | 27.99 | 18.37 | 68.71 | 23.97 | 250.00 | - | - | 9.50 | - |
| 5240.0 | 3.15 | 1.24 | 10.11 | 3.90 | 14.50 | 28.18 | 18.40 | 69.18 | 23.97 | 250.00 | - | - | 9.47 | - |
| 5260.0 | 3.18 | 1.24 | 10.11 | 3.90 | 14.53 | 28.38 | 18.43 | 69.66 | 23.97 | 250.00 | - | - | 9.44 | - |
| 5300.0 | 2.46 | 1.25 | 10.11 | 3.90 | 13.82 | 24.10 | 17.72 | 59.16 | 23.97 | 250.00 | - | - | 10.15 | - |
| 5320.0 | 2.40 | 1.26 | 10.11 | 3.90 | 13.77 | 23.82 | 17.67 | 58.48 | 23.97 | 250.00 | - | - | 10.20 | - |
| 5500.0 | 1.23 | 1.29 | 10.12 | 3.90 | 12.64 | 18.37 | 16.54 | 45.08 | 23.97 | 250.00 | - | - | 11.33 | - |
| 5580.0 | 1.96 | 1.30 | 10.12 | 3.90 | 13.38 | 21.78 | 17.28 | 53.46 | 23.97 | 250.00 | - | - | 10.59 | - |
| 5700.0 | 1.40 | 1.31 | 10.11 | 3.90 | 12.82 | 19.14 | 16.72 | 46.99 | 23.97 | 250.00 | - | - | 11.15 | - |

**Antenna port 1**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | | Limit (Cond.) | | Limit (e.i.r.p.) | | Margin (Cond.) | Margin (e.i.r.p.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dB] | [dB] |
| 5180.0 | 1.72 | 1.23 | 10.11 | 3.90 | 13.06 | 20.23 | 16.96 | 49.66 | 23.97 | 250.00 | - | - | 10.91 | - |
| 5220.0 | 1.63 | 1.24 | 10.11 | 3.90 | 12.98 | 19.86 | 16.88 | 48.75 | 23.97 | 250.00 | - | - | 10.99 | - |
| 5240.0 | 1.70 | 1.24 | 10.11 | 3.90 | 13.05 | 20.18 | 16.95 | 49.55 | 23.97 | 250.00 | - | - | 10.92 | - |
| 5260.0 | 1.69 | 1.24 | 10.11 | 3.90 | 13.04 | 20.14 | 16.94 | 49.43 | 23.97 | 250.00 | - | - | 10.93 | - |
| 5300.0 | 0.90 | 1.25 | 10.11 | 3.90 | 12.26 | 16.83 | 16.16 | 41.30 | 23.97 | 250.00 | - | - | 11.71 | - |
| 5320.0 | 1.28 | 1.26 | 10.11 | 3.90 | 12.65 | 18.41 | 16.55 | 45.19 | 23.97 | 250.00 | - | - | 11.32 | - |
| 5500.0 | 1.08 | 1.29 | 10.12 | 3.90 | 12.49 | 17.74 | 16.39 | 43.55 | 23.97 | 250.00 | - | - | 11.48 | - |
| 5580.0 | 1.75 | 1.30 | 10.12 | 3.90 | 13.17 | 20.75 | 17.07 | 50.93 | 23.97 | 250.00 | - | - | 10.80 | - |
| 5700.0 | 1.01 | 1.31 | 10.11 | 3.90 | 12.43 | 17.50 | 16.33 | 42.95 | 23.97 | 250.00 | - | - | 11.54 | - |

Result(Cond.) = Reading + Cable Loss + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss + Atten.Loss + Antenna Gain
15.407(a)(1)( iv ) Limit(Cond.) = 23.97dBm(250mW)
Although the EUT operates on Master mode, more strigent limit for Client device was applied.
15.407(a)(2) Limit(Cond.) = 23.97dBm(250mW) or 11 + 10log(26dB BW) dBm

# Maximum Conducted Output Power

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/09/2015 |
| Temperature/ Humidity | 23deg. C / 33% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11n-40 Tx |

**Antenna port 0+1**

| Freq. | Antenna Port 0 Result | | Antenna Port 1 Result | | Result Antenna Port 0+1 (Cond.) | | Result Antenna Port 0+1 (e.r.i.p) | | Limit (Cond.) | | Limit (e.i.r.p) | | Margin (Cond.) | Margin (e.i.r.p.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (Cond.) | (e.i.r.p) | (Cond.) | (e.i.r.p) | | | | | | | | | | |
| [MHz] | [mW] | [mW] | [mW] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dB] | [dB] |
| 5190.0 | 18.58 | 45.60 | 13.21 | 32.43 | 15.02 | 31.79 | 18.92 | 78.04 | 23.97 | 250.00 | - | - | 8.95 | - |
| 5230.0 | 17.22 | 42.27 | 13.12 | 32.21 | 14.82 | 30.34 | 18.72 | 74.48 | 23.97 | 250.00 | - | - | 9.15 | - |
| 5270.0 | 16.11 | 39.54 | 12.05 | 29.58 | 14.50 | 28.16 | 18.40 | 69.12 | 23.97 | 250.00 | - | - | 9.47 | - |
| 5310.0 | 14.16 | 34.75 | 10.99 | 26.98 | 14.01 | 25.15 | 17.91 | 61.73 | 23.97 | 250.00 | - | - | 9.96 | - |
| 5510.0 | 11.51 | 28.25 | 11.19 | 27.48 | 13.56 | 22.70 | 17.46 | 55.73 | 23.97 | 250.00 | - | - | 10.41 | - |
| 5550.0 | 12.62 | 30.97 | 12.27 | 30.13 | 13.96 | 24.89 | 17.86 | 61.10 | 23.97 | 250.00 | - | - | 10.01 | - |
| 5670.0 | 12.76 | 31.33 | 11.80 | 28.97 | 13.90 | 24.57 | 17.80 | 60.31 | 23.97 | 250.00 | - | - | 10.07 | - |

**Antenna port 0**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | | Limit (Cond.) | | Limit (e.i.r.p.) | | Margin (Cond.) | Margin (e.i.r.p.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dB] | [dB] |
| 5190.0 | 1.35 | 1.23 | 10.11 | 3.90 | 12.69 | 18.58 | 16.59 | 45.60 | 23.97 | 250.00 | - | - | 11.28 | - |
| 5230.0 | 1.01 | 1.24 | 10.11 | 3.90 | 12.36 | 17.22 | 16.26 | 42.27 | 23.97 | 250.00 | - | - | 11.61 | - |
| 5270.0 | 0.71 | 1.25 | 10.11 | 3.90 | 12.07 | 16.11 | 15.97 | 39.54 | 23.97 | 250.00 | - | - | 11.90 | - |
| 5310.0 | 0.15 | 1.25 | 10.11 | 3.90 | 11.51 | 14.16 | 15.41 | 34.75 | 23.97 | 250.00 | - | - | 12.46 | - |
| 5510.0 | -0.80 | 1.29 | 10.12 | 3.90 | 10.61 | 11.51 | 14.51 | 28.25 | 23.97 | 250.00 | - | - | 13.36 | - |
| 5550.0 | -0.40 | 1.29 | 10.12 | 3.90 | 11.01 | 12.62 | 14.91 | 30.97 | 23.97 | 250.00 | - | - | 12.96 | - |
| 5670.0 | -0.35 | 1.30 | 10.11 | 3.90 | 11.06 | 12.76 | 14.96 | 31.33 | 23.97 | 250.00 | - | - | 12.91 | - |

**Antenna port 1**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | | Limit (Cond.) | | Limit (e.i.r.p.) | | Margin (Cond.) | Margin (e.i.r.p.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | [dB] | [dB] |
| 5190.0 | -0.13 | 1.23 | 10.11 | 3.90 | 11.21 | 13.21 | 15.11 | 32.43 | 23.97 | 250.00 | - | - | 12.76 | - |
| 5230.0 | -0.17 | 1.24 | 10.11 | 3.90 | 11.18 | 13.12 | 15.08 | 32.21 | 23.97 | 250.00 | - | - | 12.79 | - |
| 5270.0 | -0.55 | 1.25 | 10.11 | 3.90 | 10.81 | 12.05 | 14.71 | 29.58 | 23.97 | 250.00 | - | - | 13.16 | - |
| 5310.0 | -0.95 | 1.25 | 10.11 | 3.90 | 10.41 | 10.99 | 14.31 | 26.98 | 23.97 | 250.00 | - | - | 13.56 | - |
| 5510.0 | -0.92 | 1.29 | 10.12 | 3.90 | 10.49 | 11.19 | 14.39 | 27.48 | 23.97 | 250.00 | - | - | 13.48 | - |
| 5550.0 | -0.52 | 1.29 | 10.12 | 3.90 | 10.89 | 12.27 | 14.79 | 30.13 | 23.97 | 250.00 | - | - | 13.08 | - |
| 5670.0 | -0.69 | 1.30 | 10.11 | 3.90 | 10.72 | 11.80 | 14.62 | 28.97 | 23.97 | 250.00 | - | - | 13.25 | - |

Result(Cond.) = Reading + Cable Loss + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss + Atten.Loss + Antenna Gain
15.407(a)(1)( iv ) Limit(Cond.) = 23.97dBm(250mW)
Although the EUT operates on Master mode, more strigent limit for Client device was applied.
15.407(a)(2) Limit(Cond.) = 23.97dBm(250mW) or 11 + 10log(26dB BW) dBm

# Maximum Conducted Output Power
## (Reference data)

| | |
|---|---|
| Test place | Ise EMC Lab. No.6 Measurement Room |
| Report No. | 10604551H |
| Date | 02/20/2015 |
| Temperature/ Humidity | 23deg.C. / 34% |
| Engineer | Takumi Shimada |
| Mode | 11a Tx |

11a, 5180MHz, Antenna port 0

| Data Rate [Mbps] | Reading [dBm] | Remark |
|---|---|---|
| 6 | 0.78 | |
| 9 | 0.97 | |
| 12 | 0.94 | |
| 18 | 1.01 | * |
| 24 | 0.72 | |
| 36 | 0.70 | |
| 48 | 0.83 | |
| 54 | -0.57 | |

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

11a, 5180MHz, Antenna port 1

| MCS Number | Reading [dBm] | Remark |
|---|---|---|
| 6 | -0.15 | |
| 9 | -0.15 | |
| 12 | -0.08 | |
| 18 | -0.01 | * |
| 24 | -0.04 | |
| 36 | -0.05 | |
| 48 | -0.33 | |
| 54 | -1.82 | |

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

# Maximum Conducted Output Power
# (Reference data)

| | |
|---|---|
| Test place | Ise EMC Lab. No.6 Measurement Room |
| Report No. | 10604551H |
| Date | 02/20/2015 |
| Temperature/ Humidity | 23deg.C. / 34% |
| Engineer | Takumi Shimada |
| Mode | 11n-20 Tx |

5180MHz

| MCS Number | Reading Antenna port 0 | | Reading Antenna port 1 | | Result Antenna port 0 + 1 | | Remark |
|---|---|---|---|---|---|---|---|
| | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | |
| 0 | 2.01 | 1.59 | 0.73 | 1.18 | - | - | |
| 1 | 2.15 | 1.64 | 0.82 | 1.21 | - | - | *SISO |
| 2 | 1.84 | 1.53 | 0.64 | 1.16 | - | - | |
| 3 | 1.85 | 1.53 | 0.80 | 1.20 | - | - | |
| 4 | 1.95 | 1.57 | 0.77 | 1.19 | - | - | |
| 5 | 0.90 | 1.23 | -0.57 | 0.88 | - | - | |
| 6 | -0.08 | 0.98 | -1.27 | 0.75 | - | - | |
| 7 | -2.45 | 0.57 | -3.31 | 0.47 | - | - | |
| 8 | 2.40 | 1.74 | 1.23 | 1.33 | 4.86 | 3.07 | |
| 9 | 2.46 | 1.76 | 1.33 | 1.36 | 4.94 | 3.12 | |
| 10 | 2.67 | 1.85 | 1.38 | 1.37 | 5.08 | 3.22 | |
| 11 | 2.57 | 1.81 | 1.42 | 1.39 | 5.04 | 3.19 | |
| 12 | 2.64 | 1.84 | 1.57 | 1.44 | 5.15 | 3.27 | *MIMO |
| 13 | 1.44 | 1.39 | 0.18 | 1.04 | 3.87 | 2.44 | |
| 14 | -0.18 | 0.96 | -0.69 | 0.85 | 2.58 | 1.81 | |
| 15 | -1.39 | 0.73 | -3.58 | 0.44 | 0.66 | 1.16 | |

* Worst MCS

All comparisons were carried out on same frequency and measurement factors.

5180MHz

| MCS Number | Reading Antenna port 0 [dBm] | Reading Antenna port 1 [dBm] | Result Antenna port 0+1 [dBm] | GI | Remark |
|---|---|---|---|---|---|
| 1 | 2.15 | 0.82 | - | Long | |
| 1 | 2.29 | 0.98 | - | Short | * |
| 12 | 2.64 | 1.57 | 5.15 | Long | |
| 12 | 2.86 | 1.61 | 5.29 | Short | * |

* Worst GI

All comparisons were carried out on same frequency and measurement factors.

# Maximum Conducted Output Power
## (Reference data)

| | |
|---|---|
| Test place | Ise EMC Lab. No.6 Measurement Room |
| Report No. | 10604551H |
| Date | 02/20/2015 |
| Temperature/ Humidity | 23deg.C. / 34% |
| Engineer | Takumi Shimada |
| Mode | 11n-40 Tx |

5190MHz

| MCS Number | Reading Antenna port 0 | | Reading Antenna port 1 | | Result Antenna port 0 + 1 | | Remark |
|---|---|---|---|---|---|---|---|
| | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | |
| 0 | -0.31 | 0.93 | -1.33 | 0.74 | - | - | |
| 1 | -0.33 | 0.93 | -1.52 | 0.70 | - | - | |
| 2 | -0.27 | 0.94 | -1.09 | 0.78 | - | - | *SISO |
| 3 | -0.61 | 0.87 | -1.25 | 0.75 | - | - | |
| 4 | -0.57 | 0.88 | -1.19 | 0.76 | - | - | |
| 5 | -0.56 | 0.88 | -1.21 | 0.76 | - | - | |
| 6 | -0.44 | 0.90 | -1.12 | 0.77 | - | - | |
| 7 | -1.33 | 0.74 | -2.05 | 0.62 | - | - | |
| 8 | 0.42 | 1.10 | -0.80 | 0.83 | 2.86 | 1.93 | |
| 9 | 0.17 | 1.04 | -0.82 | 0.83 | 2.71 | 1.87 | |
| 10 | 0.41 | 1.10 | -0.87 | 0.82 | 2.83 | 1.92 | |
| 11 | 0.43 | 1.10 | -0.66 | 0.86 | 2.93 | 1.96 | *MIMO |
| 12 | -0.03 | 0.99 | -1.16 | 0.77 | 2.45 | 1.76 | |
| 13 | 0.12 | 1.03 | -0.99 | 0.80 | 2.61 | 1.82 | |
| 14 | -0.06 | 0.99 | -1.05 | 0.79 | 2.48 | 1.77 | |
| 15 | -1.10 | 0.78 | -2.26 | 0.59 | 1.37 | 1.37 | |

* Worst MCS

All comparisons were carried out on same frequency and measurement factors.

5190MHz

| MCS Number | Reading Antenna port 0 [dBm] | Reading Antenna port 1 [dBm] | Result Antenna port 0+1 [dBm] | GI | Remark |
|---|---|---|---|---|---|
| 2 | -0.27 | -1.09 | - | Long | |
| 2 | -0.19 | -0.99 | - | Short | * |
| 11 | 0.43 | -0.66 | 2.93 | Long | * |
| 11 | 0.33 | -0.99 | 2.73 | Short | |

* Worst GI

All comparisons were carried out on same frequency and measurement factors.

# Maximum Average Output Power (Reference data for SAR testing)

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/12/2015 |
| Temperature/ Humidity | 24deg. C / 31% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11a Tx |

[AV]

**Antenna port 0**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] |
| 5180.0 | 2.04 | 1.23 | 10.08 | 3.90 | 13.35 | 21.63 | 17.25 | 53.09 |
| 5220.0 | 2.58 | 1.24 | 10.08 | 3.90 | 13.90 | 24.55 | 17.80 | 60.26 |
| 5240.0 | 2.35 | 1.24 | 10.08 | 3.90 | 13.67 | 23.28 | 17.57 | 57.15 |
| 5260.0 | 2.29 | 1.24 | 10.08 | 3.90 | 13.61 | 22.96 | 17.51 | 56.36 |
| 5300.0 | 1.80 | 1.25 | 10.08 | 3.90 | 13.13 | 20.56 | 17.03 | 50.47 |
| 5320.0 | 1.77 | 1.26 | 10.08 | 3.90 | 13.11 | 20.46 | 17.01 | 50.23 |
| 5500.0 | 1.24 | 1.29 | 10.09 | 3.90 | 12.62 | 18.28 | 16.52 | 44.87 |
| 5580.0 | 1.34 | 1.30 | 10.08 | 3.90 | 12.72 | 18.71 | 16.62 | 45.92 |
| 5700.0 | 1.23 | 1.31 | 10.07 | 3.90 | 12.61 | 18.24 | 16.51 | 44.77 |

Result(Cond.) = Reading + Cable Loss + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss + Atten.Loss + Antenna Gain

**Antenna port 1**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] |
| 5180.0 | 1.35 | 1.23 | 10.08 | 3.90 | 12.66 | 18.45 | 16.56 | 45.29 |
| 5220.0 | 1.32 | 1.24 | 10.08 | 3.90 | 12.64 | 18.37 | 16.54 | 45.08 |
| 5240.0 | 1.16 | 1.24 | 10.08 | 3.90 | 12.48 | 17.70 | 16.38 | 43.45 |
| 5260.0 | 0.60 | 1.24 | 10.08 | 3.90 | 11.92 | 15.56 | 15.82 | 38.19 |
| 5300.0 | 0.51 | 1.25 | 10.08 | 3.90 | 11.84 | 15.28 | 15.74 | 37.50 |
| 5320.0 | 0.69 | 1.26 | 10.08 | 3.90 | 12.03 | 15.96 | 15.93 | 39.17 |
| 5500.0 | 0.94 | 1.29 | 10.09 | 3.90 | 12.32 | 17.06 | 16.22 | 41.88 |
| 5580.0 | 1.24 | 1.30 | 10.08 | 3.90 | 12.62 | 18.28 | 16.52 | 44.87 |
| 5700.0 | 0.92 | 1.31 | 10.07 | 3.90 | 12.30 | 16.98 | 16.20 | 41.69 |

Result(Cond.) = Reading + Cable Loss + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss + Atten.Loss + Antenna Gain

# Maximum Average Output Power (Reference data for SAR testing)

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/12/2015 |
| Temperature/ Humidity | 24deg. C / 31% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11n-20 Tx |

[AV]

**Antenna port 0+1**

| Freq. | Antenna Port 0 Result | | Antenna Port 1 Result | | Result Antenna Port 0+1 (Cond.) | | Result Antenna Port 0+1 (e.i.r.p.) | |
|---|---|---|---|---|---|---|---|---|
| | (Cond.) | (e.r.i.p) | (Cond.) | (e.r.i.p) | | | | |
| [MHz] | [mW] | [mW] | [mW] | [mW] | [dBm] | [mW] | [dBm] | [mW] |
| 5180.0 | 28.25 | 69.34 | 22.39 | 54.95 | 17.04 | 50.64 | 20.94 | 124.30 |
| 5220.0 | 28.58 | 70.15 | 21.73 | 53.33 | 17.02 | 50.30 | 20.92 | 123.48 |
| 5240.0 | 27.35 | 67.14 | 19.82 | 48.64 | 16.74 | 47.17 | 20.64 | 115.78 |
| 5260.0 | 26.73 | 65.61 | 17.66 | 43.35 | 16.47 | 44.39 | 20.37 | 108.97 |
| 5300.0 | 25.29 | 62.09 | 16.75 | 41.11 | 16.24 | 42.04 | 20.14 | 103.20 |
| 5320.0 | 24.21 | 59.43 | 16.52 | 40.55 | 16.10 | 40.73 | 20.00 | 99.98 |
| 5500.0 | 19.54 | 47.97 | 18.66 | 45.81 | 15.82 | 38.21 | 19.72 | 93.79 |
| 5600.0 | 20.32 | 49.89 | 19.91 | 48.87 | 16.05 | 40.23 | 19.95 | 98.75 |
| 5700.0 | 21.68 | 53.21 | 16.00 | 39.26 | 15.76 | 37.67 | 19.66 | 92.48 |

**Antenna port 0**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] |
| 5180.0 | 3.20 | 1.23 | 10.08 | 3.90 | 14.51 | 28.25 | 18.41 | 69.34 |
| 5220.0 | 3.24 | 1.24 | 10.08 | 3.90 | 14.56 | 28.58 | 18.46 | 70.15 |
| 5240.0 | 3.05 | 1.24 | 10.08 | 3.90 | 14.37 | 27.35 | 18.27 | 67.14 |
| 5260.0 | 2.95 | 1.24 | 10.08 | 3.90 | 14.27 | 26.73 | 18.17 | 65.61 |
| 5300.0 | 2.70 | 1.25 | 10.08 | 3.90 | 14.03 | 25.29 | 17.93 | 62.09 |
| 5320.0 | 2.50 | 1.26 | 10.08 | 3.90 | 13.84 | 24.21 | 17.74 | 59.43 |
| 5500.0 | 1.53 | 1.29 | 10.09 | 3.90 | 12.91 | 19.54 | 16.81 | 47.97 |
| 5580.0 | 1.70 | 1.30 | 10.08 | 3.90 | 13.08 | 20.32 | 16.98 | 49.89 |
| 5700.0 | 1.98 | 1.31 | 10.07 | 3.90 | 13.36 | 21.68 | 17.26 | 53.21 |

**Antenna port 1**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] |
| 5180.0 | 2.19 | 1.23 | 10.08 | 3.90 | 13.50 | 22.39 | 17.40 | 54.95 |
| 5220.0 | 2.05 | 1.24 | 10.08 | 3.90 | 13.37 | 21.73 | 17.27 | 53.33 |
| 5240.0 | 1.65 | 1.24 | 10.08 | 3.90 | 12.97 | 19.82 | 16.87 | 48.64 |
| 5260.0 | 1.15 | 1.24 | 10.08 | 3.90 | 12.47 | 17.66 | 16.37 | 43.35 |
| 5300.0 | 0.91 | 1.25 | 10.08 | 3.90 | 12.24 | 16.75 | 16.14 | 41.11 |
| 5320.0 | 0.84 | 1.26 | 10.08 | 3.90 | 12.18 | 16.52 | 16.08 | 40.55 |
| 5500.0 | 1.33 | 1.29 | 10.09 | 3.90 | 12.71 | 18.66 | 16.61 | 45.81 |
| 5580.0 | 1.61 | 1.30 | 10.08 | 3.90 | 12.99 | 19.91 | 16.89 | 48.87 |
| 5700.0 | 0.66 | 1.31 | 10.07 | 3.90 | 12.04 | 16.00 | 15.94 | 39.26 |

# Maximum Average Output Power (Reference data for SAR testing)

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/12/2015 |
| Temperature/ Humidity | 24deg. C / 31% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11n-40 Tx |

[AV]

**Antenna port 0+1**

| Freq. | Antenna Port 0 Result | | Antenna Port 1 Result | | Result Antenna Port 0+1 (Cond.) | | Result Antenna Port 0+1 (e.i.r.p) | |
|---|---|---|---|---|---|---|---|---|
| | (Cond.) | (e.i.r.p) | (Cond.) | (e.i.r.p) | | | | |
| [MHz] | [mW] | [mW] | [mW] | [mW] | [dBm] | [mW] | [dBm] | [mW] |
| 5190.0 | 15.28 | 37.50 | 12.53 | 30.76 | 14.44 | 27.81 | 18.34 | 68.26 |
| 5230.0 | 15.67 | 38.46 | 11.97 | 29.38 | 14.41 | 27.63 | 18.31 | 67.84 |
| 5270.0 | 14.96 | 36.73 | 11.22 | 27.54 | 14.18 | 26.18 | 18.08 | 64.27 |
| 5310.0 | 14.00 | 34.36 | 9.98 | 24.49 | 13.80 | 23.97 | 17.70 | 58.85 |
| 5510.0 | 11.38 | 27.93 | 10.86 | 26.67 | 13.47 | 22.24 | 17.37 | 54.59 |
| 5550.0 | 12.16 | 29.85 | 11.53 | 28.31 | 13.75 | 23.70 | 17.65 | 58.17 |
| 5670.0 | 11.43 | 28.05 | 10.86 | 26.67 | 13.48 | 22.29 | 17.38 | 54.72 |

**Antenna port 0**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] |
| 5190.0 | 0.53 | 1.23 | 10.08 | 3.90 | 11.84 | 15.28 | 15.74 | 37.50 |
| 5230.0 | 0.63 | 1.24 | 10.08 | 3.90 | 11.95 | 15.67 | 15.85 | 38.46 |
| 5270.0 | 0.42 | 1.25 | 10.08 | 3.90 | 11.75 | 14.96 | 15.65 | 36.73 |
| 5310.0 | 0.13 | 1.25 | 10.08 | 3.90 | 11.46 | 14.00 | 15.36 | 34.36 |
| 5510.0 | -0.82 | 1.29 | 10.09 | 3.90 | 10.56 | 11.38 | 14.46 | 27.93 |
| 5550.0 | -0.53 | 1.29 | 10.09 | 3.90 | 10.85 | 12.16 | 14.75 | 29.85 |
| 5670.0 | -0.80 | 1.30 | 10.08 | 3.90 | 10.58 | 11.43 | 14.48 | 28.05 |

**Antenna port 1**

| Freq. | P/M Reading | Cable Loss | Atten. Loss | Antenna Gain | Result (Cond.) | | Result (e.i.r.p.) | |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] |
| 5190.0 | -0.33 | 1.23 | 10.08 | 3.90 | 10.98 | 12.53 | 14.88 | 30.76 |
| 5230.0 | -0.54 | 1.24 | 10.08 | 3.90 | 10.78 | 11.97 | 14.68 | 29.38 |
| 5270.0 | -0.83 | 1.25 | 10.08 | 3.90 | 10.50 | 11.22 | 14.40 | 27.54 |
| 5310.0 | -1.34 | 1.25 | 10.08 | 3.90 | 9.99 | 9.98 | 13.89 | 24.49 |
| 5510.0 | -1.02 | 1.29 | 10.09 | 3.90 | 10.36 | 10.86 | 14.26 | 26.67 |
| 5550.0 | -0.76 | 1.29 | 10.09 | 3.90 | 10.62 | 11.53 | 14.52 | 28.31 |
| 5670.0 | -1.02 | 1.30 | 10.08 | 3.90 | 10.36 | 10.86 | 14.26 | 26.67 |

Result(Cond.) = Reading + Cable Loss + Atten.Loss

# Maximum Average Output Power (Reference data for SAR testing)

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/12/2015 |
| Temperature/ Humidity | 24deg. C / 31% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11a Tx |

[AV]

11a, 5180MHz, Antenna port 0

| Data Rate [Mbps] | Reading [dBm] | Remark |
|---|---|---|
| 6 | 2.04 | * |
| 9 | 1.99 | |
| 12 | 1.95 | |
| 18 | 1.81 | |
| 24 | 1.67 | |
| 36 | 1.57 | |
| 48 | 1.36 | |
| 54 | -0.18 | |

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

11a, 5180MHz, Antenna port 1

| MCS Number | Reading [dBm] | Remark |
|---|---|---|
| 6 | 1.35 | * |
| 9 | 1.10 | |
| 12 | 1.09 | |
| 18 | 0.95 | |
| 24 | 0.84 | |
| 36 | 0.73 | |
| 48 | 0.52 | |
| 54 | -1.05 | |

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

# Maximum Average Output Power (Reference data for SAR testing)

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/12/2015 |
| Temperature/ Humidity | 24deg. C / 31% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11n-20 Tx |

[AV]
5180MHz

| MCS Number | Reading Antenna port 0 | | Reading Antenna port 1 | | Result Antenna port 0 + 1 | | Remark |
|---|---|---|---|---|---|---|---|
| | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | |
| 0 | 2.71 | 1.87 | 2.03 | 1.60 | - | - | |
| 1 | 3.04 | 2.01 | 2.16 | 1.64 | - | - | *SISO |
| 2 | 2.60 | 1.82 | 1.84 | 1.53 | - | - | |
| 3 | 2.62 | 1.83 | 1.79 | 1.51 | - | - | |
| 4 | 2.12 | 1.63 | 1.61 | 1.45 | - | - | |
| 5 | 1.28 | 1.34 | 0.33 | 1.08 | - | - | |
| 6 | 0.16 | 1.04 | -0.68 | 0.86 | - | - | |
| 7 | -2.14 | 0.61 | -2.94 | 0.51 | - | - | |
| 8 | 3.17 | 2.07 | 2.11 | 1.63 | 5.68 | 3.70 | *MIMO |
| 9 | 2.75 | 1.88 | 2.12 | 1.63 | 5.46 | 3.51 | |
| 10 | 2.74 | 1.88 | 1.96 | 1.57 | 5.38 | 3.45 | |
| 11 | 2.61 | 1.82 | 1.79 | 1.51 | 5.23 | 3.33 | |
| 12 | 2.25 | 1.68 | 1.41 | 1.38 | 4.86 | 3.06 | |
| 13 | 0.81 | 1.21 | -0.13 | 0.97 | 3.38 | 2.18 | |
| 14 | -0.28 | 0.94 | -1.31 | 0.74 | 2.25 | 1.68 | |
| 15 | -2.50 | 0.56 | -3.27 | 0.47 | 0.14 | 1.03 | |

* Worst MCS

All comparisons were carried out on same frequency and measurement factors.

5180MHz

| MCS Number | Reading Antenna port 0 [dBm] | Reading Antenna port 1 [dBm] | Result Antenna port 0+1 [dBm] | GI | Remark |
|---|---|---|---|---|---|
| 1 | 3.04 | 2.16 | - | Long | * |
| 1 | 2.87 | 1.99 | - | Short | |
| 8 | 3.17 | 2.11 | 5.68 | Long | |
| 8 | 3.20 | 2.19 | 5.73 | Short | * |

* Worst GI

All comparisons were carried out on same frequency and measurement factors.

# Maximum Average Output Power (Reference data for SAR testing)

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/12/2015 |
| Temperature/ Humidity | 24deg. C / 31% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11n-40 Tx |

[AV]
5190MHz

| MCS Number | Reading Antenna port 0 | | Reading Antenna port 1 | | Result Antenna port 0 + 1 | | Remark |
|---|---|---|---|---|---|---|---|
| | [dBm] | [mW] | [dBm] | [mW] | [dBm] | [mW] | |
| 0 | 0.60 | 1.15 | -0.24 | 0.95 | - | - | *SISO |
| 1 | 0.31 | 1.07 | -0.36 | 0.92 | - | - | |
| 2 | 0.06 | 1.01 | -0.51 | 0.89 | - | - | |
| 3 | -0.02 | 1.00 | -0.70 | 0.85 | - | - | |
| 4 | -0.30 | 0.93 | -0.92 | 0.81 | - | - | |
| 5 | -0.48 | 0.90 | -1.07 | 0.78 | - | - | |
| 6 | -0.62 | 0.87 | -1.21 | 0.76 | - | - | |
| 7 | -1.47 | 0.71 | -2.17 | 0.61 | - | - | |
| 8 | 0.45 | 1.11 | -0.40 | 0.91 | 3.06 | 2.02 | *MIMO |
| 9 | 0.12 | 1.03 | -0.71 | 0.85 | 2.74 | 1.88 | |
| 10 | 0.04 | 1.01 | -0.96 | 0.80 | 2.58 | 1.81 | |
| 11 | -0.23 | 0.95 | -1.09 | 0.78 | 2.37 | 1.73 | |
| 12 | -0.41 | 0.91 | -1.34 | 0.73 | 2.16 | 1.64 | |
| 13 | -0.57 | 0.88 | -1.45 | 0.72 | 2.02 | 1.59 | |
| 14 | -0.87 | 0.82 | -1.59 | 0.69 | 1.80 | 1.51 | |
| 15 | -1.87 | 0.65 | -2.56 | 0.55 | 0.81 | 1.20 | |

* Worst MCS

All comparisons were carried out on same frequency and measurement factors.

5190MHz

| MCS Number | Reading Antenna port 0 [dBm] | Reading Antenna port 1 [dBm] | Result Antenna port 0+1 [dBm] | GI | Remark |
|---|---|---|---|---|---|
| 0 | 0.60 | -0.24 | - | Long | * |
| 0 | 0.51 | -0.36 | - | Short | |
| 8 | 0.45 | -0.40 | 3.06 | Long | |
| 8 | 0.53 | -0.33 | 3.13 | Short | * |

* Worst GI

All comparisons were carried out on same frequency and measurement factors.

# Maximum Power Spectral Density

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/10/2015 |
| Temperature/ Humidity | 23deg. C / 30% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11a Tx |

11a Antenna port 0

| Freq. [MHz] | Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | Correction factor [dB] | Result [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| 5180.0 | -10.993 | 3.13 | 10.11 | 0.39 | 0.00 | 2.64 | 11.00 | 8.36 |
| 5220.0 | -10.410 | 3.15 | 10.11 | 0.39 | 0.00 | 3.24 | 11.00 | 7.76 |
| 5240.0 | -10.561 | 3.15 | 10.11 | 0.39 | 0.00 | 3.09 | 11.00 | 7.91 |
| 5260.0 | -10.744 | 3.15 | 10.11 | 0.39 | 0.00 | 2.91 | 11.00 | 8.09 |
| 5300.0 | -11.611 | 3.17 | 10.11 | 0.39 | 0.00 | 2.06 | 11.00 | 8.94 |
| 5320.0 | -11.858 | 3.18 | 10.11 | 0.39 | 0.00 | 1.82 | 11.00 | 9.18 |
| 5500.0 | -11.443 | 3.24 | 10.12 | 0.39 | 0.00 | 2.31 | 11.00 | 8.69 |
| 5580.0 | -11.342 | 3.27 | 10.12 | 0.39 | 0.00 | 2.44 | 11.00 | 8.56 |
| 5700.0 | -11.472 | 3.31 | 10.11 | 0.39 | 0.00 | 2.34 | 11.00 | 8.66 |

Result = Reading + Cable Loss + Attenuator + Duty factor + Correction factor

11a Antenna port 1

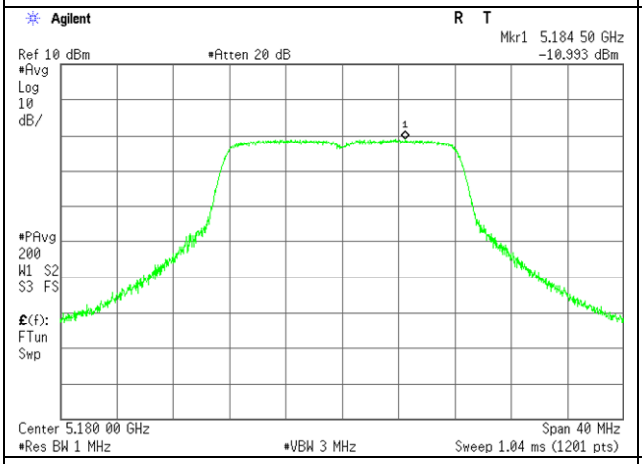
| Freq. [MHz] | Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | Correction factor [dB] | Result [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| 5180.0 | -11.013 | 3.13 | 10.11 | 0.39 | 0.00 | 2.62 | 11.00 | 8.38 |
| 5220.0 | -10.906 | 3.15 | 10.11 | 0.39 | 0.00 | 2.74 | 11.00 | 8.26 |
| 5240.0 | -11.206 | 3.15 | 10.11 | 0.39 | 0.00 | 2.44 | 11.00 | 8.56 |
| 5260.0 | -11.347 | 3.15 | 10.11 | 0.39 | 0.00 | 2.30 | 11.00 | 8.70 |
| 5300.0 | -11.643 | 3.17 | 10.11 | 0.39 | 0.00 | 2.03 | 11.00 | 8.97 |
| 5320.0 | -10.951 | 3.18 | 10.11 | 0.39 | 0.00 | 2.73 | 11.00 | 8.27 |
| 5500.0 | -11.636 | 3.24 | 10.12 | 0.39 | 0.00 | 2.11 | 11.00 | 8.89 |
| 5580.0 | -11.177 | 3.27 | 10.12 | 0.39 | 0.00 | 2.60 | 11.00 | 8.40 |
| 5700.0 | -12.487 | 3.31 | 10.11 | 0.39 | 0.00 | 1.32 | 11.00 | 9.68 |

Result = Reading + Cable Loss + Attenuator + Duty factor + Correction factor

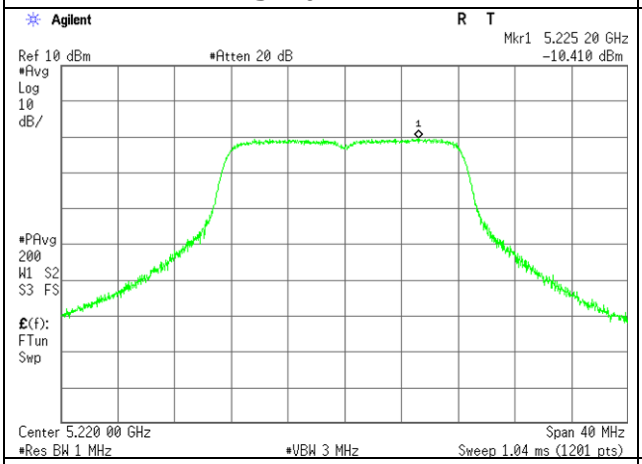
# Maximum Power Spectral Density

## 11a Antenna port 0

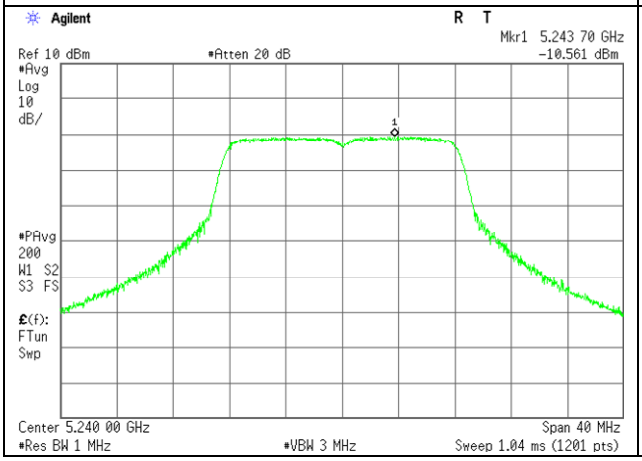
### 5180MHz




### 5220MHz

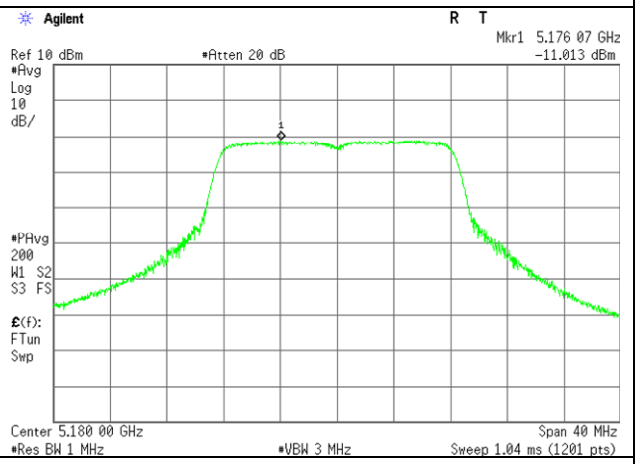



### 5240MHz

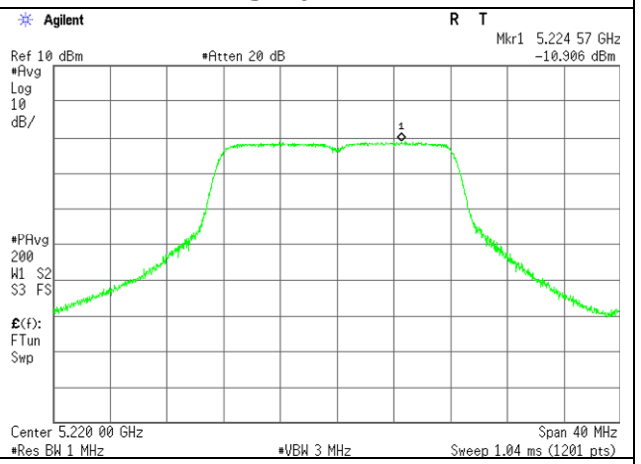



## 11a Antenna port 1

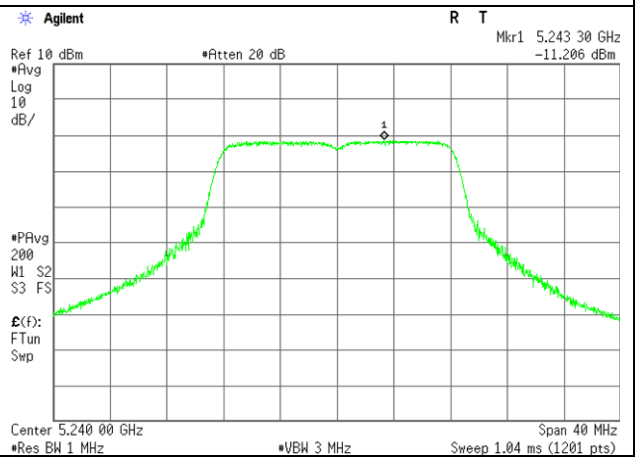
### 5180MHz




### 5220MHz



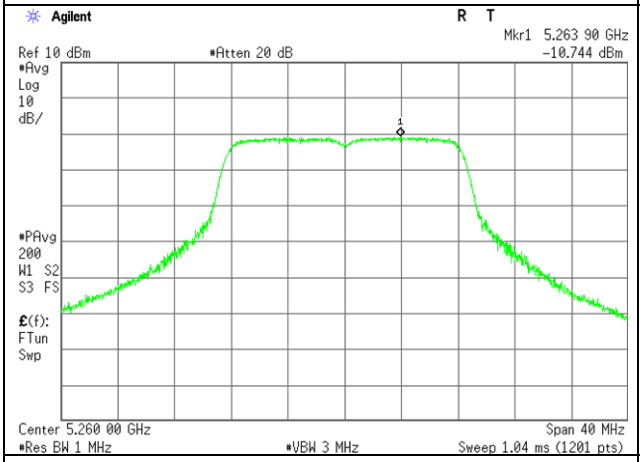

### 5240MHz



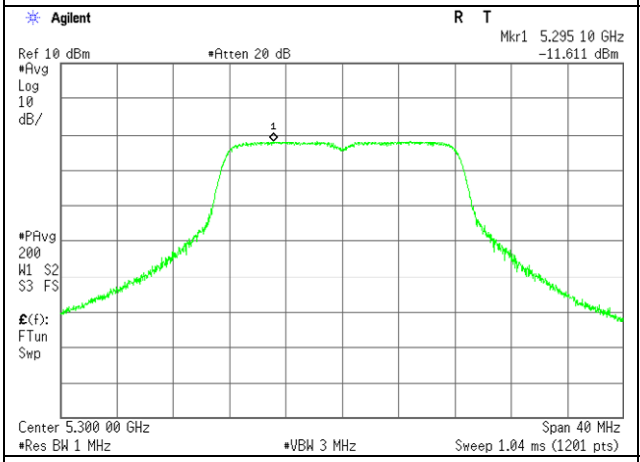
# Maximum Power Spectral Density

## 11a Antenna port 0

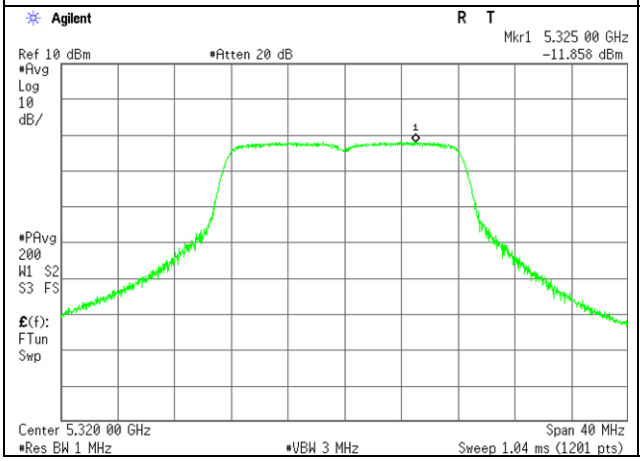
### 5260MHz




### 5300MHz

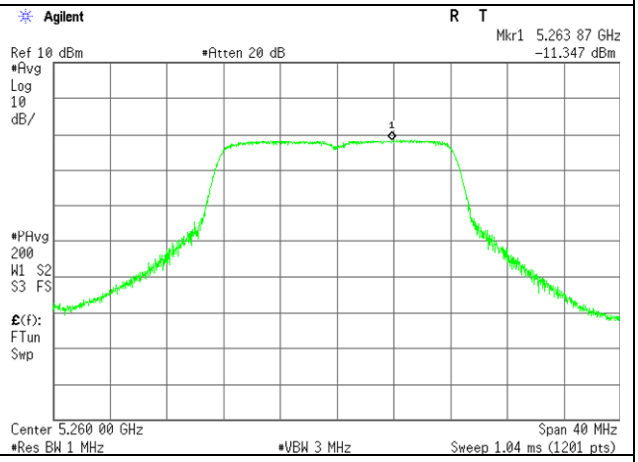



### 5320MHz

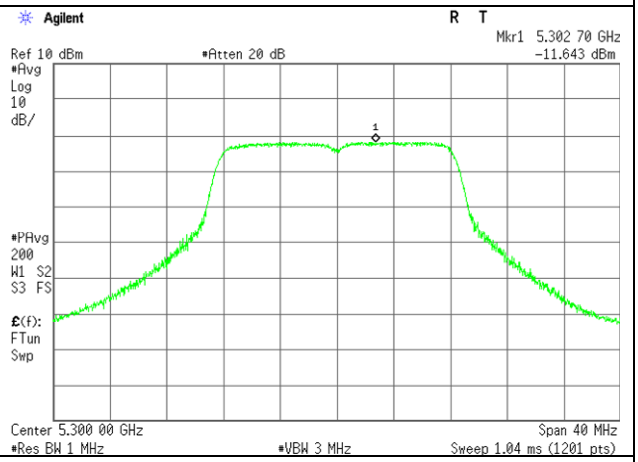



## 11a Antenna port 1

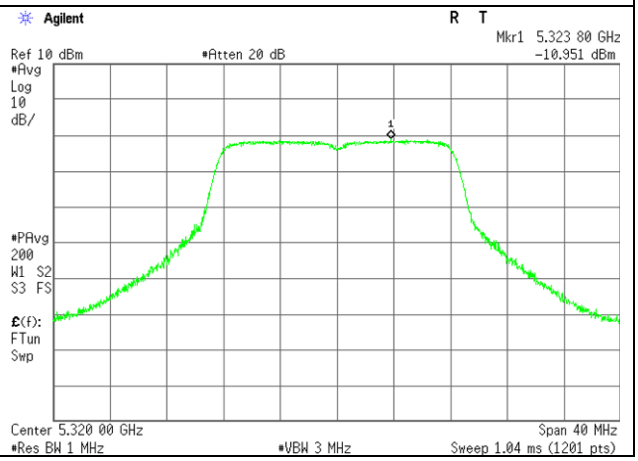
### 5260MHz




### 5300MHz



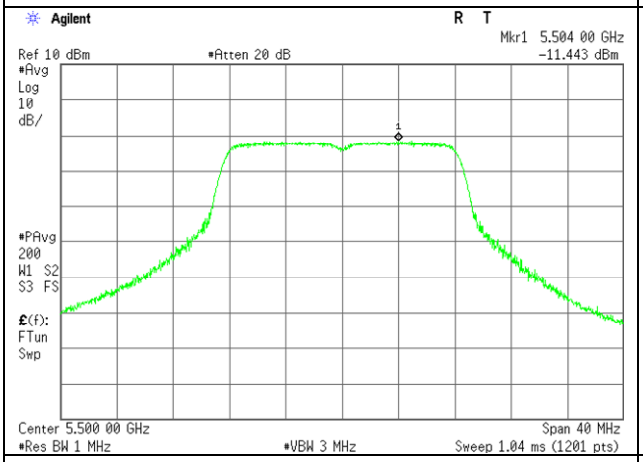

### 5320MHz



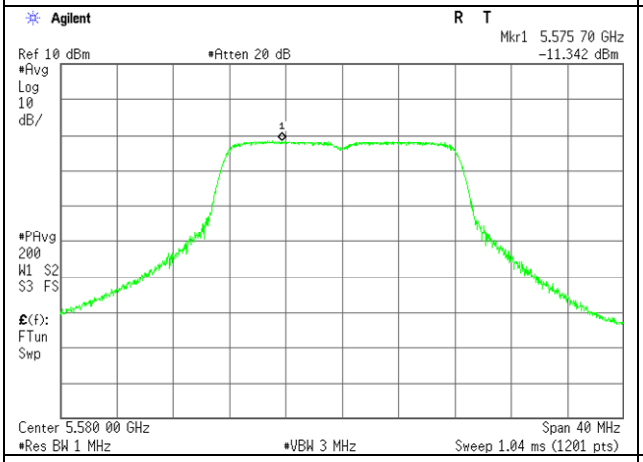
# Maximum Power Spectral Density

## 11a Antenna port 0

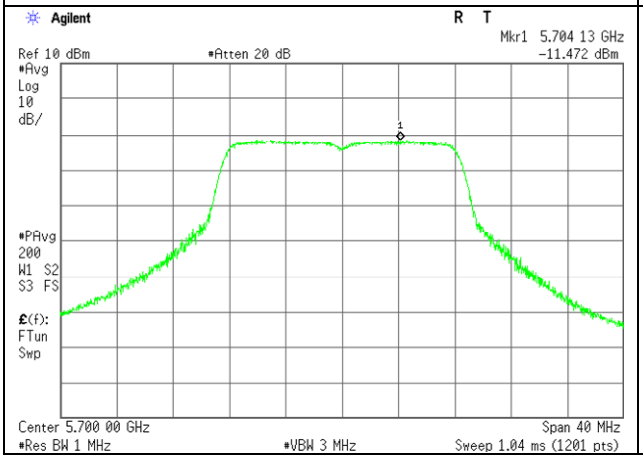
### 5500MHz




### 5580MHz

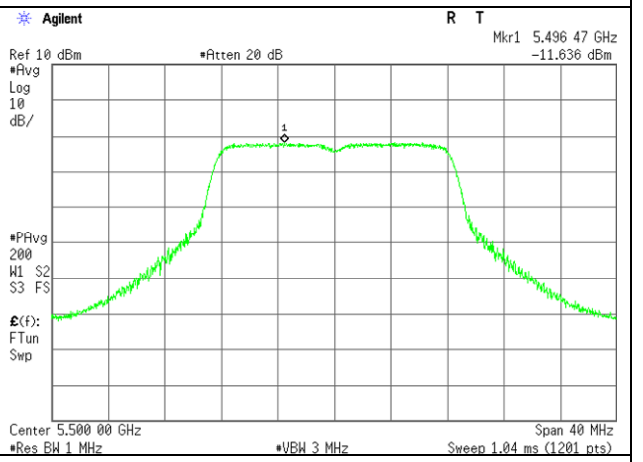



### 5700MHz

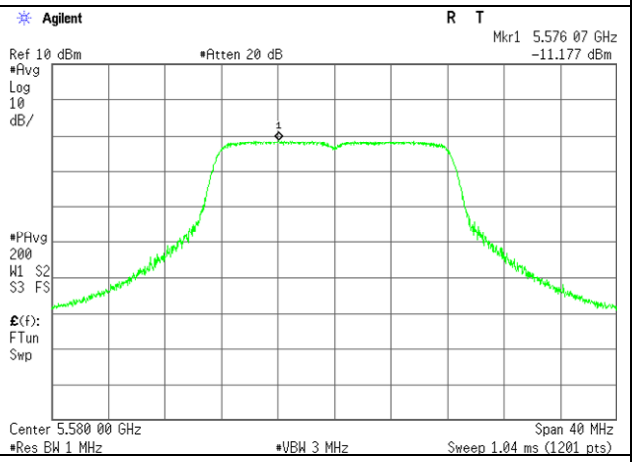



## 11a Antenna port 1

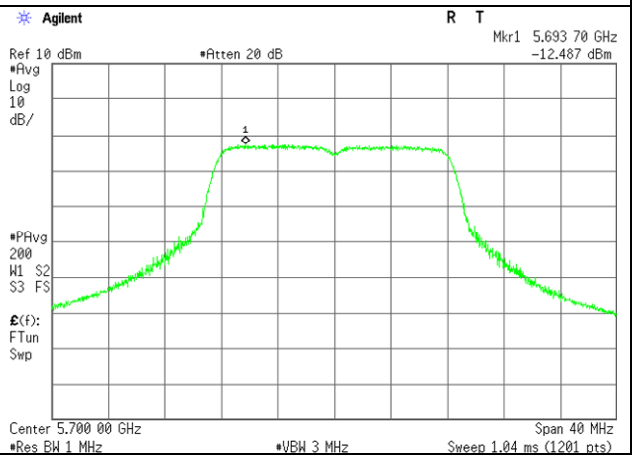
### 5500MHz




### 5580MHz




### 5700MHz



# Maximum Power Spectral Density

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/10/2015 |
| Temperature/ Humidity | 23deg. C / 30% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11n-20 Tx |

Antenna port 0 + 1

| Freq. [MHz] | Antenna port 0 Result [mW] | Antenna port 1 Result [mW] | Result Antenna port 0+1 [dBm] | Result Antenna port 0+1 [mW] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| 5180.0 | 1.65 | 1.43 | 4.88 | 3.08 | 11.00 | 6.12 |
| 5220.0 | 1.81 | 1.39 | 5.05 | 3.20 | 11.00 | 5.95 |
| 5240.0 | 1.70 | 1.28 | 4.75 | 2.99 | 11.00 | 6.25 |
| 5260.0 | 2.65 | 1.77 | 6.45 | 4.42 | 11.00 | 4.55 |
| 5300.0 | 2.26 | 1.63 | 5.90 | 3.89 | 11.00 | 5.10 |
| 5320.0 | 2.14 | 1.43 | 5.53 | 3.57 | 11.00 | 5.47 |
| 5500.0 | 1.33 | 1.46 | 4.45 | 2.79 | 11.00 | 6.55 |
| 5580.0 | 1.63 | 1.64 | 5.15 | 3.27 | 11.00 | 5.85 |
| 5700.0 | 1.77 | 1.23 | 4.76 | 2.99 | 11.00 | 6.24 |

Result = Antenna Port 0 + 1

Antenna port 0

| Freq. [MHz] | Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | Correction factor [dB] | Result [dBm] | Result [mW] |
|---|---|---|---|---|---|---|---|
| 5180.0 | -11.540 | 2.50 | 10.04 | 1.18 | 0.00 | 2.18 | 1.65 |
| 5220.0 | -11.178 | 2.53 | 10.04 | 1.18 | 0.00 | 2.57 | 1.81 |
| 5240.0 | -11.435 | 2.53 | 10.04 | 1.18 | 0.00 | 2.32 | 1.70 |
| 5260.0 | -10.212 | 3.15 | 10.11 | 1.18 | 0.00 | 4.23 | 2.65 |
| 5300.0 | -10.913 | 3.17 | 10.11 | 1.18 | 0.00 | 3.55 | 2.26 |
| 5320.0 | -11.160 | 3.18 | 10.11 | 1.18 | 0.00 | 3.31 | 2.14 |
| 5500.0 | -13.302 | 3.24 | 10.12 | 1.18 | 0.00 | 1.24 | 1.33 |
| 5580.0 | -12.436 | 3.27 | 10.12 | 1.18 | 0.00 | 2.13 | 1.63 |
| 5700.0 | -12.132 | 3.31 | 10.11 | 1.18 | 0.00 | 2.47 | 1.77 |

Result = Reading + Cable Loss + Attenuator + Duty Factor + Correction factor

Antenna port 1

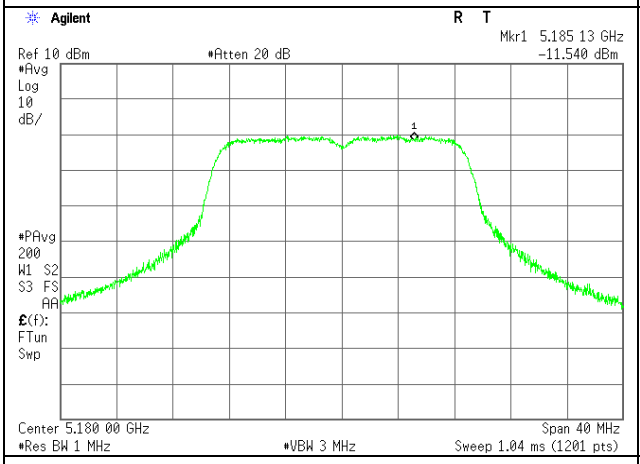
| Freq. [MHz] | Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | Correction factor [dB] | Result [dBm] | Result [mW] |
|---|---|---|---|---|---|---|---|
| 5180.0 | -12.181 | 2.50 | 10.04 | 1.18 | 0.00 | 1.54 | 1.43 |
| 5220.0 | -12.308 | 2.53 | 10.04 | 1.18 | 0.00 | 1.44 | 1.39 |
| 5240.0 | -12.668 | 2.53 | 10.04 | 1.18 | 0.00 | 1.08 | 1.28 |
| 5260.0 | -11.956 | 3.15 | 10.11 | 1.18 | 0.00 | 2.48 | 1.77 |
| 5300.0 | -12.340 | 3.17 | 10.11 | 1.18 | 0.00 | 2.12 | 1.63 |
| 5320.0 | -12.922 | 3.18 | 10.11 | 1.18 | 0.00 | 1.55 | 1.43 |
| 5500.0 | -12.898 | 3.24 | 10.12 | 1.18 | 0.00 | 1.64 | 1.46 |
| 5580.0 | -12.430 | 3.27 | 10.12 | 1.18 | 0.00 | 2.14 | 1.64 |
| 5700.0 | -13.704 | 3.31 | 10.11 | 1.18 | 0.00 | 0.90 | 1.23 |

Result = Reading + Cable Loss + Attenuator + Duty Factor + Correction factor

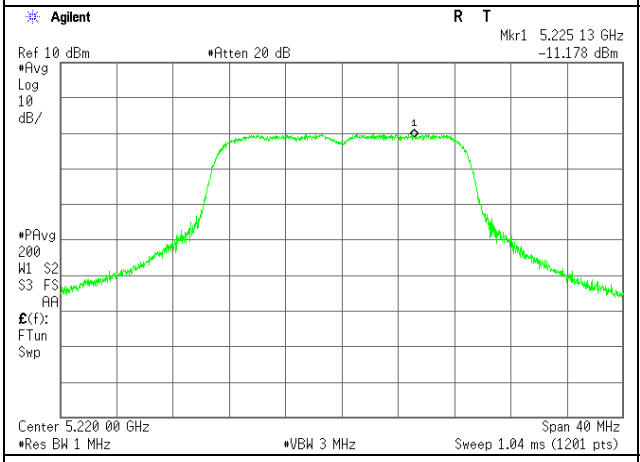
# Maximum Power Spectral Density

## 11n-20 Antenna port 0

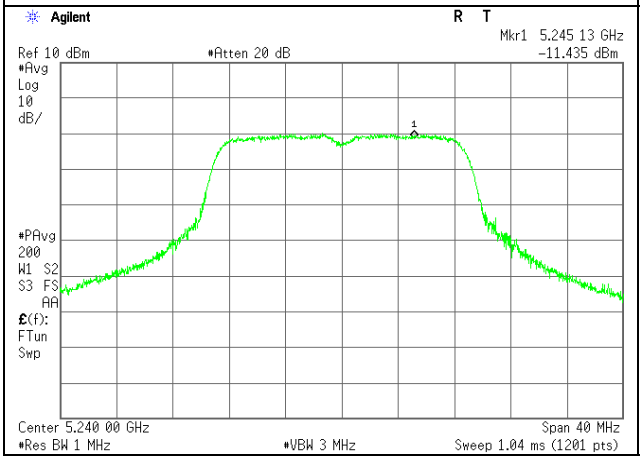
### 5180MHz




### 5220MHz

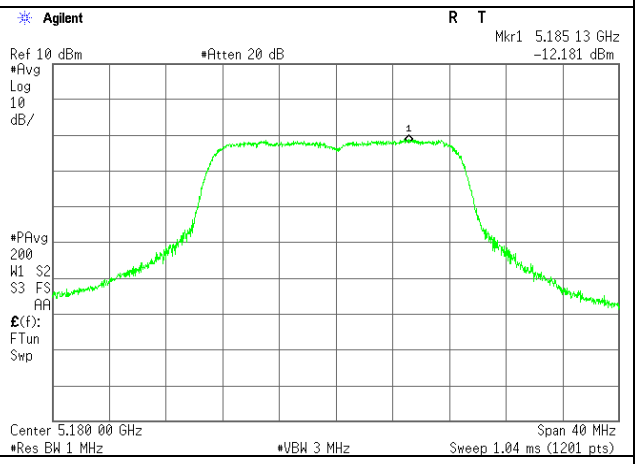



### 5240MHz

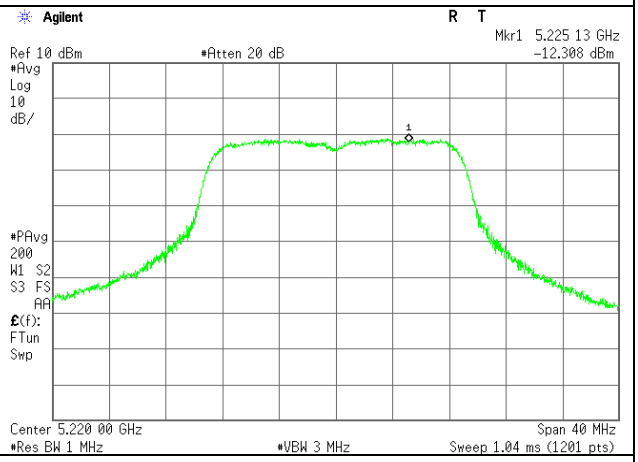



## 11n-20 Antenna port 1

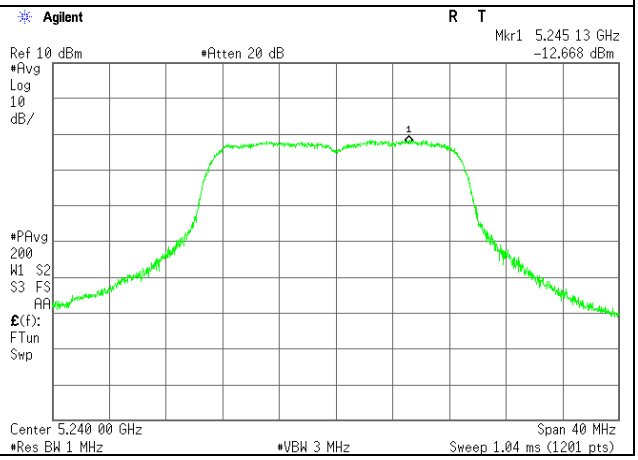
### 5180MHz




### 5220MHz




### 5240MHz

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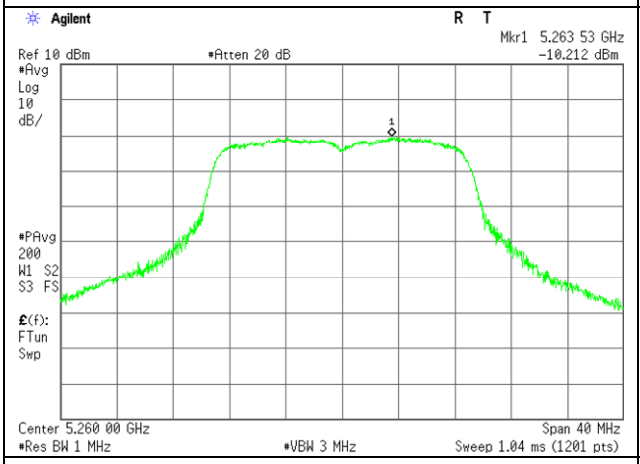
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

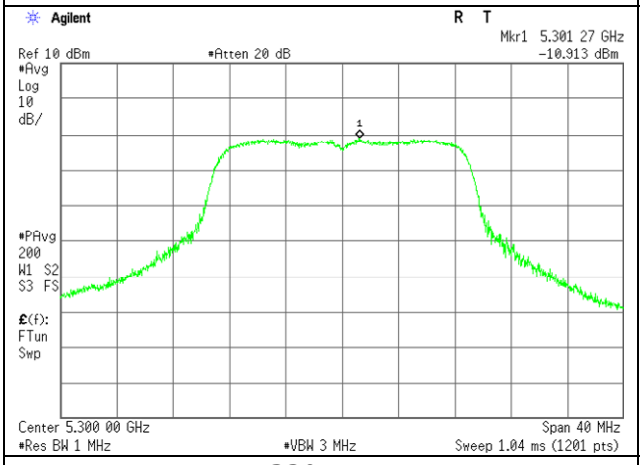
# Maximum Power Spectral Density

## 11n-20 Antenna port 0

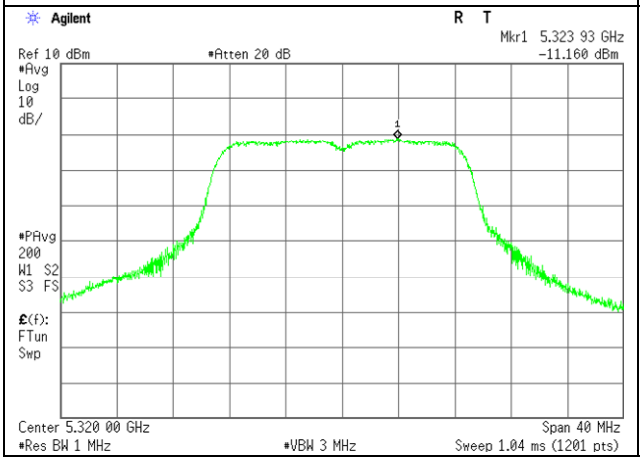
### 5260MHz




### 5300MHz

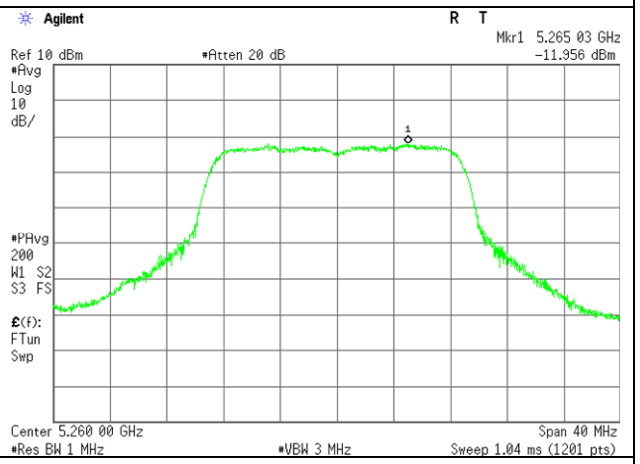



### 5320MHz

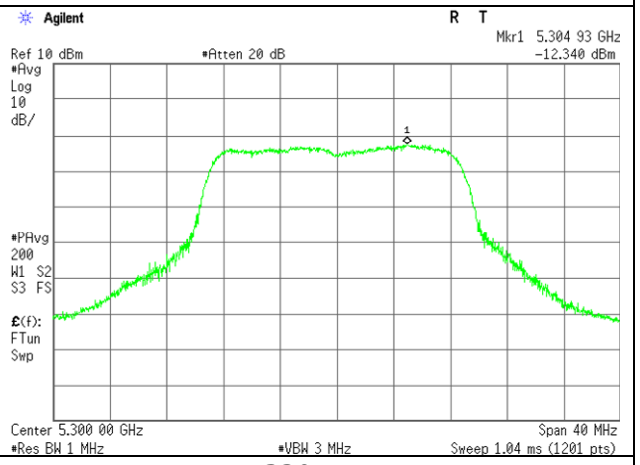



## 11n-20 Antenna port 1

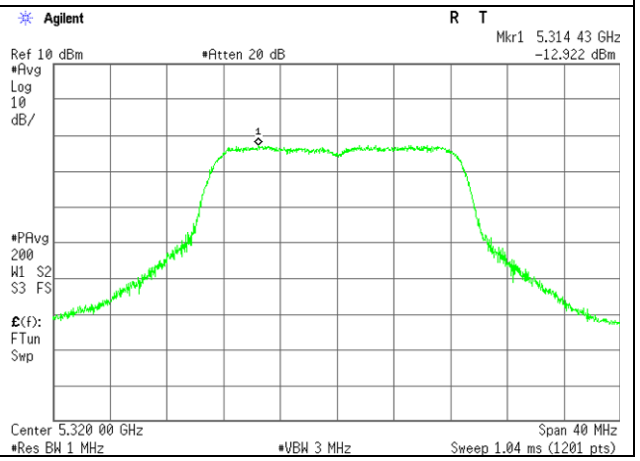
### 5260MHz




### 5300MHz



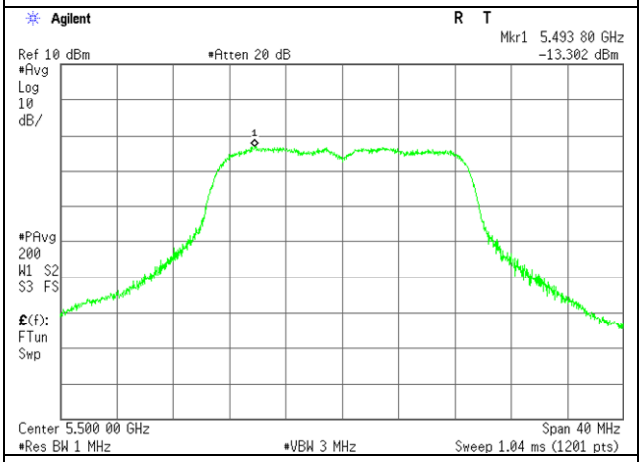

### 5320MHz



# Maximum Power Spectral Density

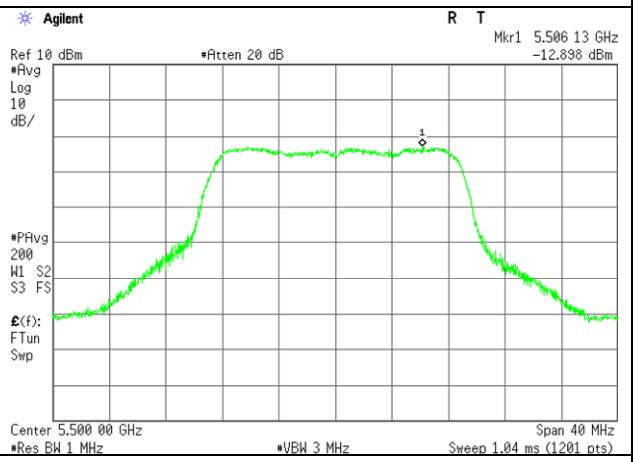
## 11n-20 Antenna port 0

### 5500MHz

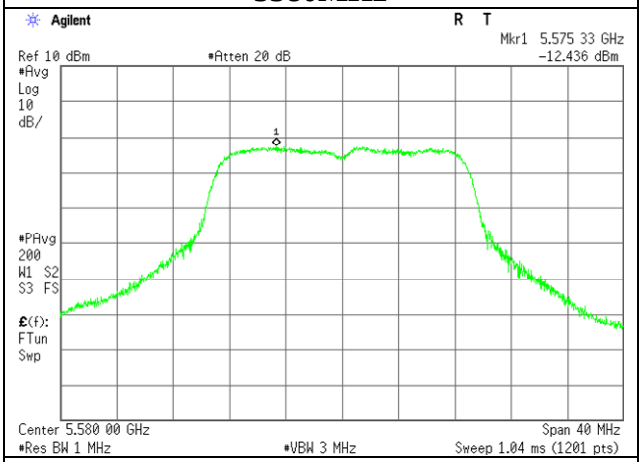



## 11n-20 Antenna port 0

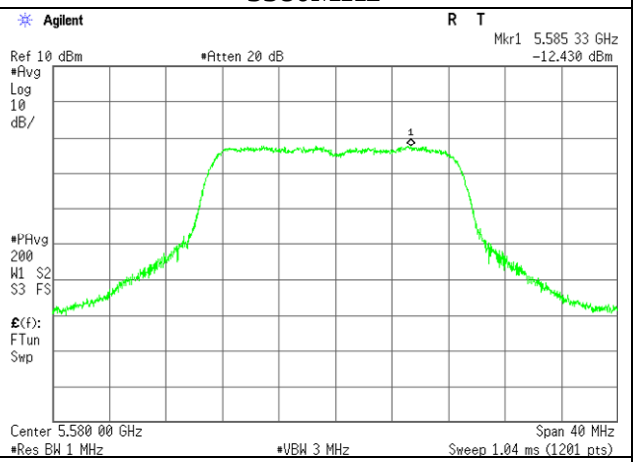
### 5500MHz



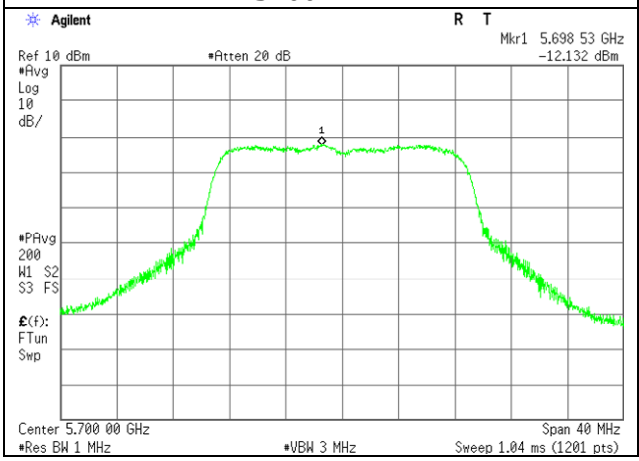

### 5580MHz



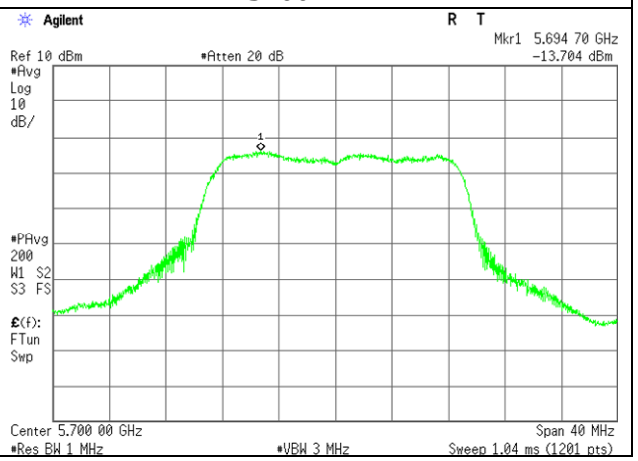

### 5580MHz




### 5700MHz




### 5700MHz



# Maximum Power Spectral Density

| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/10/2015 |
| Temperature/ Humidity | 23deg. C / 30% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11n-40 Tx |

Antenna port 0 + 1

| Freq. | Antenna port 0 Result | Antenna port 1 Result | Result Antenna port 0 + 1 | | Limit | Margin |
|---|---|---|---|---|---|---|
| [MHz] | [mW] | [mW] | [dBm] | [mW] | [dBm] | [dB] |
| 5190.0 | 0.65 | 0.59 | 0.92 | 1.23 | 11.00 | 10.08 |
| 5230.0 | 0.76 | 0.59 | 1.30 | 1.35 | 11.00 | 9.70 |
| 5270.0 | 0.71 | 0.49 | 0.79 | 1.20 | 11.00 | 10.21 |
| 5310.0 | 0.62 | 0.43 | 0.22 | 1.05 | 11.00 | 10.78 |
| 5510.0 | 0.41 | 0.41 | -0.88 | 0.82 | 11.00 | 11.88 |
| 5550.0 | 0.45 | 0.47 | -0.34 | 0.92 | 11.00 | 11.34 |
| 5670.0 | 0.49 | 0.42 | -0.40 | 0.91 | 11.00 | 11.40 |

Result = Antenna Port 0 + 1

Antenna port 0

| Freq. | Reading | Cable Loss | Atten. Loss | Duty factor | Correction factor | Result | |
|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dB] | [dB] | [dBm] | [mW] |
| 5190.0 | -16.160 | 3.13 | 10.11 | 1.02 | 0.00 | -1.90 | 0.65 |
| 5230.0 | -15.483 | 3.15 | 10.11 | 1.02 | 0.00 | -1.20 | 0.76 |
| 5270.0 | -15.783 | 3.16 | 10.11 | 1.02 | 0.00 | -1.49 | 0.71 |
| 5310.0 | -16.356 | 3.17 | 10.11 | 1.02 | 0.00 | -2.06 | 0.62 |
| 5510.0 | -18.263 | 3.24 | 10.12 | 1.02 | 0.00 | -3.88 | 0.41 |
| 5550.0 | -17.844 | 3.25 | 10.12 | 1.02 | 0.00 | -3.45 | 0.45 |
| 5670.0 | -17.514 | 3.30 | 10.11 | 1.02 | 0.00 | -3.08 | 0.49 |

Result = Reading + Cable Loss + Attenuator + Duty Factor + Correction factor

Antenna port 1

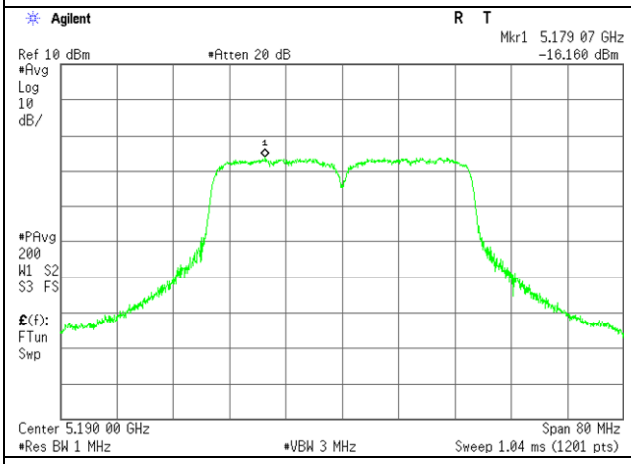
| Freq. | Reading | Cable Loss | Atten. Loss | Duty factor | Correction factor | Result | |
|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dB] | [dB] | [dBm] | [mW] |
| 5190.0 | -16.557 | 3.13 | 10.11 | 1.02 | 0.00 | -2.30 | 0.59 |
| 5230.0 | -16.569 | 3.15 | 10.11 | 1.02 | 0.00 | -2.29 | 0.59 |
| 5270.0 | -17.387 | 3.16 | 10.11 | 1.02 | 0.00 | -3.10 | 0.49 |
| 5310.0 | -17.967 | 3.17 | 10.11 | 1.02 | 0.00 | -3.67 | 0.43 |
| 5510.0 | -18.268 | 3.24 | 10.12 | 1.02 | 0.00 | -3.89 | 0.41 |
| 5550.0 | -17.645 | 3.25 | 10.12 | 1.02 | 0.00 | -3.26 | 0.47 |
| 5670.0 | -18.188 | 3.30 | 10.11 | 1.02 | 0.00 | -3.76 | 0.42 |

Result = Reading + Cable Loss + Attenuator + Duty Factor + Correction factor

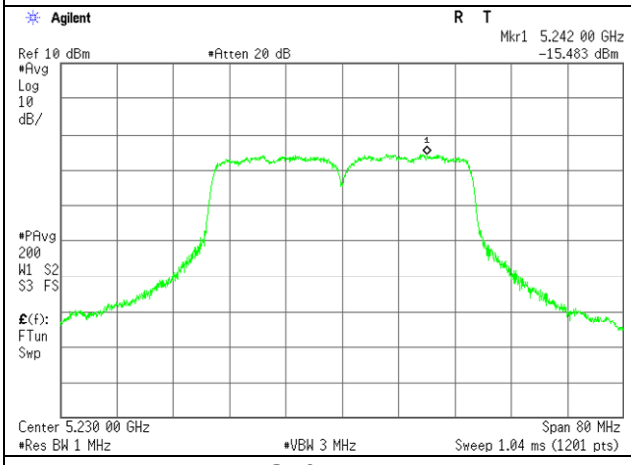
# Maximum Power Spectral Density

## 11n-40 Antenna port 0

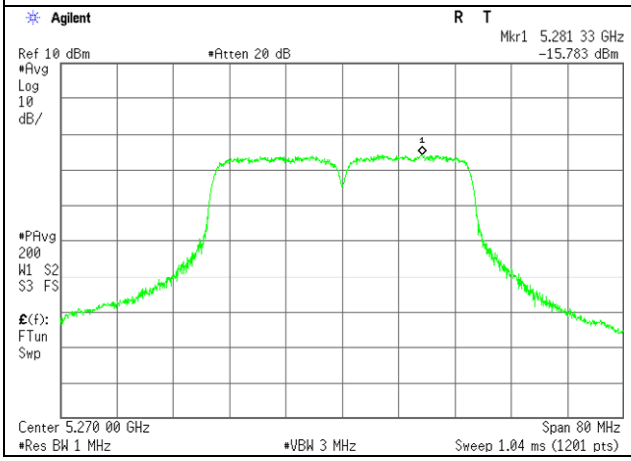
### 5190MHz




### 5230MHz

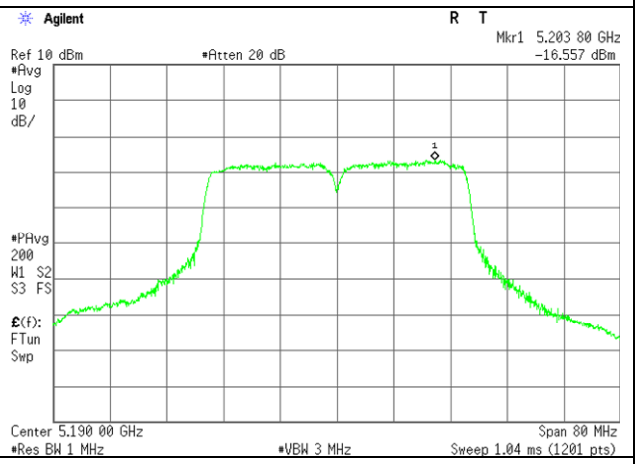



### 5270MHz

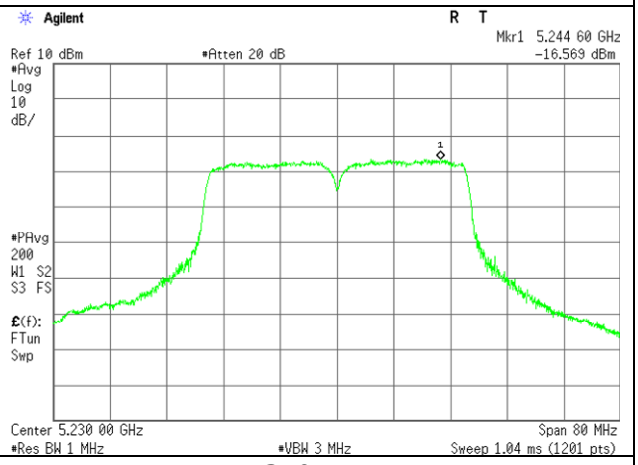



## 11n-40 Antenna port 1

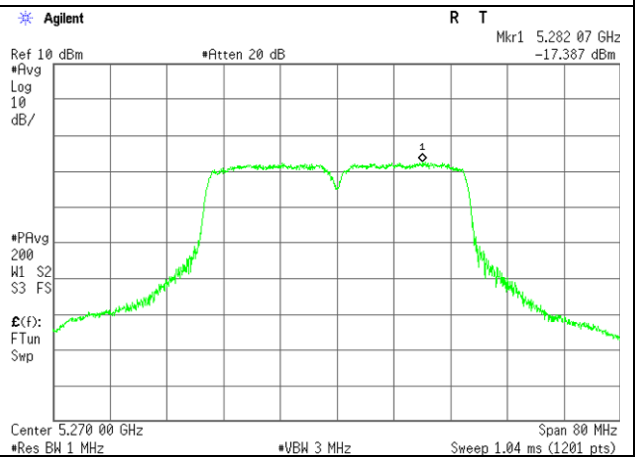
### 5190MHz




### 5230MHz



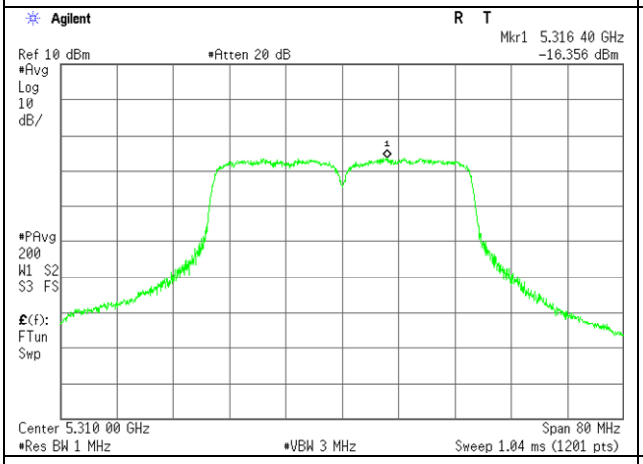

### 5270MHz



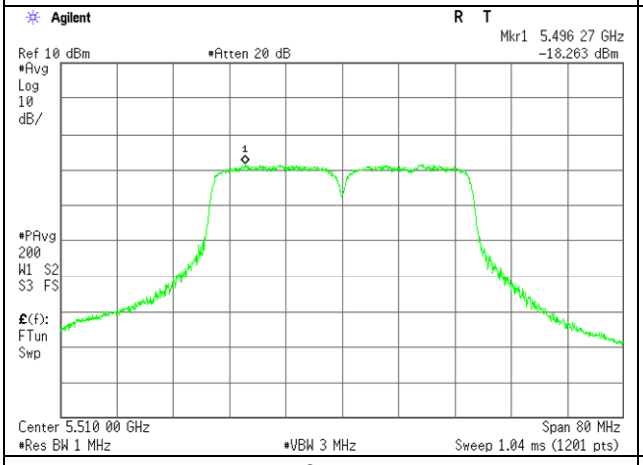
# Maximum Power Spectral Density

## 11n-40 Antenna port 0

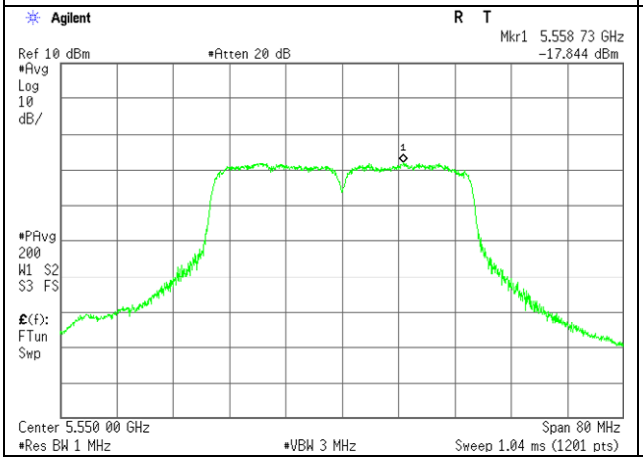
### 5310MHz




### 5510MHz

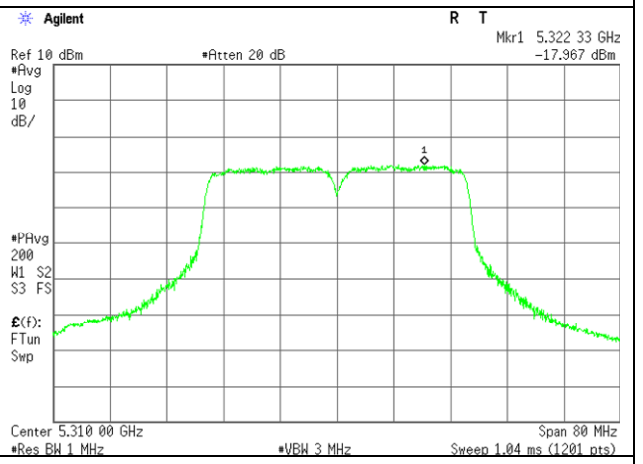



### 5550MHz

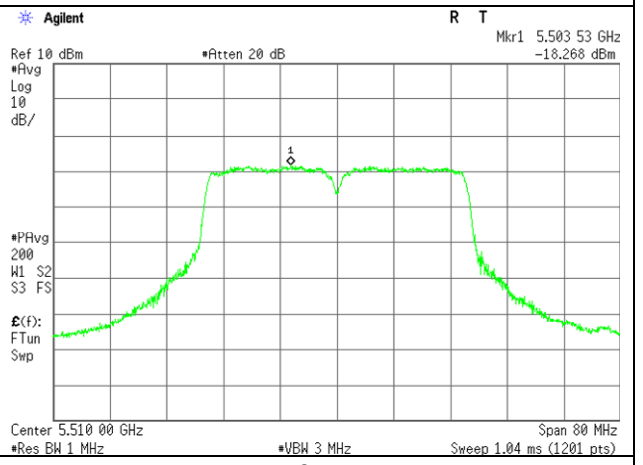



## 11n-40 Antenna port 1

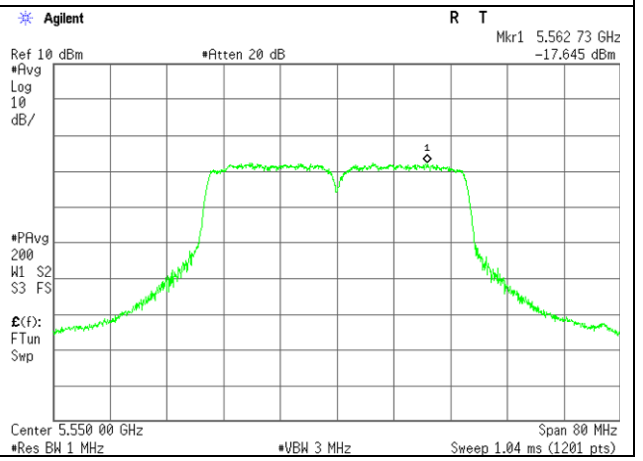
### 5310MHz



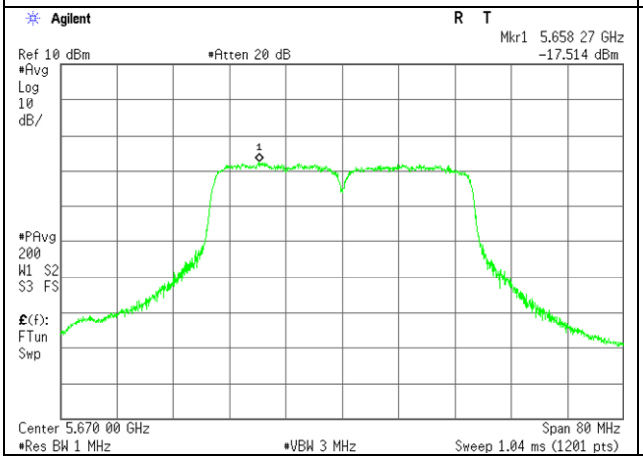
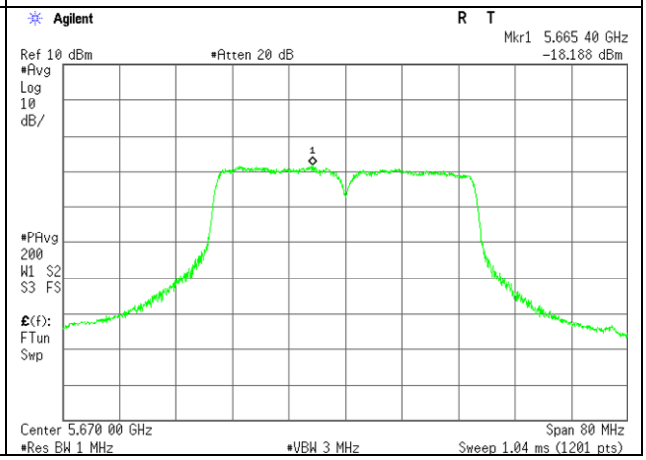

### 5510MHz




### 5550MHz



# Maximum Power Spectral Density

| 11n-40 Antenna port 0 | 11n-40 Antenna port 1 |
|---|---|
| **5670MHz** | **5670MHz** |
|  |  |

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 23deg. C / 35% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Koji Yamamoto (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-20 Tx 5180MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 5150.000 | PK | 59.6 | 31.3 | 3.7 | 31.7 | - | 62.9 | 68.2 | 5.3 | Bandedge | |
| Hori | 10360.000 | PK | 52.8 | 38.8 | -2.1 | 33.6 | - | 55.9 | 68.2 | 12.3 | Outside | |
| Hori | 15540.000 | PK | 44.2 | 37.9 | -2.8 | 32.1 | - | 47.2 | 73.9 | 26.7 | Inside | |
| Hori | 20720.000 | PK | 44.3 | 37.6 | -1.8 | 32.2 | - | 47.9 | 73.9 | 26.0 | Inside | |
| Hori | 5150.000 | AV | 44.3 | 31.3 | 3.7 | 31.7 | 1.2 | 48.8 | 53.9 | 5.1 | Bandedge | |
| Hori | 15540.000 | AV | 35.5 | 37.9 | -2.8 | 32.1 | 1.2 | 39.7 | 53.9 | 14.2 | Inside | |
| Hori | 20720.000 | AV | 36.3 | 37.6 | -1.8 | 32.2 | 1.2 | 41.1 | 53.9 | 12.8 | Inside | |
| Vert | 5150.000 | PK | 60.0 | 31.3 | 3.7 | 31.7 | - | 63.3 | 68.2 | 4.9 | Bandedge | |
| Vert | 10360.000 | PK | 54.4 | 38.8 | -2.1 | 33.6 | - | 57.5 | 68.2 | 10.7 | Outside | |
| Vert | 15540.000 | PK | 43.8 | 37.9 | -2.8 | 32.1 | - | 46.8 | 73.9 | 27.1 | Inside | |
| Vert | 20720.000 | PK | 44.1 | 37.6 | -1.8 | 32.2 | - | 47.7 | 73.9 | 26.2 | Inside | |
| Vert | 5150.000 | AV | 44.5 | 31.3 | 3.7 | 31.7 | 1.2 | 49.0 | 53.9 | 4.9 | Bandedge | |
| Vert | 15540.000 | AV | 35.7 | 37.9 | -2.8 | 32.1 | 1.2 | 39.9 | 53.9 | 14.0 | Inside | |
| Vert | 20720.000 | AV | 36.5 | 37.6 | -1.8 | 32.2 | 1.2 | 41.3 | 53.9 | 12.6 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Test place | Ise EMC Lab. No.2 and No.3 Anechoic Chamber | | | |
| Report No. | 10604551H | | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 | 03/10/2015 |
| Temperature/ Humidity | 23deg. C / 35% RH | 23deg. C / 44% RH | 23deg. C / 39% RH | 22deg. C / 38% RH |
| Engineer | Koji Yamamoto (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) | Kazuya Yoshioka (30-1000MHz) |
| Mode | 11n-20 Tx 5260MHz | | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 43.950 | QP | 23.3 | 12.9 | 6.9 | 28.5 | - | 14.6 | 40.0 | 25.4 | Outside | |
| Hori | 75.880 | QP | 24.9 | 6.5 | 7.3 | 28.4 | - | 10.3 | 40.0 | 29.7 | Outside | |
| Hori | 99.616 | QP | 48.9 | 10.1 | 7.4 | 28.2 | - | 38.2 | 43.5 | 5.3 | Outside | |
| Hori | 120.000 | QP | 37.1 | 12.7 | 7.6 | 28.2 | - | 29.2 | 43.5 | 14.3 | Inside | |
| Hori | 497.680 | QP | 28.5 | 18.6 | 9.7 | 28.5 | - | 28.3 | 46.0 | 17.7 | Outside | |
| Hori | 696.828 | QP | 36.0 | 20.6 | 10.6 | 28.1 | - | 39.1 | 46.0 | 6.9 | Outside | |
| Hori | 10520.000 | PK | 51.5 | 38.7 | -2.1 | 33.6 | - | 54.5 | 68.2 | 13.7 | Outside | |
| Hori | 15780.000 | PK | 43.7 | 37.7 | -2.8 | 32.2 | - | 46.4 | 73.9 | 27.5 | Inside | |
| Hori | 21040.000 | PK | 45.4 | 37.6 | -1.7 | 32.3 | - | 49.0 | 73.9 | 24.9 | Inside | |
| Hori | 15780.000 | AV | 35.5 | 37.7 | -2.8 | 32.2 | 1.2 | 39.4 | 53.9 | 14.5 | Inside | |
| Hori | 21040.000 | AV | 36.6 | 37.6 | -1.7 | 32.3 | 1.2 | 41.4 | 53.9 | 12.5 | Inside | |
| Vert | 44.100 | QP | 35.9 | 12.8 | 6.9 | 28.5 | - | 27.1 | 40.0 | 12.9 | Outside | |
| Vert | 74.760 | QP | 29.1 | 6.5 | 7.2 | 28.4 | - | 14.4 | 40.0 | 25.6 | Outside | |
| Vert | 99.610 | QP | 43.4 | 10.1 | 7.4 | 28.2 | - | 32.7 | 43.5 | 10.8 | Outside | |
| Vert | 119.998 | QP | 31.9 | 12.7 | 7.6 | 28.2 | - | 24.0 | 43.5 | 19.5 | Inside | |
| Vert | 497.840 | QP | 30.1 | 18.6 | 9.7 | 28.5 | - | 29.9 | 46.0 | 16.1 | Outside | |
| Vert | 696.828 | QP | 30.9 | 20.6 | 10.6 | 28.1 | - | 34.0 | 46.0 | 12.0 | Outside | |
| Vert | 10520.000 | PK | 52.2 | 38.7 | -2.1 | 33.6 | - | 55.2 | 68.2 | 13.0 | Outside | |
| Vert | 15780.000 | PK | 44.5 | 37.7 | -2.8 | 32.2 | - | 47.2 | 73.9 | 26.7 | Inside | |
| Vert | 21040.000 | PK | 44.4 | 37.6 | -1.7 | 32.3 | - | 48.0 | 73.9 | 25.9 | Inside | |
| Vert | 15780.000 | AV | 35.5 | 37.7 | -2.8 | 32.2 | 1.2 | 39.4 | 53.9 | 14.5 | Inside | |
| Vert | 21040.000 | AV | 36.8 | 37.6 | -1.7 | 32.3 | 1.2 | 41.6 | 53.9 | 12.3 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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**Ise EMC Lab.**
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Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 23deg. C / 35% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Koji Yamamoto (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-20 Tx 5320MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 5350.000 | PK | 53.5 | 31.6 | 3.8 | 31.7 | - | 57.2 | 68.2 | 11.0 | Bandedge | |
| Hori | 10640.000 | PK | 49.1 | 38.7 | -2.1 | 33.7 | - | 52.0 | 73.9 | 21.9 | Inside | |
| Hori | 15960.000 | PK | 44.4 | 37.6 | -2.8 | 32.3 | - | 46.9 | 73.9 | 27.0 | Inside | |
| Hori | 21280.000 | PK | 44.9 | 37.6 | -1.7 | 32.3 | - | 48.5 | 73.9 | 25.4 | Inside | |
| Hori | 5350.000 | AV | 40.9 | 31.6 | 3.8 | 31.7 | 1.2 | 45.8 | 53.9 | 8.1 | Bandedge | |
| Hori | 10640.000 | AV | 42.3 | 38.7 | -2.1 | 33.7 | 1.2 | 46.4 | 53.9 | 7.5 | Inside | |
| Hori | 15960.000 | AV | 35.3 | 37.6 | -2.8 | 32.3 | 1.2 | 39.0 | 53.9 | 14.9 | Inside | |
| Hori | 21280.000 | AV | 36.6 | 37.6 | -1.7 | 32.3 | 1.2 | 41.4 | 53.9 | 12.5 | Inside | |
| Vert | 5350.000 | PK | 54.9 | 31.6 | 3.8 | 31.7 | - | 58.6 | 68.2 | 9.6 | Bandedge | |
| Vert | 10640.000 | PK | 52.3 | 38.7 | -2.1 | 33.7 | - | 55.2 | 73.9 | 18.7 | Inside | |
| Vert | 15960.000 | PK | 43.8 | 37.6 | -2.8 | 32.3 | - | 46.3 | 73.9 | 27.6 | Inside | |
| Vert | 21280.000 | PK | 45.3 | 37.6 | -1.7 | 32.3 | - | 48.9 | 73.9 | 25.0 | Inside | |
| Vert | 5350.000 | AV | 41.8 | 31.6 | 3.8 | 31.7 | 1.2 | 46.7 | 53.9 | 7.2 | Bandedge | |
| Vert | 10640.000 | AV | 42.1 | 38.7 | -2.1 | 33.7 | 1.2 | 46.2 | 53.9 | 7.7 | Inside | |
| Vert | 15960.000 | AV | 35.5 | 37.6 | -2.8 | 32.3 | 1.2 | 39.2 | 53.9 | 14.7 | Inside | |
| Vert | 21280.000 | AV | 36.9 | 37.6 | -1.7 | 32.3 | 1.2 | 41.7 | 53.9 | 12.2 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 23deg. C / 35% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Koji Yamamoto (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-20 Tx 5500MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 5470.000 | PK | 52.5 | 31.8 | 3.8 | 31.8 | - | 56.3 | 68.2 | 11.9 | Outside | |
| Hori | 11000.000 | PK | 54.3 | 38.8 | -2.0 | 33.7 | - | 57.4 | 73.9 | 16.5 | Inside | |
| Hori | 16500.000 | PK | 44.4 | 37.5 | -2.6 | 32.2 | - | 47.1 | 68.2 | 21.1 | Outside | |
| Hori | 22000.000 | PK | 45.9 | 37.6 | -1.4 | 32.1 | - | 50.0 | 68.2 | 18.2 | Outside | |
| Hori | 11000.000 | AV | 43.7 | 38.8 | -2.0 | 33.7 | 1.2 | 48.0 | 53.9 | 5.9 | Inside | |
| Vert | 5470.000 | PK | 54.9 | 31.8 | 3.8 | 31.8 | - | 58.7 | 68.2 | 9.5 | Outside | |
| Vert | 11000.000 | PK | 51.0 | 38.8 | -2.0 | 33.7 | - | 54.1 | 73.9 | 19.8 | Inside | |
| Vert | 16500.000 | PK | 44.9 | 37.5 | -2.6 | 32.2 | - | 47.6 | 68.2 | 20.6 | Outside | |
| Vert | 22000.000 | PK | 45.5 | 37.6 | -1.4 | 32.1 | - | 49.6 | 68.2 | 18.6 | Outside | |
| Vert | 11000.000 | AV | 42.9 | 38.8 | -2.0 | 33.7 | 1.2 | 47.2 | 53.9 | 6.7 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 23deg. C / 35% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Koji Yamamoto (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-20 Tx 5580MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 11160.000 | PK | 51.1 | 39.0 | -1.8 | 33.7 | - | 54.6 | 73.9 | 19.3 | Inside | |
| Hori | 16740.000 | PK | 44.1 | 37.5 | -2.6 | 32.2 | - | 46.8 | 68.2 | 21.4 | Outside | |
| Hori | 22320.000 | PK | 45.0 | 37.7 | -1.3 | 31.9 | - | 49.5 | 73.9 | 24.4 | Inside | |
| Hori | 11160.000 | AV | 42.4 | 39.0 | -1.8 | 33.7 | 1.2 | 47.1 | 53.9 | 6.8 | Inside | |
| Hori | 22320.000 | AV | 37.0 | 37.7 | -1.3 | 31.9 | 1.2 | 42.7 | 53.9 | 11.2 | Inside | |
| Vert | 11160.000 | PK | 51.7 | 39.0 | -1.8 | 33.7 | - | 55.2 | 73.9 | 18.7 | Inside | |
| Vert | 16740.000 | PK | 43.4 | 37.5 | -2.6 | 32.2 | - | 46.1 | 68.2 | 22.1 | Outside | |
| Vert | 22320.000 | PK | 44.6 | 37.7 | -1.3 | 31.9 | - | 49.1 | 73.9 | 24.8 | Inside | |
| Vert | 11160.000 | AV | 43.1 | 39.0 | -1.8 | 33.7 | 1.2 | 47.8 | 53.9 | 6.1 | Inside | |
| Vert | 22320.000 | AV | 37.1 | 37.7 | -1.3 | 31.9 | 1.2 | 42.8 | 53.9 | 11.1 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 23deg. C / 35% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Koji Yamamoto (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-20 Tx 5700MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 5725.000 | PK | 54.1 | 32.1 | 3.9 | 31.8 | - | 58.3 | 68.2 | 9.9 | Outside | |
| Hori | 11400.000 | PK | 53.7 | 39.4 | -1.7 | 33.6 | - | 57.8 | 73.9 | 16.1 | Inside | |
| Hori | 17100.000 | PK | 45.4 | 37.4 | -2.5 | 32.2 | - | 48.1 | 68.2 | 20.1 | Outside | |
| Hori | 22800.000 | PK | 45.5 | 37.8 | -1.1 | 31.7 | - | 50.5 | 73.9 | 23.4 | Inside | |
| Hori | 11400.000 | AV | 43.7 | 39.4 | -1.7 | 33.6 | 1.2 | 49.0 | 53.9 | 4.9 | Inside | |
| Hori | 22800.000 | AV | 37.3 | 37.8 | -1.1 | 31.7 | 1.2 | 43.5 | 53.9 | 10.4 | Inside | |
| Vert | 5725.000 | PK | 53.1 | 32.1 | 3.9 | 31.8 | - | 57.3 | 68.2 | 10.9 | Outside | |
| Vert | 11400.000 | PK | 51.3 | 39.4 | -1.7 | 33.6 | - | 55.4 | 73.9 | 18.5 | Inside | |
| Vert | 17100.000 | PK | 45.1 | 37.4 | -2.5 | 32.2 | - | 47.8 | 68.2 | 20.4 | Outside | |
| Vert | 22800.000 | PK | 45.8 | 37.8 | -1.1 | 31.7 | - | 50.8 | 73.9 | 23.1 | Inside | |
| Vert | 11400.000 | AV | 42.7 | 39.4 | -1.7 | 33.6 | 1.2 | 48.0 | 53.9 | 5.9 | Inside | |
| Vert | 22800.000 | AV | 36.7 | 37.8 | -1.1 | 31.7 | 1.2 | 42.9 | 53.9 | 11.0 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 20deg. C / 40% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Kenshi Shimomura (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-40 Tx 5190MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 5150.000 | PK | 57.0 | 31.3 | 3.7 | 31.7 | - | 60.3 | 68.2 | 7.9 | Bandedge | |
| Hori | 10380.000 | PK | 50.6 | 38.8 | -2.1 | 33.6 | - | 53.7 | 68.2 | 14.5 | Outside | |
| Hori | 15570.000 | PK | 43.3 | 37.8 | -2.8 | 32.1 | - | 46.2 | 73.9 | 27.7 | Inside | |
| Hori | 20760.000 | PK | 45.2 | 37.6 | -1.8 | 32.3 | - | 48.7 | 73.9 | 25.2 | Inside | |
| Hori | 5150.000 | AV | 45.2 | 31.3 | 3.7 | 31.7 | 1.0 | 49.5 | 53.9 | 4.4 | Bandedge | |
| Hori | 15570.000 | AV | 35.5 | 37.8 | -2.8 | 32.1 | 1.0 | 39.4 | 53.9 | 14.5 | Inside | |
| Hori | 20760.000 | AV | 36.4 | 37.6 | -1.8 | 32.3 | 1.0 | 40.9 | 53.9 | 13.0 | Inside | |
| Vert | 5150.000 | PK | 60.2 | 31.3 | 3.7 | 31.7 | - | 63.5 | 68.2 | 4.7 | Bandedge | |
| Vert | 10380.000 | PK | 49.2 | 38.8 | -2.1 | 33.6 | - | 52.3 | 68.2 | 15.9 | Outside | |
| Vert | 15570.000 | PK | 43.6 | 37.8 | -2.8 | 32.1 | - | 46.5 | 73.9 | 27.4 | Inside | |
| Vert | 20760.000 | PK | 45.5 | 37.6 | -1.8 | 32.3 | - | 49.0 | 73.9 | 24.9 | Inside | |
| Vert | 5150.000 | AV | 46.8 | 31.3 | 3.7 | 31.7 | 1.0 | 51.1 | 53.9 | 2.8 | Bandedge | |
| Vert | 15570.000 | AV | 34.9 | 37.8 | -2.8 | 32.1 | 1.0 | 38.8 | 53.9 | 15.1 | Inside | |
| Vert | 20760.000 | AV | 36.2 | 37.6 | -1.8 | 32.3 | 1.0 | 40.7 | 53.9 | 13.2 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 20deg. C / 40% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Kenshi Shimomura (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-40 Tx 5270MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 10540.000 | PK | 48.2 | 38.7 | -2.1 | 33.6 | - | 51.2 | 68.2 | 17.0 | Outside | |
| Hori | 15810.000 | PK | 44.5 | 37.7 | -2.8 | 32.2 | - | 47.2 | 73.9 | 26.7 | Inside | |
| Hori | 21080.000 | PK | 45.1 | 37.6 | -1.7 | 32.3 | - | 48.7 | 73.9 | 25.2 | Inside | |
| Hori | 15810.000 | AV | 35.3 | 37.7 | -2.8 | 32.2 | 1.0 | 39.0 | 53.9 | 14.9 | Inside | |
| Hori | 21080.000 | AV | 36.5 | 37.6 | -1.7 | 32.3 | 1.0 | 41.1 | 53.9 | 12.8 | Inside | |
| Vert | 10540.000 | PK | 47.7 | 38.7 | -2.1 | 33.6 | - | 50.7 | 68.2 | 17.5 | Outside | |
| Vert | 15810.000 | PK | 44.0 | 37.7 | -2.8 | 32.2 | - | 46.7 | 73.9 | 27.2 | Inside | |
| Vert | 21080.000 | PK | 45.7 | 37.6 | -1.7 | 32.3 | - | 49.3 | 73.9 | 24.6 | Inside | |
| Vert | 15810.000 | AV | 35.5 | 37.7 | -2.8 | 32.2 | 1.0 | 39.2 | 53.9 | 14.7 | Inside | |
| Vert | 21080.000 | AV | 36.4 | 37.6 | -1.7 | 32.3 | 1.0 | 41.0 | 53.9 | 12.9 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 20deg. C / 40% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Kenshi Shimomura (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-40 Tx 5310MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 5350.000 | PK | 53.0 | 31.6 | 3.8 | 31.7 | - | 56.7 | 68.2 | 11.5 | Bandedge | |
| Hori | 10620.000 | PK | 47.9 | 38.7 | -2.1 | 33.7 | - | 50.8 | 73.9 | 23.1 | Inside | |
| Hori | 15930.000 | PK | 44.7 | 37.6 | -2.8 | 32.3 | - | 47.2 | 73.9 | 26.7 | Inside | |
| Hori | 21240.000 | PK | 45.7 | 37.6 | -1.7 | 32.3 | - | 49.3 | 73.9 | 24.6 | Inside | |
| Hori | 5350.000 | AV | 42.0 | 31.6 | 3.8 | 31.7 | 1.0 | 46.7 | 53.9 | 7.2 | Bandedge | |
| Hori | 10620.000 | AV | 38.8 | 38.7 | -2.1 | 33.7 | 1.0 | 42.7 | 53.9 | 11.2 | Inside | |
| Hori | 15930.000 | AV | 35.4 | 37.6 | -2.8 | 32.3 | 1.0 | 38.9 | 53.9 | 15.0 | Inside | |
| Hori | 21240.000 | AV | 36.6 | 37.6 | -1.7 | 32.3 | 1.0 | 41.2 | 53.9 | 12.7 | Inside | |
| Vert | 5350.000 | PK | 54.5 | 31.6 | 3.8 | 31.7 | - | 58.2 | 68.2 | 10.0 | Bandedge | |
| Vert | 10620.000 | PK | 48.1 | 38.7 | -2.1 | 33.7 | - | 51.0 | 73.9 | 22.9 | Inside | |
| Vert | 15930.000 | PK | 44.4 | 37.6 | -2.8 | 32.3 | - | 46.9 | 73.9 | 27.0 | Inside | |
| Vert | 21240.000 | PK | 45.1 | 37.6 | -1.7 | 32.3 | - | 48.7 | 73.9 | 25.2 | Inside | |
| Vert | 5350.000 | AV | 43.5 | 31.6 | 3.8 | 31.7 | 1.0 | 48.2 | 53.9 | 5.7 | Bandedge | |
| Vert | 10620.000 | AV | 39.7 | 38.7 | -2.1 | 33.7 | 1.0 | 43.6 | 53.9 | 10.3 | Inside | |
| Vert | 15930.000 | AV | 35.3 | 37.6 | -2.8 | 32.3 | 1.0 | 38.8 | 53.9 | 15.1 | Inside | |
| Vert | 21240.000 | AV | 36.7 | 37.6 | -1.7 | 32.3 | 1.0 | 41.3 | 53.9 | 12.6 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 20deg. C / 40% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Kenshi Shimomura (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-40 Tx 5510MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 5470.000 | PK | 52.8 | 31.8 | 3.8 | 31.8 | - | 56.6 | 68.2 | 11.6 | Outside | |
| Hori | 11020.000 | PK | 45.6 | 38.8 | -2.0 | 33.7 | - | 48.7 | 73.9 | 25.2 | Inside | |
| Hori | 16530.000 | PK | 44.1 | 37.5 | -2.6 | 32.2 | - | 46.8 | 68.2 | 21.4 | Outside | |
| Hori | 22040.000 | PK | 45.8 | 37.6 | -1.4 | 32.1 | - | 49.9 | 73.9 | 24.0 | Inside | |
| Hori | 11020.000 | AV | 38.4 | 38.8 | -2.0 | 33.7 | 1.0 | 42.5 | 53.9 | 11.4 | Inside | |
| Hori | 22040.000 | AV | 37.1 | 37.6 | -1.4 | 32.1 | 1.0 | 42.2 | 53.9 | 11.7 | Inside | |
| Vert | 5470.000 | PK | 55.7 | 31.8 | 3.8 | 31.8 | - | 59.5 | 68.2 | 8.7 | Outside | |
| Vert | 11020.000 | PK | 47.6 | 38.8 | -2.0 | 33.7 | - | 50.7 | 73.9 | 23.2 | Inside | |
| Vert | 16530.000 | PK | 44.5 | 37.5 | -2.6 | 32.2 | - | 47.2 | 68.2 | 21.0 | Outside | |
| Vert | 22040.000 | PK | 45.1 | 37.6 | -1.4 | 32.1 | - | 49.2 | 73.9 | 24.7 | Inside | |
| Vert | 11020.000 | AV | 37.6 | 38.8 | -2.0 | 33.7 | 1.0 | 41.7 | 53.9 | 12.2 | Inside | |
| Vert | 22040.000 | AV | 37.3 | 37.6 | -1.4 | 32.1 | 1.0 | 42.4 | 53.9 | 11.5 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 20deg. C / 40% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Kenshi Shimomura (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-40 Tx 5550MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 11100.000 | PK | 47.9 | 38.9 | -1.8 | 33.7 | - | 51.3 | 73.9 | 22.6 | Inside | |
| Hori | 16650.000 | PK | 43.4 | 37.5 | -2.6 | 32.2 | - | 46.1 | 68.2 | 22.1 | Outside | |
| Hori | 22200.000 | PK | 45.6 | 37.6 | -1.3 | 32.0 | - | 49.9 | 73.9 | 24.0 | Inside | |
| Hori | 11100.000 | AV | 38.4 | 38.9 | -1.8 | 33.7 | 1.0 | 42.8 | 53.9 | 11.1 | Inside | |
| Hori | 22200.000 | AV | 37.2 | 37.6 | -1.3 | 32.0 | 1.0 | 42.5 | 53.9 | 11.4 | Inside | |
| Vert | 11100.000 | PK | 48.8 | 38.9 | -1.8 | 33.7 | - | 52.2 | 73.9 | 21.7 | Inside | |
| Vert | 16650.000 | PK | 44.8 | 37.5 | -2.6 | 32.2 | - | 47.5 | 68.2 | 20.7 | Outside | |
| Vert | 22200.000 | PK | 45.7 | 37.6 | -1.3 | 32.0 | - | 50.0 | 73.9 | 23.9 | Inside | |
| Vert | 11100.000 | AV | 38.8 | 38.9 | -1.8 | 33.7 | 1.0 | 43.2 | 53.9 | 10.7 | Inside | |
| Vert | 22200.000 | AV | 37.1 | 37.6 | -1.3 | 32.0 | 1.0 | 42.4 | 53.9 | 11.5 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Test place | Ise EMC Lab. No.3 Anechoic Chamber | | |
| Report No. | 10604551H | | |
| Date | 03/06/2015 | 03/07/2015 | 03/08/2015 |
| Temperature/ Humidity | 20deg. C / 40% RH | 23deg. C / 44% RH | 23deg. C / 39% RH |
| Engineer | Kenshi Shimomura (1-10GHz) | Kazuya Yoshioka (10-15GHz) | Takumi Shimada (15-40GHz) |
| Mode | 11n-40 Tx 5670MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Inside or Outside of Restricted Bands | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 5725.000 | PK | 47.2 | 32.1 | 3.9 | 31.8 | - | 51.4 | 68.2 | 16.8 | Outside | |
| Hori | 11340.000 | PK | 49.3 | 39.3 | -1.7 | 33.6 | - | 53.3 | 73.9 | 20.6 | Inside | |
| Hori | 17010.000 | PK | 43.5 | 37.5 | -2.5 | 32.2 | - | 46.3 | 68.2 | 21.9 | Outside | |
| Hori | 22680.000 | PK | 44.7 | 37.8 | -1.1 | 31.7 | - | 49.7 | 73.9 | 24.2 | Inside | |
| Hori | 11340.000 | AV | 38.9 | 39.3 | -1.7 | 33.6 | 1.0 | 43.9 | 53.9 | 10.0 | Inside | |
| Hori | 22680.000 | AV | 36.6 | 37.8 | -1.1 | 31.7 | 1.0 | 42.6 | 53.9 | 11.3 | Inside | |
| Vert | 5725.000 | PK | 47.8 | 32.1 | 3.9 | 31.8 | - | 52.0 | 68.2 | 16.2 | Outside | |
| Vert | 11340.000 | PK | 47.3 | 39.3 | -1.7 | 33.6 | - | 51.3 | 73.9 | 22.6 | Inside | |
| Vert | 17010.000 | PK | 44.3 | 37.5 | -2.5 | 32.2 | - | 47.1 | 68.2 | 21.1 | Outside | |
| Vert | 22680.000 | PK | 45.0 | 37.8 | -1.1 | 31.7 | - | 50.0 | 73.9 | 23.9 | Inside | |
| Vert | 11340.000 | AV | 39.1 | 39.3 | -1.7 | 33.6 | 1.0 | 44.1 | 53.9 | 9.8 | Inside | |
| Vert | 22680.000 | AV | 36.7 | 37.8 | -1.1 | 31.7 | 1.0 | 42.7 | 53.9 | 11.2 | Inside | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

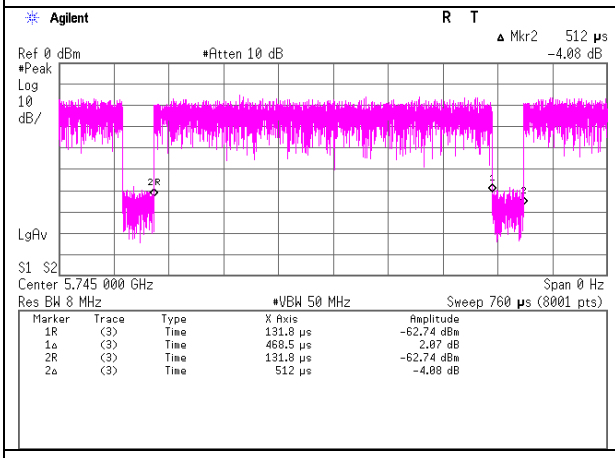
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Burst rate confirmation

| | |
|---|---|
| Test place | Ise EMC Lab. No.3 Semi Anechoic Chamber |
| Report No. | 10604551H |
| Date | 03/07/2015 |
| Temperature/ Humidity | 23deg. C / 44% RH |
| Engineer | Kazuya Yoshioka |
| Mode | 11a / 11n-20 / 11n-40 Tx |

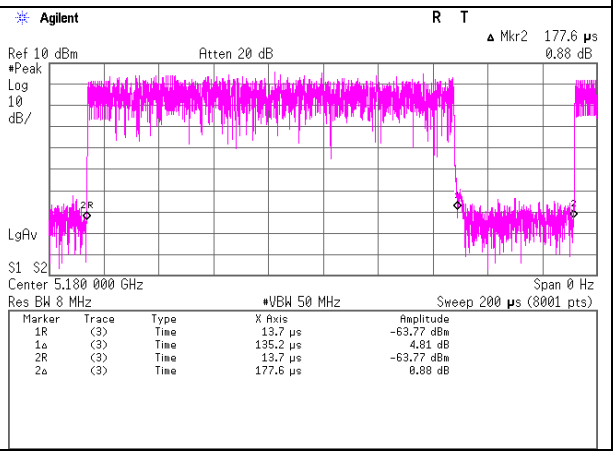
## 11a 18Mbps

**Tx on / (Tx on + Tx off) = 0.915**
**Tx on / (Tx on + Tx off) * 100 = 91.5 %**
**Duty factor = 10 * log (512 / 468.5) = 0.39 dB**



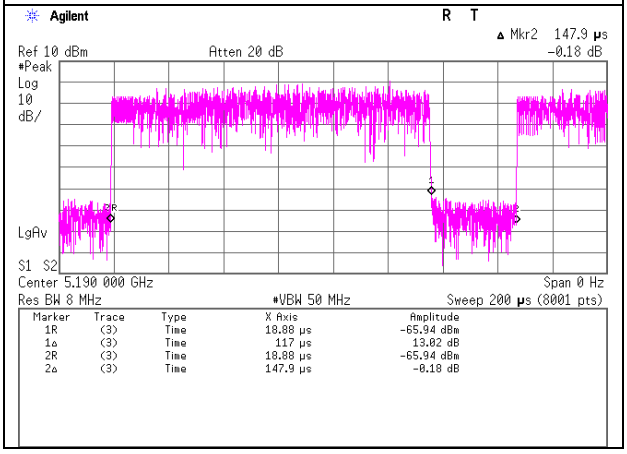

## 11n-20 MCS12(short GI)

**Tx on / (Tx on + Tx off) = 0.761**
**Tx on / (Tx on + Tx off) * 100 = 76.1 %**
**Duty factor = 10 * log (177.6 / 135.2) = 1.18 dB**




## 11n-40 MCS11(long GI)

**Tx on / (Tx on + Tx off) = 0.791**
**Tx on / (Tx on + Tx off) * 100 = 79.1 %**
**Duty factor = 10 * log (147.9 / 117) = 1.02 dB**

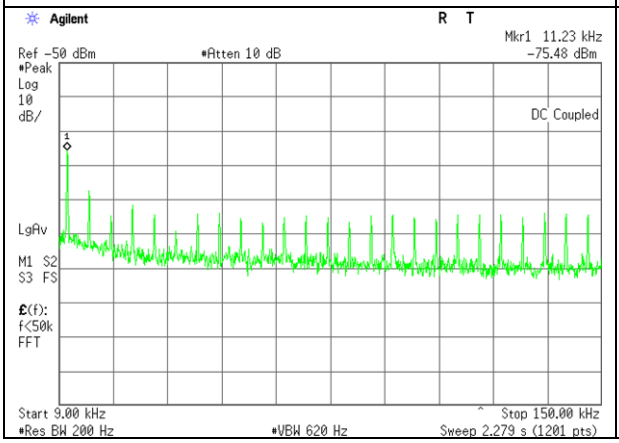


# Conducted Spurious Emission

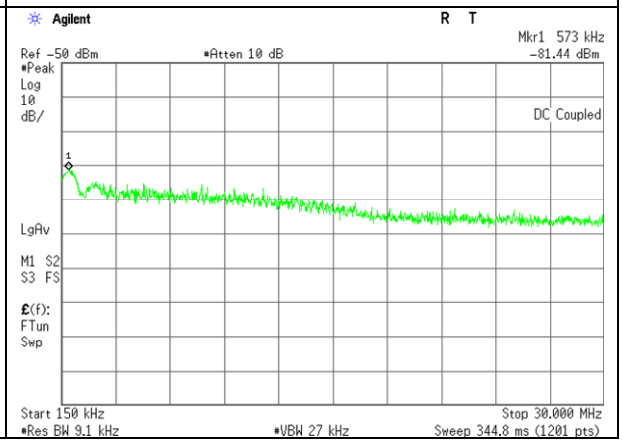
| | |
|---|---|
| Test place | Ise EMC Lab. No.11 Measurement Room |
| Report No. | 10604551H |
| Date | 03/12/2015 |
| Temperature/ Humidity | 24deg. C / 31% RH |
| Engineer | Shinichi Miyazono |
| Mode | 11n-20 Tx |

## 11n-20 Tx 5260MHz Antenna port 0

### 9kHz-150kHz




### 150kHz-30MHz




| Frequency [kHz] | Reading [dBm] | Cable Loss [dB] | Attenator [dB] | Antenna Gain [dBi] | N (Number of Output | EIRP [dBm] | Distance [m] | Ground bounce [dB] | E (field strength) [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.23 | -75.5 | 0.00 | 9.83 | 2.0 | 2 | -60.6 | 300 | 6.0 | 0.6 | 46.5 | 45.9 | |
| 573.00 | -81.4 | 0.00 | 9.82 | 2.0 | 2 | -66.6 | 30 | 6.0 | 14.6 | 32.4 | 17.8 | |

E=EIRP-20log(D)+Ground bounce +104.8[dBuV/m]

EIRP=Reading+Cable Loss+Attenator+Antenna Gain+10*log(N)

# APPENDIX 2: Test instruments

**EMI test equipment (1/2)**

| Control No. | Instrument | Manufacturer | Model No | Serial No | Test Item | Calibration Date * Interval(month) |
|---|---|---|---|---|---|---|
| MPM-16 | Power Meter | Agilent | 8990B | MY51000271 | AT | 2014/04/04 * 12 |
| MPSE-22 | Power sensor | Agilent | N1923A | MY54070003 | AT | 2014/04/04 * 12 |
| MAT-24 | Attenuator(10dB)(above 1GHz) | Agilent | 8493C | 71389 | AT | 2014/06/12 * 12 |
| MCC-144 | Microwave Cable | Junkosha | MWX221 | 1207S407 | AT | 2014/08/08 * 12 |
| MCC-35 | Microwave Cable | Hirose Electric | U.FL-2LP-066-A-(200) | - | AT | 2014/09/12 * 12 |
| MOS-14 | Thermo-Hygrometer | Custom | CTH-201 | 1401 | AT | 2015/01/13 * 12 |
| MAEC-03 | Semi Anechoic Chamber(NSA) | TDK | Semi Anechoic Chamber 3m | DA-10005 | RE | 2015/02/19 * 12 |
| MOS-13 | Thermo-Hygrometer | Custom | CTH-180 | 1301 | RE | 2015/01/13 * 12 |
| MJM-16 | Measure | KOMELON | KMC-36 | - | RE | - |
| COTS-MEMI | EMI measurement program | TSJ | TEPTO-DV | - | RE/CE | - |
| MSA-03 | Spectrum Analyzer | Agilent | E4448A | MY44020357 | RE | 2014/04/08 * 12 |
| MHA-20 | Horn Antenna 1-18GHz | Schwarzbeck | BBHA9120D | 258 | RE | 2014/05/26 * 12 |
| MCC-167 | Microwave Cable | Junkosha | MWX221 | 1404S374(1m) / 1405S074(5m) | RE | 2014/05/26 * 12 |
| MPA-11 | MicroWave System Amplifier | Agilent | 83017A | MY39500779 | RE | 2014/03/24 * 12 |
| MCC-79 | Microwave Cable 1G-26.5GHz | Suhner | SUCOFLEX104 | 278923/4 | RE | 2014/12/15 * 12 |
| MHF-22 | High Pass Filter 7-20GHz | TOKIMEC | TF37NCCB | 602 | RE | 2015/01/27 * 12 |
| MHA-16 | Horn Antenna 15-40GHz | Schwarzbeck | BBHA9170 | BBHA9170306 | RE | 2014/05/26 * 12 |
| MHA-29 | Horn Antenna 26.5-40GHz | ETS LINDGREN | 3160-10 | 00152399 | RE | 2014/09/02 * 12 |
| MPA-22 | Pre Amplifier | MITEQ, Inc | AMF-6F-2600400-33-8P / AMF-4F-2600400-33-8P | 1871355 /1871328 | RE | 2014/09/11 * 12 |
| MCC-54 | Microwave Cable | Suhner | SUCOFLEX101 | 2873(1m) / 2876(5m) | RE | 2015/03/09 * 12 |
| MOS-19 | Thermo-Hygrometer | Custom | CTH-201 | 0001 | AT | 2014/12/22 * 12 |
| MSA-13 | Spectrum Analyzer | Agilent | E4440A | MY46185823 | AT | 2014/06/06 * 12 |
| MCC-36 | Microwave Cable | Hirose Electric | U.FL-2LP-066-A-(200) | - | AT | 2014/09/12 * 12 |
| MCC-137 | Microwave cable | HUBER+SUHNER | SUCOFLEX 102 | 37954/2 | AT | 2014/10/02 * 12 |
| MAT-20 | Attenuator(10dB)(above 1GHz) | HIROSE ELECTRIC CO.,LTD. | AT-110 | - | AT | 2015/01/08 * 12 |
| MPM-09 | Power Meter | Anritsu | ML2495A | 6K00003348 | AT | 2014/10/06 * 12 |
| MPSE-12 | Power sensor | Anritsu | MA2411B | 011598 | AT | 2014/10/06 * 12 |
| MTW-03 | Torque wrench | HUBER+SUHNER | 74 Z-0-0-21 | 98142 | AT | 2015/01/16 * 36 |
| MAEC-02 | Semi Anechoic Chamber(NSA) | TDK | Semi Anechoic Chamber 3m | DA-06902 | CE/RE | 2014/06/25 * 12 |
| MOS-22 | Thermo-Hygrometer | Custom | CTH-201 | 0003 | CE/RE | 2015/01/13 * 12 |
| MJM-14 | Measure | KOMELON | KMC-36 | - | CE/RE | - |
| MSA-14 | Spectrum Analyzer | Agilent | E4440A | MY48250080 | CE/RE | 2014/10/17 * 12 |
| MTR-03 | Test Receiver | Rohde & Schwarz | ESCI | 100300 | CE/RE | 2014/06/03 * 12 |
| MLS-25 | LISN(AMN) | Schwarzbeck | NSLK8127 | 8127-731 | CE(EUT) | 2014/07/09 * 12 |
| MLS-26 | LISN(AMN) | Schwarzbeck | NSLK8127 | 8127-732 | CE(AE) | 2014/07/09 * 12 |
| MTA-28 | Terminator | TME | CT-01 | - | CE | 2014/11/26 * 12 |
| MCC-13 | Coaxial Cable | Fujikura | 3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m) | - | CE | 2015/02/06 * 12 |
| MAT-65 | Attenuator(13dB) | JFW Industries, Inc. | 50FP-013H2 N | - | CE | 2015/01/29 * 12 |

**EMI test equipment (2/2)**

| Control No. | Instrument | Manufacturer | Model No | Serial No | Test Item | Calibration Date * Interval(month) |
|---|---|---|---|---|---|---|
| MBA-02 | Biconical Antenna | Schwarzbeck | BBA9106 | VHA91032008 | RE | 2014/10/18 * 12 |
| MLA-02 | Logperiodic Antenna | Schwarzbeck | USLP9143 | 201 | RE | 2014/10/18 * 12 |
| MCC-12 | Coaxial Cable | Fujikura/Agilent | - | - | RE | 2015/02/06 * 12 |
| MAT-07 | Attenuator(6dB) | Weinschel Corp | 2 | BK7970 | RE | 2014/11/11 * 12 |
| MPA-09 | Pre Amplifier | Agilent | 8447D | 2944A10845 | RE | 2014/09/26 * 12 |
| MSA-10 | Spectrum Analyzer | Agilent | E4448A | MY46180655 | AT | 2015/02/26 * 12 |
| MAT-56 | Attenuator(10dB) | Suhner | 6810.19.A | - | AT | 2015/01/08 * 12 |
| MCC-38 | Coaxial Cable | UL Japan | - | - | AT | 2014/12/02 * 12 |
| MAT-10 | Attenuator(10dB) | Weinschel Corp | 2 | BL1173 | AT | 2014/11/19 * 12 |
| MCC-170 | Microwave Cable | Junkosha | MWX221 | 1409S493 | AT | 2015/03/04 * 12 |
| MCC-37 | Microwave Cable | Hirose Electric | U.FL-2LP-066-A-(200) | - | AT | 2014/09/25 * 12 |
| MAT-57 | Attenuator(10dB) | Suhner | 6810.19.A | - | AT | 2015/01/08 * 12 |

**The expiration date of the calibration is the end of the expired month.**
**All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.**

**As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.**

**Test Item: CE: Conducted Emission**
**RE: Radiated Emission**
**AT: Antenna Terminal Conducted test**