



# **RADIO TEST REPORT**

**Test Report No. : 11014760S-C-R2**

**Applicant** : Sony Corporation  
**Type of Equipment** : Wireless Transceiver Module  
**Model No.** : BNSY25  
**FCC ID** : AK8BNSY25  
**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 the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
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 11014760S-C-R1. 11014760S-C is replaced with this report.

**Date of test:** November 1 to 26, 2015

**Representative test engineer:**

  
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**Approved by:**



Toyokazu Imamura

Leader

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- ☒ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.  
☐ There is no testing item of "Non-accreditation".

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13-EM-F0429



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## **SECTION 1: Customer information**

|                  |   |                                                |
|------------------|---|------------------------------------------------|
| Company Name     | : | Sony EMCS Corporation                          |
| Address          | : | 8-4 Shiomi Kisarazu-shi, Chiba, 292-0834 Japan |
| Telephone Number | : | +81-438-37-3982                                |
| Contact Person   | : | Kazuhiko Nagano                                |

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

### **2.1 Identification of E.U.T.**

|                            |   |                                                                                           |
|----------------------------|---|-------------------------------------------------------------------------------------------|
| Type of Equipment          | : | Wireless Transceiver Module                                                               |
| Model No.                  | : | BNSY25                                                                                    |
| Serial No.                 | : | Refer to Section 4, Clause 4.2                                                            |
| Rating                     | : | DC 3.3 V, DC 2.8 V, DC 1.8 V                                                              |
| Receipt Date of Sample     | : | October 7, 2015                                                                           |
| Country of Mass-production | : | China, Taiwan                                                                             |
| 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: BNSY25 (referred to as the EUT in this report) is a Wireless Transceiver Module.

\* BNSY25 is Controller IC (MT8591, etc.) and RF front-end part (DHSR-SY25).

### **General Specification**

|                                    |   |        |
|------------------------------------|---|--------|
| Clock frequency(ies) in the system | : | 26 MHz |
|------------------------------------|---|--------|

### **Radio Specification**

|                        |   |                                                                                                                                                                                                                                                                                                                                     |
|------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Radio Type             | : | Transceiver                                                                                                                                                                                                                                                                                                                         |
| Frequency of Operation | : | Wireless LAN part:<br>2412-2462 MHz,<br>5180-5320 MHz, 5500-5700 MHz, 5745-5825 MHz<br>Bluetooth part:<br>2402-2480 MHz                                                                                                                                                                                                             |
| Modulation             | : | Wireless LAN part:<br>2.4 GHz bands: DBPSK, DQPSK, CCK, OFDM<br>5 GHz bands: OFDM<br>Bluetooth part:<br>BDR (Basic Data Rate): GFSK<br>EDR (Enhanced Data Rate): $\pi/4$ -DQPSK, 8DPSK<br>LE (Low Energy mode): GFSK                                                                                                                |
| Antenna type           | : | Dipole                                                                                                                                                                                                                                                                                                                              |
| Antenna connector      | : | MHF4                                                                                                                                                                                                                                                                                                                                |
| Antenna Gain           | : | 2400 - 2483.5 MHz: +0.21 dBi max (include antenna cable 199 mm)<br>5150 - 5250 MHz: -2.06 dBi max (include antenna cable 199 mm)<br>5250 - 5350 MHz: -0.99 dBi max (include antenna cable 199 mm)<br>5470 - 5725 MHz: -0.01 dBi max (include antenna cable 199 mm)<br>5725 - 5850 MHz: -0.95 dBi max (include antenna cable 199 mm) |

Remarks: This Wireless Module consists of 1 chip each of 5 GHz band and 2.4 GHz band.

\*1) Refer to the test reports: 11014760S-A-R2 and -B-R1 for FCC 15.247.

\*2) Refer to the test reports: 11014760S-D for FCC 15.407 DFS test.

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## **SECTION 3: Test specification, procedures & results**

### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart E: 2015, final revised on November 23, 2015  
 Title : FCC 47CFR Part15 Radio Frequency Device Subpart E  
 Unlicensed National Information Infrastructure Devices  
 Section 15.407 General technical requirements

\*Some parts are effective on and after December 17, 2015 or December 23, 2015. The revision does not affect the test specification applied to the EUT.

### **3.2 Procedures and results**

| Item                                   | Test Procedure                     | Specification                                                | Worst margin                                                                         | Results  | Remarks                                                 |
|----------------------------------------|------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------|----------|---------------------------------------------------------|
| Conducted Emission                     | FCC: ANSI C63.10- 2013             | FCC: 15.407 (b) (6) / 15.207                                 | 18.5 dB, QP<br>0.15000 MHz, L1,<br>(Tx 11n HT40, 5230 MHz,<br>Antenna cable: 400 mm) | Complied | -                                                       |
|                                        | IC: RSS-Gen 8.8                    | IC: RSS-Gen 8.8                                              |                                                                                      |          |                                                         |
| 26 dB Emission Bandwidth               | FCC: KDB Publication Number 789033 | FCC: 15.407 (a) (1) (2) (3)                                  | See data                                                                             | N/A      | Conducted                                               |
| Maximum Conducted Output Power         | IC: -                              | IC: -                                                        |                                                                                      | Complied | Conducted                                               |
|                                        | FCC: KDB Publication Number 789033 | FCC: 15.407 (a) (1) (2) (3)                                  |                                                                                      |          |                                                         |
| Maximum Power Spectral Density         | IC: -                              | IC: RSS-247 6.2.1 (1)<br>6.2.2 (1)<br>6.2.3 (1)<br>6.2.4 (1) |                                                                                      | Complied | Conducted                                               |
|                                        | FCC: KDB Publication Number 789033 | FCC : 15.407 (a) (1) (2) (3)                                 |                                                                                      |          |                                                         |
| Spurious Emission Restricted Band Edge | FCC: ANSI C63.10-2013              | FCC: 15.407 (b), 15.205 and 15.209                           | 0.4 dB<br>5350.000 MHz,<br>AV, Horizontal<br>(Tx, 11n HT40, 5310 MHz)                | Complied | Conducted (< 30 MHz)<br>/<br>Radiated (> 30 MHz)<br>*2) |
|                                        | KDB Publication Number 789033      | IC: RSS-247 6.2.1 (2)<br>6.2.2 (2)<br>6.2.3 (2)<br>6.2.4 (2) |                                                                                      |          |                                                         |
| 6 dB Emission Bandwidth                | FCC: ANSI C63.10-2013              | FCC: 15.407 (e)                                              | See data                                                                             | Complied | Conducted                                               |
|                                        | IC: -                              | IC: RSS-247 6.2.4 (1)                                        |                                                                                      |          |                                                         |
| Dynamic Frequency Selection            | FCC: KDB 905462 D02                | FCC: 15.407(h)                                               | -                                                                                    | N/A *1)  | Conducted                                               |
|                                        | IC: FCC KDB 905462 D02             | IC: RSS-247 6.3                                              |                                                                                      |          |                                                         |

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.

\*1) For DFS tests, please see the test report number 11014760S-D issued by UL Japan, Inc.

\*2) Radiated test was selected over 30 MHz based on section 6.2 and KDB 789033 D02 G.3.b).

\* In case any questions arise about test procedure, ANSI C 63.10:2013 is also referred.

However, there is one deviation from ANSI C 63.10:2013. (ANSI C63.10:2013 is Non-accreditation)

Measurement height is not 1.5 m, but 0.8 m.

#### **FCC Part 15.31 (e)**

This EUT is provided the stable voltage (DC 3.3 V, DC 2.8 V, DC 1.8 V) constantly to RF unit regardless of input voltage from PMIC. Therefore, the equipment complies with the requirement.

#### **FCC Part 15.203 / 212**

The EUT has a unique coupling/antenna connector. Therefore, the equipment complies with the antenna requirement.

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### 3.3 Addition to standard

| Item                   | Test Procedure  | Specification | Worst margin | Results | Remarks   |
|------------------------|-----------------|---------------|--------------|---------|-----------|
| 99% Occupied Bandwidth | IC: RSS-Gen 6.6 | IC: -         | N/A          | -       | Conducted |

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

### 3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor  $k = 2$ .  
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| Item                                             | Frequency range | Uncertainty (+/-) |                |                |
|--------------------------------------------------|-----------------|-------------------|----------------|----------------|
|                                                  |                 | No. 1 SAC / SR    | No. 2 SAC / SR | No. 3 SAC / SR |
| Conducted emission (AC Mains) LISN               | 150 kHz-30 MHz  | 3.6 dB            | 3.4 dB         | 3.4 dB         |
| Radiated emission<br>(Measurement distance: 3 m) | 9 kHz-30 MHz    | 3.7 dB            | 3.5 dB         | 3.5 dB         |
|                                                  | 30 MHz-300 MHz  | 4.9 dB            | 4.9 dB         | 4.7 dB         |
|                                                  | 300 MHz-1 GHz   | 5.0 dB            | 5.0 dB         | 4.8 dB         |
|                                                  | 1 GHz-13 GHz    | 4.9 dB            | 4.9 dB         | 4.9 dB         |
| Radiated emission<br>(Measurement distance: 1 m) | 13 GHz-18 GHz   | 5.7 dB            | 5.7 dB         | 5.7 dB         |
|                                                  | 18 GHz-40 GHz   | 4.5 dB            | 4.3 dB         | 4.3 dB         |

SAC=Semi-Anechoic Chamber

SR= Shielded Room is applied besides radiated emission

| Antenna terminal test                                   | Uncertainty (+/-) |
|---------------------------------------------------------|-------------------|
| Power Measurement above 1 GHz (Average Detector)_SPM-06 | 0.76 dB           |
| Power Measurement above 1 GHz (Peak Detector)_SPM-06    | 0.79 dB           |
| Power Measurement above 1 GHz (Average Detector)_SPM-07 | 0.74 dB           |
| Power Measurement above 1 GHz (Peak Detector)_SPM-07    | 1.08 dB           |
| Spurious emission (Conducted) below 1GHz                | 1.5 dB            |
| Spurious emission (Conducted) 1 GHz-3 GHz               | 1.7 dB            |
| Spurious emission (Conducted) 3 GHz-18 GHz              | 2.4 dB            |
| Spurious emission (Conducted) 18 GHz-26.5 GHz           | 2.5 dB            |
| Spurious emission (Conducted) 26.5 GHz-40 GHz           | 2.5 dB            |
| Bandwidth Measurement                                   | 0.66 %            |
| Duty cycle and Time Measurement                         | 0.012 %           |

#### Conducted Emission test

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

#### Radiated emission test

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

### 3.5 Test Location

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JAB Accreditation No. RTL02610

| Test site                  | IC Registration Number | Width x Depth x Height (m) | Size of reference ground plane (m) / horizontal conducting plane | Maximum measurement distance |
|----------------------------|------------------------|----------------------------|------------------------------------------------------------------|------------------------------|
| No.1 Semi-anechoic chamber | 2973D-1                | 20.6 x 11.3 x 7.65         | 20.6 x 11.3                                                      | 10 m                         |
| No.2 Semi-anechoic chamber | 2973D-2                | 20.6 x 11.3 x 7.65         | 20.6 x 11.3                                                      | 10 m                         |
| No.3 Semi-anechoic chamber | 2973D-3                | 12.7 x 7.7 x 5.35          | 12.7 x 7.7                                                       | 5 m                          |
| No.4 Semi-anechoic chamber | -                      | 8.1 x 5.1 x 3.55           | 8.1 x 5.1                                                        | -                            |
| No.1 Shielded room         | -                      | 6.8 x 4.1 x 2.7            | 6.8 x 4.1                                                        | -                            |
| No.2 Shielded room         | -                      | 6.8 x 4.1 x 2.7            | 6.8 x 4.1                                                        | -                            |
| No.3 Shielded room         | -                      | 6.3 x 4.7 x 2.7            | 6.3 x 4.7                                                        | -                            |
| No.4 Shielded room         | -                      | 4.4 x 4.7 x 2.7            | 4.4 x 4.7                                                        | -                            |
| No.5 Shielded room         | -                      | 7.8 x 6.4 x 2.7            | 7.8 x 6.4                                                        | -                            |
| No.6 Shielded room         | -                      | 7.8 x 6.4 x 2.7            | 7.8 x 6.4                                                        | -                            |
| No.8 shielded room         | -                      | 3.45 x 5.5 x 2.4           | 3.45 x 5.5                                                       | -                            |
| No.1 Measurement room      | -                      | 2.55 x 4.1 x 2.5           | -                                                                | -                            |

### 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 Mode(s)

\*1) 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 *2)  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Transmitting (Tx), IEEE 802.11a (11a)                                                                                                                                                                                                                                                                                                             | 18 Mbps, PN9 |
| Transmitting (Tx), IEEE 802.11n SISO 20 MHz BW (11n-20)                                                                                                                                                                                                                                                                                           | MCS 2, PN9   |
| Transmitting (Tx), IEEE 802.11n SISO 40 MHz BW (11n-40)                                                                                                                                                                                                                                                                                           | MCS 2, PN9   |
| *Transmitting duty was refer to APEENDIX.                                                                                                                                                                                                                                                                                                         |              |
| *The worst condition was determined based on the test result of Maximum Conducted Output Power.                                                                                                                                                                                                                                                   |              |
| *2) Power of the EUT was set by the software as follows;<br>Power settings: Fixed<br>Software: MT6625 RF Test Version 0.3<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. |              |

\*The details of operation mode(s)

| Test Item                                                                                     | Operating Mode             | Tested Antenna cable (length) *4)                    | Tested Frequency                 |                                  |                                  |                                  |
|-----------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
|                                                                                               |                            |                                                      | Lower Band                       | Middle Band                      | Additional Band                  | Upper Band                       |
| Conducted emission                                                                            | Tx, 11n-40 *3)             | 400 mm, 199 mm                                       | 5230 MHz                         | -                                | -                                | -                                |
| 26 dB Emission Bandwidth                                                                      | Tx, 11a<br>Tx, 11n-20      | -                                                    | -                                | 5260 MHz<br>5300 MHz<br>5320 MHz | 5500 MHz<br>5580 MHz<br>5700 MHz | -                                |
|                                                                                               | Tx, 11n-40                 | -                                                    | -                                | 5270 MHz<br>5310 MHz             | 5510 MHz<br>5550 MHz<br>5670 MHz | -                                |
| 99 % Occupied Bandwidth,<br>Maximum Conducted Output Power,<br>Maximum Power Spectral Density | Tx, 11a<br>Tx, 11n-20      | -                                                    | 5180 MHz<br>5220 MHz<br>5240 MHz | 5260 MHz<br>5300 MHz<br>5320 MHz | 5500 MHz<br>5580 MHz<br>5700 MHz | 5745 MHz<br>5785 MHz<br>5825 MHz |
|                                                                                               | Tx, 11n-40                 | -                                                    | 5190 MHz<br>5230 MHz             | 5270 MHz<br>5310 MHz             | 5510 MHz<br>5550 MHz<br>5670 MHz | 5755 MHz<br>5795 MHz             |
| 20 dB Bandwidth                                                                               | Tx, 11a<br>Tx, 11n-20      | -                                                    | 5240 MHz                         | -                                | -                                | -                                |
|                                                                                               | Tx, 11n-40                 | -                                                    | 5230 MHz                         | -                                | -                                | -                                |
| 6 dB Bandwidth                                                                                | Tx, 11a<br>Tx, 11n-20      | -                                                    | -                                | -                                | -                                | 5745 MHz<br>5785 MHz<br>5825 MHz |
|                                                                                               | Tx, 11n-40                 | -                                                    | -                                | -                                | -                                | 5755 MHz<br>5795 MHz             |
| Radiated Spurious Emission (Below 1 GHz)                                                      | Tx 11n-40 *3)              | 400 mm, 199 mm                                       | 5230 MHz                         | -                                | -                                | -                                |
| Radiated Spurious Emission (Above 1 GHz)                                                      | Tx, 11a, *5)<br>Tx, 11n-20 | worst: 400 mm, (bandedge was measured by each cable) | 5180 MHz<br>5240 MHz             | 5320 MHz                         | 5500 MHz<br>5580 MHz<br>5700 MHz | 5745 MHz<br>5785 MHz<br>5825 MHz |
|                                                                                               | Tx, 11n-40                 | worst: 400 mm, (bandedge was measured by each cable) | 5190 MHz<br>5230 MHz             | 5310 MHz                         | 5510 MHz<br>5550 MHz<br>5670 MHz | 5755 MHz<br>5795 MHz             |
| Conducted Spurious Emission                                                                   | Tx, 11n-40 *1)             | -                                                    | 5230 MHz                         | -                                | -                                | -                                |

\*3) The mode was tested as a representative, because it had the highest power at antenna terminal test.

\*4) The test was performed with the representative antenna cable that was worst measured value by pre-check test.

\*5) 11a mode was measured the band edge emissions only.

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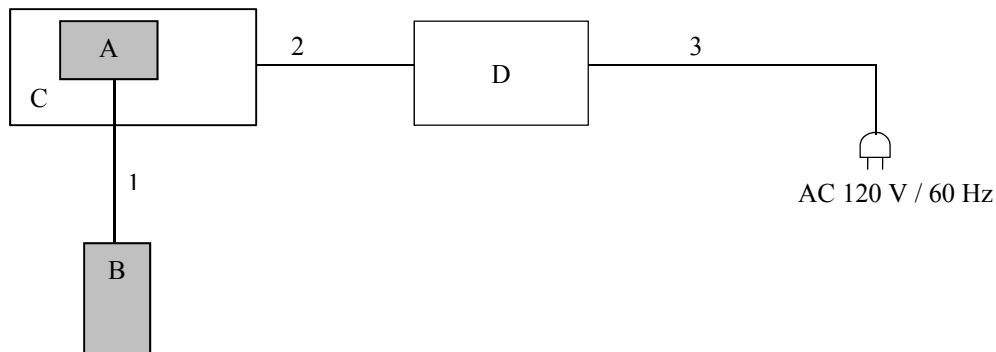
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## 4.2 Configuration and peripherals



\* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.

### Description of EUT and Support equipment

| No. | Item                        | Model number | Serial number  | Manufacturer                         | Remarks |
|-----|-----------------------------|--------------|----------------|--------------------------------------|---------|
| A   | Wireless Transceiver Module | BNSY25       | 0F081530001703 | Front-end: Wistron NeWeb Corporation | EUT     |
|     |                             |              |                | Control IC: MediaTek                 |         |
| B   | PWB Antenna                 | 1-980-877-02 | -              | Sony                                 | EUT     |
| C   | Jig board                   | -            | -              | Sony                                 | -       |
| D   | AC Adaptor                  | AC-M1208WW   | M1521540404    | Sony                                 | -       |

### List of cables used

| No. | Cable name               | Length (m)   | Shield     |            | Remarks |
|-----|--------------------------|--------------|------------|------------|---------|
|     |                          |              | Cable      | Connector  |         |
| 1   | Cable (Antenna)          | 0.4 or 0.199 | Shielded   | Shielded   | -       |
| 2   | Output cord (AC Adaptor) | 1.0          | Unshielded | Unshielded | -       |
| 3   | Power Supply Cord        | 0.7          | Unshielded | Unshielded | -       |

## **SECTION 5: Conducted Emission**

### **Test Procedure and conditions**

EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane. The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity. 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.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT via AC adaptor in a Shielded room.

The EUT via AC adaptor was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

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

|                          |                               |
|--------------------------|-------------------------------|
| <b>Detector</b>          | <b>: QP and CISPR Average</b> |
| <b>Measurement range</b> | <b>: 0.15 MHz-30 MHz</b>      |
| <b>Test data</b>         | <b>: APPENDIX</b>             |
| <b>Test result</b>       | <b>: Pass</b>                 |

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

### **Test Procedure**

EUT was placed on a styrene foam platform of nominal size, 0.5 m by 0.5 m, raised 0.8 m 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 68.2 dBuV/m, 3 m (-27 dBm e.i.r.p. \*) in the Section 15.407 (b) (1) (2) (3).

Apply to limit 68.2 dBuV/m, 3 m (-27 dBm e.i.r.p. \*) or

78.2 dBuV/m, 3 m (-17 dBm e.i.r.p. \*) in the Section 15.407 (b).

Restricted band edge:

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:

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

### **Test Antennas are used as below;**

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

|                 |               |                                                                                                            |                                                                         |
|-----------------|---------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Frequency       | Below 1 GHz   | Above 1 GHz                                                                                                |                                                                         |
| Instrument used | Test Receiver | Spectrum Analyzer                                                                                          |                                                                         |
| Detector        | QP            | Peak                                                                                                       | Average                                                                 |
| IF Bandwidth    | BW: 120 kHz   | RBW: 1 MHz<br>VBW: 3 MHz                                                                                   | Method VB *1)<br>RBW: 1 MHz<br>VBW: 1/T<br>(*T = transmission duration) |
| Test Distance   | 3 m           | 3.87 m *2) (below 13 GHz, SVSWR, 2AC),<br>4.37 m *2) (below 13 GHz, SVSWR, 3AC),<br>1 m *3) (above 13 GHz) |                                                                         |

\*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:  $20 \times \log(3.87 \text{ m}/3.0 \text{ m}) = 2.21 \text{ dB}$  (\*SVSWR setting, distance 4 m - volume offset 0.13 m)

Distance Factor:  $20 \times \log(4.37 \text{ m}/3.0 \text{ m}) = 3.27 \text{ dB}$  (\*SVSWR setting, distance 4.5 m - volume offset 0.13 m)

\*3) Distance Factor:  $20 \times \log(1.0 \text{ m}/3.0 \text{ m}) = -9.5 \text{ dB}$

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

|         | Test<br>Antenna | Frequency<br>Carrier | Spurious     |          |           |             |             |
|---------|-----------------|----------------------|--------------|----------|-----------|-------------|-------------|
|         |                 |                      | 30 MHz-1 GHz | 1-13 GHz | 13-18 GHz | 18-26.5 GHz | 26.5-40 GHz |
| Module  | Horizontal      | Z                    | X            | Z        | Y         | Z           | X           |
|         | Vertical        | Z                    | Z            | Z        | X         | Z           | X           |
| Antenna | Horizontal      | X                    | Y            | X        | Y         | X           | X           |
|         | Vertical        | Y                    | Z            | Y        | Y         | X           | X           |

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

**Measurement range** : 30 MHz-40 GHz  
**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.

| Test                           | Span                                    | RBW                 | VBW              | Sweep time | Detector                    | Trace       | Instrument used and Test method              |
|--------------------------------|-----------------------------------------|---------------------|------------------|------------|-----------------------------|-------------|----------------------------------------------|
| 26 dB Bandwidth                | Enough to capture the emission          | Close to 1 % of EBW | > RBW            | Auto       | Peak                        | Max Hold    | Spectrum Analyzer                            |
| 99 % Occupied Bandwidth        | Enough width to display emission skirts | 1 % to 5 % of OBW   | $\geq 3$ RBW     | Auto       | Sample                      | Max Hold    | Spectrum Analyzer                            |
| 20 dB Bandwidth                | Enough to capture the emission          | 430 kHz             | 1.3 MHz          | Auto       | Peak                        | Max Hold    | Spectrum Analyzer                            |
| 6 dB Bandwidth                 | Enough to capture the emission          | 100 kHz             | 300 kHz          | Auto       | Peak                        | Max Hold    | Spectrum Analyzer                            |
| Maximum Conducted Output Power | -                                       | -                   | -                | Auto       | Average                     | -           | Power Meter (Sensor: 160 MHz BW) (Method PM) |
| Maximum Power Spectral Density | Encompass the entire EBW                | 1 MHz *1)           | $\geq 3$ RBW     | Auto       | Power Averaging (100 times) | Clear Write | Spectrum Analyzer                            |
| Conducted Spurious Emission*2) | 9 kHz – 150 kHz<br>150 kHz – 30 MHz     | 200 Hz<br>10 kHz    | 620 Hz<br>30 kHz | Auto       | Peak                        | Max Hold    | Spectrum Analyzer                            |

\* 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) FCC standard says that RBW is set to be 500 kHz for 5.725 GHz-5.850 GHz, but it is not possible with spectrum analyzer, so  $10\log(500\text{ kHz}/470\text{ kHz})$  was added to the test result.

\*2) In the frequency range below 30 MHz, RBW was narrowed to separate the noise contents.

Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart. (9 kHz-150 kHz: RBW = 200 Hz, 150 kHz-30 MHz: RBW = 10 kHz)

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. Shonan EMC Lab. No.2 Shielded Room  
Date : 2015/11/26

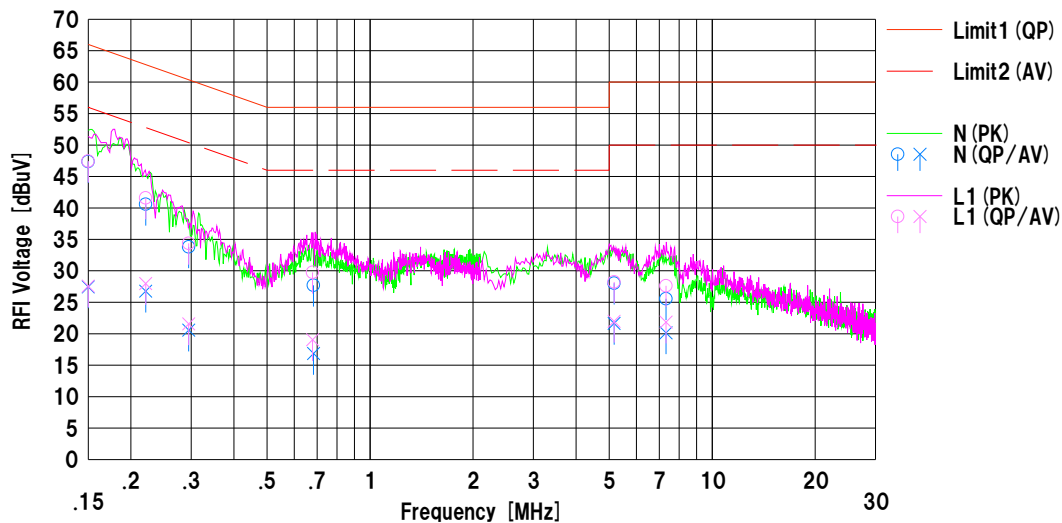
Mode : Tx, 11n HT40, 5230 MHz

Power : AC 120 V / 60 Hz  
Temp./Humi. : 23 deg.C / 34 %RH

Remarks : Ant.cable: 400 mm

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Kenichi Adachi



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|-------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |       | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.15000        | 34.84          | 14.94          | 12.51 | 47.35          | 27.45          | 66.00          | 56.00          | 18.6         | 28.5         | N     |         |
| 2   | 0.22078        | 28.06          | 14.24          | 12.53 | 40.59          | 26.77          | 62.79          | 52.79          | 22.2         | 26.0         | N     |         |
| 3   | 0.29504        | 21.26          | 8.04           | 12.53 | 33.79          | 20.57          | 60.38          | 50.38          | 26.5         | 29.8         | N     |         |
| 4   | 0.68332        | 15.10          | 4.26           | 12.60 | 27.70          | 16.86          | 56.00          | 46.00          | 28.3         | 29.1         | N     |         |
| 5   | 5.16852        | 15.12          | 8.74           | 12.90 | 28.02          | 21.64          | 60.00          | 50.00          | 31.9         | 28.3         | N     |         |
| 6   | 7.32790        | 12.55          | 7.14           | 13.01 | 25.56          | 20.15          | 60.00          | 50.00          | 34.4         | 29.8         | N     |         |
| 7   | 0.15000        | 34.94          | 15.06          | 12.51 | 47.45          | 27.57          | 66.00          | 56.00          | 18.5         | 28.4         | L1    |         |
| 8   | 0.22078        | 29.05          | 15.46          | 12.53 | 41.58          | 27.99          | 62.79          | 52.79          | 21.2         | 24.8         | L1    |         |
| 9   | 0.29504        | 21.85          | 9.05           | 12.53 | 34.38          | 21.58          | 60.38          | 50.38          | 26.0         | 28.8         | L1    |         |
| 10  | 0.67879        | 17.16          | 6.46           | 12.60 | 29.76          | 19.06          | 56.00          | 46.00          | 26.2         | 26.9         | L1    |         |
| 11  | 5.16852        | 15.34          | 9.08           | 12.90 | 28.24          | 21.98          | 60.00          | 50.00          | 31.7         | 28.0         | L1    |         |
| 12  | 7.32790        | 14.61          | 8.84           | 13.01 | 27.62          | 21.85          | 60.00          | 50.00          | 32.3         | 28.1         | L1    |         |

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]  
LISN: SLS-03 (US)

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## Conducted Emission DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.2 Shielded Room  
Date : 2015/11/26

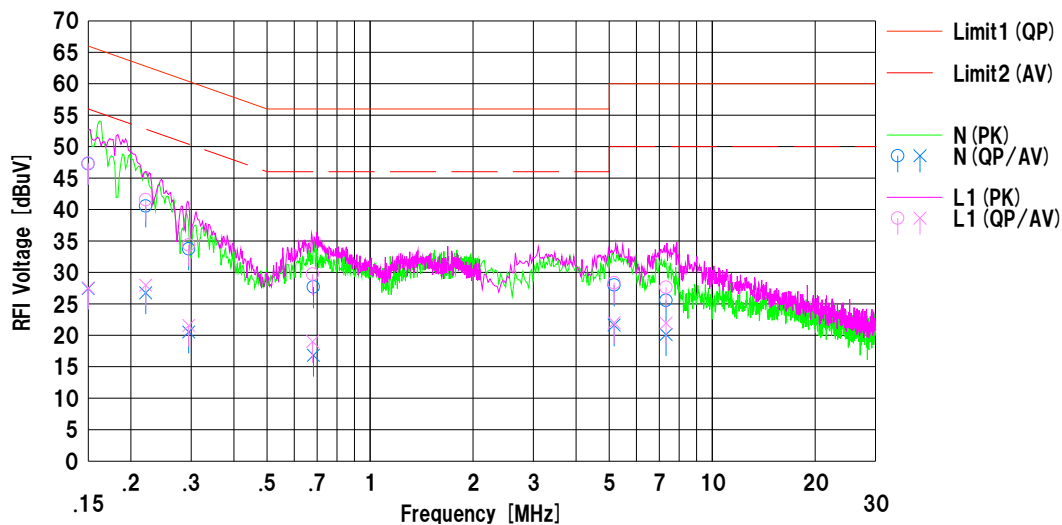
Mode : Tx, 11n HT40, 5230 MHz

Power : AC 120 V / 60 Hz  
Temp./Humi. : 23 deg.C / 34 %RH

Remarks : Ant.cable: 199 mm

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Kenichi Adachi



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|-------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |       | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.15000        | 34.77          | 14.92          | 12.51 | 47.28          | 27.43          | 66.00          | 56.00          | 18.7         | 28.5         | N     |         |
| 2   | 0.22084        | 28.02          | 14.21          | 12.53 | 40.55          | 26.74          | 62.79          | 52.79          | 22.2         | 26.0         | N     |         |
| 3   | 0.29509        | 21.22          | 8.00           | 12.53 | 33.75          | 20.53          | 60.38          | 50.38          | 26.6         | 29.8         | N     |         |
| 4   | 0.68305        | 15.08          | 4.22           | 12.60 | 27.68          | 16.82          | 56.00          | 46.00          | 28.3         | 29.1         | N     |         |
| 5   | 5.16854        | 15.11          | 8.72           | 12.90 | 28.01          | 21.62          | 60.00          | 50.00          | 31.9         | 28.3         | N     |         |
| 6   | 7.32865        | 12.54          | 7.11           | 13.01 | 25.55          | 20.12          | 60.00          | 50.00          | 34.4         | 29.8         | N     |         |
| 7   | 0.15000        | 34.84          | 15.02          | 12.51 | 47.35          | 27.53          | 66.00          | 56.00          | 18.6         | 28.4         | L1    |         |
| 8   | 0.22084        | 29.02          | 15.44          | 12.53 | 41.55          | 27.97          | 62.79          | 52.79          | 21.2         | 24.8         | L1    |         |
| 9   | 0.29509        | 21.82          | 9.03           | 12.53 | 34.35          | 21.56          | 60.38          | 50.38          | 26.0         | 28.8         | L1    |         |
| 10  | 0.67880        | 17.11          | 6.42           | 12.60 | 29.71          | 19.02          | 56.00          | 46.00          | 26.2         | 26.9         | L1    |         |
| 11  | 5.16854        | 15.44          | 9.12           | 12.90 | 28.34          | 22.02          | 60.00          | 50.00          | 31.6         | 27.9         | L1    |         |
| 12  | 7.32865        | 14.62          | 8.93           | 13.01 | 27.63          | 21.94          | 60.00          | 50.00          | 32.3         | 28.0         | L1    |         |

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]  
LISN: SLS-03 (US)

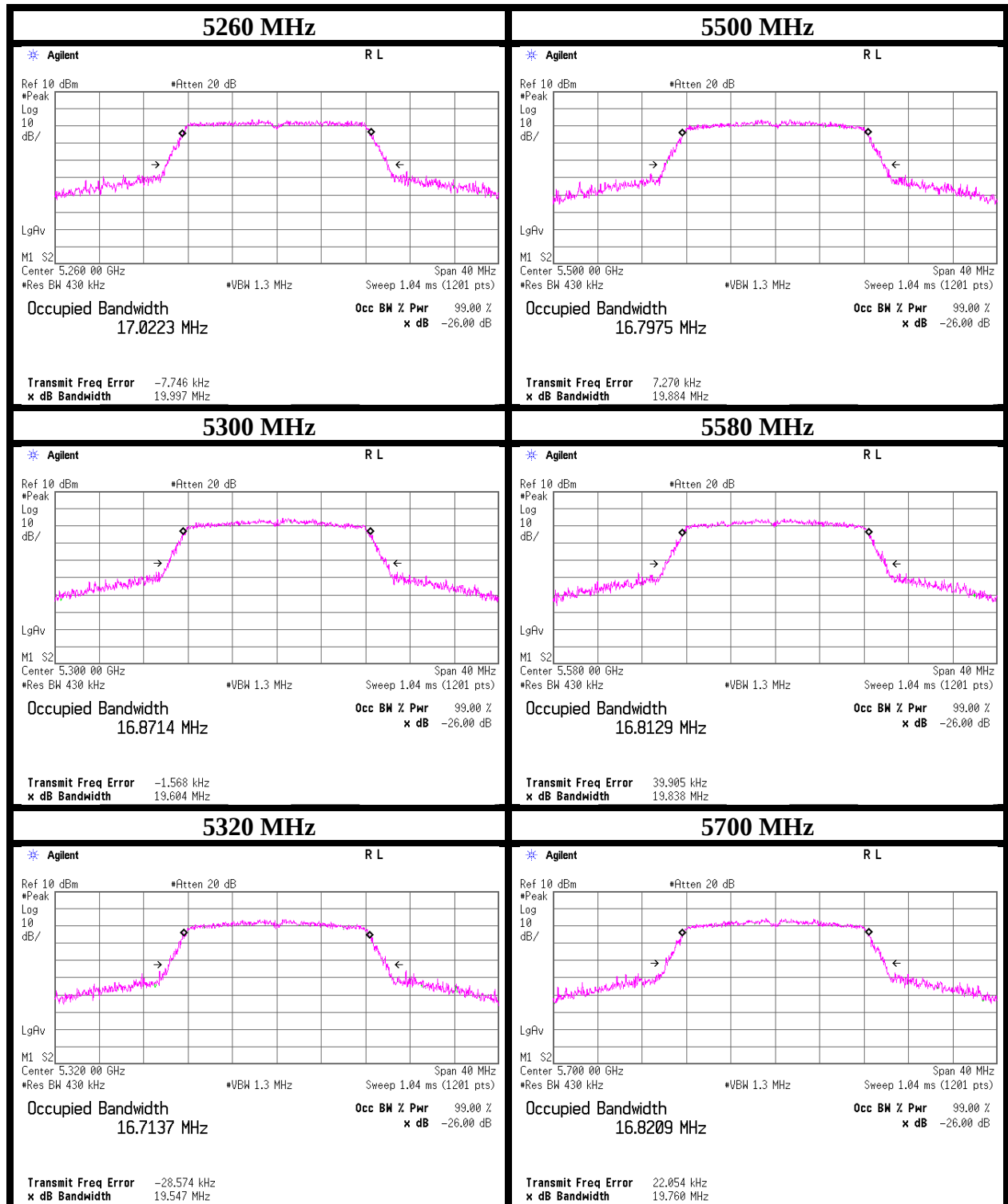
## **26 dB Emission Bandwidth and 99 % Occupied Bandwidth**

Test place Shonan EMC Lab. No.5 Shielded Room  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature / Humidity 24deg. C / 53 % RH  
Engineer Tomohiro Hara  
Mode Tx 11a

| Tested<br>Frequency<br>[MHz] | 26 dB Emission<br>Bandwidth<br>[MHz] | 99 % Occupied<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|------------------------------|--------------------------------------|-------------------------------------|----------------|
| 5180                         | -                                    | 17.064                              | -              |
| 5220                         | -                                    | 16.966                              | -              |
| 5240                         | -                                    | 16.763                              | -              |
| 5260                         | 19.997                               | 17.193                              | -              |
| 5300                         | 19.604                               | 16.892                              | -              |
| 5320                         | 19.547                               | 16.938                              | -              |
| 5500                         | 19.884                               | 16.881                              | -              |
| 5580                         | 19.838                               | 16.838                              | -              |
| 5700                         | 19.760                               | 16.769                              | -              |
| 5745                         | -                                    | 16.917                              | -              |
| 5785                         | -                                    | 16.867                              | -              |
| 5825                         | -                                    | 17.119                              | -              |

## 26 dB Emission Bandwidth

11a



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Shonan EMC Lab.

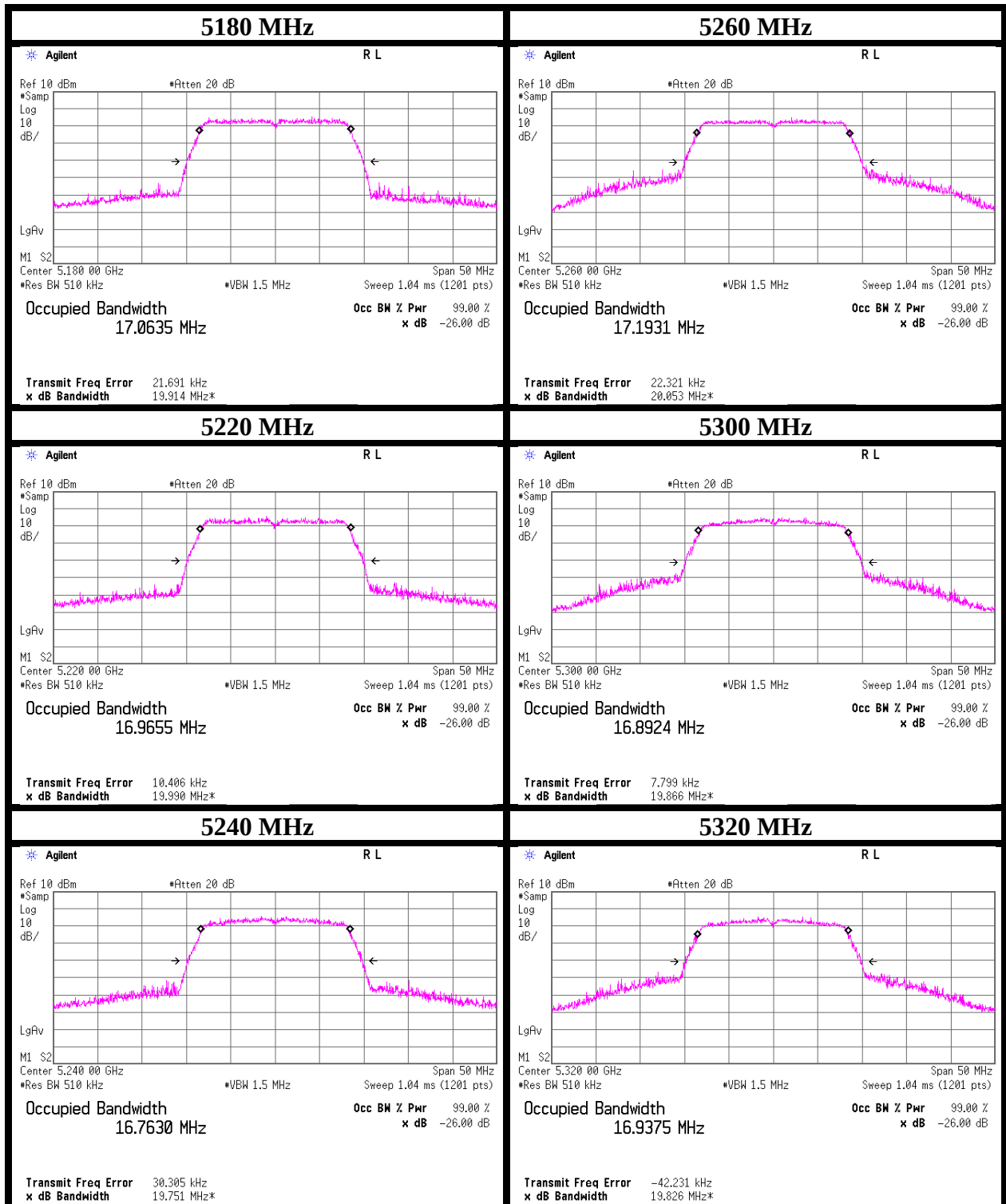
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## 99 % Occupied Bandwidth

11a



**UL Japan, Inc.**

**Shonan EMC Lab.**

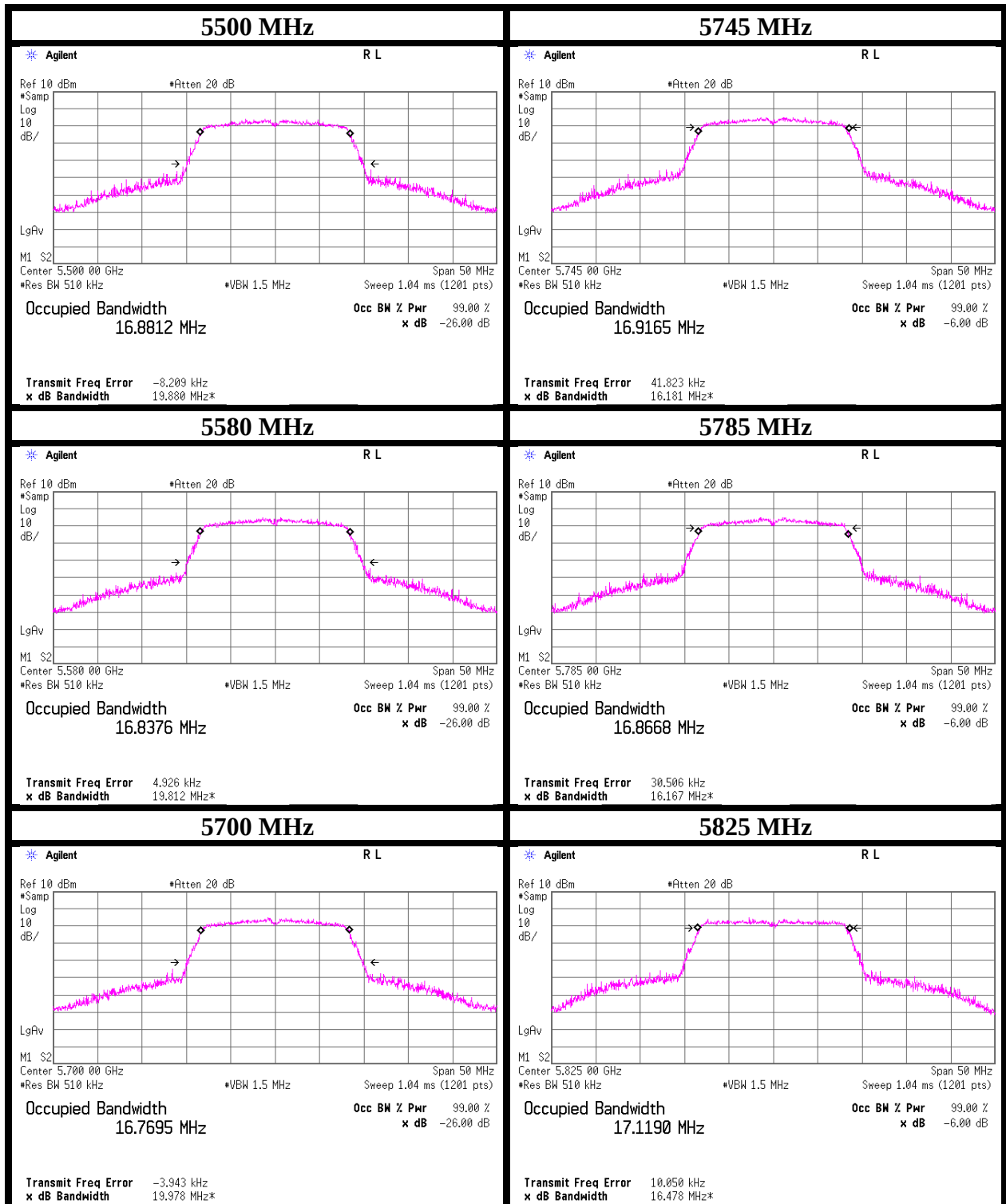
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Facsimile : +81 463 50 6401

## 99 % Occupied Bandwidth

11a



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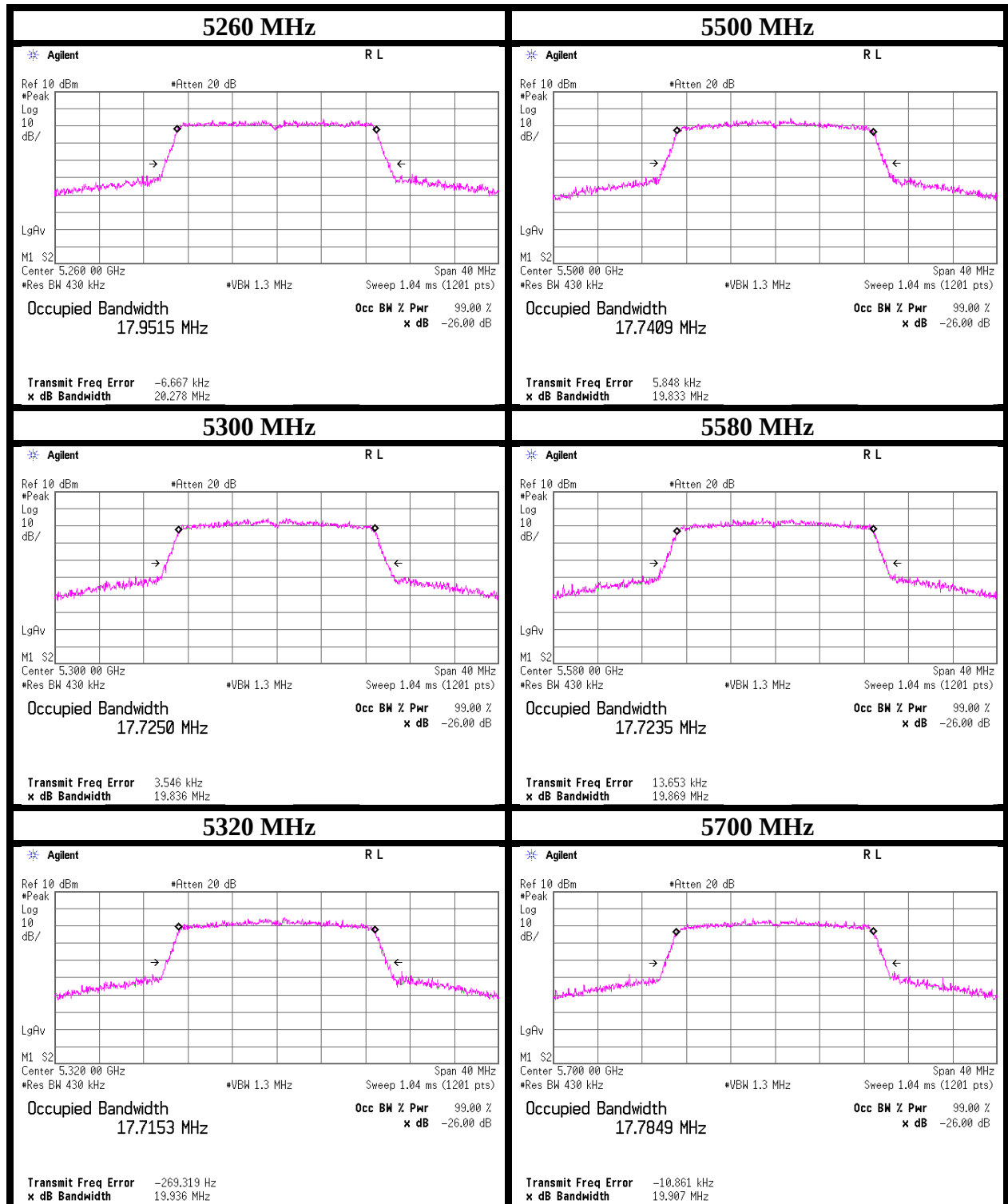
## **26 dB Emission Bandwidth and 99 % Occupied Bandwidth**

Test place Shonan EMC Lab. No.5 Shielded Room  
Report No. 11014760S-C-R2  
Date November 20, 2015  
Temperature / Humidity 25deg. C / 44 % RH  
Engineer Tomohiro Hara  
Mode Tx 11n-20

| Tested<br>Frequency<br>[MHz] | 26 dB Emission<br>Bandwidth<br>[MHz] | 99 % Occupied<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|------------------------------|--------------------------------------|-------------------------------------|----------------|
| 5180                         | -                                    | 17.985                              | -              |
| 5220                         | -                                    | 17.993                              | -              |
| 5240                         | -                                    | 17.827                              | -              |
| 5260                         | 20.278                               | 17.995                              | -              |
| 5300                         | 19.836                               | 17.815                              | -              |
| 5320                         | 19.936                               | 17.813                              | -              |
| 5500                         | 19.833                               | 17.770                              | -              |
| 5580                         | 19.869                               | 17.835                              | -              |
| 5700                         | 19.907                               | 17.754                              | -              |
| 5745                         | -                                    | 17.796                              | -              |
| 5785                         | -                                    | 17.785                              | -              |
| 5825                         | -                                    | 18.027                              | -              |

## 26 dB Emission Bandwidth

11n-20



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Shonan EMC Lab.

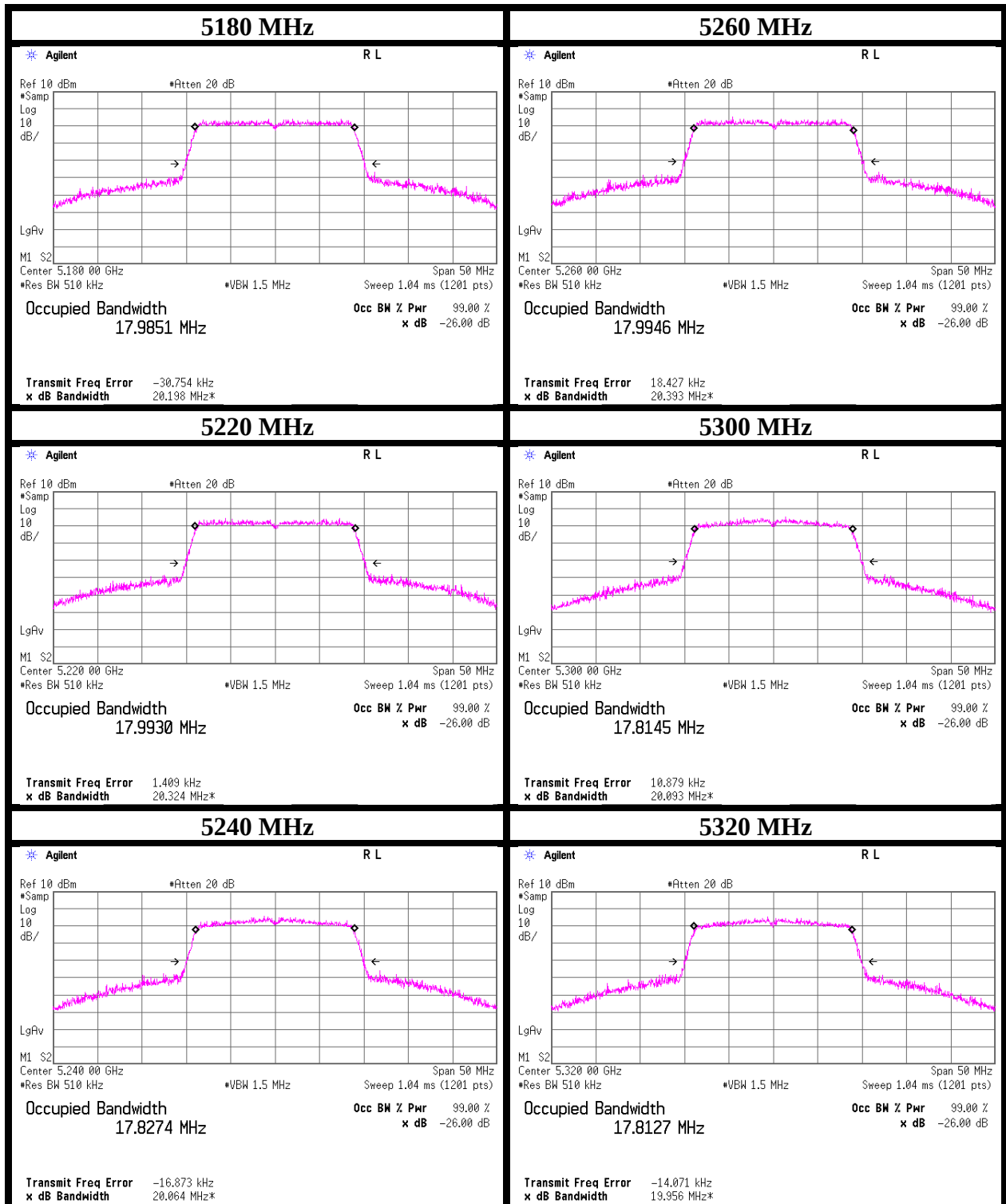
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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## 99 % Occupied Bandwidth

11n-20



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**Shonan EMC Lab.**

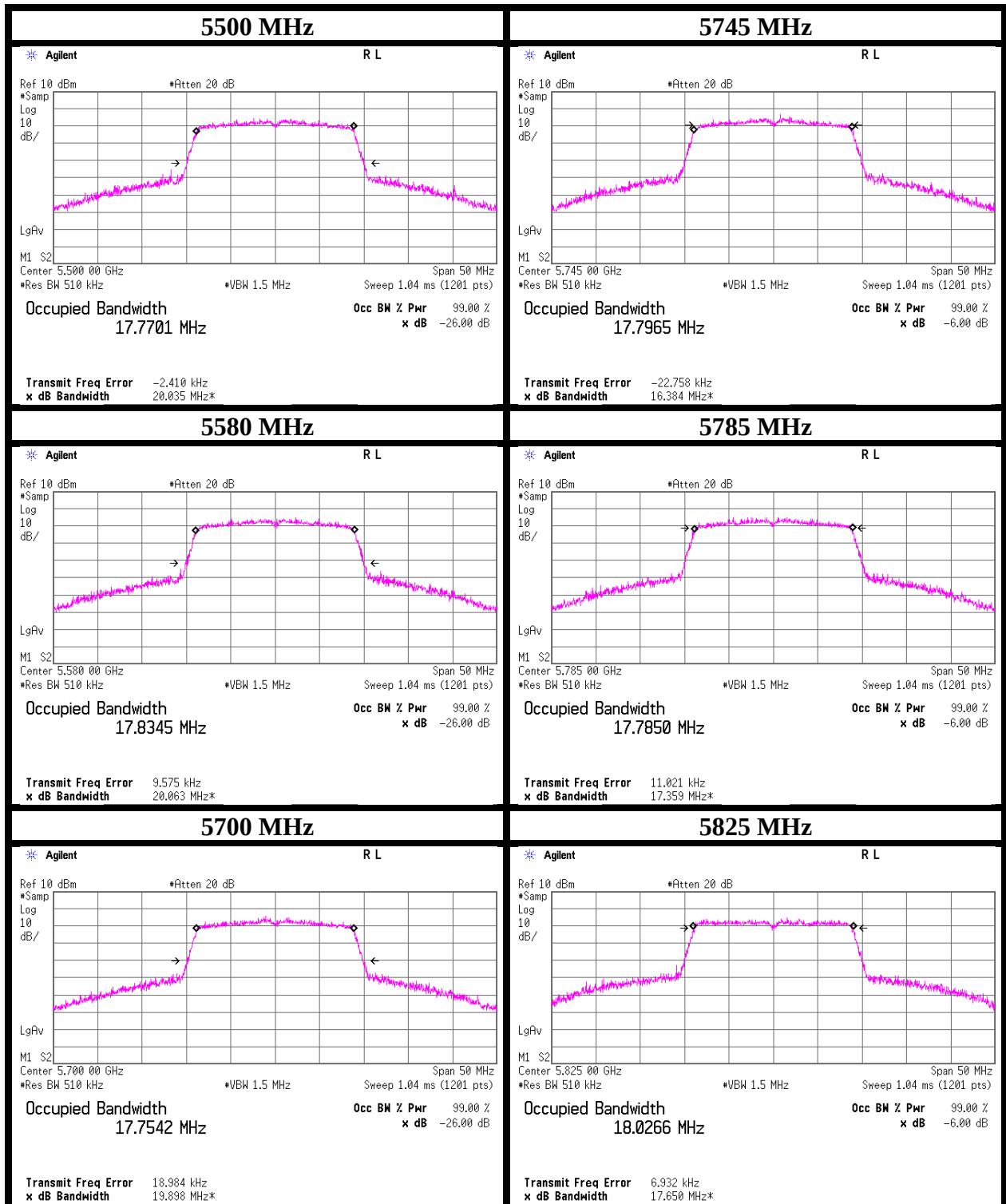
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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## 99 % Occupied Bandwidth

11n-20



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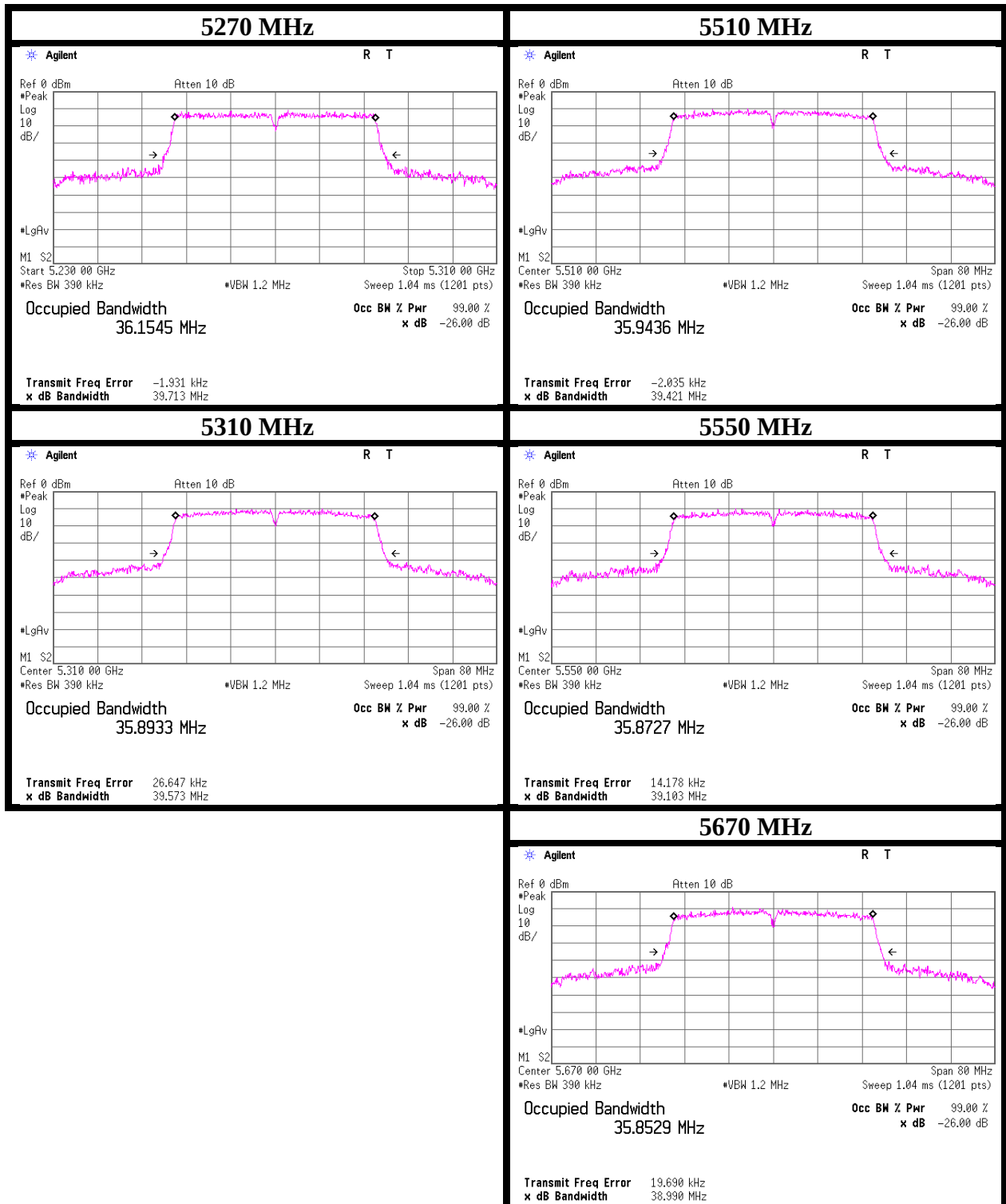
## **26 dB Emission Bandwidth and 99 % Occupied Bandwidth**

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 25, 2015  
Temperature / Humidity : 20deg. C / 44 % RH  
Engineer : Wataru Kojima  
Mode : Tx 11n-40

| Tested<br>Frequency<br>[MHz] | 26 dB Emission<br>Bandwidth<br>[MHz] | 99 % Occupied<br>Bandwidth<br>[MHz] | Limit<br>[MHz] |
|------------------------------|--------------------------------------|-------------------------------------|----------------|
| 5190                         | -                                    | 36.462                              | -              |
| 5230                         | -                                    | 36.064                              | -              |
| 5270                         | 39.713                               | 36.381                              | -              |
| 5310                         | 39.573                               | 36.096                              | -              |
| 5510                         | 39.421                               | 36.156                              | -              |
| 5550                         | 39.103                               | 36.018                              | -              |
| 5670                         | 38.990                               | 36.130                              | -              |
| 5755                         | -                                    | 36.018                              | -              |
| 5795                         | -                                    | 36.230                              | -              |

## 26 dB Emission Bandwidth

11n-40



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Shonan EMC Lab.

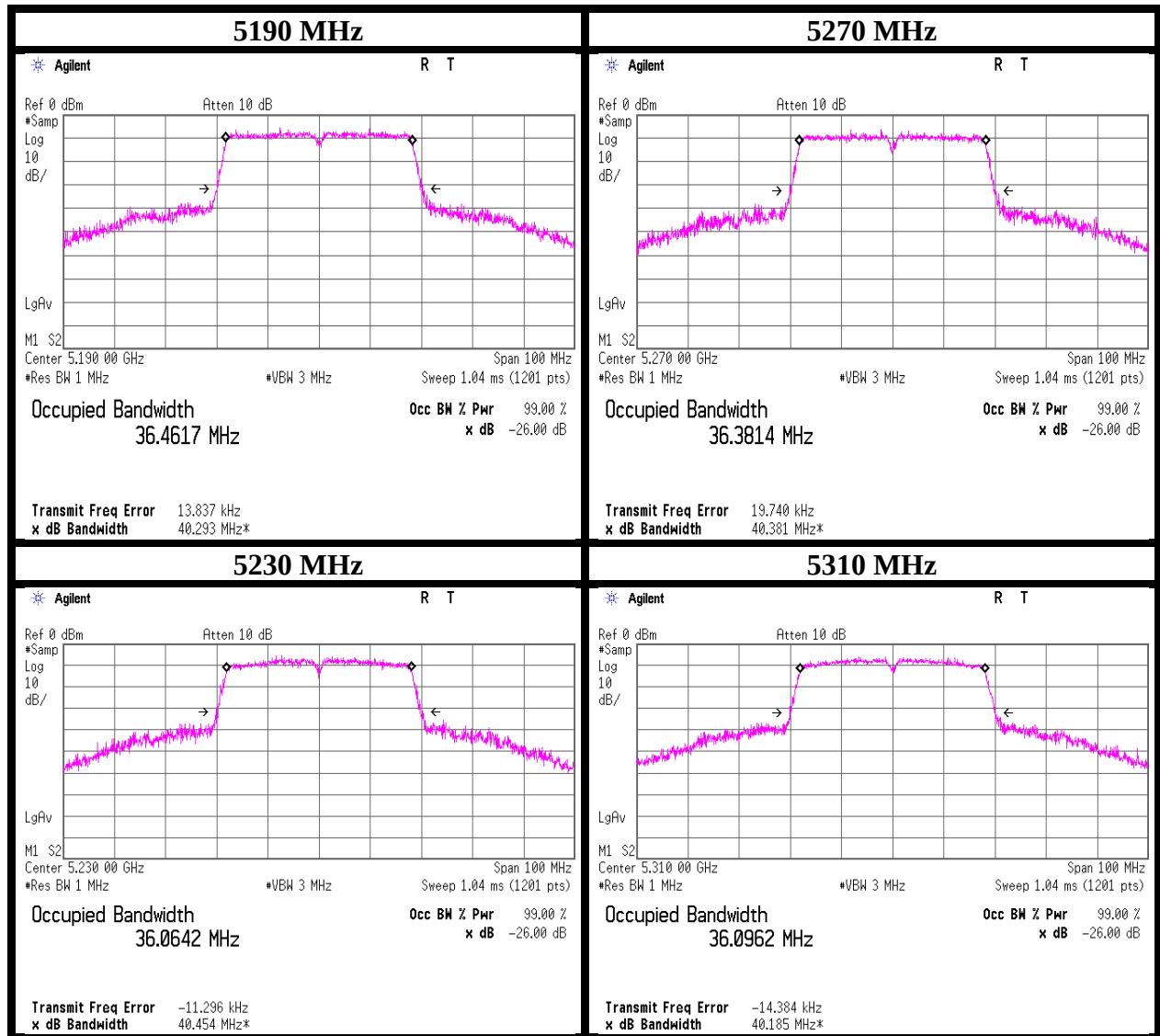
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

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## 99 % Occupied Bandwidth

11n-40



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Shonan EMC Lab.

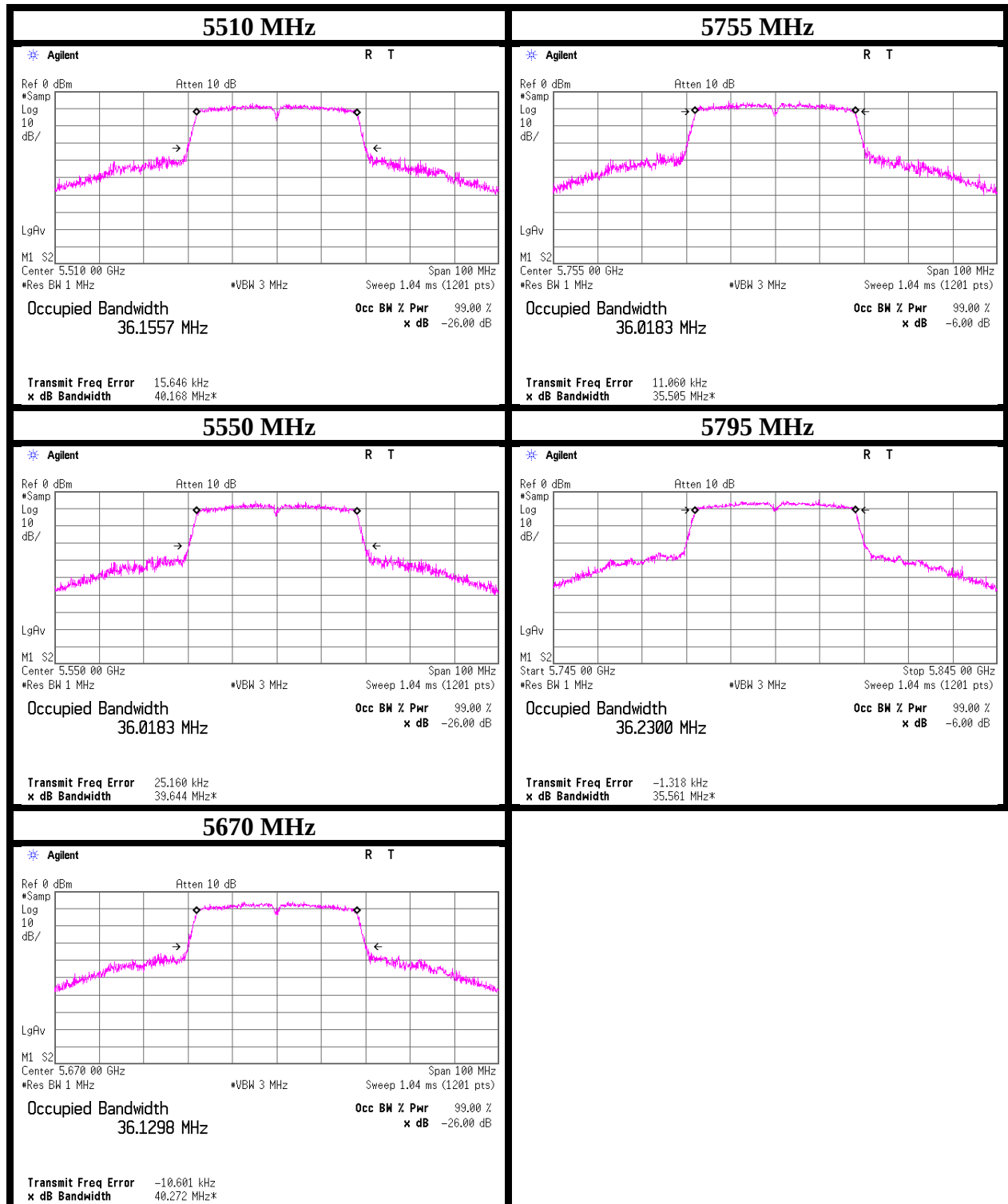
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## 99 % Occupied Bandwidth

11n-40



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Telephone : +81 463 50 6400

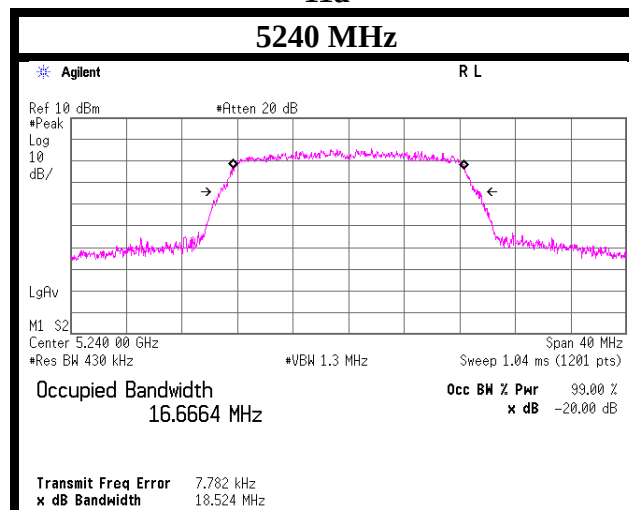
Facsimile : +81 463 50 6401

## 20 dB Bandwidth

Test place Shonan EMC Lab. No.5 Shielded Room  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature / Humidity 24deg. C / 53 % RH  
Engineer Tomohiro Hara  
Mode Tx 11a

| Tested<br>Frequency<br>[MHz] | 20 dB Emission<br>Bandwidth<br>[MHz] |
|------------------------------|--------------------------------------|
| 5240                         | 18.524                               |

11a



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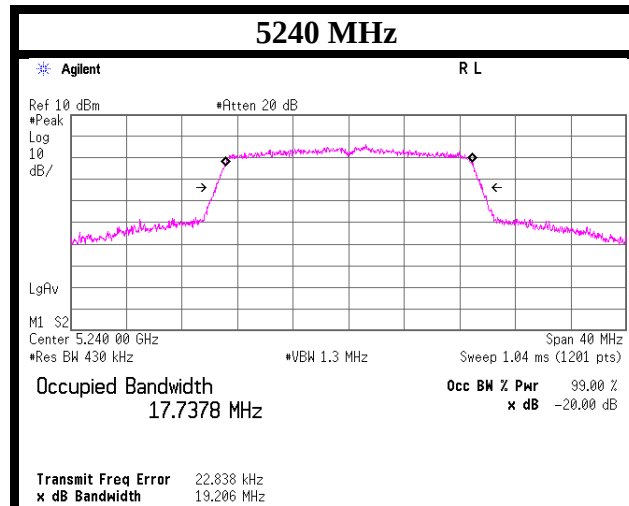
Facsimile : +81 463 50 6401

## 20 dB Bandwidth

Test place Shonan EMC Lab. No.5 Shielded Room  
Report No. 11014760S-C-R2  
Date November 20, 2015  
Temperature / Humidity 25deg. C / 44 % RH  
Engineer Tomohiro Hara  
Mode Tx 11n-20

| Tested<br>Frequency<br>[MHz] | 20 dB Emission<br>Bandwidth<br>[MHz] |
|------------------------------|--------------------------------------|
| 5240                         | 19.206                               |

## 11n-20

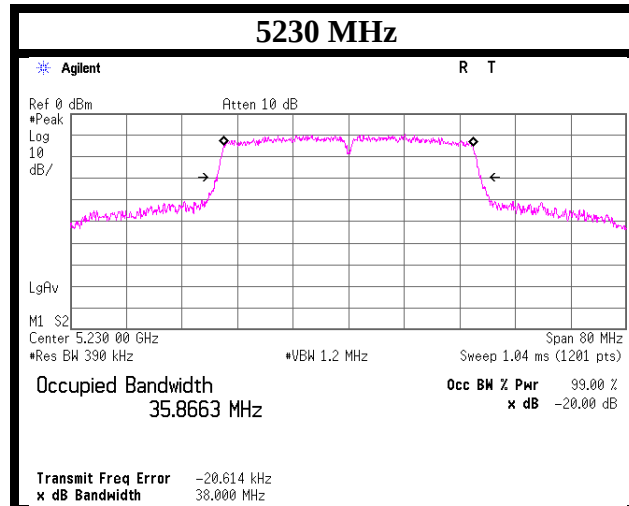


## 20 dB Bandwidth

Test place Shonan EMC Lab. No.5 Shielded Room  
Report No. 11014760S-C-R2  
Date November 25, 2015  
Temperature / Humidity 20deg. C / 44 % RH  
Engineer Wataru Kojima  
Mode Tx 11n-40

| Tested<br>Frequency<br>[MHz] | 20 dB Emission<br>Bandwidth<br>[MHz] |
|------------------------------|--------------------------------------|
| 5230                         | 38.000                               |

## 11n-40



### **6 dB Bandwidth**

Test place Shonan EMC Lab. No.5 Shielded Room  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature / Humidity 24deg. C / 53 % RH  
Engineer Tomohiro Hara  
Mode Tx 11a

| Tested<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[kHz] |
|------------------------------|----------------------------|----------------|
| 5745                         | 15.168                     | > 500          |
| 5785                         | 15.348                     | > 500          |
| 5825                         | 16.380                     | > 500          |

Test place Shonan EMC Lab. No.5 Shielded Room  
Report No. 11014760S-C-R2  
Date November 20, 2015  
Temperature / Humidity 25deg. C / 44 % RH  
Engineer Tomohiro Hara  
Mode Tx 11n-20

| Tested<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[kHz] |
|------------------------------|----------------------------|----------------|
| 5745                         | 15.195                     | > 500          |
| 5785                         | 15.045                     | > 500          |
| 5825                         | 17.660                     | > 500          |

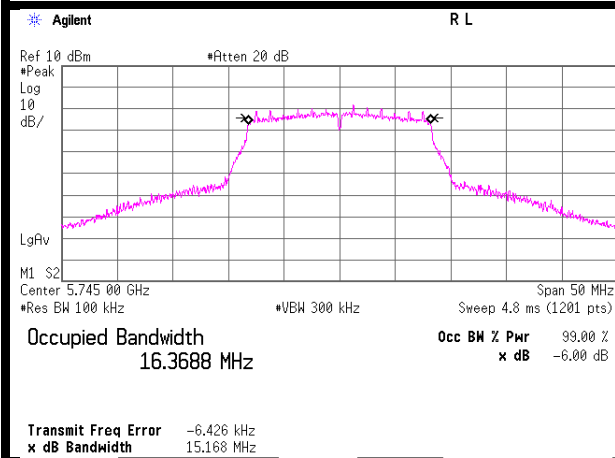
Test place Shonan EMC Lab. No.5 Shielded Room  
Report No. 11014760S-C-R2  
Date November 25, 2015  
Temperature / Humidity 20deg. C / 44 % RH  
Engineer Wataru Kojima  
Mode Tx 11n-40

| Tested<br>Frequency<br>[MHz] | 6 dB<br>Bandwidth<br>[MHz] | Limit<br>[kHz] |
|------------------------------|----------------------------|----------------|
| 5755                         | 35.259                     | > 500          |
| 5795                         | 35.258                     | > 500          |

## 6 dB Bandwidth

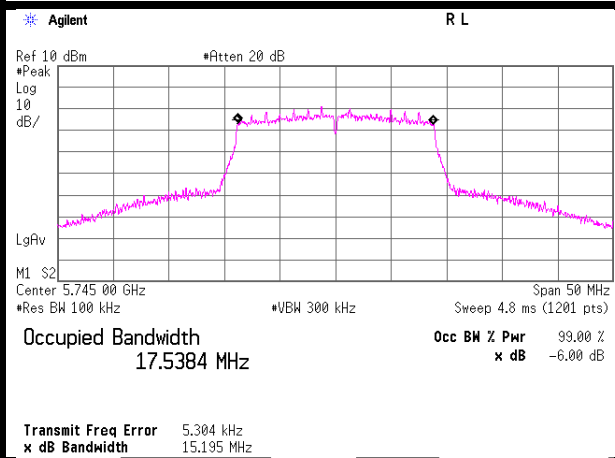
11a

5745 MHz

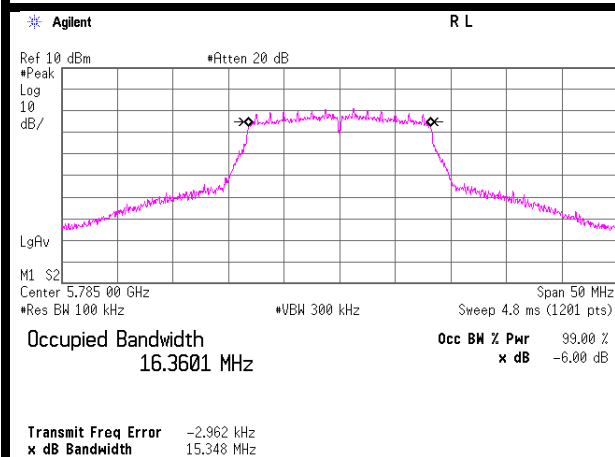


11n-20

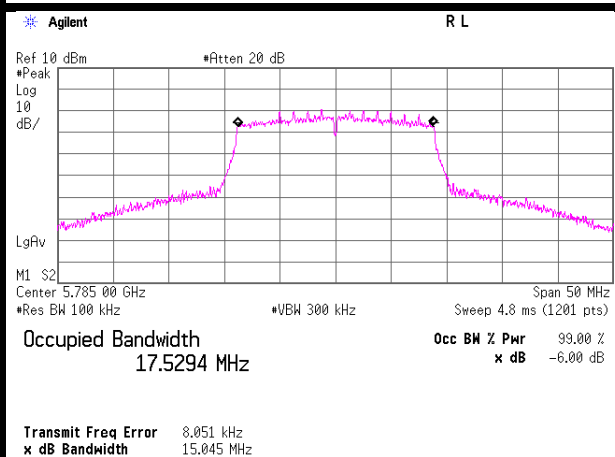
5745 MHz



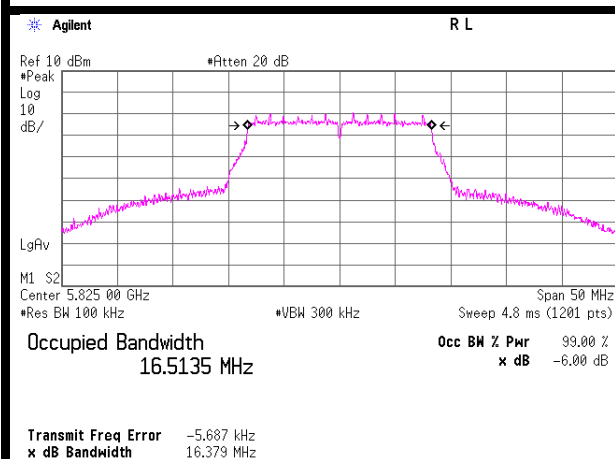
5785 MHz



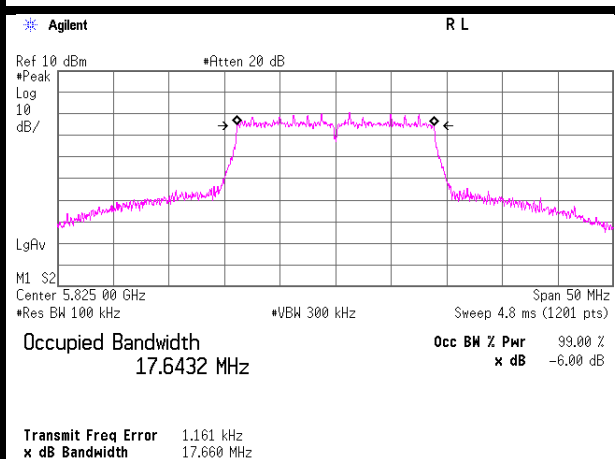
5785 MHz



5825 MHz



5825 MHz



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Shonan EMC Lab.

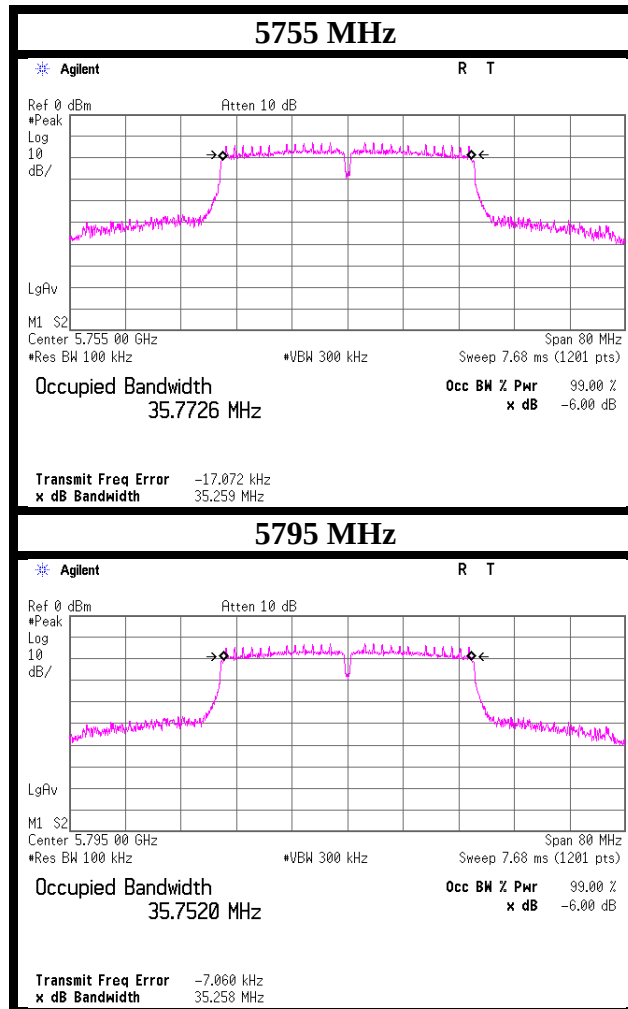
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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## 6 dB Bandwidth

11n-40



UL Japan, Inc.

Shonan EMC Lab.

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Telephone : +81 463 50 6400

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## Maximum Conducted Output Power

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 1, 2015  
Temperature / Humidity : 23 deg. C / 39 % RH  
Engineer : Yosuke Ishikawa  
Mode : Tx 11a

Applied limit: 15.407, mobile and portable client device

| Tested Frequency<br>[MHz] | Power Meter Reading<br>[dBm] | Cable Loss<br>[dB] | Atten. Loss<br>[dB] | Duty Factor<br>[dB] | Antenna Gain<br>[dBi] | 26 dB EBW<br>(B for FCC)<br>[MHz] | 99% OBW<br>(B for 1C)<br>[MHz] | Conducted Power |       |        |       | e.i.r.p. |       |        |       |
|---------------------------|------------------------------|--------------------|---------------------|---------------------|-----------------------|-----------------------------------|--------------------------------|-----------------|-------|--------|-------|----------|-------|--------|-------|
|                           |                              |                    |                     |                     |                       |                                   |                                | Result          | Limit | Margin |       | Result   | Limit | Margin |       |
|                           |                              |                    |                     |                     |                       |                                   |                                | [dBm]           | [mW]  | [dBm]  | [dB]  | [dBm]    | [mW]  | [dBm]  | [dB]  |
| 5180                      | -0.69                        | 2.45               | 9.97                | 1.32                | -2.06                 | -                                 | 17.064                         | 13.04           | 20.16 | 23.97  | 10.93 | 10.98    | 12.54 | 29.97  | 18.99 |
| 5220                      | -0.57                        | 2.45               | 9.97                | 1.32                | -2.06                 | -                                 | 16.966                         | 13.16           | 20.72 | 23.97  | 10.81 | 11.10    | 12.90 | 29.97  | 18.87 |
| 5240                      | -0.34                        | 2.44               | 9.97                | 1.32                | -2.06                 | -                                 | 16.763                         | 13.39           | 21.83 | 23.97  | 10.58 | 11.33    | 13.58 | 29.97  | 18.64 |
| 5260                      | -0.56                        | 2.44               | 9.97                | 1.32                | -0.99                 | 19.997                            | 17.193                         | 13.17           | 20.73 | 23.97  | 10.80 | 12.18    | 16.50 | 29.97  | 17.79 |
| 5300                      | -0.75                        | 2.44               | 9.97                | 1.32                | -0.99                 | 19.604                            | 16.892                         | 12.98           | 19.84 | 23.92  | 10.94 | 11.99    | 15.80 | 29.97  | 17.98 |
| 5320                      | -0.71                        | 2.43               | 9.97                | 1.32                | -0.99                 | 19.547                            | 16.938                         | 13.01           | 20.00 | 23.91  | 10.90 | 12.02    | 15.92 | 29.97  | 17.95 |
| 5500                      | -0.94                        | 2.42               | 9.96                | 1.32                | -0.01                 | 19.884                            | 16.881                         | 12.76           | 18.87 | 23.97  | 11.21 | 12.75    | 18.82 | 29.97  | 17.22 |
| 5580                      | -0.65                        | 2.45               | 9.96                | 1.32                | -0.01                 | 19.838                            | 16.838                         | 13.08           | 20.31 | 23.97  | 10.89 | 13.07    | 20.26 | 29.97  | 16.90 |
| 5700                      | -0.86                        | 2.49               | 9.97                | 1.32                | -0.01                 | 19.760                            | 16.769                         | 12.92           | 19.58 | 23.95  | 11.03 | 12.91    | 19.54 | 29.97  | 17.06 |
| 5745                      | -0.85                        | 2.50               | 9.97                | 1.32                | -0.95                 | -                                 | -                              | 12.94           | 19.68 | 30.00  | 17.06 | 11.99    | 15.81 | 36.00  | 24.01 |
| 5785                      | -0.85                        | 2.51               | 9.97                | 1.32                | -0.95                 | -                                 | -                              | 12.95           | 19.72 | 30.00  | 17.05 | 12.00    | 15.85 | 36.00  | 24.00 |
| 5825                      | -0.74                        | 2.53               | 9.97                | 1.32                | -0.95                 | -                                 | -                              | 13.08           | 20.32 | 30.00  | 16.92 | 12.13    | 16.33 | 36.00  | 23.87 |

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

## Maximum Conducted Output Power

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 1, 2015  
Temperature / Humidity : 23 deg. C / 39 % RH  
Engineer : Yosuke Ishikawa  
Mode : Tx 11n-20

Applied limit: 15.407, mobile and portable client device

| Tested Frequency<br>[MHz] | Power Meter Reading<br>[dBm] | Cable Loss<br>[dB] | Atten. Loss<br>[dB] | Duty Factor<br>[dB] | Antenna Gain<br>[dBi] | 26 dB EBW<br>(B for FCC)<br>[MHz] | 99% OBW<br>(B for 1C)<br>[MHz] | Conducted Power |       |        |       | e.i.r.p. |       |        |       |
|---------------------------|------------------------------|--------------------|---------------------|---------------------|-----------------------|-----------------------------------|--------------------------------|-----------------|-------|--------|-------|----------|-------|--------|-------|
|                           |                              |                    |                     |                     |                       |                                   |                                | Result          | Limit | Margin |       | Result   | Limit | Margin |       |
|                           |                              |                    |                     |                     |                       |                                   |                                | [dBm]           | [mW]  | [dBm]  | [dB]  | [dBm]    | [mW]  | [dBm]  | [dB]  |
| 5180                      | -0.80                        | 2.45               | 9.97                | 1.37                | -2.06                 | -                                 | 17.985                         | 12.98           | 19.88 | 23.97  | 10.99 | 10.92    | 12.37 | 29.97  | 19.05 |
| 5220                      | -0.66                        | 2.45               | 9.97                | 1.37                | -2.06                 | -                                 | 17.993                         | 13.12           | 20.53 | 23.97  | 10.85 | 11.06    | 12.78 | 29.97  | 18.91 |
| 5240                      | -0.40                        | 2.44               | 9.97                | 1.37                | -2.06                 | -                                 | 17.827                         | 13.38           | 21.77 | 23.97  | 10.59 | 11.32    | 13.55 | 29.97  | 18.65 |
| 5260                      | -0.66                        | 2.44               | 9.97                | 1.37                | -0.99                 | 20.278                            | 17.995                         | 13.11           | 20.48 | 23.97  | 10.86 | 12.12    | 16.31 | 29.97  | 17.85 |
| 5300                      | -0.75                        | 2.44               | 9.97                | 1.37                | -0.99                 | 19.836                            | 17.815                         | 13.02           | 20.07 | 23.97  | 10.95 | 12.03    | 15.97 | 29.97  | 17.94 |
| 5320                      | -0.89                        | 2.43               | 9.97                | 1.37                | -0.99                 | 19.936                            | 17.813                         | 12.88           | 19.41 | 23.97  | 11.09 | 11.89    | 15.45 | 29.97  | 18.08 |
| 5500                      | -1.20                        | 2.42               | 9.96                | 1.37                | -0.01                 | 19.833                            | 17.770                         | 12.55           | 17.97 | 23.97  | 11.42 | 12.54    | 17.93 | 29.97  | 17.43 |
| 5580                      | -0.75                        | 2.45               | 9.96                | 1.37                | -0.01                 | 19.869                            | 17.835                         | 13.03           | 20.07 | 23.97  | 10.94 | 13.02    | 20.03 | 29.97  | 16.95 |
| 5700                      | -0.85                        | 2.49               | 9.97                | 1.37                | -0.01                 | 19.907                            | 17.754                         | 12.98           | 19.85 | 23.97  | 10.99 | 12.97    | 19.80 | 29.97  | 17.00 |
| 5745                      | -0.92                        | 2.50               | 9.97                | 1.37                | -0.95                 | -                                 | -                              | 12.92           | 19.58 | 30.00  | 17.08 | 11.97    | 15.74 | 36.00  | 24.03 |
| 5785                      | -1.05                        | 2.51               | 9.97                | 1.37                | -0.95                 | -                                 | -                              | 12.80           | 19.05 | 30.00  | 17.20 | 11.85    | 15.31 | 36.00  | 24.15 |
| 5825                      | -0.87                        | 2.53               | 9.97                | 1.37                | -0.95                 | -                                 | -                              | 13.00           | 19.95 | 30.00  | 17.00 | 12.05    | 16.03 | 36.00  | 23.95 |

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

## Maximum Conducted Output Power

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 1, 2015  
Temperature / Humidity : 23 deg. C / 39 % RH  
Engineer : Yosuke Ishikawa  
Mode : Tx 11n-40

Applied limit: 15.407, mobile and portable client device

| Tested Frequency<br>[MHz] | Power Meter Reading<br>[dBm] | Cable Loss<br>[dB] | Atten. Loss<br>[dB] | Duty Factor<br>[dB] | Antenna Gain<br>[dBi] | 26 dB EBW<br>(B for FCC)<br>[MHz] | 99% OBW<br>(B for 1C)<br>[MHz] | Conducted Power |       |        |       | e.i.r.p. |       |        |       |
|---------------------------|------------------------------|--------------------|---------------------|---------------------|-----------------------|-----------------------------------|--------------------------------|-----------------|-------|--------|-------|----------|-------|--------|-------|
|                           |                              |                    |                     |                     |                       |                                   |                                | Result          | Limit | Margin |       | Result   | Limit | Margin |       |
|                           |                              |                    |                     |                     |                       |                                   |                                | [dBm]           | [mW]  | [dBm]  | [dB]  | [dBm]    | [mW]  | [dBm]  | [dB]  |
| 5190                      | -1.47                        | 2.45               | 9.97                | 2.33                | -2.06                 | -                                 | 36.462                         | 13.28           | 21.26 | 23.97  | 10.69 | 11.22    | 13.23 | 29.97  | 18.75 |
| -                         | -                            | -                  | -                   | -                   | -                     | -                                 | -                              | -               | -     | -      | -     | -        | -     | -      | -     |
| 5230                      | -1.33                        | 2.44               | 9.97                | 2.33                | -2.06                 | -                                 | 36.064                         | 13.41           | 21.91 | 23.97  | 10.56 | 11.35    | 13.63 | 29.97  | 18.62 |
| 5270                      | -2.19                        | 2.44               | 9.97                | 2.33                | -0.99                 | 39.713                            | 36.381                         | 12.55           | 17.97 | 23.97  | 11.42 | 11.56    | 14.31 | 29.97  | 18.41 |
| -                         | -                            | -                  | -                   | -                   | -                     | -                                 | -                              | -               | -     | -      | -     | -        | -     | -      | -     |
| 5310                      | -1.50                        | 2.44               | 9.97                | 2.33                | -0.99                 | 39.573                            | 36.096                         | 13.24           | 21.07 | 23.97  | 10.73 | 12.25    | 16.78 | 29.97  | 17.72 |
| 5510                      | -1.98                        | 2.42               | 9.96                | 2.33                | -0.01                 | 39.421                            | 36.156                         | 12.73           | 18.73 | 23.97  | 11.24 | 12.72    | 18.69 | 29.97  | 17.25 |
| 5550                      | -1.58                        | 2.45               | 9.96                | 2.33                | -0.01                 | 39.103                            | 36.018                         | 13.16           | 20.68 | 23.97  | 10.81 | 13.15    | 20.64 | 29.97  | 16.82 |
| 5670                      | -1.76                        | 2.49               | 9.97                | 2.33                | -0.01                 | 38.990                            | 36.130                         | 13.03           | 20.08 | 23.97  | 10.94 | 13.02    | 20.03 | 29.97  | 16.95 |
| 5755                      | -1.70                        | 2.51               | 9.97                | 2.33                | -0.95                 | -                                 | 36.018                         | 13.10           | 20.42 | 30.00  | 16.90 | 12.15    | 16.41 | 36.00  | 23.85 |
| -                         | -                            | -                  | -                   | -                   | -                     | -                                 | -                              | -               | -     | -      | -     | -        | -     | -      | -     |
| 5795                      | -1.94                        | 2.52               | 9.97                | 2.33                | -0.95                 | -                                 | 36.230                         | 12.87           | 19.37 | 30.00  | 17.13 | 11.92    | 15.57 | 36.00  | 24.08 |

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

## Maximum Conducted Output Power

|                        |                                    |
|------------------------|------------------------------------|
| Test place             | Shonan EMC Lab. No.5 Shielded Room |
| Report No.             | 11014760S-C-R2                     |
| Date                   | November 1, 2015                   |
| Temperature / Humidity | 23 deg. C / 39 % RH                |
| Engineer               | Yosuke Ishikawa                    |
| Mode                   | Tx                                 |

### 5220 MHz

| Mode   | Rate<br>Mbps | Reading<br>(timed average)<br>[dBm] | Duty<br>factor<br>[dB] | Burst<br>power<br>[dBm] | Remarks |
|--------|--------------|-------------------------------------|------------------------|-------------------------|---------|
| 11a    | 6            | 0.04                                | 0.50                   | 0.54                    |         |
|        | 9            | -0.23                               | 0.68                   | 0.45                    |         |
|        | 12           | -0.25                               | 0.88                   | 0.63                    |         |
|        | 18           | -0.57                               | 1.32                   | 0.75                    | *       |
|        | 24           | -0.98                               | 1.56                   | 0.58                    |         |
|        | 36           | -1.86                               | 2.25                   | 0.39                    |         |
|        | 48           | -2.05                               | 2.70                   | 0.65                    |         |
|        | 54           | -2.44                               | 3.01                   | 0.57                    |         |
| 11n-20 | 0            | -0.06                               | 0.53                   | 0.47                    |         |
|        | 1            | -0.39                               | 0.98                   | 0.59                    |         |
|        | 2            | -0.66                               | 1.37                   | 0.71                    | *       |
|        | 3            | -1.25                               | 1.60                   | 0.35                    |         |
|        | 4            | -1.78                               | 2.25                   | 0.47                    |         |
|        | 5            | -2.00                               | 2.67                   | 0.67                    |         |
|        | 6            | -2.31                               | 2.82                   | 0.51                    |         |
|        | 7            | -2.52                               | 3.03                   | 0.51                    |         |

### 5190 MHz

|        |   |       |      |      |   |
|--------|---|-------|------|------|---|
| 11n-40 | 0 | -0.23 | 0.96 | 0.73 |   |
|        | 1 | -1.06 | 1.76 | 0.70 |   |
|        | 2 | -1.47 | 2.33 | 0.86 | * |
|        | 3 | -2.27 | 2.78 | 0.51 |   |
|        | 4 | -2.81 | 3.45 | 0.64 |   |
|        | 5 | -3.37 | 4.06 | 0.69 |   |
|        | 6 | -3.56 | 4.10 | 0.54 |   |
|        | 7 | -3.65 | 4.31 | 0.66 |   |

\* Worst rate

Sample Calculation:

Burst power = Reading (timed average) + Duty factor

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

## Average Output Power (Reference data for RF Exposure)

|                        |                                    |
|------------------------|------------------------------------|
| Test place             | Shonan EMC Lab. No.5 Shielded Room |
| Report No.             | 11014760S-C-R2                     |
| Date                   | November 1, 2015                   |
| Temperature / Humidity | 23 deg. C / 39 % RH                |
| Engineer               | Yosuke Ishikawa                    |
| Mode                   | Tx                                 |

### 11a

| Tested Frequency<br>[MHz] | Power Meter Reading<br>[dBm] | Cable Loss<br>[dB] | Atten. Loss<br>[dB] | Result<br>(Timed average) |       |
|---------------------------|------------------------------|--------------------|---------------------|---------------------------|-------|
|                           |                              |                    |                     | [dBm]                     | [mW]  |
| 5180                      | -0.69                        | 2.45               | 9.97                | 11.73                     | 14.89 |
| 5220                      | -0.57                        | 2.45               | 9.97                | 11.85                     | 15.30 |
| 5240                      | -0.34                        | 2.44               | 9.97                | 12.07                     | 16.12 |
| 5260                      | -0.56                        | 2.44               | 9.97                | 11.85                     | 15.30 |
| 5300                      | -0.75                        | 2.44               | 9.97                | 11.66                     | 14.65 |
| 5320                      | -0.71                        | 2.43               | 9.97                | 11.69                     | 14.77 |
| 5500                      | -0.94                        | 2.42               | 9.96                | 11.44                     | 13.93 |
| 5580                      | -0.65                        | 2.45               | 9.96                | 11.76                     | 15.00 |
| 5700                      | -0.86                        | 2.49               | 9.97                | 11.60                     | 14.46 |
| 5745                      | -0.85                        | 2.50               | 9.97                | 11.62                     | 14.53 |
| 5785                      | -0.85                        | 2.51               | 9.97                | 11.63                     | 14.57 |
| 5825                      | -0.74                        | 2.53               | 9.97                | 11.76                     | 15.01 |

### 11n-20

| Tested Frequency<br>[MHz] | Power Meter Reading<br>[dBm] | Cable Loss<br>[dB] | Atten. Loss<br>[dB] | Result<br>(Timed average) |       |
|---------------------------|------------------------------|--------------------|---------------------|---------------------------|-------|
|                           |                              |                    |                     | [dBm]                     | [mW]  |
| 5180                      | -0.80                        | 2.45               | 9.97                | 11.62                     | 14.51 |
| 5220                      | -0.66                        | 2.45               | 9.97                | 11.76                     | 14.99 |
| 5240                      | -0.40                        | 2.44               | 9.97                | 12.01                     | 15.90 |
| 5260                      | -0.66                        | 2.44               | 9.97                | 11.75                     | 14.96 |
| 5300                      | -0.75                        | 2.44               | 9.97                | 11.66                     | 14.65 |
| 5320                      | -0.89                        | 2.43               | 9.97                | 11.51                     | 14.17 |
| 5500                      | -1.20                        | 2.42               | 9.96                | 11.18                     | 13.12 |
| 5580                      | -0.75                        | 2.45               | 9.96                | 11.66                     | 14.66 |
| 5700                      | -0.85                        | 2.49               | 9.97                | 11.61                     | 14.49 |
| 5745                      | -0.92                        | 2.50               | 9.97                | 11.55                     | 14.30 |
| 5785                      | -1.05                        | 2.51               | 9.97                | 11.43                     | 13.91 |
| 5825                      | -0.87                        | 2.53               | 9.97                | 11.63                     | 14.57 |

Sample Calculation:

Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

\*The equipment and cables were not used for factor 0 dB of the data sheets.

**Average Output Power**  
**(Reference data for RF Exposure)**

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 1, 2015  
Temperature / Humidity : 23 deg. C / 39 % RH  
Engineer : Yosuke Ishikawa  
Mode : Tx

**11n-40**

| Tested<br>Frequency<br>[MHz] | Power<br>Meter<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result<br>(Timed average) |       |
|------------------------------|------------------------------------|-----------------------|------------------------|---------------------------|-------|
|                              |                                    |                       |                        | [dBm]                     | [mW]  |
| 5190                         | -1.47                              | 2.45                  | 9.97                   | 10.95                     | 12.45 |
| -                            | -                                  | -                     | -                      | -                         | -     |
| 5230                         | -1.33                              | 2.44                  | 9.97                   | 11.08                     | 12.82 |
| 5270                         | -2.19                              | 2.44                  | 9.97                   | 10.22                     | 10.52 |
| -                            | -                                  | -                     | -                      | -                         | -     |
| 5310                         | -1.50                              | 2.44                  | 9.97                   | 10.91                     | 12.33 |
| 5500                         | -1.98                              | 2.42                  | 9.96                   | 10.40                     | 10.96 |
| 5580                         | -1.58                              | 2.45                  | 9.96                   | 10.83                     | 12.11 |
| 5700                         | -1.76                              | 2.49                  | 9.97                   | 10.70                     | 11.75 |
| 5755                         | -1.70                              | 2.51                  | 9.97                   | 10.78                     | 11.96 |
| -                            | -                                  | -                     | -                      | -                         | -     |
| 5795                         | -1.94                              | 2.52                  | 9.97                   | 10.55                     | 11.34 |

Sample Calculation:

Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

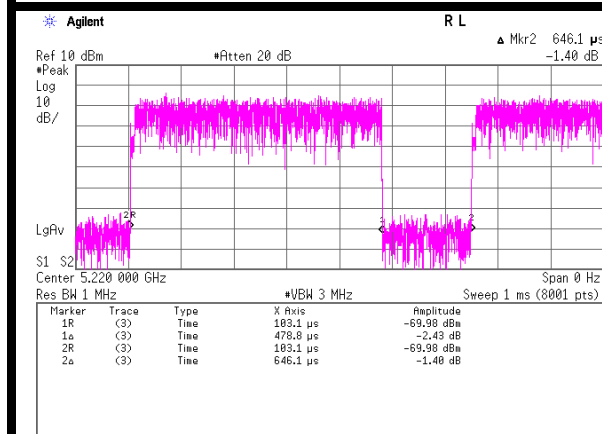
\*The equipment and cables were not used for factor 0 dB of the data sheets.

## Burst rate confirmation

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 1, 2015  
Temperature / Humidity : 23 deg. C / 39 % RH  
Engineer : Yosuke Ishikawa  
Mode : Tx

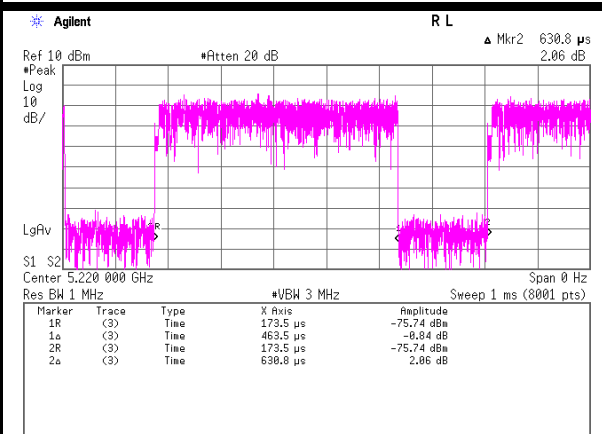
### 11a 18 Mbps

VBW: 1 / Tx on = 2.089 kHz < 2.2 Hz  
Tx on / (Tx on + Tx off) = **0.738**  
Tx on / (Tx on + Tx off) \* 100 = **73.8 %**  
Duty factor = 10 \* log (0.65 / 0.48) = **1.32 dB**



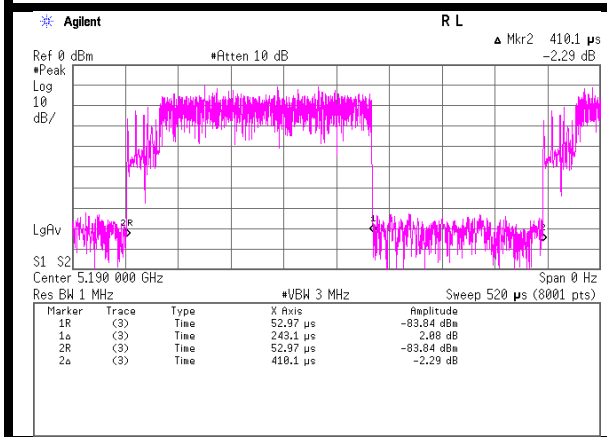
### 11n-20 MCS2

VBW: 1 / Tx on = 2.157 kHz < 2.2 Hz  
Tx on / (Tx on + Tx off) = **0.730**  
Tx on / (Tx on + Tx off) \* 100 = **73.0 %**  
Duty factor = 10 \* log (0.63 / 0.46) = **1.37 dB**



### 11n-40 MCS2

VBW: 1 / Tx on = 4.114 kHz < 4.3 Hz  
Tx on / (Tx on + Tx off) = **0.585**  
Tx on / (Tx on + Tx off) \* 100 = **58.5 %**  
Duty factor = 10 \* log (0.41 / 0.24) = **2.33 dB**



\* Duty factor was used for maximum conducted output power and power spectral density.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Maximum Power Spectral Density

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature / Humidity : 24deg. C / 53 % RH  
Engineer : Tomohiro Hara  
Mode : Tx 11a

| Tested Frequency<br>[MHz] | PSD Reading<br>[dBm /MHz] | Cable Loss<br>[dB] | Atten. Loss<br>[dB] | Duty Factor<br>[dB] | Antenna Gain<br>[dBi] | RBW Correction Factor<br>[dB] | PSD (Conducted)      |                     |                | PSD (e.i.r.p.)       |                     |                |
|---------------------------|---------------------------|--------------------|---------------------|---------------------|-----------------------|-------------------------------|----------------------|---------------------|----------------|----------------------|---------------------|----------------|
|                           |                           |                    |                     |                     |                       |                               | Result<br>[dBm /MHz] | Limit<br>[dBm /MHz] | Margin<br>[dB] | Result<br>[dBm /MHz] | Limit<br>[dBm /MHz] | Margin<br>[dB] |
| 5180                      | -10.79                    | 2.07               | 10.02               | 1.32                | -2.06                 | 0.00                          | 2.62                 | 11.00               | 8.38           | 0.56                 | 17.00               | 16.44          |
| 5220                      | -10.26                    | 2.09               | 10.02               | 1.32                | -2.06                 | 0.00                          | 3.17                 | 11.00               | 7.83           | 1.11                 | 17.00               | 15.89          |
| 5240                      | -9.58                     | 2.10               | 10.02               | 1.32                | -2.06                 | 0.00                          | 3.86                 | 11.00               | 7.14           | 1.80                 | 17.00               | 15.20          |
| 5260                      | -9.75                     | 2.12               | 10.02               | 1.32                | -0.99                 | 0.00                          | 3.71                 | 11.00               | 7.29           | 2.72                 | 17.00               | 14.28          |
| 5300                      | -9.40                     | 2.14               | 10.02               | 1.32                | -0.99                 | 0.00                          | 4.08                 | 11.00               | 6.92           | 3.09                 | 17.00               | 13.91          |
| 5320                      | -9.00                     | 2.15               | 10.02               | 1.32                | -0.99                 | 0.00                          | 4.49                 | 11.00               | 6.51           | 3.50                 | 17.00               | 13.50          |
| 5500                      | -9.78                     | 2.26               | 10.01               | 1.32                | -0.01                 | 0.00                          | 3.81                 | 11.00               | 7.19           | 3.80                 | 17.00               | 13.20          |
| 5580                      | -9.19                     | 2.29               | 10.01               | 1.32                | -0.01                 | 0.00                          | 4.43                 | 11.00               | 6.57           | 4.42                 | 17.00               | 12.58          |
| 5700                      | -9.09                     | 2.33               | 10.01               | 1.32                | -0.01                 | 0.00                          | 4.57                 | 11.00               | 6.43           | 4.56                 | 17.00               | 12.44          |
| 5745                      | -17.86                    | 2.35               | 10.01               | 1.32                | -0.95                 | 0.27                          | -3.91                | 30.00               | 33.91          | -4.86                | 36.00               | 40.86          |
| 5785                      | -18.15                    | 2.36               | 10.02               | 1.32                | -0.95                 | 0.27                          | -4.18                | 30.00               | 34.18          | -5.13                | 36.00               | 41.13          |
| 5825                      | -19.02                    | 2.38               | 10.02               | 1.32                | -0.95                 | 0.27                          | -5.03                | 30.00               | 35.03          | -5.98                | 36.00               | 41.98          |

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor =  $10 * \log (\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction

PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (WS2 for FCC)

## Maximum Power Spectral Density

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 20, 2015  
Temperature / Humidity : 25deg. C / 44 % RH  
Engineer : Tomohiro Hara  
Mode : Tx 11n-20

| Tested Frequency<br>[MHz] | PSD Reading<br>[dBm /MHz] | Cable Loss<br>[dB] | Atten. Loss<br>[dB] | Duty Factor<br>[dB] | Antenna Gain<br>[dBi] | RBW Correction Factor<br>[dB] | PSD (Conducted)      |                     |                | PSD (e.i.r.p.)       |                     |                |
|---------------------------|---------------------------|--------------------|---------------------|---------------------|-----------------------|-------------------------------|----------------------|---------------------|----------------|----------------------|---------------------|----------------|
|                           |                           |                    |                     |                     |                       |                               | Result<br>[dBm /MHz] | Limit<br>[dBm /MHz] | Margin<br>[dB] | Result<br>[dBm /MHz] | Limit<br>[dBm /MHz] | Margin<br>[dB] |
| 5180                      | -11.26                    | 2.07               | 10.02               | 1.37                | -2.06                 | 0.00                          | 2.20                 | 11.00               | 8.80           | 0.14                 | 17.00               | 16.86          |
| 5220                      | -10.82                    | 2.09               | 10.02               | 1.37                | -2.06                 | 0.00                          | 2.66                 | 11.00               | 8.34           | 0.60                 | 17.00               | 16.40          |
| 5240                      | -9.58                     | 2.10               | 10.02               | 1.37                | -2.06                 | 0.00                          | 3.91                 | 11.00               | 7.09           | 1.85                 | 17.00               | 15.15          |
| 5260                      | -10.79                    | 2.12               | 10.02               | 1.37                | -0.99                 | 0.00                          | 2.72                 | 11.00               | 8.28           | 1.73                 | 17.00               | 15.27          |
| 5300                      | -10.20                    | 2.14               | 10.02               | 1.37                | -0.99                 | 0.00                          | 3.33                 | 11.00               | 7.67           | 2.34                 | 17.00               | 14.66          |
| 5320                      | -10.07                    | 2.15               | 10.02               | 1.37                | -0.99                 | 0.00                          | 3.47                 | 11.00               | 7.53           | 2.48                 | 17.00               | 14.52          |
| 5500                      | -10.86                    | 2.26               | 10.01               | 1.37                | -0.01                 | 0.00                          | 2.78                 | 11.00               | 8.22           | 2.77                 | 17.00               | 14.23          |
| 5580                      | -10.08                    | 2.29               | 10.01               | 1.37                | -0.01                 | 0.00                          | 3.59                 | 11.00               | 7.41           | 3.58                 | 17.00               | 13.42          |
| 5700                      | -9.87                     | 2.33               | 10.01               | 1.37                | -0.01                 | 0.00                          | 3.85                 | 11.00               | 7.16           | 3.84                 | 17.00               | 13.17          |
| 5745                      | -18.59                    | 2.35               | 10.01               | 1.37                | -0.95                 | 0.27                          | -4.59                | 30.00               | 34.59          | -5.54                | 36.00               | 41.54          |
| 5785                      | -18.12                    | 2.36               | 10.02               | 1.37                | -0.95                 | 0.27                          | -4.10                | 30.00               | 34.10          | -5.05                | 36.00               | 41.05          |
| 5825                      | -19.78                    | 2.38               | 10.02               | 1.37                | -0.95                 | 0.27                          | -5.74                | 30.00               | 35.74          | -6.69                | 36.00               | 42.69          |

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor =  $10 \cdot \log(\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction

PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

## Maximum Power Spectral Density

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 25, 2015  
Temperature / Humidity : 20deg. C / 44 % RH  
Engineer : Wataru Kojima  
Mode : Tx 11n-40

Applied limit: 15.407, mobile and portable client device

| Tested Frequency<br>[MHz] | PSD Reading<br>[dBm /MHz] | Cable Loss<br>[dB] | Atten. Loss<br>[dB] | Duty Factor<br>[dB] | Antenna Gain<br>[dBi] | RBW Correction Factor<br>[dB] | PSD (Conducted)      |                     |                | PSD (e.i.r.p.)       |                     |                |
|---------------------------|---------------------------|--------------------|---------------------|---------------------|-----------------------|-------------------------------|----------------------|---------------------|----------------|----------------------|---------------------|----------------|
|                           |                           |                    |                     |                     |                       |                               | Result<br>[dBm /MHz] | Limit<br>[dBm /MHz] | Margin<br>[dB] | Result<br>[dBm /MHz] | Limit<br>[dBm /MHz] | Margin<br>[dB] |
| 5190                      | -15.49                    | 2.45               | 10.02               | 2.33                | -2.06                 | 0.00                          | -0.69                | 11.00               | 11.69          | -2.75                | 17.00               | 19.75          |
| 5230                      | -14.42                    | 2.44               | 10.02               | 2.33                | -2.06                 | 0.00                          | 0.38                 | 11.00               | 10.63          | -1.69                | 17.00               | 18.69          |
| 5270                      | -15.98                    | 2.44               | 10.02               | 2.33                | -0.99                 | 0.00                          | -1.19                | 11.00               | 12.19          | -2.18                | 17.00               | 19.18          |
| 5310                      | -14.89                    | 2.44               | 10.02               | 2.33                | -0.99                 | 0.00                          | -0.10                | 11.00               | 11.10          | -1.09                | 17.00               | 18.09          |
| 5510                      | -15.47                    | 2.42               | 10.01               | 2.33                | -0.01                 | 0.00                          | -0.71                | 11.00               | 11.71          | -0.72                | 17.00               | 17.72          |
| 5550                      | -14.68                    | 2.43               | 10.01               | 2.33                | -0.01                 | 0.00                          | 0.09                 | 11.00               | 10.91          | 0.08                 | 17.00               | 16.92          |
| 5670                      | -14.63                    | 2.47               | 10.01               | 2.33                | -0.01                 | 0.00                          | 0.18                 | 11.00               | 10.82          | 0.17                 | 17.00               | 16.83          |
| 5755                      | -22.30                    | 2.51               | 10.02               | 2.33                | -0.95                 | 6.99                          | -0.45                | 30.00               | 30.45          | -1.40                | 36.00               | 37.40          |
| 5795                      | -23.18                    | 2.52               | 10.02               | 2.33                | -0.95                 | 6.99                          | -1.32                | 30.00               | 31.32          | -2.27                | 36.00               | 38.27          |

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor =  $10 \cdot \log(\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction

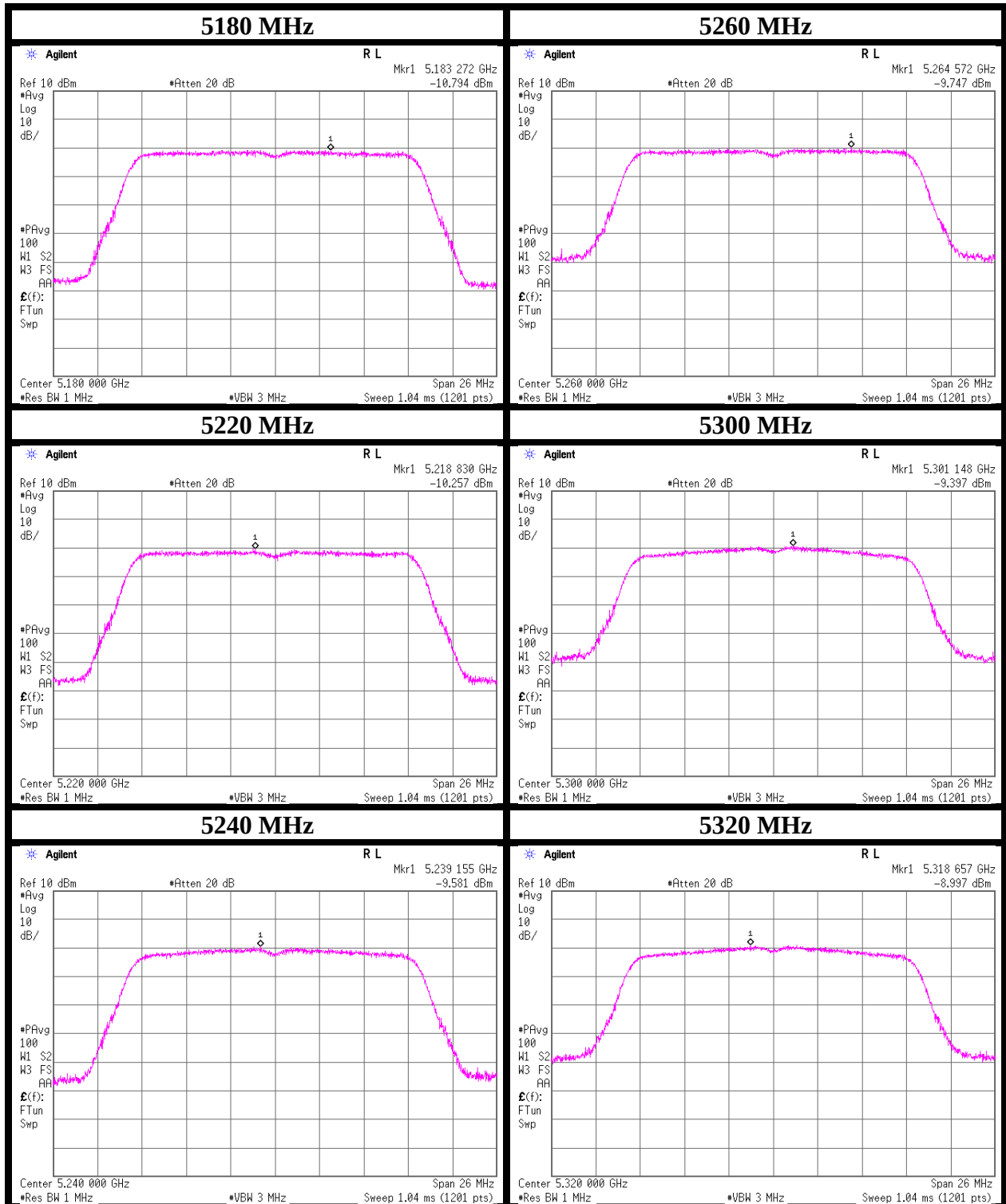
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

### Maximum Power Spectral Density

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature / Humidity : 24deg. C / 53 % RH  
Engineer : Tomohiro Hara  
Mode : Tx 11a

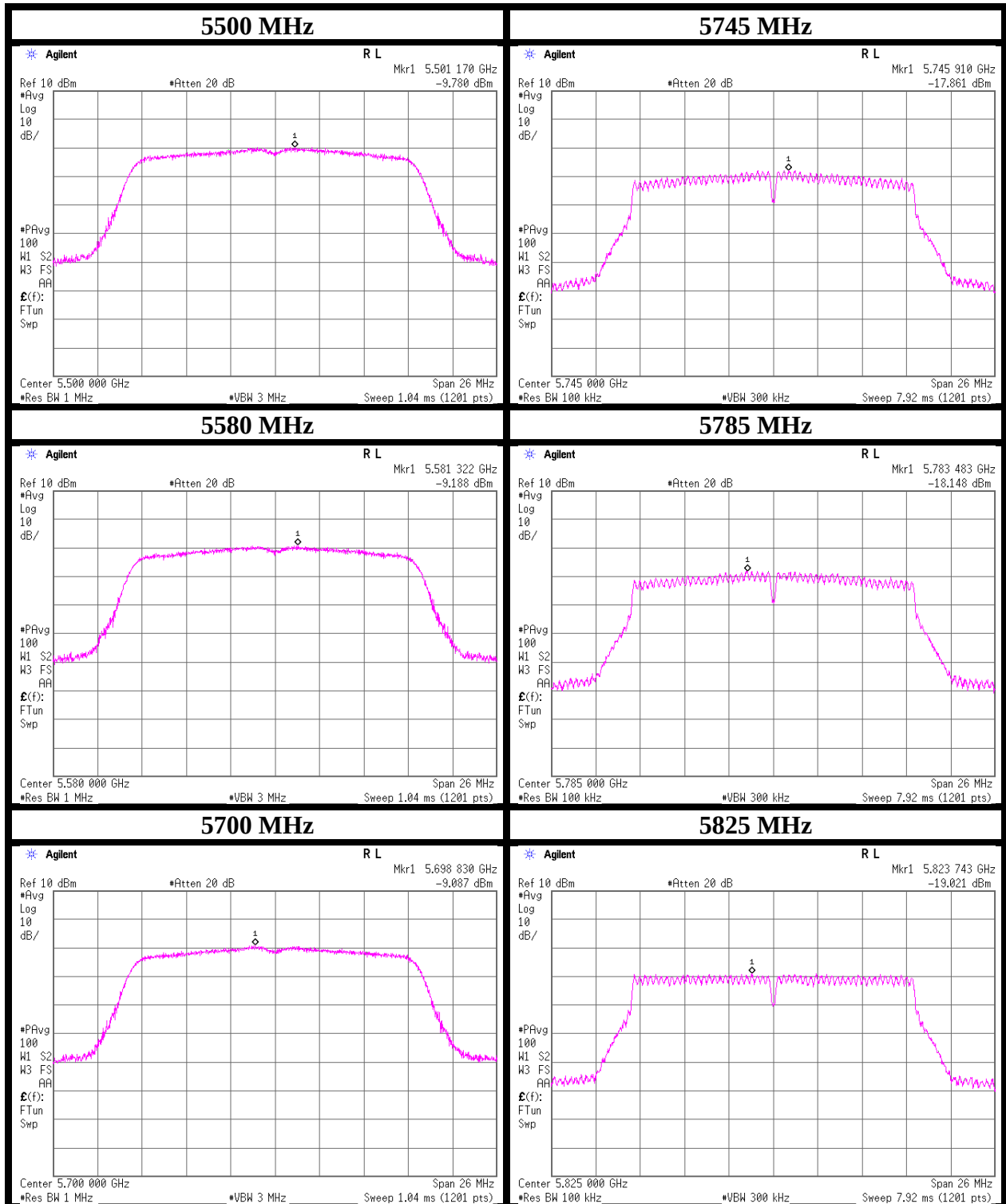
11a



## Maximum Power Spectral Density

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature / Humidity : 24deg. C / 53 % RH  
Engineer : Tomohiro Hara  
Mode : Tx 11a

11a



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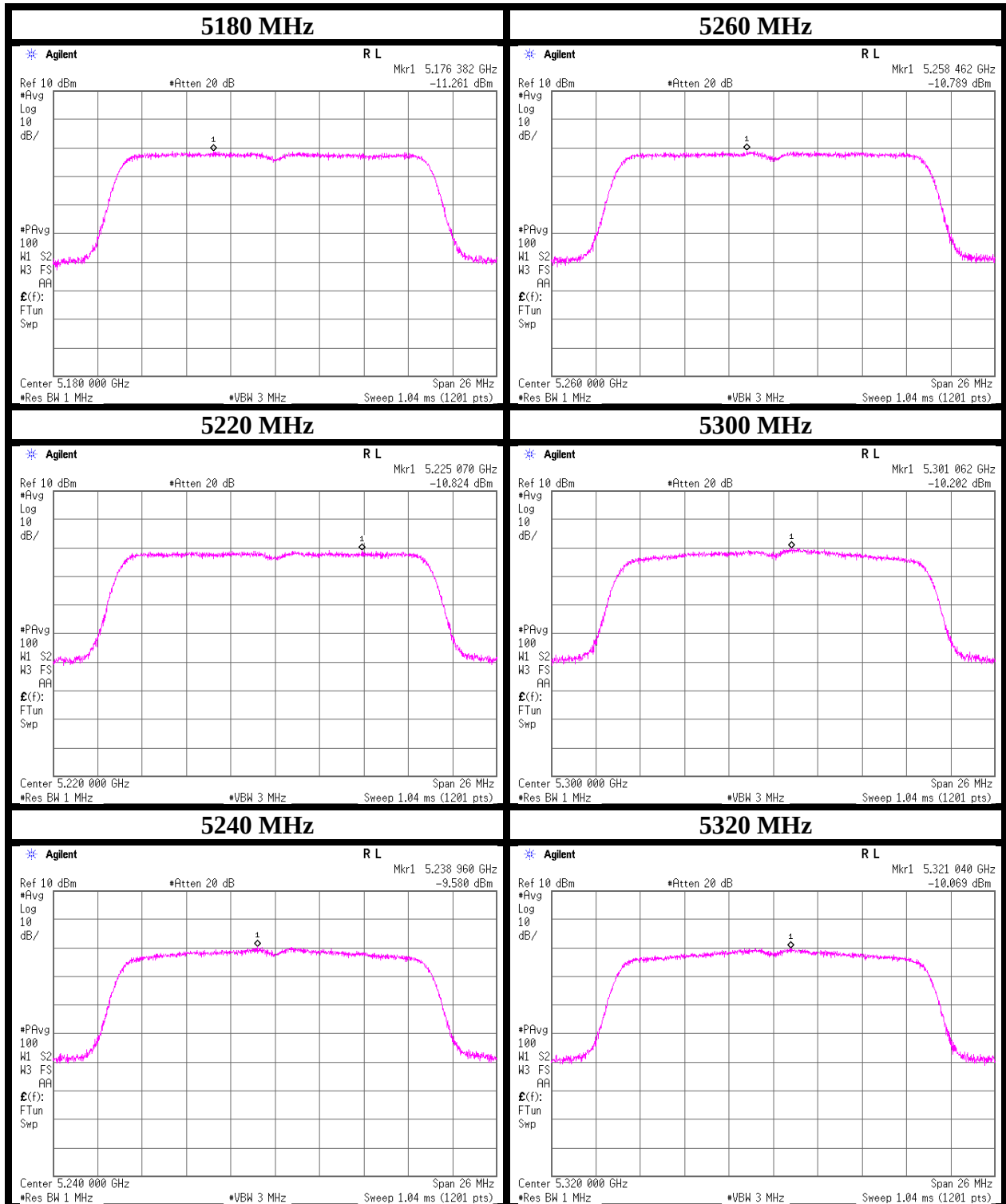
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Maximum Power Spectral Density

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 20, 2015  
Temperature / Humidity : 25deg. C / 44 % RH  
Engineer : Tomohiro Hara  
Mode : Tx 11n-20

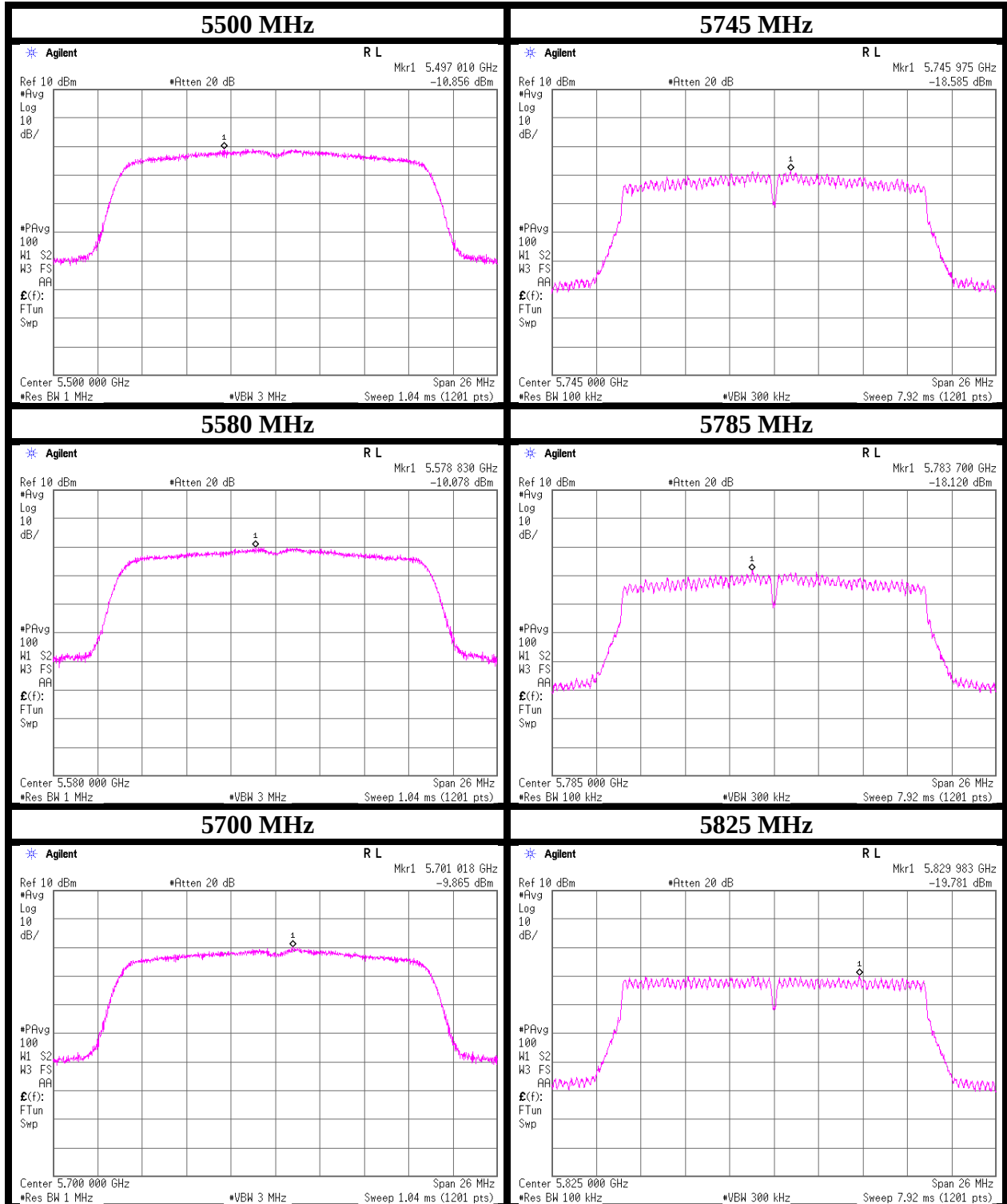
11n-20



## Maximum Power Spectral Density

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 20, 2015  
Temperature / Humidity : 25deg. C / 44 % RH  
Engineer : Tomohiro Hara  
Mode : Tx 11n-20

11n-20



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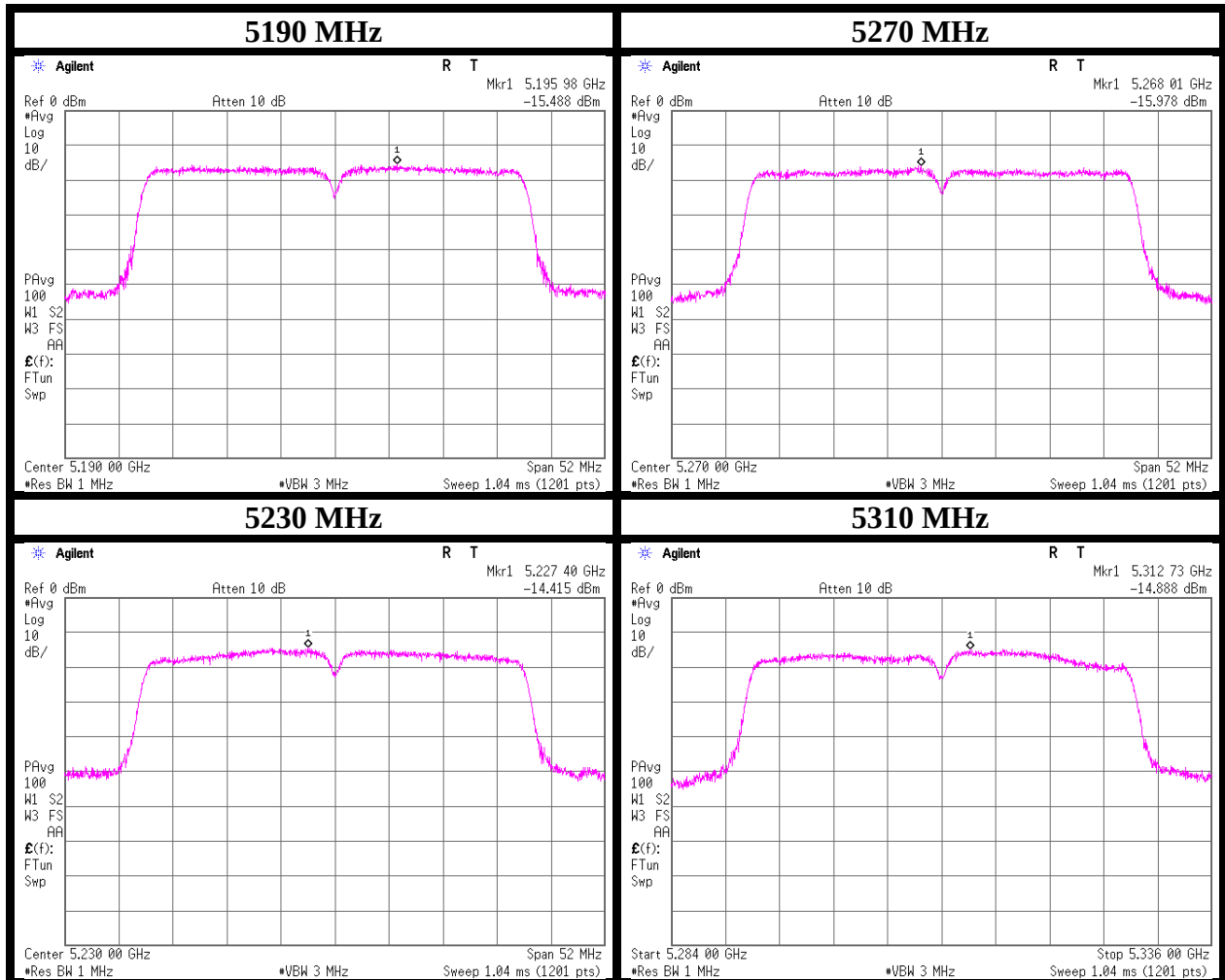
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Maximum Power Spectral Density

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 25, 2015  
Temperature / Humidity : 20deg. C / 44 % RH  
Engineer : Wataru Kojima  
Mode : Tx 11n-40

11n-40



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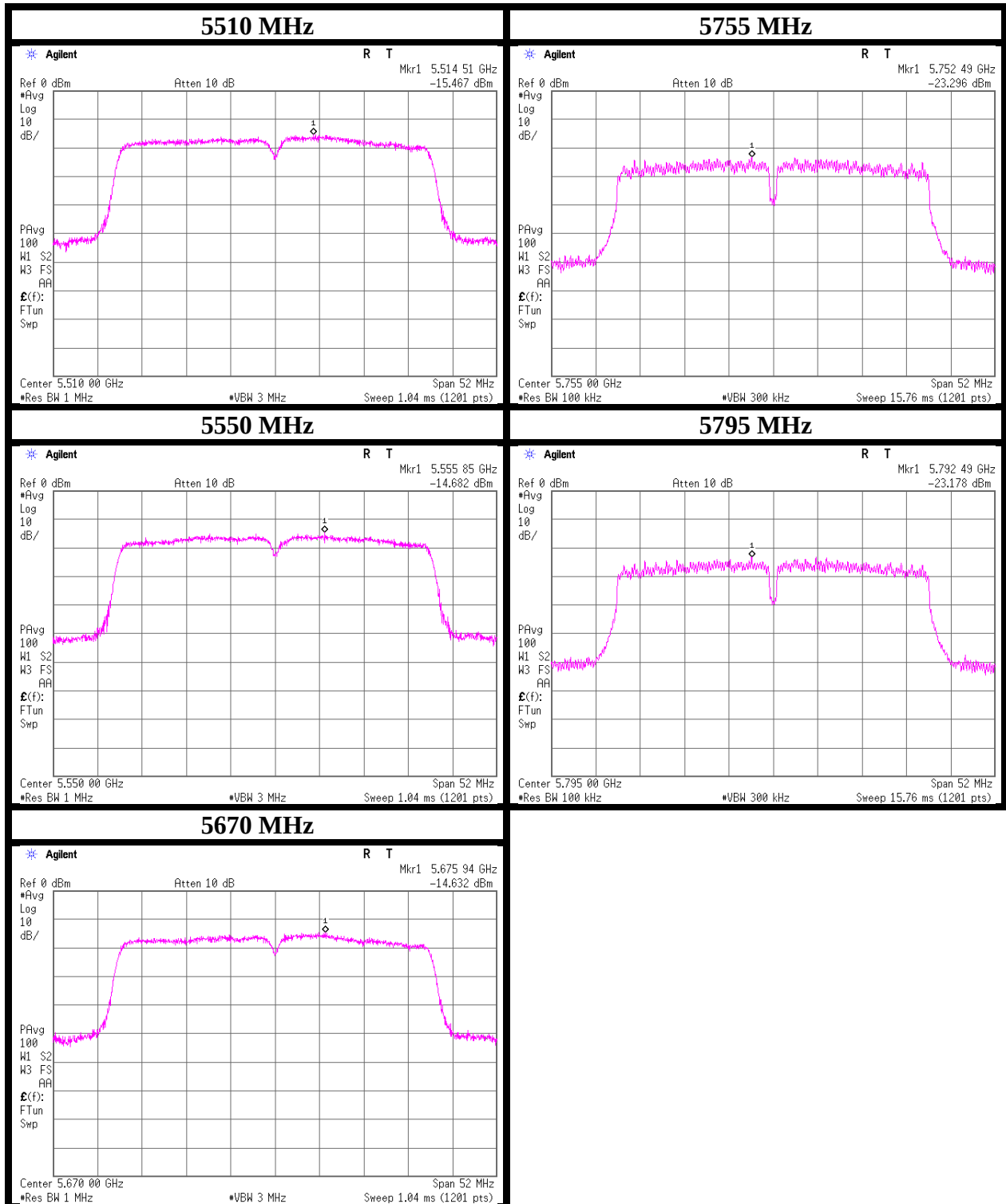
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Maximum Power Spectral Density

Test place : Shonan EMC Lab. No.5 Shielded Room  
Report No. : 11014760S-C-R2  
Date : November 25, 2015  
Temperature / Humidity : 20deg. C / 44 % RH  
Engineer : Wataru Kojima  
Mode : Tx 11n-40

11n-40



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## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 16, 2015                                         |
| Temperature / Humidity | 25 deg. C / 56 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5180 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11a, PN9 |

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark        |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|---------------|
| Hori.    | 5150.0             | PK       | 48.4              | 32.1               | 16.1         | 41.2         | 2.2                     | 57.6               | 73.9              | 16.3           | 106            | 209             | VBW : 2.2 kHz |
| Hori.    | 5150.0             | AV       | 39.1              | 32.1               | 16.1         | 41.2         | 2.2                     | 48.3               | 53.9              | 5.6            | 106            | 209             |               |
| Vert.    | 5150.0             | PK       | 41.8              | 32.1               | 16.1         | 41.2         | 2.2                     | 51.0               | 73.9              | 22.9           | 100            | 20              | VBW : 2.2 kHz |
| Vert.    | 5150.0             | AV       | 38.9              | 32.1               | 16.1         | 41.2         | 2.2                     | 48.1               | 53.9              | 5.8            | 100            | 20              |               |

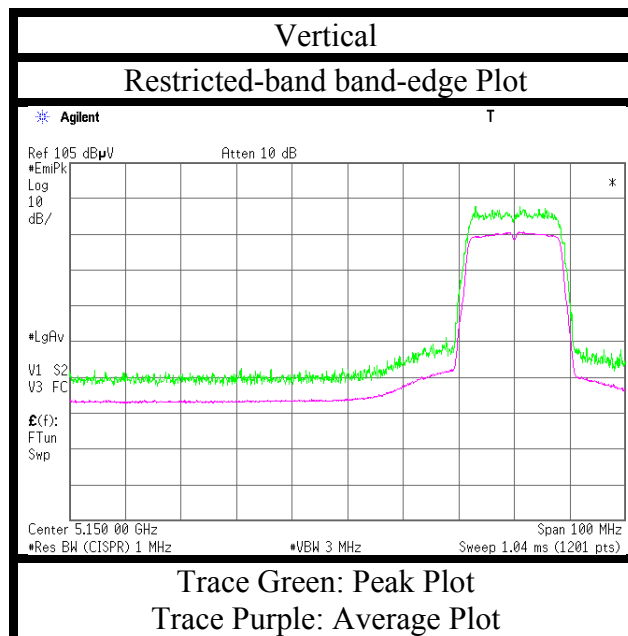
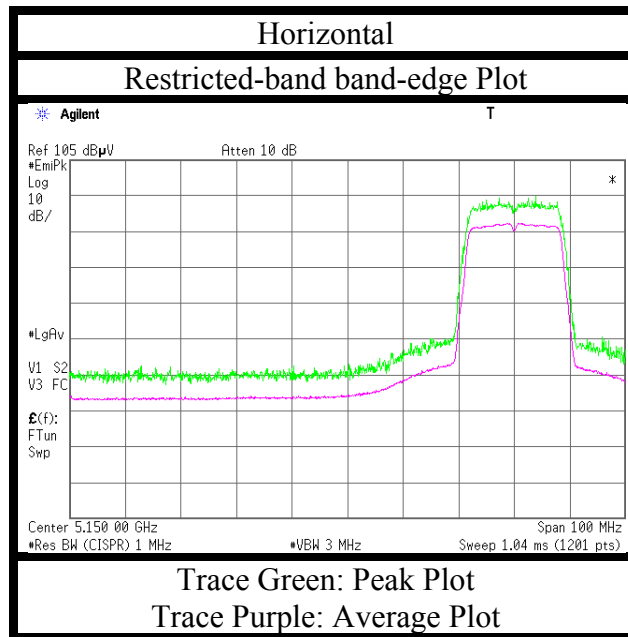
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
 13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 16, 2015                                         |
| Temperature / Humidity | 25 deg. C / 56 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5180 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 16, 2015                                         |
| Temperature / Humidity | 25 deg. C / 56 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5180 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11a, PN9 |

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark       |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------------|
| Hori.    | 5150.0             | PK       | 51.4              | 32.1               | 16.1         | 41.2         | 2.2                     | 60.6               | 73.9              | 13.3           | 100            | 117             | VBW: 2.2 kHz |
| Hori.    | 5150.0             | AV       | 40.4              | 32.1               | 16.1         | 41.2         | 2.2                     | 49.6               | 53.9              | 4.3            | 100            | 117             |              |
| Vert.    | 5150.0             | PK       | 48.8              | 32.1               | 16.1         | 41.2         | 2.2                     | 58.0               | 73.9              | 15.9           | 100            | 69              |              |
| Vert.    | 5150.0             | AV       | 38.9              | 32.1               | 16.1         | 41.2         | 2.2                     | 48.1               | 53.9              | 5.8            | 100            | 69              |              |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

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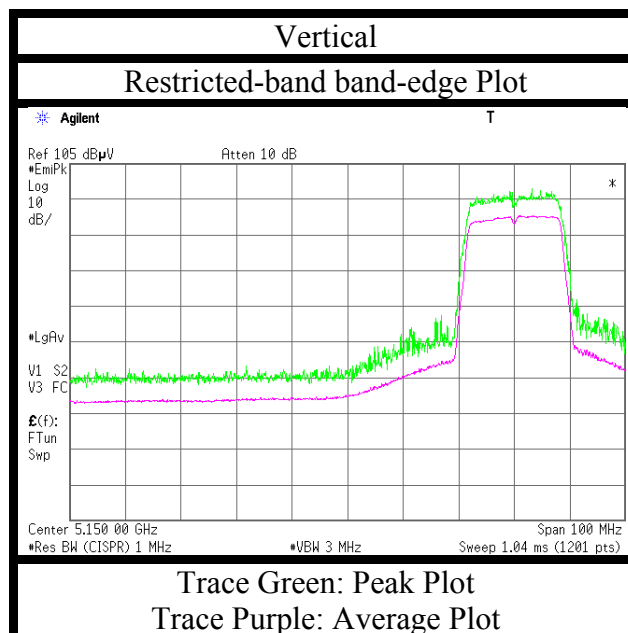
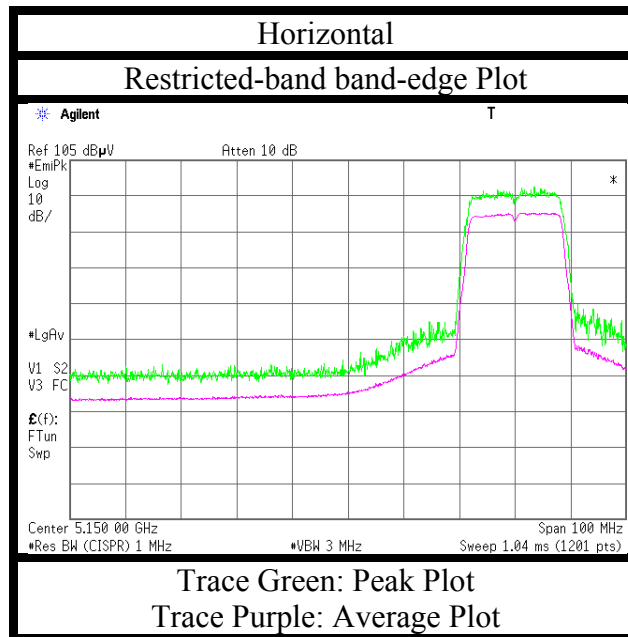
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Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 16, 2015  
Temperature / Humidity : 25 deg. C / 56 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5180 MHz, Antenna cable 199 mm  
Tx, IEEE802.11a, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 16, 2015                                         |
| Temperature / Humidity | 25 deg. C / 56 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5320 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11a, PN9 |

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark       |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------------|
| Hori.    | 5350.0             | PK       | 49.6              | 32.2               | 16.2         | 40.7         | 2.2                     | 59.5               | 73.9              | 14.4           | 103            | 105             | VBW: 2.2 kHz |
| Hori.    | 5350.0             | AV       | 39.1              | 32.2               | 16.2         | 40.7         | 2.2                     | 49.0               | 53.9              | <b>4.9</b>     | 103            | 105             |              |
| Vert.    | 5350.0             | PK       | 49.4              | 32.2               | 16.2         | 40.7         | 2.2                     | 59.3               | 73.9              | 14.6           | 100            | 288             | VBW: 2.2 kHz |
| Vert.    | 5350.0             | AV       | 38.9              | 32.2               | 16.2         | 40.7         | 2.2                     | 48.8               | 53.9              | 5.1            | 100            | 288             |              |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

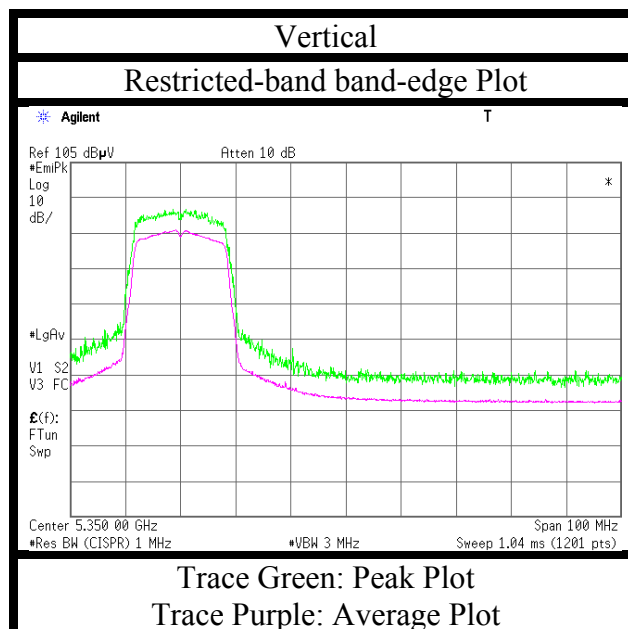
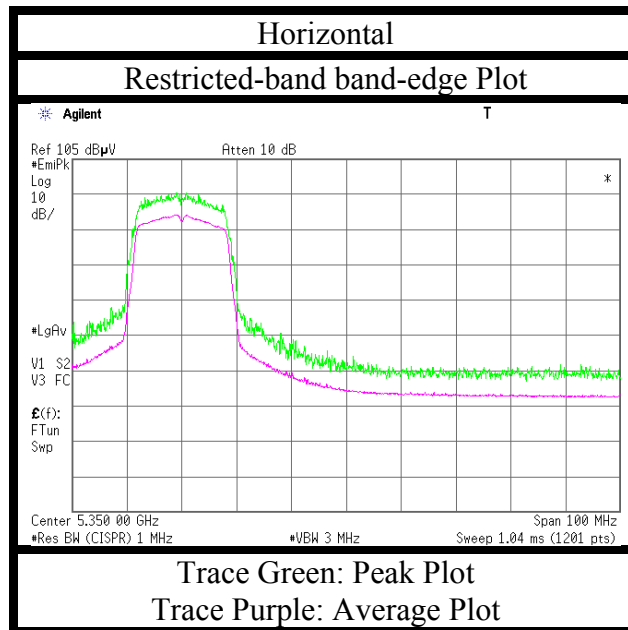
Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 16, 2015                                         |
| Temperature / Humidity | 25 deg. C / 56 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5320 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 16, 2015                                         |
| Temperature / Humidity | 25 deg. C / 56 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5320 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11a, PN9 |

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark      |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|-------------|
| Hori.    | 5350.0             | PK       | 48.8              | 32.2               | 16.2         | 40.7         | 2.2                     | 58.7               | 73.9              | 15.2           | 100            | 117             | VBW:2.2 kHz |
| Hori.    | 5350.0             | AV       | 39.4              | 32.2               | 16.2         | 40.7         | 2.2                     | 49.3               | 53.9              | 4.6            | 100            | 117             |             |
| Vert.    | 5350.0             | PK       | 47.8              | 32.2               | 16.2         | 40.7         | 2.2                     | 57.7               | 73.9              | 16.2           | 100            | 69              | VBW:2.2 kHz |
| Vert.    | 5350.0             | AV       | 38.7              | 32.2               | 16.2         | 40.7         | 2.2                     | 48.6               | 53.9              | 5.3            | 100            | 69              |             |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
 13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

**UL Japan, Inc.**

**Shonan EMC Lab.**

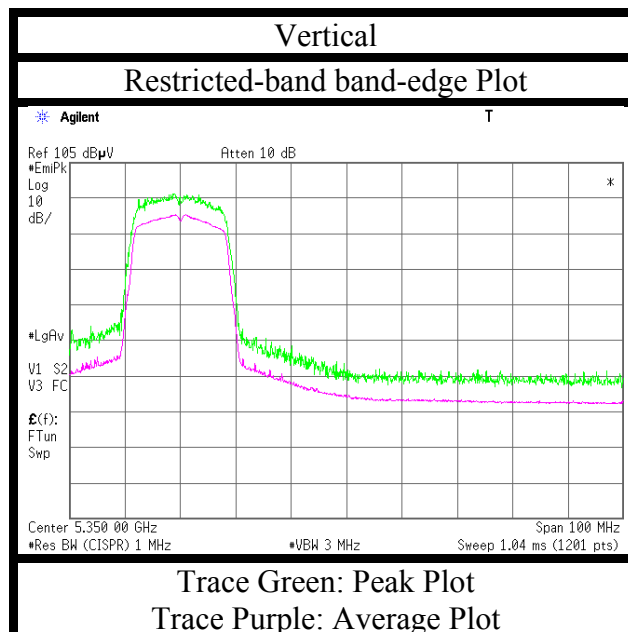
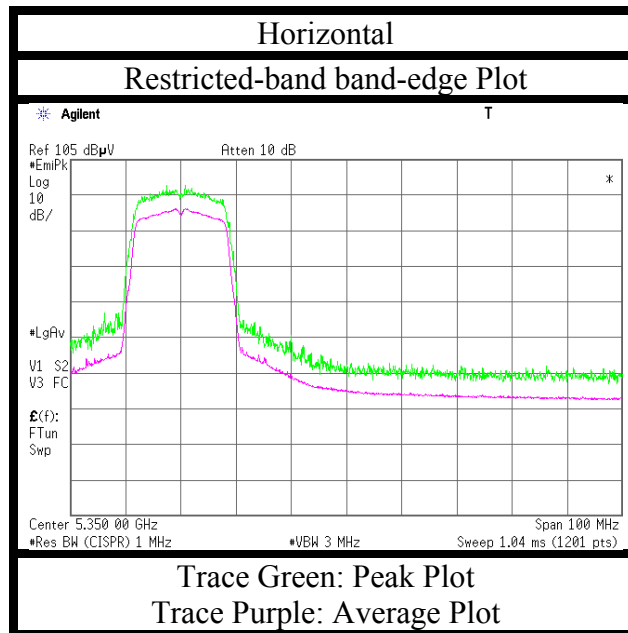
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 16, 2015                                         |
| Temperature / Humidity | 25 deg. C / 56 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5320 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature / Humidity : 25 deg. C / 48 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5500 MHz, Antenna cable 400 mm  
Tx, IEEE802.11a, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5460.0          | PK       | 45.6           | 32.2            | 15.8      | 38.8      | 2.2                  | 57.0            | 73.9           | 16.9        | 100         | 212          | VBW: 2.2 kHz |
| Hori.    | 5460.0          | AV       | 35.2           | 32.2            | 15.8      | 38.8      | 2.2                  | 46.6            | 53.9           | 7.3         | 100         | 212          |              |
| Vert.    | 5460.0          | PK       | 46.9           | 32.2            | 15.8      | 38.8      | 2.2                  | 58.3            | 73.9           | 15.6        | 100         | 340          | VBW: 2.2 kHz |
| Vert.    | 5460.0          | AV       | 35.4           | 32.2            | 15.8      | 38.8      | 2.2                  | 46.8            | 53.9           | 7.1         | 100         | 340          |              |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5470.0          | PK       | 47.0           | 32.2            | 15.8      | 38.8      | 2.2                  | 58.4            | -36.8               | -27.0       | 9.8         | 100         | 212          |        |
| Vert.    | 5470.0          | PK       | 47.1           | 32.2            | 15.8      | 38.8      | 2.2                  | 58.5            | -36.7               | -27.0       | 9.7         | 100         | 340          |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

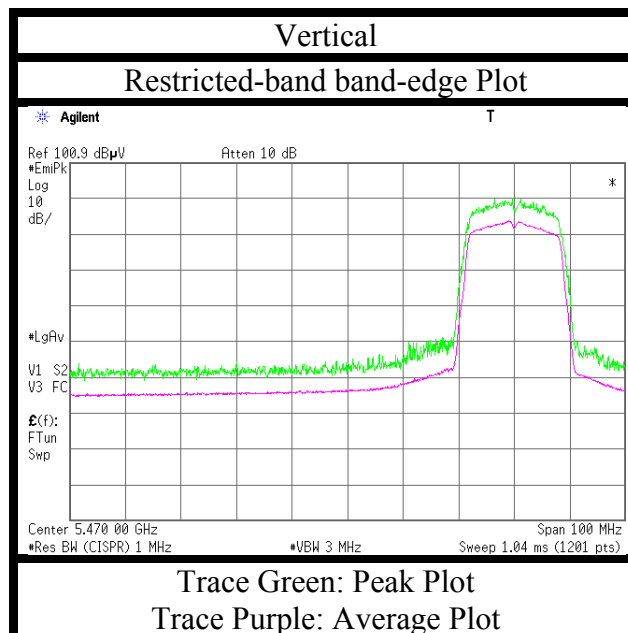
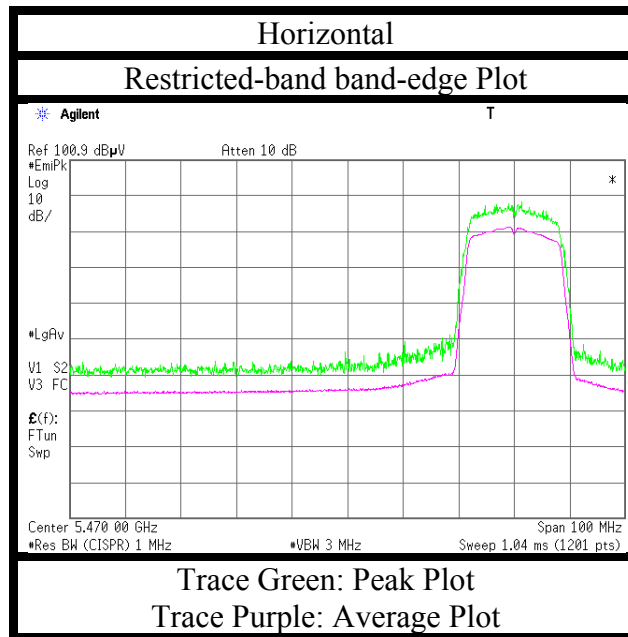
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \* 10 ^ 3 )

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 17, 2015                                         |
| Temperature / Humidity | 25 deg. C / 48 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5500 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature / Humidity : 25 deg. C / 48 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5500 MHz, Antenna cable 199 mm  
Tx, IEEE802.11a, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark        |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|---------------|
| Hori.    | 5460.0          | PK       | 47.0           | 32.2            | 15.8      | 38.8      | 2.2                  | 58.4            | 73.9           | 15.5        | 103         | 99           | VBW : 2.2 kHz |
| Hori.    | 5460.0          | AV       | 35.0           | 32.2            | 15.8      | 38.8      | 2.2                  | 46.4            | 53.9           | 7.5         | 103         | 99           |               |
| Vert.    | 5460.0          | PK       | 47.7           | 32.2            | 15.8      | 38.8      | 2.2                  | 59.1            | 73.9           | 14.8        | 127         | 68           | VBW : 2.2 kHz |
| Vert.    | 5460.0          | AV       | 35.9           | 32.2            | 15.8      | 38.8      | 2.2                  | 47.3            | 53.9           | 6.6         | 127         | 68           |               |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5470.0          | PK       | 50.7           | 32.2            | 15.8      | 38.8      | 2.2                  | 62.1            | -33.1               | -27.0       | 6.1         | 103         | 99           |        |
| Vert.    | 5470.0          | PK       | 53.6           | 32.2            | 15.8      | 38.8      | 2.2                  | 65.0            | -30.2               | -27.0       | 3.2         | 127         | 66           |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

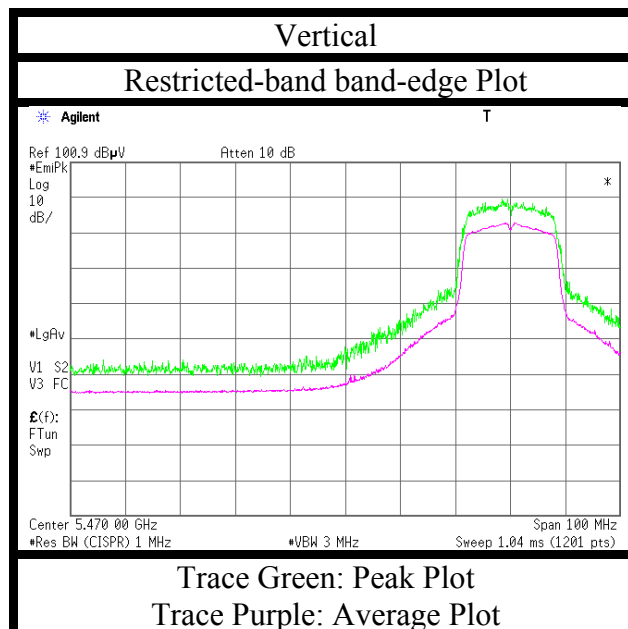
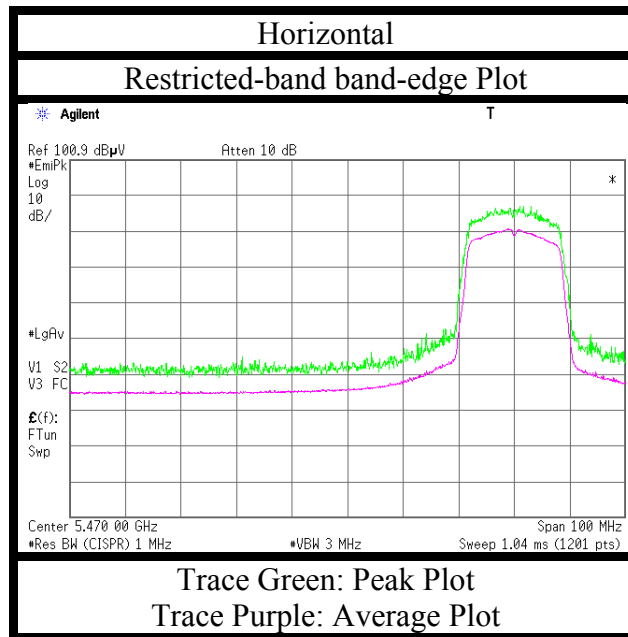
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \* 10 ^ 3 )

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 17, 2015                                         |
| Temperature / Humidity | 25 deg. C / 48 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5500 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature / Humidity : 25 deg. C / 48 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5700 MHz, Antenna cable 400 mm  
Tx, IEEE802.11a, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5725.0          | PK       | 50.3           | 32.6            | 15.8      | 38.8      | 2.2                  | 62.1            | -33.1               | -27.0       | 6.1         | 100         | 89           |        |
| Vert.    | 5725.0          | PK       | 46.4           | 32.6            | 15.8      | 38.8      | 2.2                  | 58.2            | -37.0               | -27.0       | 10.0        | 111         | 101          |        |

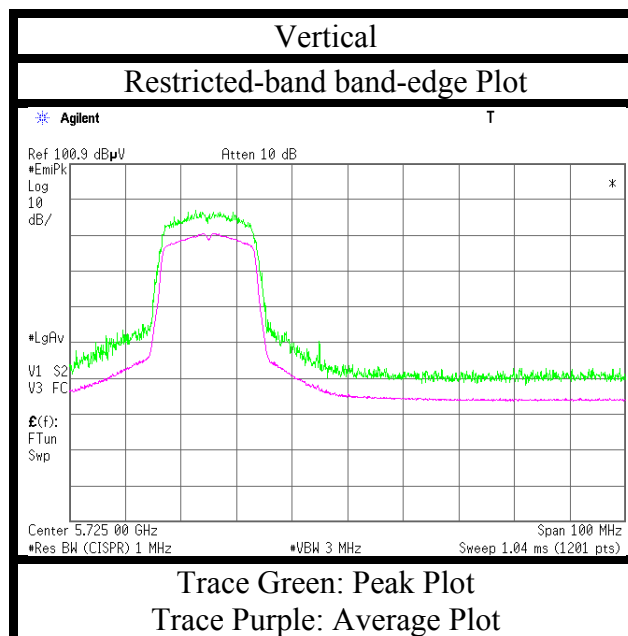
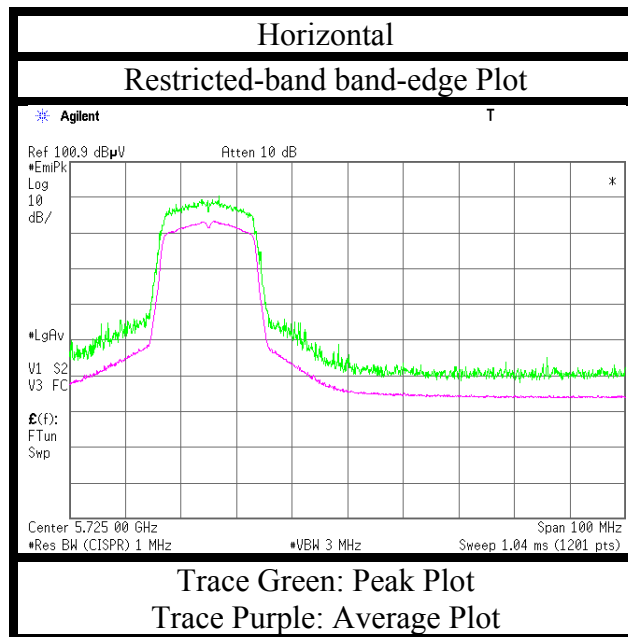
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor  
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30 ) \* 10 ^ 3 )

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature / Humidity 25 deg. C / 48 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5700 MHz, Antenna cable 400 mm  
Tx, IEEE802.11a, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature / Humidity : 25 deg. C / 48 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5700 MHz, Antenna cable 199 mm  
Tx, IEEE802.11a, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Result (EIRP)<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|------------------------|----------------|----------------|----------------|-----------------|--------|
| Hori.    | 5725.0             | PK       | 47.2              | 32.6               | 15.8         | 38.8         | 2.2                     | 59.0               | -36.2                  | -27.0          | 9.2            | 100            | 89              |        |
| Vert.    | 5725.0             | PK       | 55.0              | 32.6               | 15.8         | 38.8         | 2.2                     | 66.8               | -28.4                  | -27.0          | 1.4            | 111            | 101             |        |

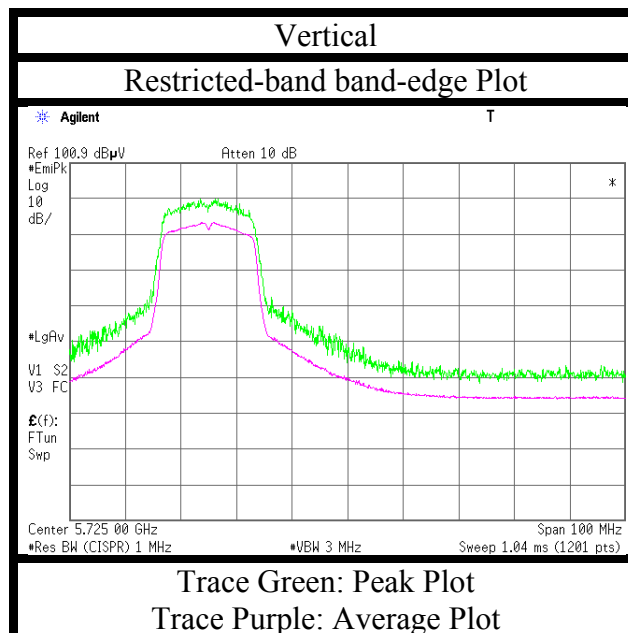
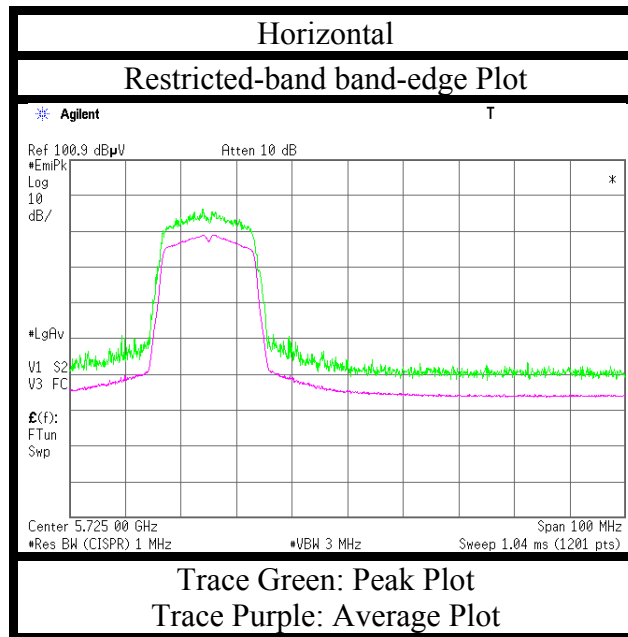
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor  
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30) \*10^3)

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 17, 2015                                         |
| Temperature / Humidity | 25 deg. C / 48 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5700 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature / Humidity : 22 deg. C / 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5745 MHz, Antenna cable 400 mm  
Tx, IEEE802.11a, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Result (EIRP)<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|------------------------|----------------|----------------|----------------|-----------------|--------|
| Hori.    | 5715.0             | PK       | 46.0              | 32.6               | 16.4         | 38.8         | 2.2                     | 58.4               | -36.8                  | -27.0          | 9.8            | 121            | 97              |        |
| Hori.    | 5725.0             | PK       | 52.3              | 32.6               | 16.4         | 38.8         | 2.2                     | 64.7               | -30.5                  | -17.0          | 13.5           | 121            | 97              |        |
| Vert.    | 5715.0             | PK       | 45.8              | 32.6               | 16.4         | 38.8         | 2.2                     | 58.2               | -37.0                  | -27.0          | 10.0           | 146            | 239             |        |
| Vert.    | 5725.0             | PK       | 51.1              | 32.6               | 16.4         | 38.8         | 2.2                     | 63.5               | -31.7                  | -17.0          | 14.7           | 146            | 239             |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG (({ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30) \*10^3)

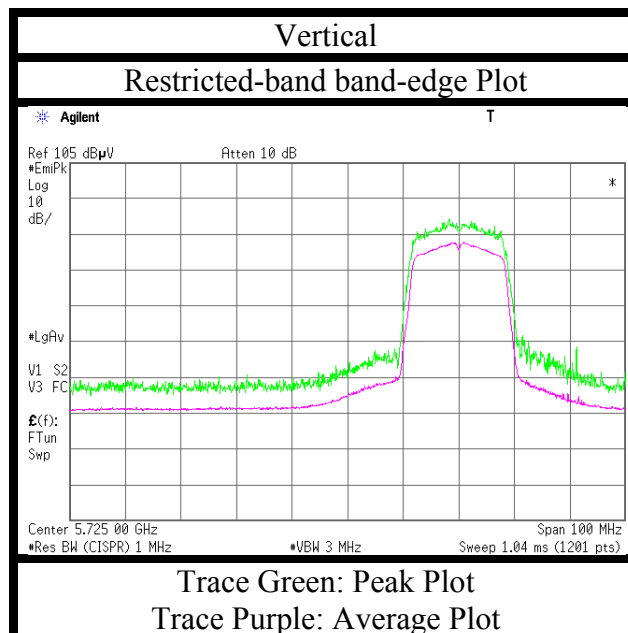
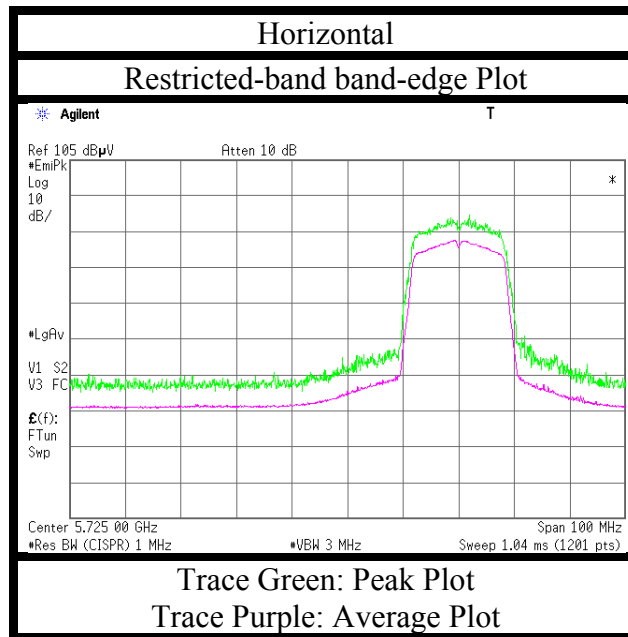
Distance factor : 1 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 18, 2015                                         |
| Temperature / Humidity | 22 deg. C / 55 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5745 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature / Humidity : 22 deg. C / 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5745 MHz, Antenna cable 199 mm  
Tx, IEEE802.11a, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Result (EIRP)<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|------------------------|----------------|----------------|----------------|-----------------|--------|
| Hori.    | 5715.0             | PK       | 47.5              | 32.6               | 16.4         | 38.8         | 2.2                     | 59.9               | -35.3                  | -27.0          | 8.3            | 103            | 12              |        |
| Hori.    | 5725.0             | PK       | 53.0              | 32.6               | 16.4         | 38.8         | 2.2                     | 65.5               | -29.8                  | -17.0          | 12.8           | 103            | 12              |        |
| Vert.    | 5715.0             | PK       | 47.7              | 32.6               | 16.4         | 38.8         | 2.2                     | 60.1               | -35.1                  | -27.0          | 8.1            | 100            | 331             |        |
| Vert.    | 5725.0             | PK       | 53.6              | 32.6               | 16.4         | 38.8         | 2.2                     | 66.0               | -29.2                  | -17.0          | 12.2           | 100            | 331             |        |

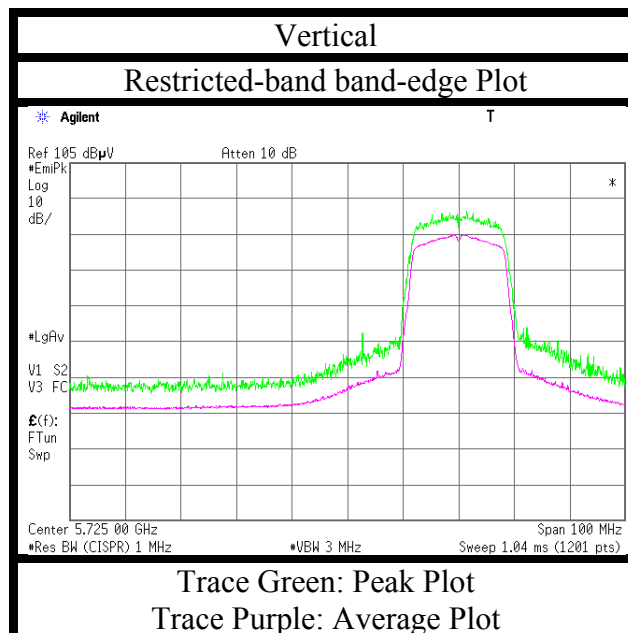
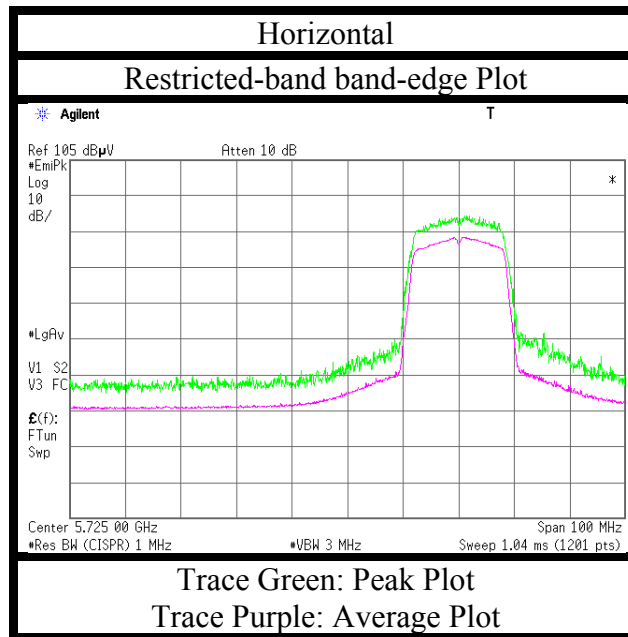
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor  
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \*10^3)

Distance factor : 1 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB  
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 18, 2015                                         |
| Temperature / Humidity | 22 deg. C / 55 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5745 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 18, 2015                                         |
| Temperature / Humidity | 22 deg. C / 55 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5825 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11a, PN9 |

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Result (EIRP)<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|------------------------|----------------|----------------|----------------|-----------------|--------|
| Hori.    | 5850.0             | PK       | 50.0              | 32.9               | 16.4         | 38.8         | 2.2                     | 62.7               | -32.5                  | -17.0          | 15.5           | 100            | 281             |        |
| Hori.    | 5860.0             | PK       | 46.8              | 32.9               | 16.4         | 38.8         | 2.2                     | 59.5               | -35.7                  | -27.0          | 8.7            | 100            | 281             |        |
| Vert.    | 5850.0             | PK       | 50.7              | 32.9               | 16.4         | 38.8         | 2.2                     | 63.4               | -31.8                  | -17.0          | 14.8           | 100            | 74              |        |
| Vert.    | 5860.0             | PK       | 47.6              | 32.9               | 16.4         | 38.8         | 2.2                     | 60.3               | -34.9                  | -27.0          | 7.9            | 100            | 74              |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \*10^3)

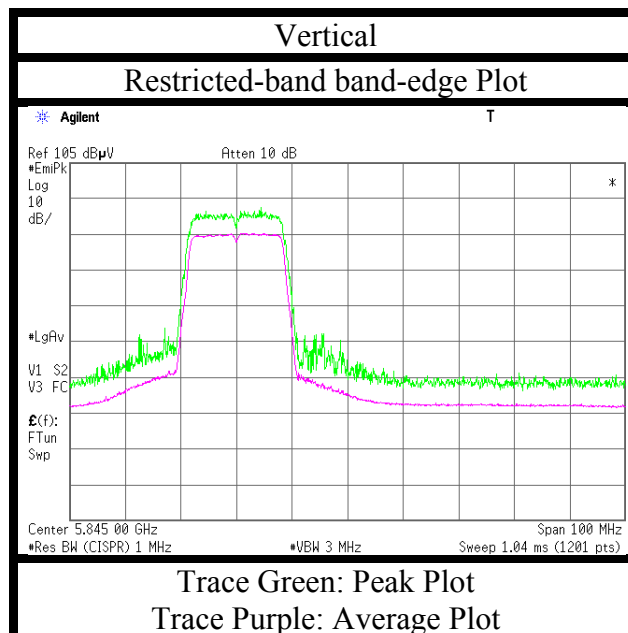
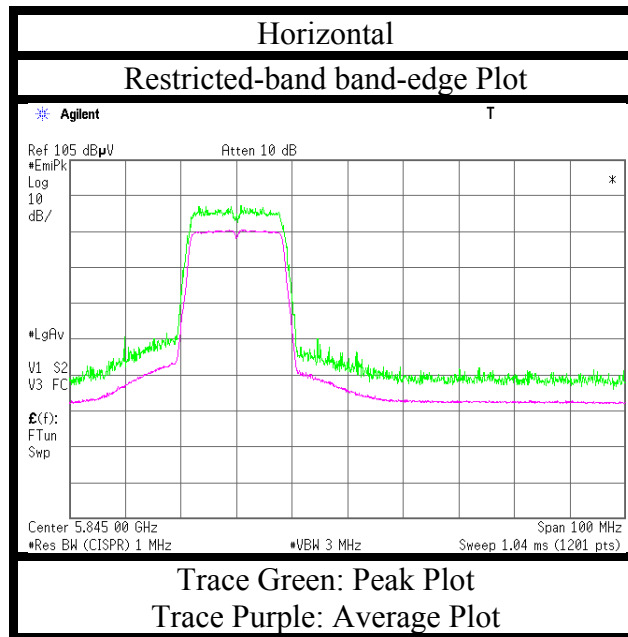
Distance factor : 1 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 18, 2015                                         |
| Temperature / Humidity | 22 deg. C / 55 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5825 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature / Humidity : 22 deg. C / 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5825 MHz, Antenna cable 199 mm  
Tx, IEEE802.11a, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Result (EIRP)<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|------------------------|----------------|----------------|----------------|-----------------|--------|
| Hori.    | 5850.0             | PK       | 50.7              | 32.9               | 16.4         | 38.8         | 2.2                     | 63.4               | -31.8                  | -17.0          | 14.8           | 104            | 13              |        |
| Hori.    | 5860.0             | PK       | 47.2              | 32.9               | 16.4         | 38.8         | 2.2                     | 59.9               | -35.3                  | -27.0          | <b>8.3</b>     | 104            | 13              |        |
| Vert.    | 5850.0             | PK       | 45.9              | 32.9               | 16.4         | 38.8         | 2.2                     | 58.6               | -36.6                  | -17.0          | 19.6           | 100            | 307             |        |
| Vert.    | 5860.0             | PK       | 45.5              | 32.9               | 16.4         | 38.8         | 2.2                     | 58.2               | -37.0                  | -27.0          | 10.0           | 100            | 307             |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \*10^3

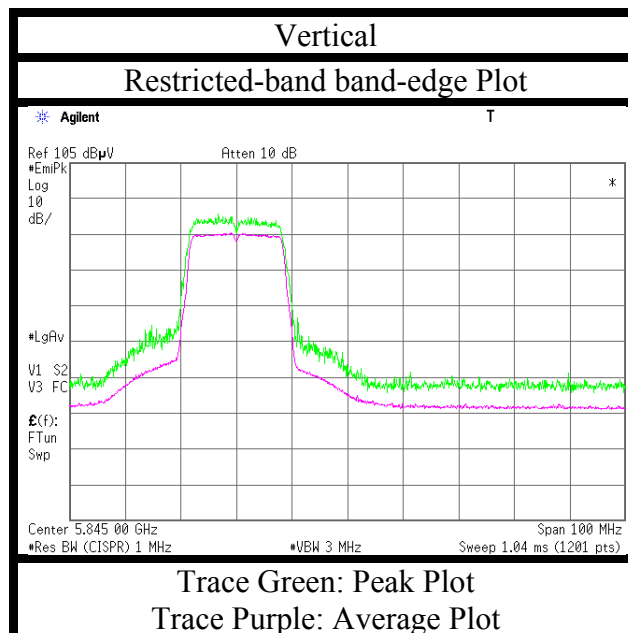
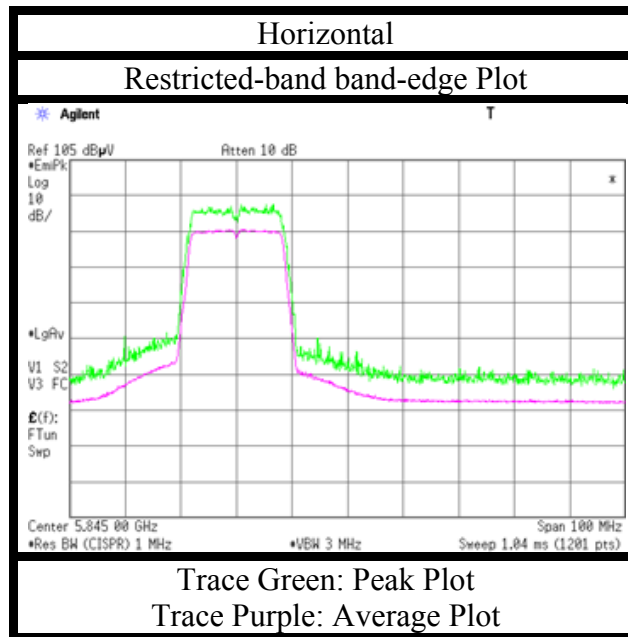
Distance factor : 1 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Test place             | Shonan EMC Lab. No2 Semi Anechoic Chamber                 |
| Report No.             | 11014760S-C-R2                                            |
| Date                   | November 18, 2015                                         |
| Temperature / Humidity | 22 deg. C / 55 % RH                                       |
| Engineer               | Wataru Kojima<br>(1 GHz-6.4 GHz)                          |
| Mode                   | Tx 5825 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11a, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015    November 19, 2015    November 20, 2015    November 21, 2015    November 25, 2015  
Temperature : 22 deg. C /    23 deg. C /    22 deg. C /    20 deg. C /    20 deg. C /  
/ Humidity : 55 % RH    52 % RH    45 % RH    50 % RH    50 % RH  
Engineer : Wataru Kojima    Yohsuke Ishikawa    Yohsuke Ishikawa    Tomohiro Hara    Kenichi Adachi  
(1 GHz-6.4 GHz)    (6.4 GHz-13 GHz)    (13 GHz-18 GHz)    (18 GHz-26.5GHz)    (26.5 GHz-40 GHz)  
Mode : Tx 5180 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5150.0          | PK       | 46.2           | 32.1            | 16.1      | 39.2      | 2.2                  | 57.4            | 73.9           | 16.5        | 100         | 183          |              |
| Hori.    | 15540.0         | PK       | 46.8           | 40.4            | 11.3      | 40.9      | -9.5                 | 48.1            | 73.9           | 25.8        | 100         | 0            |              |
| Hori.    | 20720.0         | PK       | 49.7           | 40.3            | 11.9      | 47.0      | -9.5                 | 45.4            | 73.9           | 28.5        | 100         | 0            |              |
| Hori.    | 5150.0          | AV       | 35.5           | 32.1            | 16.1      | 39.2      | 2.2                  | 46.7            | 53.9           | 7.2         | 100         | 183          | VBW: 2.2 kHz |
| Hori.    | 15540.0         | AV       | 35.4           | 40.4            | 11.3      | 40.9      | -9.5                 | 36.7            | 53.9           | 17.2        | 100         | 0            | VBW: 2.2 kHz |
| Hori.    | 20720.0         | AV       | 43.5           | 40.3            | 11.9      | 47.0      | -9.5                 | 39.2            | 53.9           | 14.7        | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 5150.0          | PK       | 46.4           | 32.1            | 16.1      | 39.2      | 2.2                  | 57.6            | 73.9           | 16.3        | 100         | 206          |              |
| Vert.    | 8288.0          | PK       | 46.0           | 37.4            | 8.0       | 34.3      | 2.2                  | 59.3            | 73.9           | 14.6        | 103         | 321          |              |
| Vert.    | 15540.0         | PK       | 46.0           | 40.4            | 11.3      | 40.9      | -9.5                 | 47.3            | 73.9           | 26.6        | 100         | 0            |              |
| Vert.    | 20720.0         | PK       | 49.0           | 40.3            | 11.9      | 47.0      | -9.5                 | 44.7            | 73.9           | 29.2        | 100         | 353          |              |
| Vert.    | 5150.0          | AV       | 35.9           | 32.1            | 16.1      | 39.2      | 2.2                  | 47.1            | 53.9           | 6.8         | 100         | 206          | VBW: 2.2 kHz |
| Vert.    | 8288.0          | AV       | 39.6           | 37.4            | 8.0       | 34.3      | 2.2                  | 52.9            | 53.9           | 1.0         | 103         | 321          | VBW: 2.2 kHz |
| Vert.    | 15540.0         | AV       | 35.6           | 40.4            | 11.3      | 40.9      | -9.5                 | 36.9            | 53.9           | 17.0        | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 20720.0         | AV       | 42.4           | 40.3            | 11.9      | 47.0      | -9.5                 | 38.1            | 53.9           | 15.8        | 100         | 353          | VBW: 2.2 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 10360.0         | PK       | 41.7           | 39.3            | 8.4       | 34.4      | 2.2                  | 57.2            | -38.0               | -27.0       | 11.0        | 100         | 0            |        |
| Vert.    | 10360.0         | PK       | 43.1           | 39.3            | 8.4       | 34.4      | 2.2                  | 58.6            | -36.6               | -27.0       | 9.6         | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\cdot\log\left(\left(\left\{10^{\left(\text{Electric Field Strength [dBuV/m]} / 20\right)}\right\} \cdot 10^{-6}\right) \cdot \text{Distance:3[m]}^2 / 30\right) \cdot 10^3$

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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**Shonan EMC Lab.**

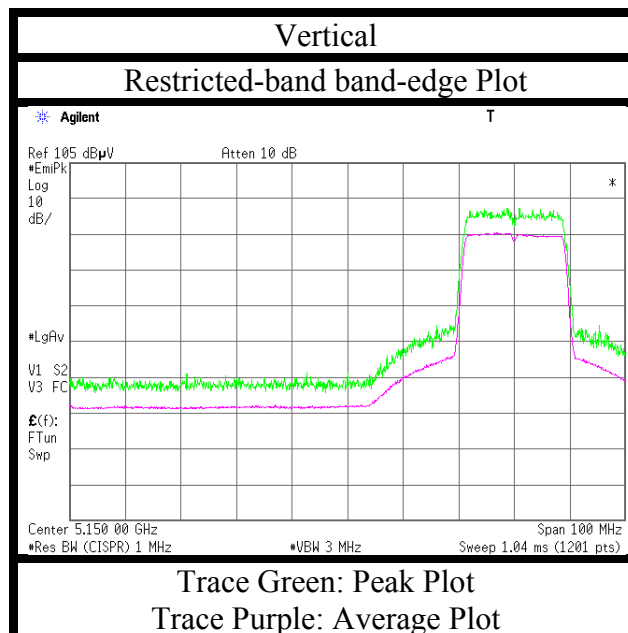
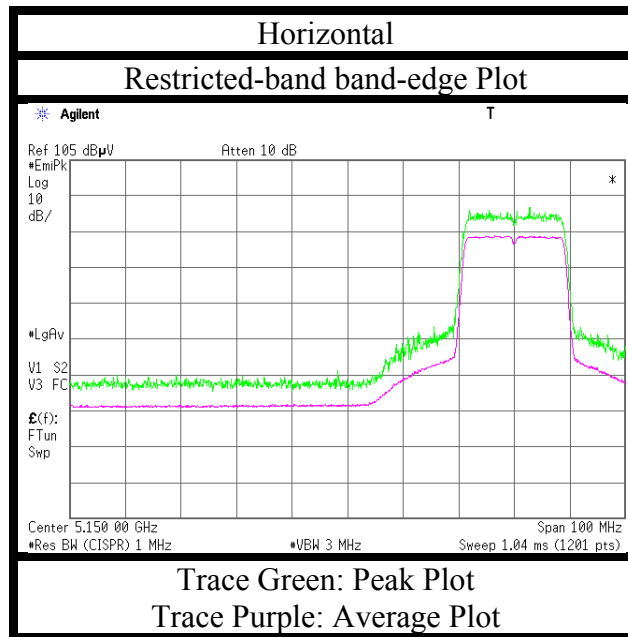
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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## Radiated Spurious Emission

|             |                                                                |
|-------------|----------------------------------------------------------------|
| Test place  | Shonan EMC Lab. No2 Semi Anechoic Chamber                      |
| Report No.  | 11014760S-C-R2                                                 |
| Date        | November 18, 2015                                              |
| Temperature | 22 deg. C /                                                    |
| / Humidity  | 55 % RH                                                        |
| Engineer    | Wataru Kojima<br>(1 GHz-6.4 GHz)                               |
| Mode        | Tx 5180 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11n HT20, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5180 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark       |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------------|
| Hori.    | 5150.0             | PK       | 46.1              | 32.1               | 16.1         | 39.2         | 2.2                     | 57.3               | 73.9              | 16.6           | 100            | 183             |              |
| Hori.    | 5150.0             | AV       | 35.5              | 32.1               | 16.1         | 39.2         | 2.2                     | 46.7               | 53.9              | 7.2            | 100            | 127             | VBW: 2.2 kHz |
| Vert.    | 5150.0             | PK       | 46.1              | 32.1               | 16.1         | 39.2         | 2.2                     | 57.3               | 73.9              | 16.6           | 100            | 175             |              |
| Vert.    | 5150.0             | AV       | 35.5              | 32.1               | 16.1         | 39.2         | 2.2                     | 46.7               | 53.9              | 7.2            | 100            | 175             | VBW: 2.2 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

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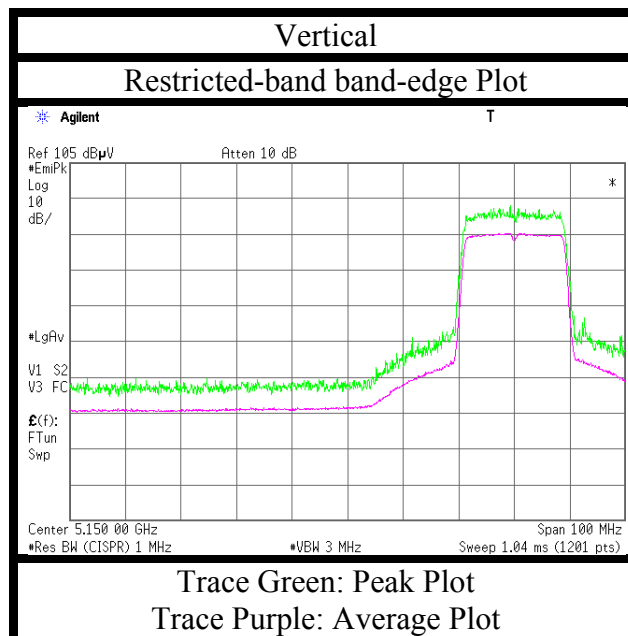
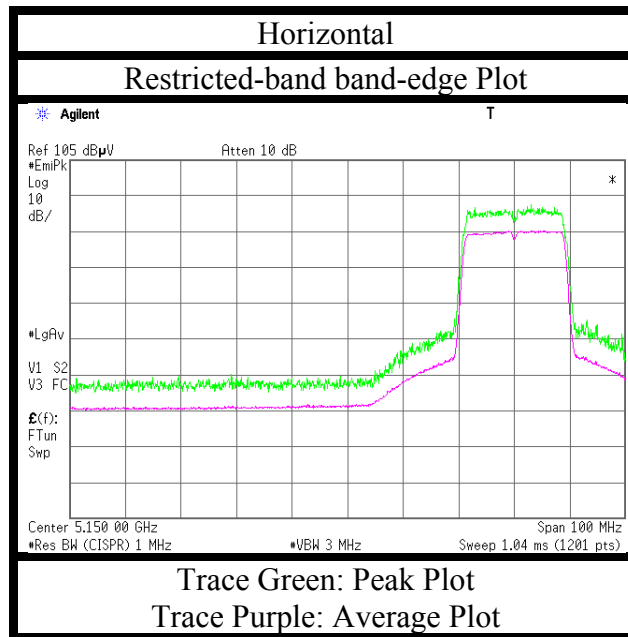
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

|             |                                                                |
|-------------|----------------------------------------------------------------|
| Test place  | Shonan EMC Lab. No2 Semi Anechoic Chamber                      |
| Report No.  | 11014760S-C-R2                                                 |
| Date        | November 18, 2015                                              |
| Temperature | 22 deg. C /                                                    |
| / Humidity  | 55 % RH                                                        |
| Engineer    | Wataru Kojima<br>(1 GHz-6.4 GHz)                               |
| Mode        | Tx 5180 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11n HT20, PN9 |



\* Final result of restricted band edge was shown in tabular data.

**UL Japan, Inc.**

**Shonan EMC Lab.**

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## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015    November 19, 2015    November 20, 2015    November 21, 2015    November 25, 2015  
Temperature : 22 deg. C /    23 deg. C /    22 deg. C /    20 deg. C /    20 deg. C /  
/ Humidity : 55 % RH    52 % RH    45 % RH    50 % RH    50 % RH  
Engineer : Wataru Kojima    Yohsuke Ishikawa    Yohsuke Ishikawa    Tomohiro Hara    Kenichi Adachi  
(1 GHz-6.4 GHz)    (6.4 GHz-13 GHz)    (13 GHz-18 GHz)    (18 GHz-26.5GHz)    (26.5 GHz-40 GHz)  
Mode : Tx 5240 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 15720.0         | PK       | 44.5           | 40.0            | 11.6      | 40.8      | -9.5                 | 45.8            | 73.9           | 28.1        | 100         | 0            |              |
| Hori.    | 20960.0         | PK       | 48.6           | 40.3            | 12.0      | 47.0      | -9.5                 | 44.4            | 73.9           | 29.5        | 100         | 0            |              |
| Hori.    | 15720.0         | AV       | 35.6           | 40.0            | 11.6      | 40.8      | -9.5                 | 36.9            | 53.9           | 17.0        | 100         | 0            | VBW: 2.2 kHz |
| Hori.    | 20960.0         | AV       | 42.9           | 40.3            | 12.0      | 47.0      | -9.5                 | 38.7            | 53.9           | 15.2        | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 8384.0          | PK       | 43.1           | 37.3            | 8.1       | 34.3      | 2.2                  | 56.4            | 73.9           | 17.5        | 121         | 340          |              |
| Vert.    | 15720.0         | PK       | 45.1           | 40.0            | 11.6      | 40.8      | -9.5                 | 46.4            | 73.9           | 27.5        | 100         | 0            |              |
| Vert.    | 20960.0         | PK       | 48.2           | 40.3            | 12.0      | 47.0      | -9.5                 | 44.0            | 73.9           | 29.9        | 100         | 353          |              |
| Vert.    | 8384.0          | AV       | 33.8           | 37.3            | 8.1       | 34.3      | 2.2                  | 47.1            | 53.9           | 6.8         | 121         | 340          | VBW: 2.2 kHz |
| Vert.    | 15720.0         | AV       | 35.7           | 40.0            | 11.6      | 40.8      | -9.5                 | 37.0            | 53.9           | 16.9        | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 20960.0         | AV       | 42.1           | 40.3            | 12.0      | 47.0      | -9.5                 | 37.9            | 53.9           | 16.0        | 100         | 353          | VBW: 2.2 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 10480.0         | PK       | 43.0           | 39.6            | 8.4       | 34.4      | 2.2                  | 58.8            | -36.4               | -27.0       | 9.4         | 100         | 0            |        |
| Vert.    | 10480.0         | PK       | 42.5           | 39.6            | 8.4       | 34.4      | 2.2                  | 58.3            | -36.9               | -27.0       | 9.9         | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\cdot\text{LOG}((\{10^{\wedge}(\text{Electric Field Strength [dBuV/m]} / 20)\} \cdot 10^{\wedge}(-6)) \cdot \text{Distance:3[m]}^{\wedge}2) / 30) \cdot 10^{\wedge}3)$

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

**UL Japan, Inc.**

**Shonan EMC Lab.**

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## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015 November 19, 2015 November 20, 2015 November 21, 2015 November 25, 2015  
Temperature 22 deg. C / 23 deg. C / 22 deg. C / 20 deg. C / 20 deg. C /  
/ Humidity 55 % RH 52 % RH 45 % RH 50 % RH 50 % RH  
Engineer Wataru Kojima Yohsuke Ishikawa Yohsuke Ishikawa Tomohiro Hara Kenichi Adachi  
(1 GHz-6.4 GHz) (6.4 GHz-13 GHz) (13 GHz-18 GHz) (18 GHz-26.5GHz) (26.5 GHz-40 GHz)  
Mode Tx 5320 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5350.0          | PK       | 45.3           | 32.2            | 16.2      | 38.9      | 2.2                  | 57.0            | 73.9           | 16.9        | 100         | 209          |              |
| Hori.    | 10640.0         | PK       | 41.7           | 39.8            | 8.5       | 34.3      | 2.2                  | 57.9            | 73.9           | 16.0        | 100         | 0            |              |
| Hori.    | 15960.0         | PK       | 45.4           | 39.5            | 12.0      | 40.7      | -9.5                 | 46.7            | 73.9           | 27.2        | 100         | 0            |              |
| Hori.    | 21280.0         | PK       | 46.9           | 40.4            | 12.1      | 47.1      | -9.5                 | 42.8            | 73.9           | 31.1        | 100         | 52           |              |
| Hori.    | 5350.0          | AV       | 34.4           | 32.2            | 16.2      | 38.9      | 2.2                  | 46.1            | 53.9           | 7.8         | 100         | 209          | VBW: 2.2 kHz |
| Hori.    | 10640.0         | AV       | 32.3           | 39.8            | 8.5       | 34.3      | 2.2                  | 48.5            | 53.9           | 5.4         | 100         | 0            | VBW: 2.2 kHz |
| Hori.    | 15960.0         | AV       | 34.9           | 39.5            | 12.0      | 40.7      | -9.5                 | 36.2            | 53.9           | 17.7        | 100         | 0            | VBW: 2.2 kHz |
| Hori.    | 21280.0         | AV       | 40.4           | 40.4            | 12.1      | 47.1      | -9.5                 | 36.3            | 53.9           | 17.6        | 100         | 52           | VBW: 2.2 kHz |
| Vert.    | 5350.0          | PK       | 46.3           | 32.2            | 16.2      | 38.9      | 2.2                  | 58.0            | 73.9           | 15.9        | 100         | 212          |              |
| Vert.    | 10640.0         | PK       | 42.7           | 39.8            | 8.5       | 34.3      | 2.2                  | 58.9            | 73.9           | 15.0        | 100         | 0            |              |
| Vert.    | 15960.0         | PK       | 44.0           | 39.5            | 12.0      | 40.7      | -9.5                 | 45.3            | 73.9           | 28.6        | 100         | 0            |              |
| Vert.    | 21280.0         | PK       | 48.5           | 40.4            | 12.1      | 47.1      | -9.5                 | 44.4            | 73.9           | 29.5        | 100         | 354          |              |
| Vert.    | 5350.0          | AV       | 34.8           | 32.2            | 16.2      | 38.9      | 2.2                  | 46.5            | 53.9           | 7.4         | 100         | 212          | VBW: 2.2 kHz |
| Vert.    | 10640.0         | AV       | 32.3           | 39.8            | 8.5       | 34.3      | 2.2                  | 48.5            | 53.9           | 5.4         | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 15960.0         | AV       | 35.0           | 39.5            | 12.0      | 40.7      | -9.5                 | 36.3            | 53.9           | 17.6        | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 21280.0         | AV       | 41.2           | 40.4            | 12.1      | 47.1      | -9.5                 | 37.1            | 53.9           | 16.8        | 100         | 354          | VBW: 2.2 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Vert.    | 8512.0          | PK       | 43.9           | 37.1            | 8.1       | 34.3      | 2.2                  | 57.0            | -38.2               | -27.0       | 11.2        | 196         | 317          |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

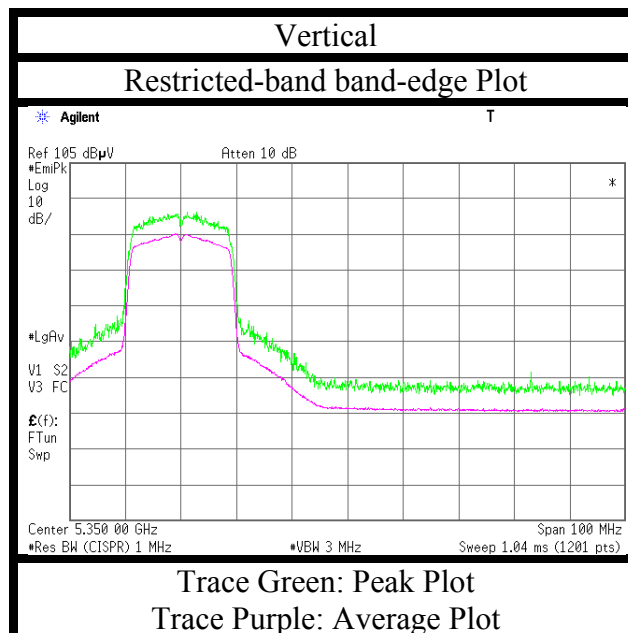
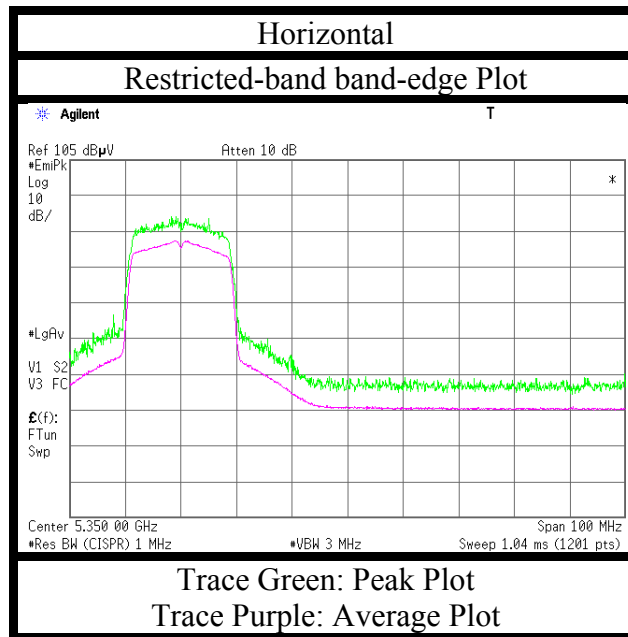
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30 ) \* 10 ^ 3 )

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5320 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9



\* Final result of restricted band edge was shown in tabular data.

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## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5320 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark       |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|--------------|
| Hori.    | 5350.0             | PK       | 46.6              | 32.2               | 16.2         | 38.9         | 2.2                     | 58.3               | 73.9              | 15.6           | 100            | 126             |              |
| Hori.    | 5350.0             | AV       | 35.8              | 32.2               | 16.2         | 38.9         | 2.2                     | 47.6               | 53.9              | 6.3            | 100            | 126             | VBW: 2.2 kHz |
| Vert.    | 5350.0             | PK       | 45.8              | 32.2               | 16.2         | 38.9         | 2.2                     | 57.5               | 73.9              | 16.4           | 100            | 166             |              |
| Vert.    | 5350.0             | AV       | 35.0              | 39.8               | 8.5          | 34.3         | 2.2                     | 51.2               | 53.9              | 2.7            | 100            | 166             | VBW: 2.2 kHz |

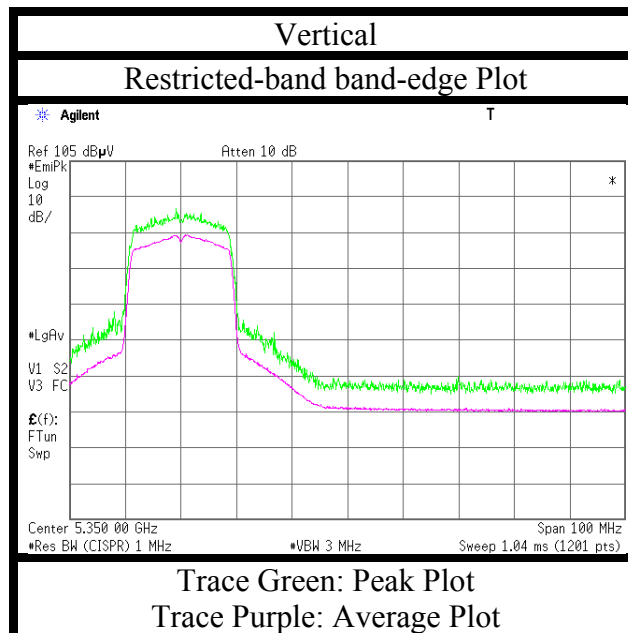
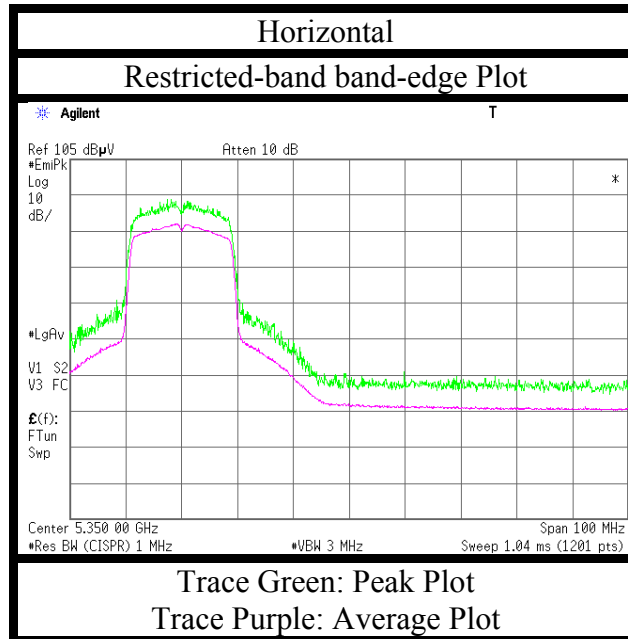
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5320 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT20, PN9



\* Final result of restricted band edge was shown in tabular data.

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## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015 November 19, 2015 November 20, 2015 November 21, 2015 November 25, 2015  
Temperature 22 deg. C / 23 deg. C / 22 deg. C / 20 deg. C / 20 deg. C /  
/ Humidity 55 % RH 52 % RH 45 % RH 50 % RH 50 % RH  
Engineer Wataru Kojima Yohsuke Ishikawa Yohsuke Ishikawa Tomohiro Hara Kenichi Adachi  
(1 GHz-6.4 GHz) (6.4 GHz-13 GHz) (13 GHz-18 GHz) (18 GHz-26.5GHz) (26.5 GHz-40 GHz)  
Mode Tx 5500 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5460.0          | PK       | 46.0           | 32.2            | 16.2      | 38.8      | 2.2                  | 57.8            | 73.9           | 16.1        | 100         | 124          |              |
| Hori.    | 11000.0         | PK       | 41.8           | 40.2            | 8.8       | 34.2      | 2.2                  | 58.8            | 73.9           | 15.1        | 100         | 0            |              |
| Hori.    | 5460.0          | AV       | 34.1           | 32.2            | 16.2      | 38.8      | 2.2                  | 45.9            | 53.9           | 8.0         | 100         | 124          | VBW: 2.2 kHz |
| Hori.    | 11000.0         | AV       | 32.6           | 40.2            | 8.8       | 34.2      | 2.2                  | 49.6            | 53.9           | 4.3         | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 5460.0          | PK       | 44.8           | 32.2            | 16.2      | 38.8      | 2.2                  | 56.6            | 73.9           | 17.3        | 100         | 308          |              |
| Vert.    | 11000.0         | PK       | 42.2           | 40.2            | 8.8       | 34.2      | 2.2                  | 59.2            | 73.9           | 14.7        | 100         | 0            |              |
| Vert.    | 5460.0          | AV       | 34.1           | 32.2            | 16.2      | 38.8      | 2.2                  | 45.9            | 53.9           | 8.0         | 100         | 308          | VBW: 2.2 kHz |
| Vert.    | 11000.0         | AV       | 32.4           | 40.2            | 8.8       | 34.2      | 2.2                  | 49.4            | 53.9           | 4.5         | 100         | 0            | VBW: 2.2 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5470.0          | PK       | 46.6           | 32.2            | 16.3      | 38.8      | 2.2                  | 58.5            | -36.7               | -27.0       | 9.7         | 100         | 124          |        |
| Hori.    | 16500.0         | PK       | 43.7           | 40.5            | 12.4      | 40.5      | -9.5                 | 46.6            | -48.6               | -27.0       | 21.6        | 100         | 0            |        |
| Hori.    | 22000.0         | PK       | 49.3           | 40.7            | 12.4      | 47.4      | -9.5                 | 45.5            | -49.7               | -27.0       | 22.7        | 100         | 102          |        |
| Vert.    | 5470.0          | PK       | 45.5           | 32.2            | 16.3      | 38.8      | 2.2                  | 57.4            | -37.8               | -27.0       | 10.8        | 100         | 308          |        |
| Vert.    | 8800.0          | PK       | 42.6           | 37.0            | 8.2       | 34.1      | 2.2                  | 55.9            | -39.3               | -27.0       | 12.3        | 158         | 350          |        |
| Vert.    | 16500.0         | PK       | 44.7           | 40.5            | 12.4      | 40.5      | -9.5                 | 47.6            | -47.6               | -27.0       | 20.6        | 100         | 0            |        |
| Vert.    | 22000.0         | PK       | 51.0           | 40.7            | 12.4      | 47.4      | -9.5                 | 47.2            | -48.0               | -27.0       | 21.0        | 100         | 35           |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30 ) \*10^3)

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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**Shonan EMC Lab.**

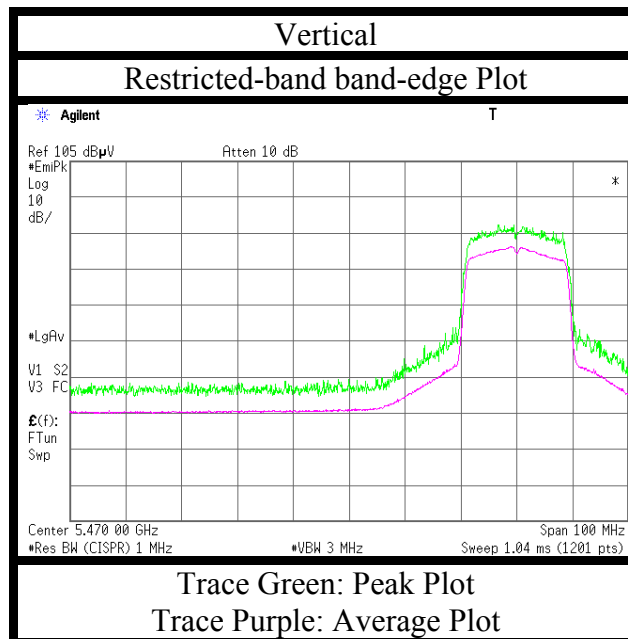
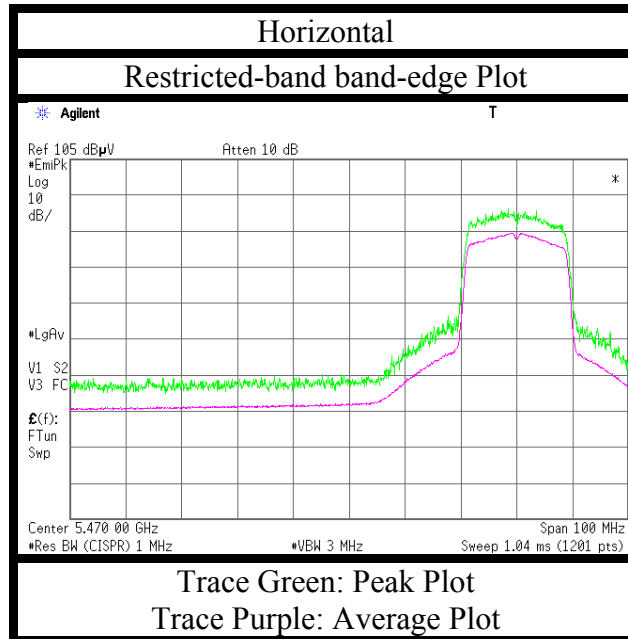
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

|             |                                                                |
|-------------|----------------------------------------------------------------|
| Test place  | Shonan EMC Lab. No2 Semi Anechoic Chamber                      |
| Report No.  | 11014760S-C-R2                                                 |
| Date        | November 18, 2015                                              |
| Temperature | 22 deg. C /                                                    |
| / Humidity  | 55 % RH                                                        |
| Engineer    | Wataru Kojima<br>(1 GHz-6.4 GHz)                               |
| Mode        | Tx 5500 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11n HT20, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5500 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5460.0          | PK       | 45.3           | 32.2            | 16.2      | 38.8      | 2.2                  | 57.1            | 73.9           | 16.8        | 100         | 86           | VBW: 2.2 kHz |
| Hori.    | 5460.0          | AV       | 34.2           | 32.2            | 16.2      | 38.8      | 2.2                  | 46.0            | 53.9           | 7.9         | 100         | 86           |              |
| Vert.    | 5460.0          | PK       | 45.2           | 32.2            | 16.2      | 38.8      | 2.2                  | 57.0            | 73.9           | 16.9        | 100         | 69           | VBW: 2.2 kHz |
| Vert.    | 5460.0          | AV       | 34.1           | 32.2            | 16.2      | 38.8      | 2.2                  | 45.9            | 53.9           | 8.0         | 100         | 69           |              |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5470.0          | PK       | 45.4           | 32.2            | 16.3      | 38.8      | 2.2                  | 57.3            | -37.9               | -27.0       | 10.9        | 100         | 86           |        |
| Vert.    | 5470.0          | PK       | 45.4           | 32.2            | 16.3      | 38.8      | 2.2                  | 57.3            | -37.9               | -27.0       | 10.9        | 100         | 69           |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

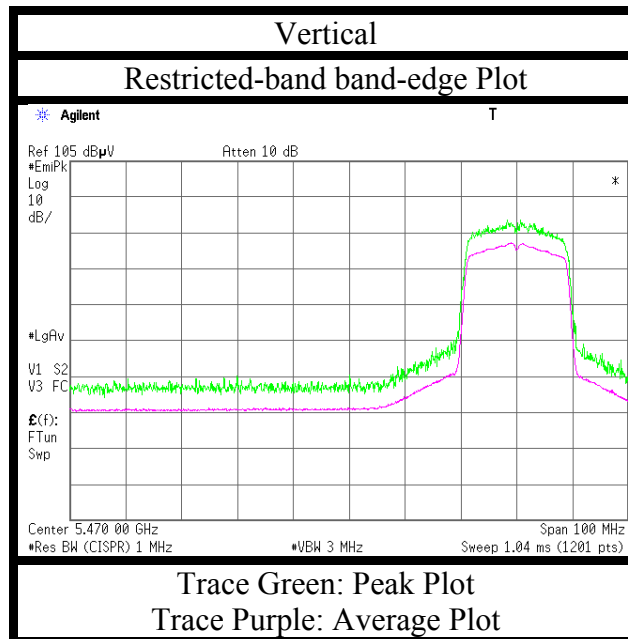
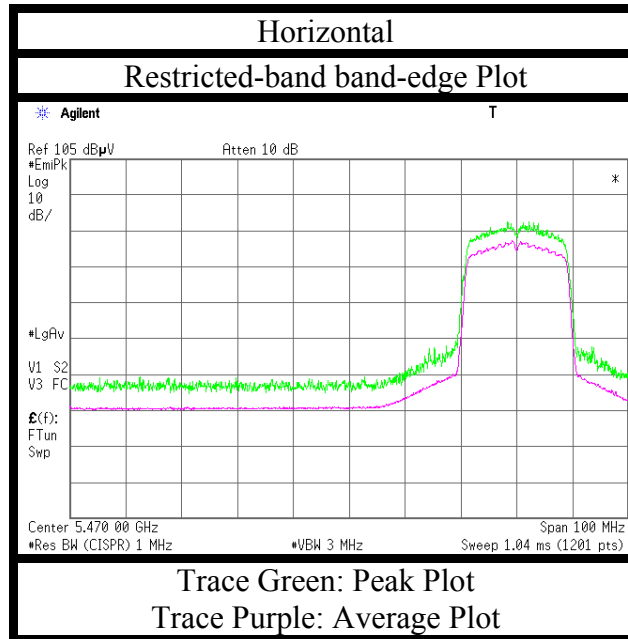
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \* 10 ^ 3

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|             |                                           |
|-------------|-------------------------------------------|
| Test place  | Shonan EMC Lab. No2 Semi Anechoic Chamber |
| Report No.  | 11014760S-C-R2                            |
| Date        | November 18, 2015                         |
| Temperature | 22 deg. C /                               |
| / Humidity  | 55 % RH                                   |
| Engineer    | Wataru Kojima                             |
|             | (1 GHz-6.4 GHz)                           |
| Mode        | Tx 5500 MHz, Antenna cable 199 mm         |
|             | Tx, IEEE802.11n HT20, PN9                 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015 November 19, 2015 November 20, 2015 November 21, 2015 November 25, 2015  
Temperature 22 deg. C / 23 deg. C / 22 deg. C / 20 deg. C / 20 deg. C /  
/ Humidity 55 % RH 52 % RH 45 % RH 50 % RH 50 % RH  
Engineer Wataru Kojima Yohsuke Ishikawa Yohsuke Ishikawa Tomohiro Hara Kenichi Adachi  
(1 GHz-6.4 GHz) (6.4 GHz-13 GHz) (13 GHz-18 GHz) (18 GHz-26.5GHz) (26.5 GHz-40 GHz)  
Mode Tx 5580 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 11160.0         | PK       | 43.2           | 40.1            | 8.8       | 34.1      | 2.2                  | 60.2            | 73.9           | 13.7        | 100         | 0            |              |
| Hori.    | 11160.0         | AV       | 32.7           | 40.1            | 8.8       | 34.1      | 2.2                  | 49.7            | 53.9           | 4.2         | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 11160.0         | PK       | 42.6           | 40.1            | 8.8       | 34.1      | 2.2                  | 59.6            | 73.9           | 14.3        | 100         | 0            |              |
| Vert.    | 11160.0         | AV       | 32.6           | 40.1            | 8.8       | 34.1      | 2.2                  | 49.6            | 53.9           | 4.3         | 100         | 0            | VBW: 2.2 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)"

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 16740.0         | PK       | 43.9           | 41.0            | 12.4      | 40.1      | -9.5                 | 47.7            | -47.5               | -27.0       | 20.5        | 100         | 0            |        |
| Hori.    | 22320.0         | PK       | 49.3           | 40.8            | 12.5      | 47.6      | -9.5                 | 45.5            | -49.7               | -27.0       | 22.7        | 100         | 350          |        |
| Vert.    | 8928.0          | PK       | 41.6           | 37.0            | 8.2       | 34.0      | 2.2                  | 55.0            | -40.2               | -27.0       | 13.2        | 126         | 315          |        |
| Vert.    | 16740.0         | PK       | 44.1           | 41.0            | 12.4      | 40.1      | -9.5                 | 47.9            | -47.3               | -27.0       | 20.3        | 100         | 0            |        |
| Vert.    | 22320.0         | PK       | 50.2           | 40.8            | 12.5      | 47.6      | -9.5                 | 46.4            | -48.8               | -27.0       | 21.8        | 100         | 37           |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\cdot\text{LOG}(\{10^{\wedge}(\text{Electric Field Strength [dBuV/m]} / 20) * 10^{\wedge}(-6) * \text{Distance:3[m]}^{\wedge}2\} / 30) * 10^{\wedge}3)$

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015 November 19, 2015 November 20, 2015 November 21, 2015 November 25, 2015  
Temperature 22 deg. C / 23 deg. C / 22 deg. C / 20 deg. C / 20 deg. C /  
/ Humidity 55 % RH 52 % RH 45 % RH 50 % RH 50 % RH  
Engineer Wataru Kojima Yohsuke Ishikawa Yohsuke Ishikawa Tomohiro Hara Kenichi Adachi  
(1 GHz-6.4 GHz) (6.4 GHz-13 GHz) (13 GHz-18 GHz) (18 GHz-26.5GHz) (26.5 GHz-40 GHz)  
Mode Tx 5700 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 11400.0         | PK       | 42.5           | 40.0            | 8.7       | 33.9      | 2.2                  | 59.5            | 73.9           | 14.4        | 100         | 0            |              |
| Hori.    | 22800.0         | PK       | 48.0           | 40.8            | 12.6      | 47.2      | -9.5                 | 44.7            | 73.9           | 29.2        | 100         | 75           |              |
| Hori.    | 11400.0         | AV       | 32.7           | 40.0            | 8.7       | 33.9      | 2.2                  | 49.7            | 53.9           | 4.2         | 100         | 0            | VBW: 2.2 kHz |
| Hori.    | 22800.0         | AV       | 43.6           | 40.8            | 12.6      | 47.2      | -9.5                 | 40.3            | 53.9           | 13.6        | 100         | 75           | VBW: 2.2 kHz |
| Vert.    | 9120.0          | PK       | 43.1           | 37.2            | 8.3       | 34.1      | 2.2                  | 56.7            | 73.9           | 17.2        | 123         | 313          |              |
| Vert.    | 11400.0         | PK       | 42.2           | 40.0            | 8.7       | 33.9      | 2.2                  | 59.2            | 73.9           | 14.7        | 100         | 0            |              |
| Vert.    | 22800.0         | PK       | 48.5           | 40.8            | 12.6      | 47.2      | -9.5                 | 45.2            | 73.9           | 28.7        | 100         | 11           |              |
| Vert.    | 9120.0          | AV       | 32.6           | 37.2            | 8.3       | 34.1      | 2.2                  | 46.2            | 53.9           | 7.7         | 123         | 313          | VBW: 2.2 kHz |
| Vert.    | 11400.0         | AV       | 32.9           | 40.0            | 8.7       | 33.9      | 2.2                  | 49.9            | 53.9           | 4.0         | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 22800.0         | AV       | 44.3           | 40.8            | 12.6      | 47.2      | -9.5                 | 41.0            | 53.9           | 12.9        | 100         | 11           | VBW: 2.2 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5725.0          | PK       | 46.4           | 32.6            | 16.4      | 38.8      | 2.2                  | 58.8            | -36.4               | -27.0       | 9.4         | 100         | 122          |        |
| Hori.    | 17100.0         | PK       | 43.9           | 41.9            | 12.4      | 39.5      | -9.5                 | 49.2            | -46.0               | -27.0       | 19.0        | 100         | 0            |        |
| Vert.    | 5725.0          | PK       | 46.0           | 32.6            | 16.4      | 38.8      | 2.2                  | 58.4            | -36.8               | -27.0       | 9.8         | 100         | 286          |        |
| Vert.    | 17100.0         | PK       | 44.2           | 41.9            | 12.4      | 39.5      | -9.5                 | 49.5            | -45.7               | -27.0       | 18.7        | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG (( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30) \*10^3)

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

Distance factor : 1 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

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**Shonan EMC Lab.**

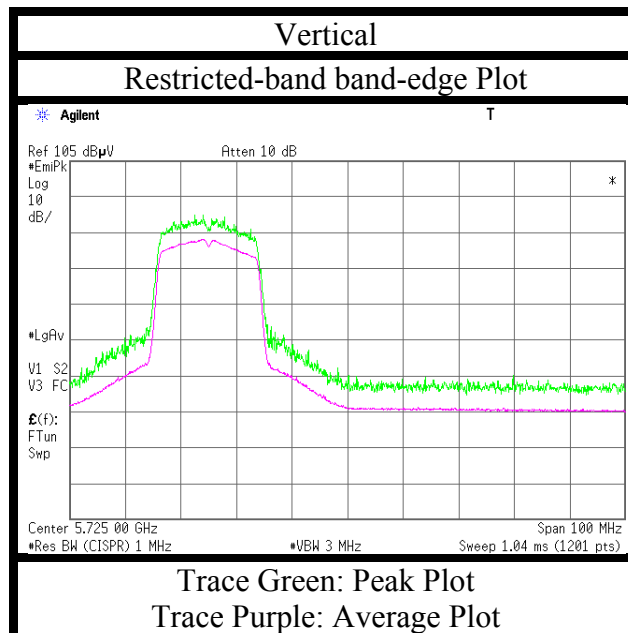
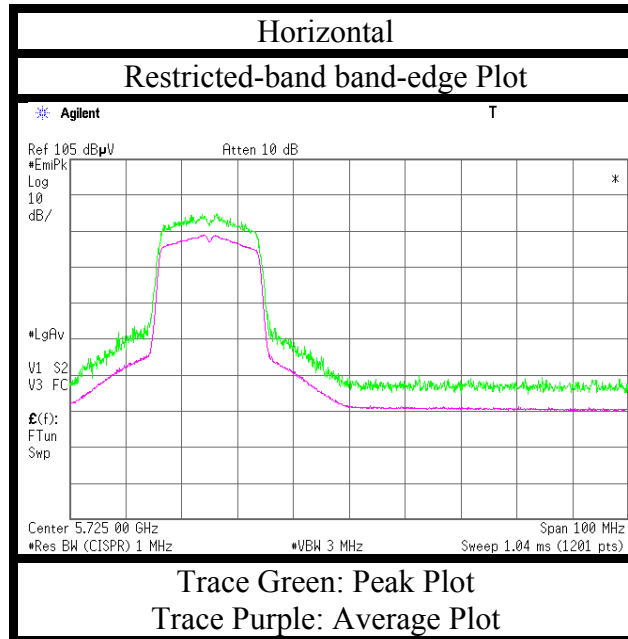
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5700 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5700 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Result (EIRP)<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|------------------------|----------------|----------------|----------------|-----------------|--------|
| Hori.    | 5725.0             | PK       | 45.3              | 32.6               | 16.4         | 38.8         | 2.2                     | 57.7               | -37.5                  | -27.0          | 10.5           | 100            | 147             |        |
| Vert.    | 5725.0             | PK       | 45.7              | 32.6               | 16.4         | 38.8         | 2.2                     | 58.1               | -37.1                  | -27.0          | <b>10.1</b>    | 103            | 329             |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 } / 30) \* 10^3)

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

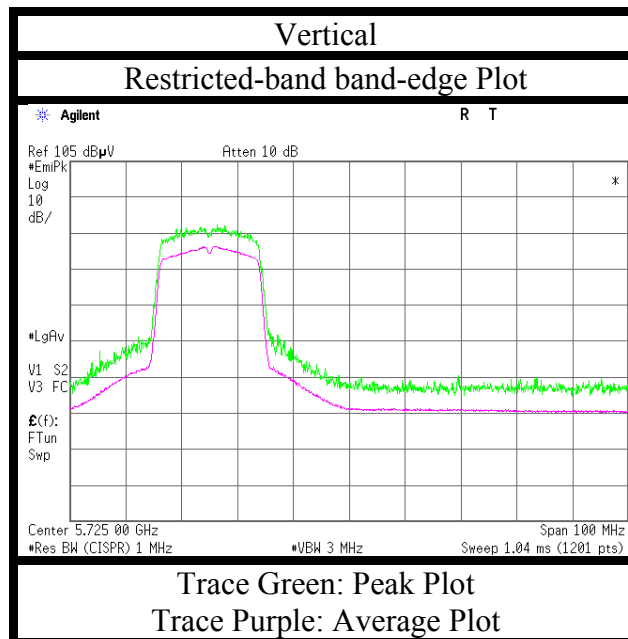
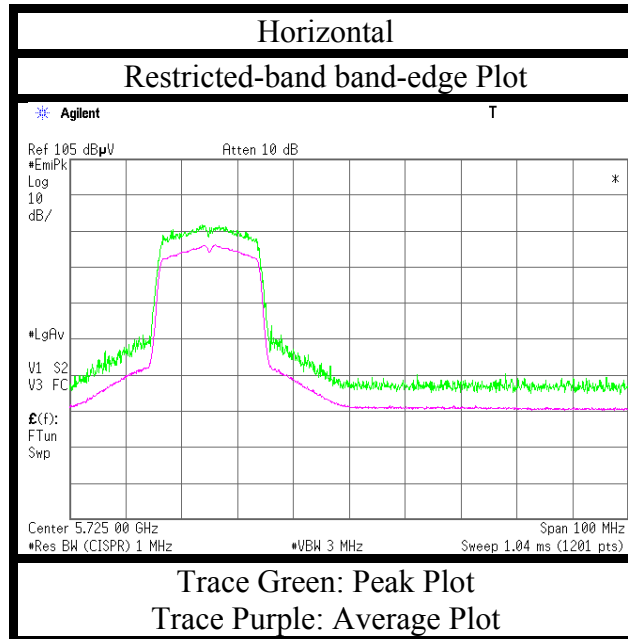
Distance factor : 1 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

|             |                                                                |
|-------------|----------------------------------------------------------------|
| Test place  | Shonan EMC Lab. No2 Semi Anechoic Chamber                      |
| Report No.  | 11014760S-C-R2                                                 |
| Date        | November 18, 2015                                              |
| Temperature | 22 deg. C /                                                    |
| / Humidity  | 55 % RH                                                        |
| Engineer    | Wataru Kojima<br>(1 GHz-6.4 GHz)                               |
| Mode        | Tx 5700 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11n HT20, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015    November 19, 2015    November 20, 2015    November 21, 2015    November 25, 2015  
Temperature : 22 deg. C /    23 deg. C /    22 deg. C /    20 deg. C /    20 deg. C /  
/ Humidity : 55 % RH    52 % RH    45 % RH    50 % RH    50 % RH  
Engineer : Wataru Kojima    Yohsuke Ishikawa    Yohsuke Ishikawa    Tomohiro Hara    Kenichi Adachi  
(1 GHz-6.4 GHz)    (6.4 GHz-13 GHz)    (13 GHz-18 GHz)    (18 GHz-26.5GHz)    (26.5 GHz-40 GHz)  
Mode : Tx 5745 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 11490.0         | PK       | 42.1           | 39.9            | 8.6       | 33.8      | 2.2                  | 59.0            | 73.9           | 14.9        | 100         | 0            |              |
| Hori.    | 22980.0         | PK       | 47.2           | 40.9            | 12.6      | 46.9      | -9.5                 | 44.3            | 73.9           | 29.6        | 100         | 350          |              |
| Hori.    | 11490.0         | AV       | 32.8           | 39.9            | 8.6       | 33.8      | 2.2                  | 49.7            | 53.9           | 4.2         | 100         | 0            | VBW: 2.2 kHz |
| Hori.    | 22980.0         | AV       | 41.6           | 40.9            | 12.6      | 46.9      | -9.5                 | 38.7            | 53.9           | 15.2        | 100         | 350          | VBW: 2.2 kHz |
| Vert.    | 9192.0          | PK       | 43.1           | 37.4            | 8.3       | 34.2      | 2.2                  | 56.8            | 73.9           | 17.1        | 170         | 316          |              |
| Vert.    | 11490.0         | PK       | 43.2           | 39.9            | 8.6       | 33.8      | 2.2                  | 60.1            | 73.9           | 13.8        | 100         | 0            |              |
| Vert.    | 22980.0         | PK       | 49.3           | 40.9            | 12.6      | 46.9      | -9.5                 | 46.4            | 73.9           | 27.5        | 100         | 12           |              |
| Vert.    | 9192.0          | AV       | 33.1           | 37.4            | 8.3       | 34.2      | 2.2                  | 46.8            | 53.9           | 7.1         | 170         | 316          | VBW: 2.2 kHz |
| Vert.    | 11490.0         | AV       | 32.9           | 39.9            | 8.6       | 33.8      | 2.2                  | 49.8            | 53.9           | 4.1         | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 22980.0         | AV       | 44.7           | 40.9            | 12.6      | 46.9      | -9.5                 | 41.8            | 53.9           | 12.1        | 100         | 12           | VBW: 2.2 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5715.0          | PK       | 46.1           | 32.6            | 16.4      | 38.8      | 2.2                  | 58.5            | -36.7               | -27.0       | 9.7         | 100         | 28           |        |
| Hori.    | 5725.0          | PK       | 53.5           | 32.6            | 16.4      | 38.8      | 2.2                  | 65.9            | -29.3               | -17.0       | 12.3        | 100         | 28           |        |
| Hori.    | 17235.0         | PK       | 43.6           | 42.3            | 12.5      | 39.3      | -9.5                 | 49.6            | -45.6               | -27.0       | 18.6        | 100         | 0            |        |
| Vert.    | 5715.0          | PK       | 45.5           | 32.6            | 16.4      | 38.8      | 2.2                  | 57.9            | -37.3               | -27.0       | 10.3        | 110         | 12           |        |
| Vert.    | 5725.0          | PK       | 53.3           | 32.6            | 16.4      | 38.8      | 2.2                  | 65.7            | -29.5               | -17.0       | 12.5        | 110         | 12           |        |
| Vert.    | 17235.0         | PK       | 44.2           | 42.3            | 12.5      | 39.3      | -9.5                 | 50.2            | -45.0               | -27.0       | 18.0        | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\log((\{10^{\frac{1}{2}}(\text{Electric Field Strength [dBuV/m]} / 20) * 10^{-6} * \text{Distance:3[m]} \}^2 / 30) * 10^3)$

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

**UL Japan, Inc.**

**Shonan EMC Lab.**

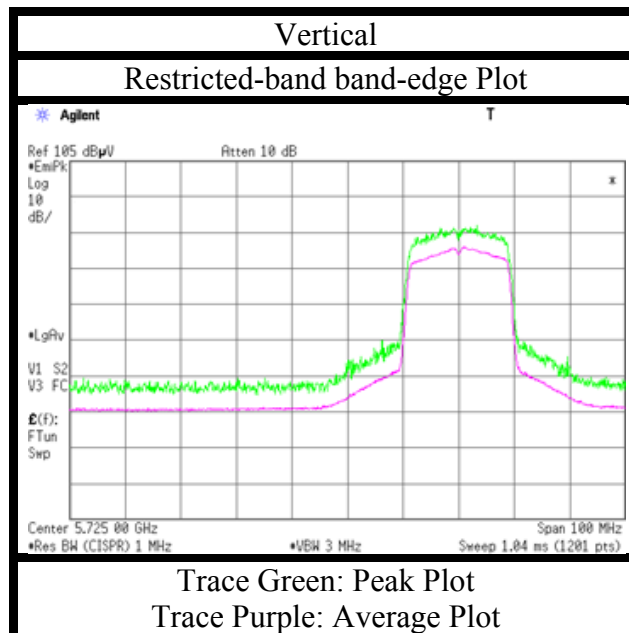
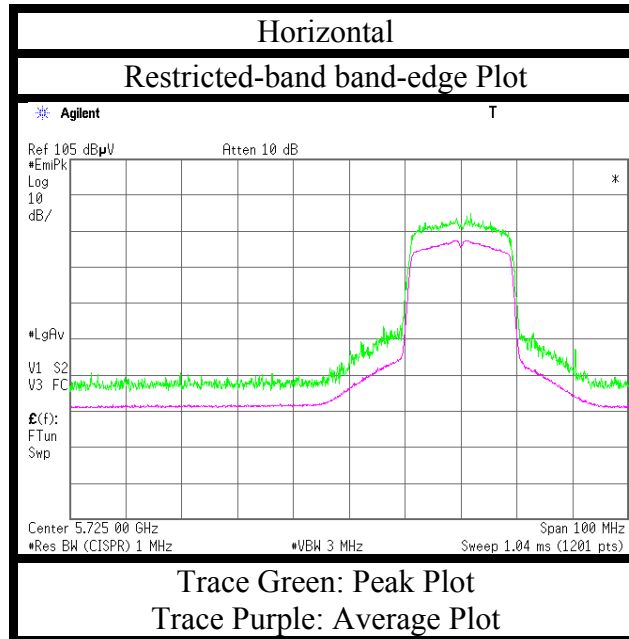
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5745 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9



\* Final result of restricted band edge was shown in tabular data.

**UL Japan, Inc.**

**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5745 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5715.0          | PK       | 45.6           | 32.6            | 16.4      | 38.8      | 2.2                  | 58.0            | -37.2               | -27.0       | 10.2        | 100         | 20           |        |
| Hori.    | 5725.0          | PK       | 51.0           | 32.6            | 16.4      | 38.8      | 2.2                  | 63.4            | -31.8               | -17.0       | 14.8        | 100         | 20           |        |
| Vert.    | 5715.0          | PK       | 47.0           | 32.6            | 16.4      | 38.8      | 2.2                  | 59.4            | -35.8               | -27.0       | <b>8.8</b>  | 100         | 331          |        |
| Vert.    | 5725.0          | PK       | 55.7           | 32.6            | 16.4      | 38.8      | 2.2                  | 68.1            | -27.1               | -17.0       | 10.1        | 100         | 331          |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \*10^3)

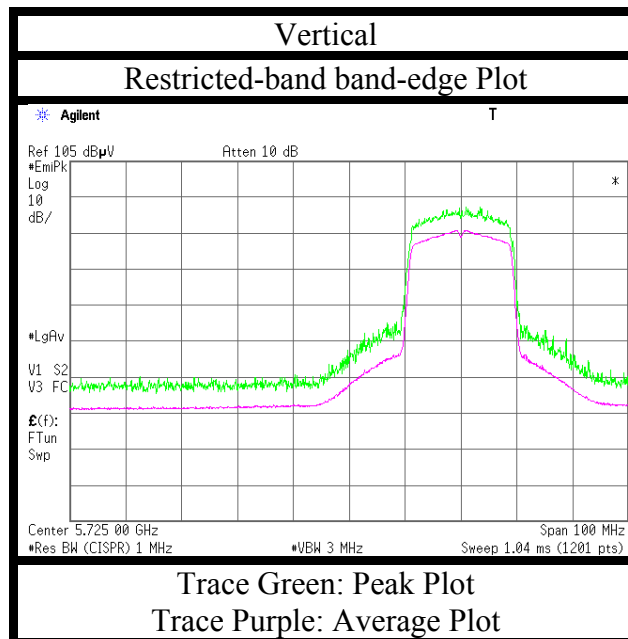
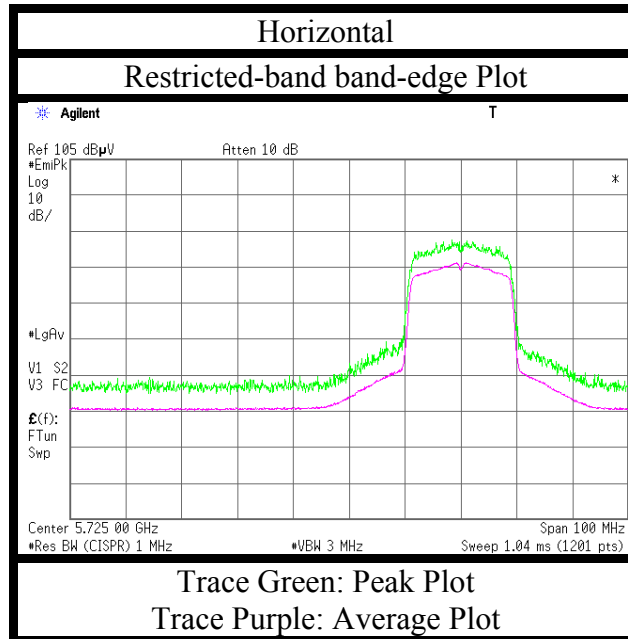
Distance factor : 1 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5745 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT20, PN9



\* Final result of restricted band edge was shown in tabular data.

**UL Japan, Inc.**

**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015    November 19, 2015    November 20, 2015    November 21, 2015    November 25, 2015  
Temperature : 22 deg. C /    23 deg. C /    22 deg. C /    20 deg. C /    20 deg. C /  
/ Humidity : 55 % RH    52 % RH    45 % RH    50 % RH    50 % RH  
Engineer : Wataru Kojima    Yohsuke Ishikawa    Yohsuke Ishikawa    Tomohiro Hara    Kenichi Adachi  
(1 GHz-6.4 GHz)    (6.4 GHz-13 GHz)    (13 GHz-18 GHz)    (18 GHz-26.5GHz)    (26.5 GHz-40 GHz)  
Mode : Tx 5785 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 11570.0         | PK       | 42.7           | 39.9            | 8.7       | 33.9      | 2.2                  | 59.6            | 73.9           | 14.3        | 100         | 0            |              |
| Hori.    | 11570.0         | AV       | 32.7           | 39.9            | 8.7       | 33.9      | 2.2                  | 49.6            | 53.9           | 4.3         | 100         | 0            | VBW: 2.2 kHz |
| Vert.    | 11570.0         | PK       | 43.1           | 39.9            | 8.7       | 33.9      | 2.2                  | 60.0            | 73.9           | 13.9        | 100         | 0            |              |
| Vert.    | 11570.0         | AV       | 33.2           | 39.9            | 8.7       | 33.9      | 2.2                  | 50.1            | 53.9           | 3.8         | 100         | 0            | VBW: 2.2 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)"

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 17355.0         | PK       | 43.5           | 42.8            | 12.5      | 39.2      | -9.5                 | 50.1            | -45.1               | -27.0       | 18.1        | 100         | 0            |        |
| Hori.    | 23140.0         | PK       | 47.0           | 40.9            | 12.7      | 46.8      | -9.5                 | 44.3            | -50.9               | -27.0       | 23.9        | 100         | 350          |        |
| Vert.    | 9256.0          | PK       | 43.6           | 37.5            | 8.4       | 34.4      | 2.2                  | 57.3            | -37.9               | -27.0       | 10.9        | 181         | 334          |        |
| Vert.    | 17355.0         | PK       | 44.3           | 42.8            | 12.5      | 39.2      | -9.5                 | 50.9            | -44.3               | -27.0       | 17.3        | 100         | 0            |        |
| Vert.    | 23140.0         | PK       | 51.0           | 40.9            | 12.7      | 46.8      | -9.5                 | 48.3            | -46.9               | -27.0       | 19.9        | 100         | 13           |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm]) =  $10 \cdot \log \left( \left( \{ 10^{\frac{1}{20} \cdot \text{Electric Field Strength [dBuV/m]} } / 20 \right) \cdot 10^{-6} \cdot \text{Distance[m]} \right)^2 / 30 \cdot 10^{-3}$

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015    November 19, 2015    November 20, 2015    November 21, 2015    November 25, 2015  
Temperature : 22 deg. C /    23 deg. C /    22 deg. C /    20 deg. C /    20 deg. C /  
/ Humidity : 55 % RH    52 % RH    45 % RH    50 % RH    50 % RH  
Engineer : Wataru Kojima    Yohsuke Ishikawa    Yohsuke Ishikawa    Tomohiro Hara    Kenichi Adachi  
(1 GHz-6.4 GHz)    (6.4 GHz-13 GHz)    (13 GHz-18 GHz)    (18 GHz-26.5GHz)    (26.5 GHz-40 GHz)  
Mode : Tx 5825 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 11650.0         | PK       | 43.6           | 39.8            | 8.8       | 33.9      | 2.2                  | 60.5            | 73.9           | 13.4        | 100         | 0            | VBW: 2.2 kHz |
| Hori.    | 11650.0         | AV       | 32.7           | 39.8            | 8.8       | 33.9      | 2.2                  | 49.6            | 53.9           | 4.3         | 100         | 0            |              |
| Vert.    | 9320.0          | PK       | 43.7           | 37.6            | 8.4       | 34.5      | 2.2                  | 57.4            | 73.9           | 16.5        | 137         | 343          | VBW: 2.2 kHz |
| Vert.    | 11650.0         | PK       | 43.5           | 39.8            | 8.8       | 33.9      | 2.2                  | 60.4            | 73.9           | 13.5        | 100         | 0            |              |
| Vert.    | 9320.0          | AV       | 32.9           | 37.6            | 8.4       | 34.5      | 2.2                  | 46.6            | 53.9           | 7.3         | 137         | 343          | VBW: 2.2 kHz |
| Vert.    | 11650.0         | AV       | 33.2           | 39.8            | 8.8       | 33.9      | 2.2                  | 50.1            | 53.9           | 3.8         | 100         | 0            |              |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5850.0          | PK       | 46.8           | 32.9            | 16.4      | 38.8      | 2.2                  | 59.5            | -35.7               | -17.0       | 18.7        | 100         | 355          |        |
| Hori.    | 5860.0          | PK       | 46.3           | 32.9            | 16.4      | 38.8      | 2.2                  | 59.0            | -36.2               | -27.0       | 9.2         | 100         | 355          |        |
| Hori.    | 17475.0         | PK       | 43.0           | 43.2            | 12.6      | 39.1      | -9.5                 | 50.2            | -45.0               | -27.0       | 18.0        | 100         | 0            |        |
| Hori.    | 23300.0         | PK       | 46.1           | 40.9            | 12.7      | 46.7      | -9.5                 | 43.5            | -51.7               | -27.0       | 24.7        | 100         | 3            |        |
| Vert.    | 5850.0          | PK       | 48.0           | 32.9            | 16.4      | 38.8      | 2.2                  | 60.7            | -34.5               | -17.0       | 17.5        | 105         | 11           |        |
| Vert.    | 5860.0          | PK       | 46.4           | 32.9            | 16.4      | 38.8      | 2.2                  | 59.1            | -36.1               | -27.0       | 9.1         | 105         | 11           |        |
| Vert.    | 17475.0         | PK       | 44.0           | 43.2            | 12.6      | 39.1      | -9.5                 | 51.2            | -44.0               | -27.0       | 17.0        | 100         | 0            |        |
| Vert.    | 23300.0         | PK       | 48.4           | 40.9            | 12.7      | 46.7      | -9.5                 | 45.8            | -49.4               | -27.0       | 22.4        | 100         | 14           |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

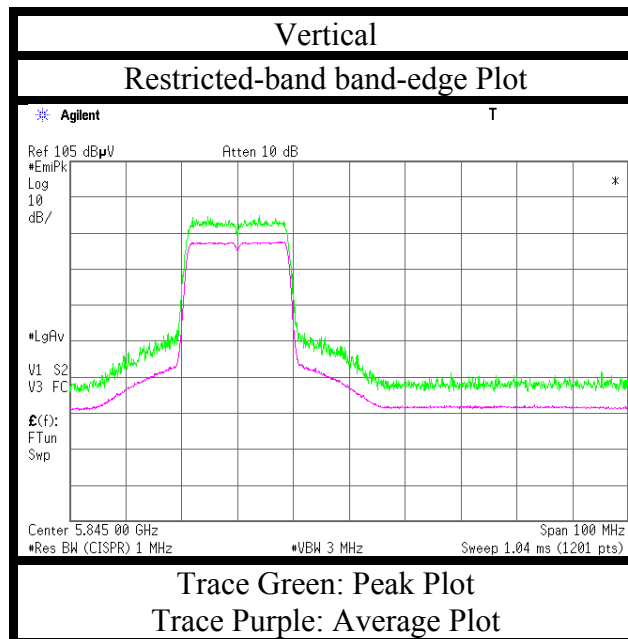
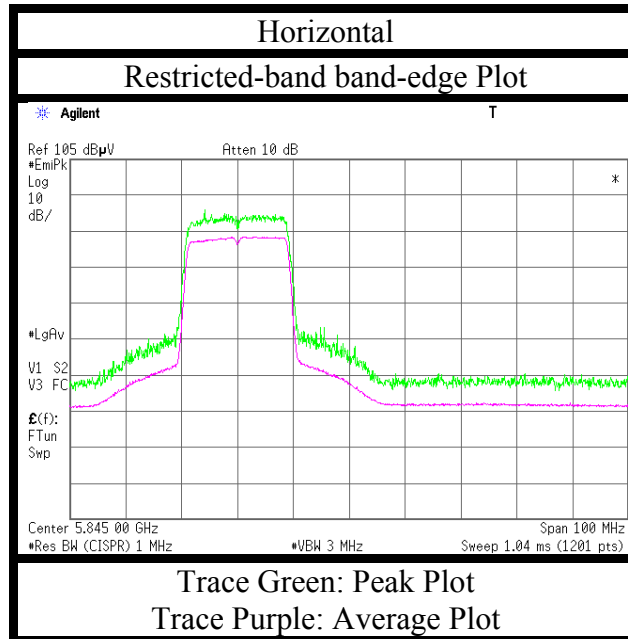
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \*10^3)

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

Distance factor : 1 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5825 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT20, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 18, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5825 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT20, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5850.0          | PK       | 47.3           | 32.9            | 16.4      | 38.8      | 2.2                  | 60.0            | -35.2               | -17.0       | 18.2        | 100         | 15           |        |
| Hori.    | 5860.0          | PK       | 47.0           | 32.9            | 16.4      | 38.8      | 2.2                  | 59.7            | -35.5               | -27.0       | 8.5         | 100         | 15           |        |
| Vert.    | 5850.0          | PK       | 48.1           | 32.9            | 16.4      | 38.8      | 2.2                  | 60.8            | -34.4               | -17.0       | 17.4        | 100         | 325          |        |
| Vert.    | 5860.0          | PK       | 46.1           | 32.9            | 16.4      | 38.8      | 2.2                  | 58.8            | -36.4               | -27.0       | 9.4         | 100         | 325          |        |

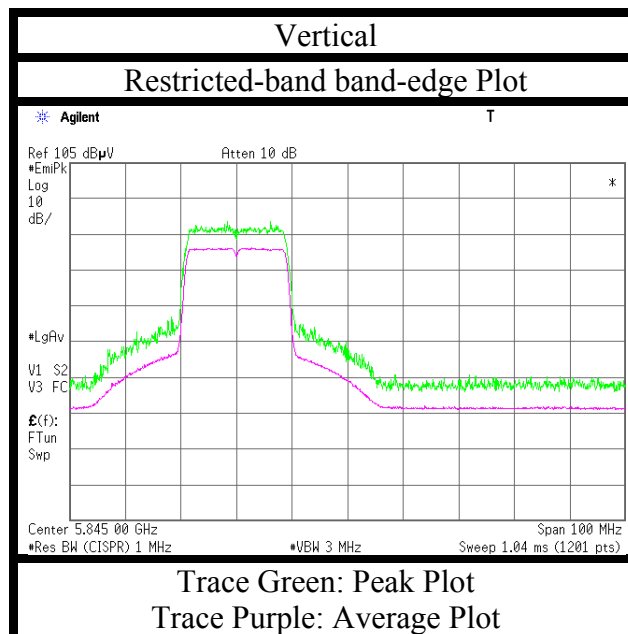
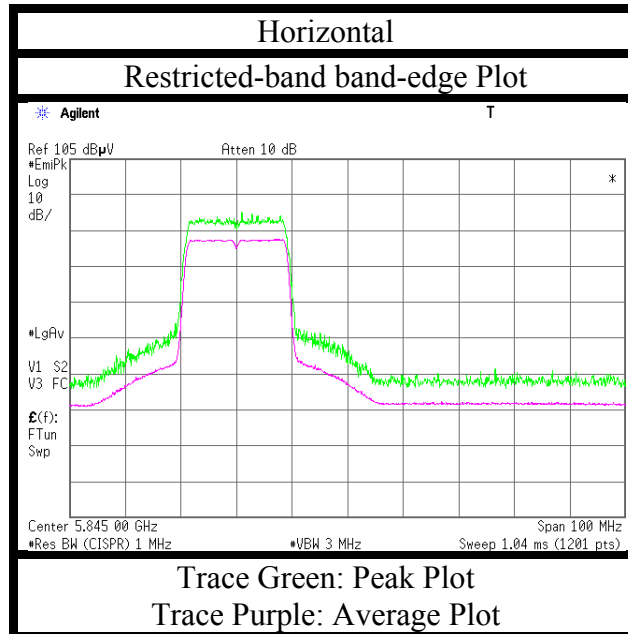
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor  
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \*10^3)

Distance factor : 1 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB  
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 18, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5825 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT20, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 and No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015 November 19, 2015 November 20, 2015 November 21, 2015 November 25, 2015  
Temperature 22 deg. C / 23 deg. C / 22 deg. C / 20 deg. C / 20 deg. C /  
/ Humidity 55 % RH 52 % RH 45 % RH 50 % RH 50 % RH  
Engineer Wataru Kojima Yohsuke Ishikawa Yohsuke Ishikawa Tomohiro Hara Kenichi Adachi  
(1 GHz-6.4 GHz) (6.4 GHz-13 GHz) (13 GHz-18 GHz) (18 GHz-26.5GHz) (26.5 GHz-40 GHz)  
(No.3 SAC) (No.2 SAC) (No.2 SAC) (No.2 SAC) (No.2 SAC)  
Mode Tx 5190 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5150.0          | PK       | 53.9           | 32.2            | 15.5      | 39.2      | 3.3                  | 65.7            | 73.9           | 8.2         | 105         | 85           |              |
| Hori.    | 15570.0         | PK       | 46.0           | 40.4            | 11.4      | 40.9      | -9.5                 | 47.4            | 73.9           | 26.5        | 100         | 0            |              |
| Hori.    | 20760.0         | PK       | 48.7           | 40.3            | 11.9      | 47.0      | -9.5                 | 44.4            | 73.9           | 29.5        | 100         | 0            |              |
| Hori.    | 5150.0          | AV       | 38.9           | 32.2            | 15.5      | 39.2      | 3.3                  | 50.7            | 53.9           | 3.2         | 105         | 85           | VBW: 4.3 kHz |
| Hori.    | 15570.0         | AV       | 36.1           | 40.4            | 11.4      | 40.9      | -9.5                 | 37.5            | 53.9           | 16.4        | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 20760.0         | AV       | 43.0           | 40.3            | 11.9      | 47.0      | -9.5                 | 38.7            | 53.9           | 15.2        | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 5150.0          | PK       | 51.6           | 32.2            | 15.5      | 39.2      | 3.3                  | 63.4            | 73.9           | 10.5        | 100         | 327          |              |
| Vert.    | 8304.0          | PK       | 45.4           | 37.4            | 8.1       | 34.3      | 2.2                  | 58.8            | 73.9           | 15.1        | 162         | 289          |              |
| Vert.    | 15570.0         | PK       | 45.1           | 40.4            | 11.4      | 40.9      | -9.5                 | 46.5            | 73.9           | 27.4        | 100         | 0            |              |
| Vert.    | 20760.0         | PK       | 48.4           | 40.3            | 11.9      | 47.0      | -9.5                 | 44.1            | 73.9           | 29.8        | 100         | 354          |              |
| Vert.    | 5150.0          | AV       | 38.3           | 32.2            | 15.5      | 39.2      | 3.3                  | 50.1            | 53.9           | 3.8         | 100         | 327          | VBW: 4.3 kHz |
| Vert.    | 8304.0          | AV       | 39.7           | 37.4            | 8.1       | 34.3      | 2.2                  | 53.1            | 53.9           | 0.8         | 162         | 289          | VBW: 4.3 kHz |
| Vert.    | 15570.0         | AV       | 35.9           | 40.4            | 11.4      | 40.9      | -9.5                 | 37.3            | 53.9           | 16.6        | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 20760.0         | AV       | 42.3           | 40.3            | 11.9      | 47.0      | -9.5                 | 38.0            | 53.9           | 15.9        | 100         | 354          | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 10380.0         | PK       | 42.2           | 39.3            | 8.4       | 34.4      | 2.2                  | 57.7            | -37.5               | -27.0       | 10.5        | 100         | 0            |        |
| Vert.    | 10380.0         | PK       | 42.7           | 39.3            | 8.4       | 34.4      | 2.2                  | 58.2            | -37.0               | -27.0       | 10.0        | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\cdot\text{LOG}((\{10^{\wedge}( \text{Electric Field Strength [dBuV/m]} / 20 ) * 10^{\wedge}(-6) * \text{Distance:3[m]} )^{\wedge}2 \} / 30) * 10^{\wedge}3)$

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

**UL Japan, Inc.**

**Shonan EMC Lab.**

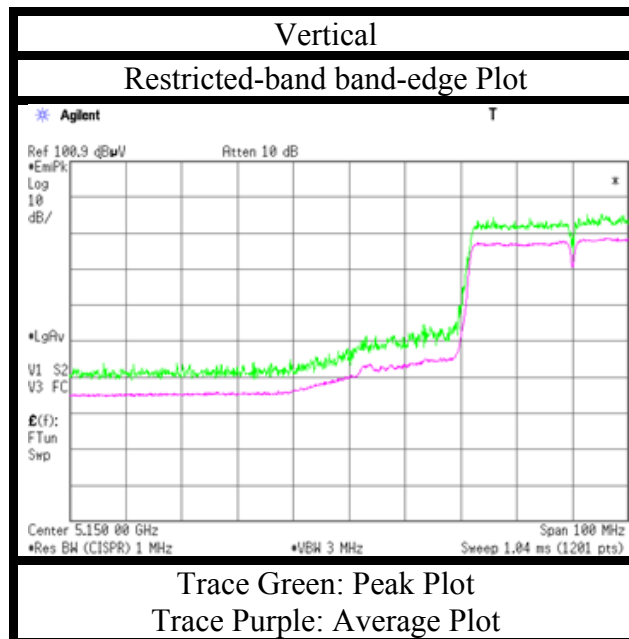
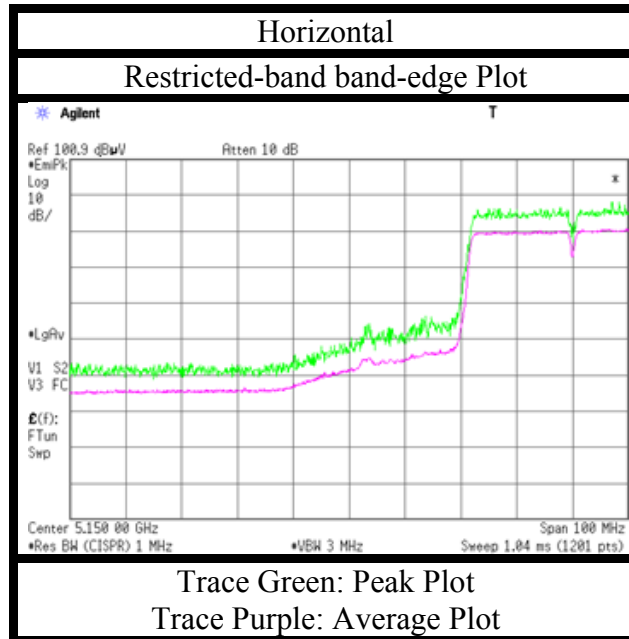
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

|             |                                                                |
|-------------|----------------------------------------------------------------|
| Test place  | Shonan EMC Lab. No3 Semi Anechoic Chamber                      |
| Report No.  | 11014760S-C-R2                                                 |
| Date        | November 17, 2015                                              |
| Temperature | 22 deg. C /                                                    |
| / Humidity  | 55 % RH                                                        |
| Engineer    | Wataru Kojima<br>(1 GHz-6.4 GHz)                               |
| Mode        | Tx 5190 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11n HT40, PN9 |



\* Final result of restricted band edge was shown in tabular data.

**UL Japan, Inc.**

**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5190 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark        |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|---------------|
| Hori.    | 5150.0             | PK       | 52.7              | 32.2               | 15.5         | 39.2         | 3.3                     | 64.4               | 73.9              | 9.5            | 100            | 257             | VBW : 4.3 kHz |
| Hori.    | 5150.0             | AV       | 38.9              | 32.2               | 15.5         | 39.2         | 3.3                     | 50.7               | 53.9              | 3.2            | 100            | 257             |               |
| Vert.    | 5150.0             | PK       | 51.7              | 32.2               | 15.5         | 39.2         | 3.3                     | 63.4               | 73.9              | 10.5           | 100            | 239             | VBW : 4.3 kHz |
| Vert.    | 5150.0             | AV       | 38.7              | 32.2               | 15.5         | 39.2         | 3.3                     | 50.4               | 53.9              | 3.5            | 100            | 239             |               |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$

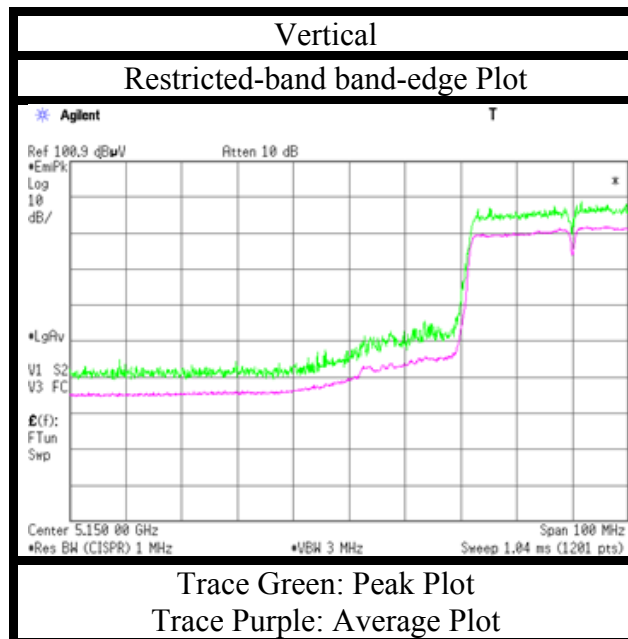
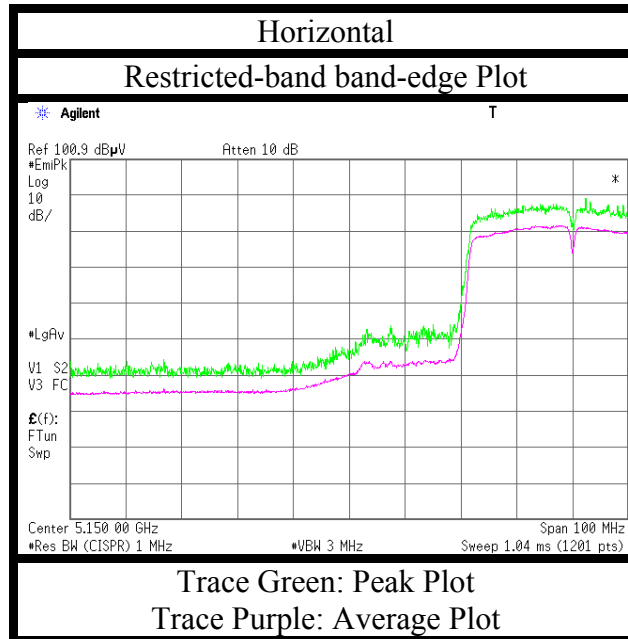
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5190 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

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## Radiated Spurious Emission

|             |                                                                |                                                    |                                                   |                                                 |                                                                        |  |
|-------------|----------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------|--|
| Test place  | Shonan EMC Lab. No2 and No3 Semi Anechoic Chamber              |                                                    |                                                   |                                                 |                                                                        |  |
| Report No.  | 11014760S-C-R2                                                 |                                                    |                                                   |                                                 |                                                                        |  |
| Date        | November 17, 2015                                              | November 19, 2015                                  | November 20, 2015                                 | November 21, 2015                               | November 25, 2015                                                      |  |
| Temperature | 22 deg. C /                                                    | 23 deg. C /                                        | 22 deg. C /                                       | 20 deg. C /                                     | 20 deg. C /                                                            |  |
| / Humidity  | 55 % RH                                                        | 52 % RH                                            | 45 % RH                                           | 50 % RH                                         | 50 % RH                                                                |  |
| Engineer    | Wataru Kojima<br>(1 GHz-6.4 GHz)<br>(No.3 SAC)                 | Yohsuke Ishikawa<br>(6.4 GHz-13 GHz)<br>(No.2 SAC) | Yohsuke Ishikawa<br>(13 GHz-18 GHz)<br>(No.2 SAC) | Tomohiro Hara<br>(18 GHz-26.5GHz)<br>(No.2 SAC) | Kenichi Adachi<br>(30 MHz-1000 MHz)<br>(26.5 GHz-40 GHz)<br>(No.2 SAC) |  |
| Mode        | Tx 5230 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11n HT40, PN9 |                                                    |                                                   |                                                 |                                                                        |  |

### (below 1GHz and above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 76.7            | QP       | 41.6           | 6.2             | 7.6       | 31.9      | 0.0                  | 23.5            | 40.0           | 16.5        | 253         | 226          |              |
| Hori.    | 86.6            | QP       | 40.4           | 7.5             | 7.7       | 31.9      | 0.0                  | 23.7            | 40.0           | 16.3        | 218         | 228          |              |
| Hori.    | 180.8           | QP       | 30.6           | 15.9            | 8.7       | 31.8      | 0.0                  | 23.4            | 43.5           | 20.1        | 181         | 260          |              |
| Hori.    | 324.6           | QP       | 33.2           | 14.2            | 6.8       | 31.7      | 0.0                  | 22.5            | 46.0           | 23.5        | 191         | 253          |              |
| Hori.    | 540.7           | QP       | 33.5           | 18.1            | 8.0       | 31.6      | 0.0                  | 28.0            | 46.0           | 18.0        | 180         | 279          |              |
| Hori.    | 639.0           | QP       | 34.0           | 19.5            | 8.5       | 31.6      | 0.0                  | 30.4            | 46.0           | 15.6        | 144         | 307          |              |
| Hori.    | 15690.0         | PK       | 45.2           | 40.1            | 11.6      | 40.8      | -9.5                 | 46.6            | 73.9           | 27.3        | 100         | 0            |              |
| Hori.    | 20920.0         | PK       | 48.1           | 40.3            | 12.0      | 47.0      | -9.5                 | 43.9            | 73.9           | 30.0        | 100         | 0            |              |
| Hori.    | 15690.0         | AV       | 36.0           | 40.1            | 11.6      | 40.8      | -9.5                 | 37.4            | 53.9           | 16.5        | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 20920.0         | AV       | 42.3           | 40.3            | 12.0      | 47.0      | -9.5                 | 38.1            | 53.9           | 15.8        | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 49.9            | QP       | 44.4           | 10.8            | 7.3       | 31.9      | 0.0                  | 30.6            | 40.0           | 9.4         | 100         | 143          |              |
| Vert.    | 65.8            | QP       | 44.8           | 6.9             | 7.5       | 31.9      | 0.0                  | 27.3            | 40.0           | 12.7        | 100         | 145          |              |
| Vert.    | 75.9            | QP       | 50.2           | 6.2             | 7.6       | 31.9      | 0.0                  | 32.1            | 40.0           | 7.9         | 100         | 140          |              |
| Vert.    | 85.9            | QP       | 47.7           | 7.4             | 7.7       | 31.9      | 0.0                  | 30.9            | 40.0           | 9.1         | 100         | 142          |              |
| Vert.    | 180.8           | QP       | 32.0           | 15.9            | 8.7       | 31.8      | 0.0                  | 24.8            | 43.5           | 18.7        | 100         | 202          |              |
| Vert.    | 324.6           | QP       | 33.0           | 14.2            | 6.8       | 31.7      | 0.0                  | 22.3            | 46.0           | 23.7        | 137         | 224          |              |
| Vert.    | 737.3           | QP       | 26.6           | 20.5            | 9.0       | 31.4      | 0.0                  | 24.7            | 46.0           | 21.3        | 100         | 0            |              |
| Vert.    | 8368.0          | PK       | 44.2           | 37.3            | 8.1       | 34.3      | 2.2                  | 57.5            | 73.9           | 16.4        | 102         | 340          |              |
| Vert.    | 15690.0         | PK       | 46.0           | 40.1            | 11.6      | 40.8      | -9.5                 | 47.4            | 73.9           | 26.5        | 100         | 0            |              |
| Vert.    | 20920.0         | PK       | 48.0           | 40.3            | 12.0      | 47.0      | -9.5                 | 43.8            | 73.9           | 30.1        | 100         | 346          |              |
| Vert.    | 8368.0          | AV       | 34.9           | 37.3            | 8.1       | 34.3      | 2.2                  | 48.2            | 53.9           | 5.7         | 102         | 340          | VBW: 4.3 kHz |
| Vert.    | 15690.0         | AV       | 36.3           | 40.1            | 11.6      | 40.8      | -9.5                 | 37.7            | 53.9           | 16.2        | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 20920.0         | AV       | 42.1           | 40.3            | 12.0      | 47.0      | -9.5                 | 37.9            | 53.9           | 16.0        | 100         | 346          | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 10460.0         | PK       | 42.6           | 39.5            | 8.4       | 34.4      | 2.2                  | 58.3            | -36.9               | -27.0       | 9.9         | 100         | 0            |        |
| Vert.    | 10460.0         | PK       | 42.6           | 39.5            | 8.4       | 34.4      | 2.2                  | 58.3            | -36.9               | -27.0       | 9.9         | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( {  $10^{\wedge} ( \text{Electric Field Strength [dBuV/m]} / 20 ) * 10^{\wedge} (-6) * \text{Distance}^3[\text{m}]^{\wedge} 2$  } / 30 ) \*  $10^{\wedge} 3$  )

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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## Radiated Spurious Emission

|             |                                                                |                                                    |                                                   |                                                 |                                                   |
|-------------|----------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------|-------------------------------------------------|---------------------------------------------------|
| Test place  | Shonan EMC Lab. No2 and No3 Semi Anechoic Chamber              |                                                    |                                                   |                                                 |                                                   |
| Report No.  | 11014760S-C-R2                                                 |                                                    |                                                   |                                                 |                                                   |
| Date        | November 17, 2015                                              | November 19, 2015                                  | November 20, 2015                                 | November 21, 2015                               | November 25, 2015                                 |
| Temperature | 22 deg. C /                                                    | 23 deg. C /                                        | 22 deg. C /                                       | 20 deg. C /                                     | 20 deg. C /                                       |
| / Humidity  | 55 % RH                                                        | 52 % RH                                            | 45 % RH                                           | 50 % RH                                         | 50 % RH                                           |
| Engineer    | Wataru Kojima<br>(1 GHz-6.4 GHz)<br>(No.3 SAC)                 | Yohsuke Ishikawa<br>(6.4 GHz-13 GHz)<br>(No.2 SAC) | Yohsuke Ishikawa<br>(13 GHz-18 GHz)<br>(No.2 SAC) | Tomohiro Hara<br>(18 GHz-26.5GHz)<br>(No.2 SAC) | Kenichi Adachi<br>(26.5 GHz-40 GHz)<br>(No.2 SAC) |
| Mode        | Tx 5310 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11n HT40, PN9 |                                                    |                                                   |                                                 |                                                   |

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5350.0          | PK       | 51.7           | 32.2            | 15.7      | 38.9      | 3.3                  | 64.0            | 73.9           | 9.9         | 100         | 0            |              |
| Hori.    | 10620.0         | PK       | 42.1           | 39.8            | 8.5       | 34.3      | 2.2                  | 58.3            | 73.9           | 15.6        | 100         | 0            |              |
| Hori.    | 15690.0         | PK       | 45.5           | 40.1            | 11.6      | 40.8      | -9.5                 | 46.9            | 73.9           | 27.0        | 100         | 0            |              |
| Hori.    | 21240.0         | PK       | 46.1           | 40.4            | 12.1      | 47.1      | -9.5                 | 42.0            | 73.9           | 31.9        | 100         | 57           |              |
| Hori.    | 5350.0          | AV       | 39.9           | 32.2            | 15.7      | 38.9      | 3.3                  | 52.2            | 53.9           | 1.7         | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 10620.0         | AV       | 33.1           | 39.8            | 8.5       | 34.3      | 2.2                  | 49.3            | 53.9           | 4.6         | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 15690.0         | AV       | 36.1           | 40.1            | 11.6      | 40.8      | -9.5                 | 37.5            | 53.9           | 16.4        | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 21240.0         | AV       | 39.7           | 40.4            | 12.1      | 47.1      | -9.5                 | 35.6            | 53.9           | 18.3        | 100         | 57           | VBW: 4.3 kHz |
| Vert.    | 5350.0          | PK       | 52.2           | 32.2            | 15.7      | 38.9      | 3.3                  | 64.5            | 73.9           | 9.4         | 100         | 0            |              |
| Vert.    | 8496.0          | PK       | 42.6           | 37.1            | 8.1       | 34.3      | 2.2                  | 55.7            | 73.9           | 18.2        | 124         | 313          |              |
| Vert.    | 10620.0         | PK       | 42.7           | 39.8            | 8.5       | 34.3      | 2.2                  | 58.9            | 73.9           | 15.0        | 100         | 0            |              |
| Vert.    | 15690.0         | PK       | 47.4           | 40.1            | 11.6      | 40.8      | -9.5                 | 48.8            | 73.9           | 25.1        | 100         | 0            |              |
| Vert.    | 21240.0         | PK       | 47.4           | 40.4            | 12.1      | 47.1      | -9.5                 | 43.3            | 73.9           | 30.6        | 100         | 355          |              |
| Vert.    | 5350.0          | AV       | 39.6           | 32.2            | 15.7      | 38.9      | 3.3                  | 51.9            | 53.9           | 2.0         | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 8496.0          | AV       | 33.4           | 37.1            | 8.1       | 34.3      | 2.2                  | 46.5            | 53.9           | 7.4         | 124         | 313          | VBW: 4.3 kHz |
| Vert.    | 10620.0         | AV       | 32.7           | 39.8            | 8.5       | 34.3      | 2.2                  | 48.9            | 53.9           | 5.0         | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 15690.0         | AV       | 35.9           | 40.1            | 11.6      | 40.8      | -9.5                 | 37.3            | 53.9           | 16.6        | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 21240.0         | AV       | 41.1           | 40.4            | 12.1      | 47.1      | -9.5                 | 37.0            | 53.9           | 16.9        | 100         | 355          | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37 \text{ m} / 3.0 \text{ m}) = 3.27 \text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87 \text{ m} / 3.0 \text{ m}) = 2.21 \text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

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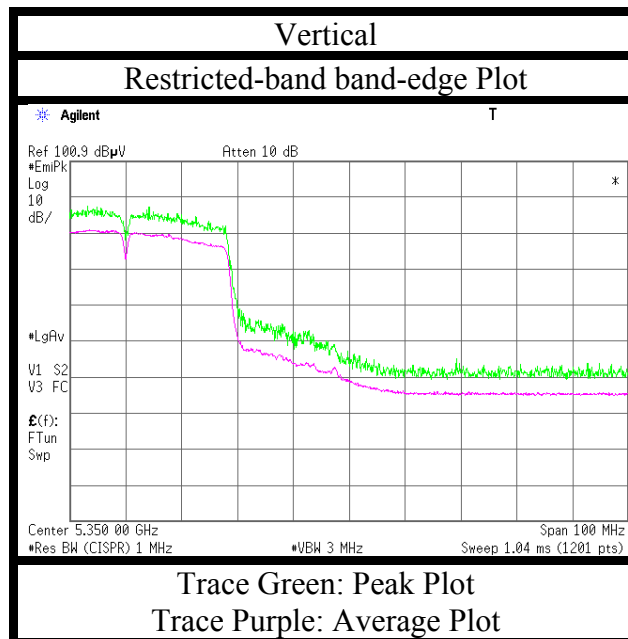
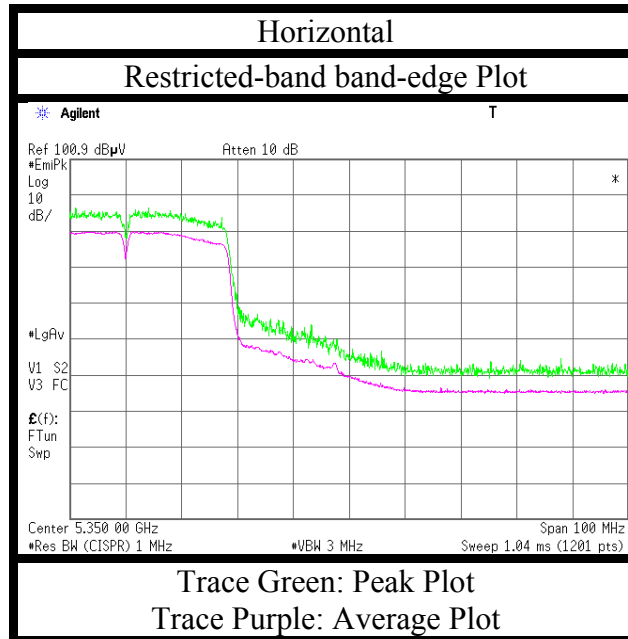
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## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5310 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5310 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5350.0          | PK       | 54.6           | 32.2            | 15.7      | 38.9      | 3.3                  | 66.9            | 73.9           | 7.0         | 124         | 292          |              |
| Hori.    | 5350.0          | AV       | 41.2           | 32.2            | 15.7      | 38.9      | 3.3                  | 53.5            | 53.9           | 0.4         | 124         | 292          | VBW: 4.3 kHz |
| Vert.    | 5350.0          | PK       | 51.5           | 32.2            | 15.7      | 38.9      | 3.3                  | 63.8            | 73.9           | 10.1        | 100         | 294          |              |
| Vert.    | 5350.0          | AV       | 39.7           | 32.2            | 15.7      | 38.9      | 3.3                  | 52.0            | 53.9           | 1.9         | 100         | 294          | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$

6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

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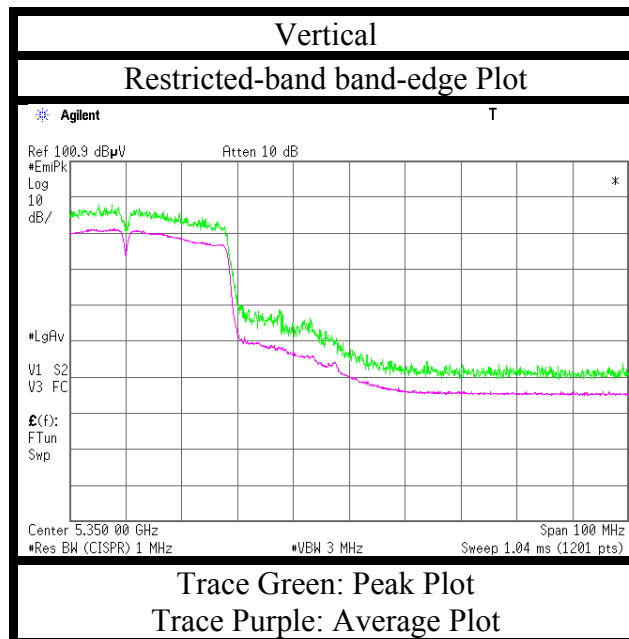
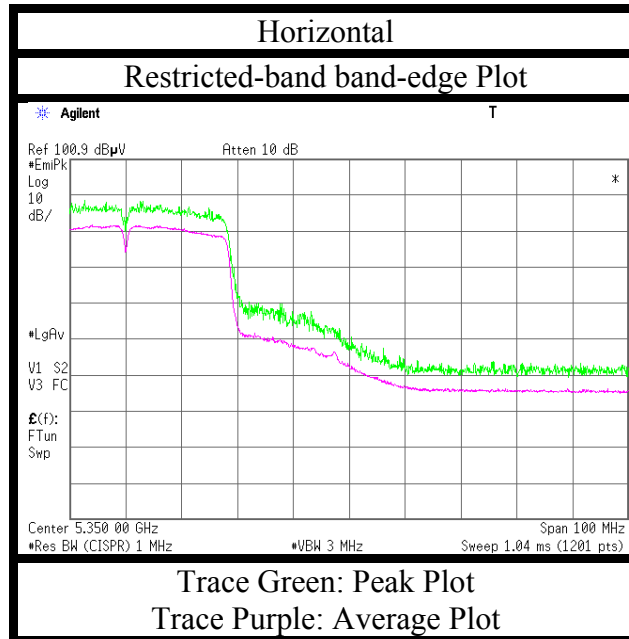
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## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5310 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No2 and No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015 November 19, 2015 November 20, 2015 November 21, 2015 November 25, 2015  
Temperature 22 deg. C / 23 deg. C / 22 deg. C / 20 deg. C / 20 deg. C /  
/ Humidity 55 % RH 52 % RH 45 % RH 50 % RH 50 % RH  
Engineer Wataru Kojima Yohsuke Ishikawa Yohsuke Ishikawa Tomohiro Hara Kenichi Adachi  
(1 GHz-6.4 GHz) (6.4 GHz-13 GHz) (13 GHz-18 GHz) (18 GHz-26.5GHz) (26.5 GHz-40 GHz)  
(No.3 SAC) (No.2 SAC) (No.2 SAC) (No.2 SAC) (No.2 SAC)  
Mode Tx 5510 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5460.0          | PK       | 46.6           | 32.2            | 15.8      | 38.8      | 3.3                  | 59.1            | 73.9           | 14.8        | 100         | 28           |              |
| Hori.    | 11020.0         | PK       | 42.0           | 40.2            | 8.8       | 34.2      | 2.2                  | 59.0            | 73.9           | 14.9        | 100         | 0            |              |
| Hori.    | 22040.0         | PK       | 50.8           | 40.7            | 12.4      | 47.5      | -9.5                 | 46.9            | 73.9           | 27.0        | 100         | 103          |              |
| Hori.    | 5460.0          | AV       | 36.1           | 32.2            | 15.8      | 38.8      | 3.3                  | 48.6            | 53.9           | 5.3         | 100         | 28           | VBW: 4.3 kHz |
| Hori.    | 11020.0         | AV       | 32.9           | 40.2            | 8.8       | 34.2      | 2.2                  | 49.9            | 53.9           | 4.0         | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 22040.0         | AV       | 44.3           | 40.7            | 12.4      | 47.5      | -9.5                 | 40.4            | 53.9           | 13.5        | 100         | 103          | VBW: 4.3 kHz |
| Vert.    | 5460.0          | PK       | 45.1           | 32.2            | 15.8      | 38.8      | 3.3                  | 57.6            | 73.9           | 16.3        | 121         | 65           |              |
| Vert.    | 11020.0         | PK       | 43.2           | 40.2            | 8.8       | 34.2      | 2.2                  | 60.2            | 73.9           | 13.7        | 100         | 0            |              |
| Vert.    | 22040.0         | PK       | 50.7           | 40.7            | 12.4      | 47.5      | -9.5                 | 46.8            | 73.9           | 27.1        | 100         | 62           |              |
| Vert.    | 5460.0          | AV       | 35.2           | 32.2            | 15.8      | 38.8      | 3.3                  | 47.7            | 53.9           | 6.2         | 121         | 65           | VBW: 4.3 kHz |
| Vert.    | 11020.0         | AV       | 32.8           | 40.2            | 8.8       | 34.2      | 2.2                  | 49.8            | 53.9           | 4.1         | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 22040.0         | AV       | 44.5           | 40.7            | 12.4      | 47.5      | -9.5                 | 40.6            | 53.9           | 13.3        | 100         | 62           | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5470.0          | PK       | 51.9           | 32.2            | 15.8      | 38.8      | 3.3                  | 64.4            | -30.8               | -27.0       | 3.8         | 100         | 28           |        |
| Hori.    | 16530.0         | PK       | 43.6           | 40.5            | 12.4      | 40.4      | -9.5                 | 46.6            | -48.6               | -27.0       | 21.6        | 100         | 0            |        |
| Vert.    | 8816.0          | PK       | 41.8           | 37.0            | 8.2       | 34.1      | 2.2                  | 55.1            | -40.1               | -27.0       | 13.1        | 121         | 65           |        |
| Vert.    | 5470.0          | PK       | 49.3           | 32.2            | 15.8      | 38.8      | 3.3                  | 61.8            | -33.4               | -27.0       | 6.4         | 100         | 0            |        |
| Vert.    | 16530.0         | PK       | 43.8           | 40.5            | 12.4      | 40.4      | -9.5                 | 46.8            | -48.4               | -27.0       | 21.4        | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ) ^ 2 / 30 ) \* 10^3

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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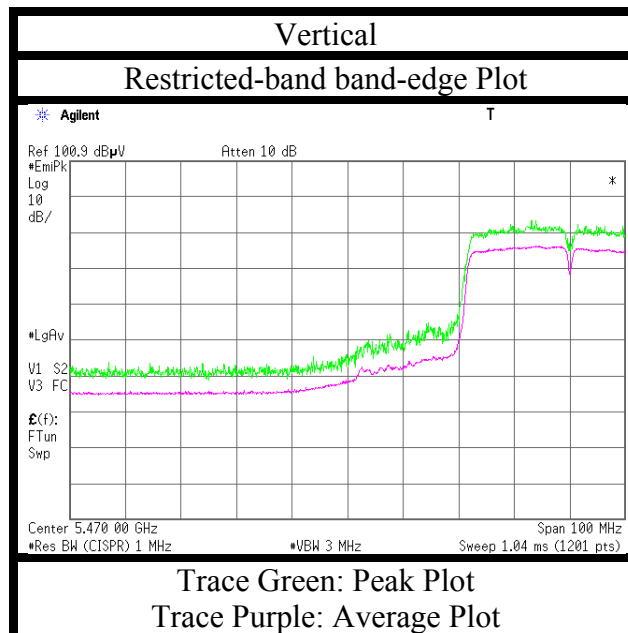
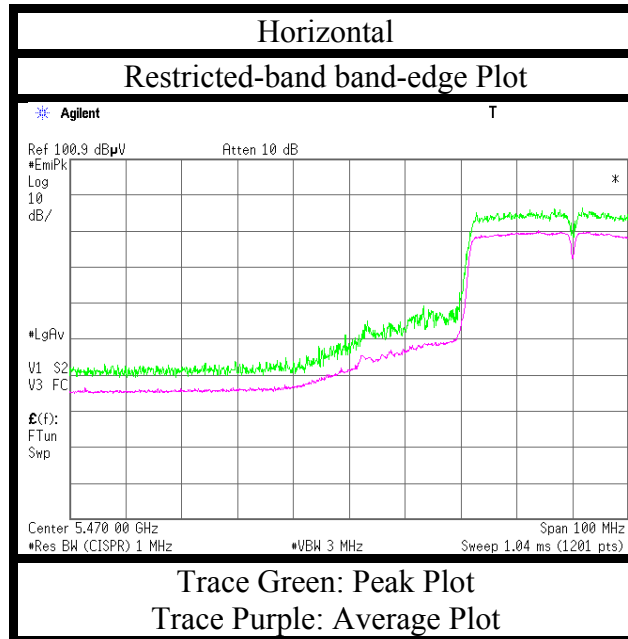
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5510 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5510 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 5460.0          | PK       | 45.9           | 32.2            | 15.8      | 38.8      | 3.3                  | 58.4            | 73.9           | 15.5        | 100         | 100          |              |
| Hori.    | 5460.0          | AV       | 35.5           | 32.2            | 15.8      | 38.8      | 3.3                  | 48.0            | 53.9           | 5.9         | 100         | 100          | VBW: 4.3 kHz |
| Vert.    | 5460.0          | PK       | 46.5           | 32.2            | 15.8      | 38.8      | 3.3                  | 59.0            | 73.9           | 14.9        | 109         | 68           |              |
| Vert.    | 5460.0          | AV       | 39.3           | 32.2            | 15.8      | 38.8      | 3.3                  | 51.8            | 53.9           | 2.1         | 109         | 68           | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5470.0          | PK       | 50.5           | 32.2            | 15.8      | 38.8      | 3.3                  | 63.0            | -32.3               | -27.0       | 5.2         | 100         | 100          |        |
| Vert.    | 5470.0          | PK       | 51.7           | 32.2            | 15.8      | 38.8      | 3.3                  | 64.2            | -31.0               | -27.0       | 4.0         | 109         | 68           |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

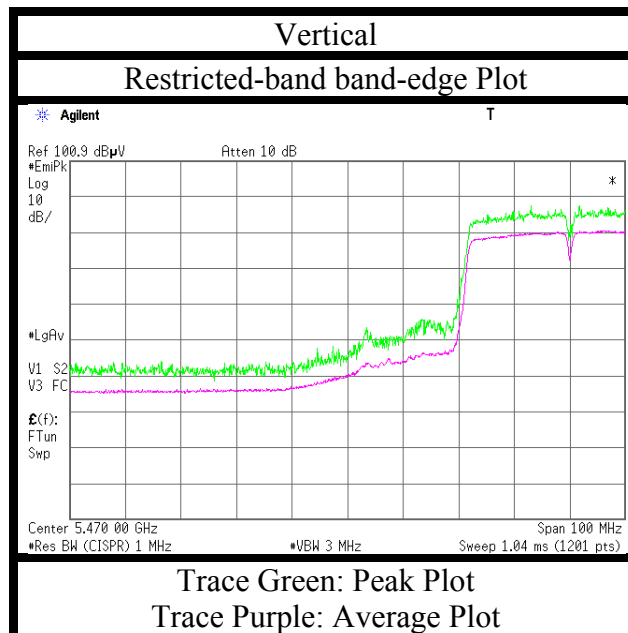
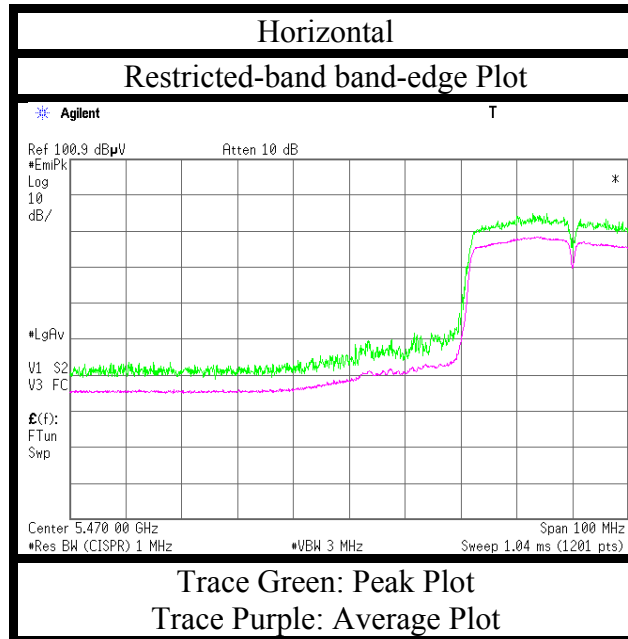
Result(EIRP[dBm])= $10\log((\{10^{\wedge}(\text{Electric Field Strength [dBuV/m]} / 20) * 10^{\wedge}(-6) * \text{Distance:3[m]}^{\wedge}2\} / 30) * 10^{\wedge}3)$

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5510 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

**UL Japan, Inc.**

**Shonan EMC Lab.**

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Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 and No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015    November 19, 2015    November 20, 2015    November 21, 2015    November 25, 2015  
Temperature : 22 deg. C /    23 deg. C /    22 deg. C /    20 deg. C /    20 deg. C /  
/ Humidity : 55 % RH    52 % RH    45 % RH    50 % RH    50 % RH  
Engineer : Wataru Kojima    Yohsuke Ishikawa    Yohsuke Ishikawa    Tomohiro Hara    Kenichi Adachi  
(1 GHz-6.4 GHz)    (6.4 GHz-13 GHz)    (13 GHz-18 GHz)    (18 GHz-26.5GHz)    (26.5 GHz-40 GHz)  
(No.3 SAC)    (No.2 SAC)    (No.2 SAC)    (No.2 SAC)    (No.2 SAC)  
Mode : Tx 5550 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 11100.0         | PK       | 42.8           | 40.2            | 8.8       | 34.1      | 2.2                  | 59.9            | 73.9           | 14.0        | 100         | 0            |              |
| Hori.    | 22200.0         | PK       | 49.2           | 40.7            | 12.5      | 47.6      | -9.5                 | 45.3            | 73.9           | 28.6        | 100         | 103          |              |
| Hori.    | 11100.0         | AV       | 33.1           | 40.2            | 8.8       | 34.1      | 2.2                  | 50.2            | 53.9           | 3.7         | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 22200.0         | AV       | 43.7           | 40.7            | 12.5      | 47.6      | -9.5                 | 39.8            | 53.9           | 14.1        | 100         | 103          | VBW: 4.3 kHz |
| Vert.    | 11100.0         | PK       | 42.1           | 40.2            | 8.8       | 34.1      | 2.2                  | 59.2            | 73.9           | 14.7        | 100         | 0            |              |
| Vert.    | 22200.0         | PK       | 50.7           | 40.7            | 12.5      | 47.6      | -9.5                 | 46.8            | 73.9           | 27.1        | 100         | 62           |              |
| Vert.    | 11100.0         | AV       | 33.2           | 40.2            | 8.8       | 34.1      | 2.2                  | 50.3            | 53.9           | 3.6         | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 22200.0         | AV       | 44.4           | 40.7            | 12.5      | 47.6      | -9.5                 | 40.5            | 53.9           | 13.4        | 100         | 62           | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37 \text{ m} / 3.0 \text{ m}) = 3.27 \text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87 \text{ m} / 3.0 \text{ m}) = 2.21 \text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 16650.0         | PK       | 43.5           | 40.8            | 12.4      | 40.2      | -9.5                 | 47.0            | -48.2               | -27.0       | 21.2        | 100         | 0            |        |
| Vert.    | 8880.0          | PK       | 42.3           | 37.0            | 8.2       | 34.0      | 2.2                  | 55.7            | -39.5               | -27.0       | 12.5        | 131         | 305          |        |
| Vert.    | 16650.0         | PK       | 43.9           | 40.8            | 12.4      | 40.2      | -9.5                 | 47.4            | -47.8               | -27.0       | 20.8        | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \* 10^3 )

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37 \text{ m} / 3.0 \text{ m}) = 3.27 \text{ dB}$   
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN  
6.8 GHz - 13 GHz :  $20\log(3.87 \text{ m} / 3.0 \text{ m}) = 2.21 \text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 and No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015    November 19, 2015    November 20, 2015    November 21, 2015    November 25, 2015  
Temperature : 22 deg. C /    23 deg. C /    22 deg. C /    20 deg. C /    20 deg. C /  
/ Humidity : 55 % RH    52 % RH    45 % RH    50 % RH    50 % RH  
Engineer : Wataru Kojima    Yohsuke Ishikawa    Yohsuke Ishikawa    Tomohiro Hara    Kenichi Adachi  
(1 GHz-6.4 GHz)    (6.4 GHz-13 GHz)    (13 GHz-18 GHz)    (18 GHz-26.5GHz)    (26.5 GHz-40 GHz)  
(No.3 SAC)    (No.2 SAC)    (No.2 SAC)    (No.2 SAC)    (No.2 SAC)  
Mode : Tx 5670 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 11340.0         | PK       | 43.5           | 40.0            | 8.7       | 33.9      | 2.2                  | 60.5            | 73.9           | 13.4        | 100         | 0            |              |
| Hori.    | 22680.0         | PK       | 48.5           | 40.8            | 12.6      | 47.4      | -9.5                 | 45.0            | 73.9           | 28.9        | 100         | 350          |              |
| Hori.    | 11340.0         | AV       | 33.0           | 40.0            | 8.7       | 33.9      | 2.2                  | 50.0            | 53.9           | 3.9         | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 22680.0         | AV       | 42.6           | 40.8            | 12.6      | 47.4      | -9.5                 | 39.1            | 53.9           | 14.8        | 100         | 350          | VBW: 4.3 kHz |
| Vert.    | 9072.0          | PK       | 42.1           | 37.1            | 8.2       | 34.1      | 2.2                  | 55.5            | 73.9           | 18.4        | 191         | 335          |              |
| Vert.    | 11340.0         | PK       | 42.5           | 40.0            | 8.7       | 33.9      | 2.2                  | 59.5            | 73.9           | 14.4        | 100         | 0            |              |
| Vert.    | 22680.0         | PK       | 49.7           | 40.8            | 12.6      | 47.4      | -9.5                 | 46.2            | 73.9           | 27.7        | 100         | 13           |              |
| Vert.    | 9072.0          | AV       | 32.8           | 37.1            | 8.2       | 34.1      | 2.2                  | 46.2            | 53.9           | 7.7         | 191         | 335          | VBW: 4.3 kHz |
| Vert.    | 11340.0         | AV       | 33.2           | 40.0            | 8.7       | 33.9      | 2.2                  | 50.2            | 53.9           | 3.7         | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 22680.0         | AV       | 44.4           | 40.8            | 12.6      | 47.4      | -9.5                 | 40.9            | 53.9           | 13.0        | 100         | 13           | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$

6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5725.0          | PK       | 45.1           | 32.6            | 15.8      | 38.8      | 3.3                  | 58.0            | -37.2               | -27.0       | 10.2        | 100         | 100          |        |
| Hori.    | 17010.0         | PK       | 44.1           | 41.5            | 12.4      | 39.6      | -9.5                 | 48.9            | -46.3               | -27.0       | 19.3        | 100         | 0            |        |
| Vert.    | 5725.0          | PK       | 45.3           | 32.6            | 15.8      | 38.8      | 3.3                  | 58.2            | -37.0               | -27.0       | 10.0        | 100         | 133          |        |
| Vert.    | 17010.0         | PK       | 42.9           | 41.5            | 12.4      | 39.6      | -9.5                 | 47.7            | -47.5               | -27.0       | 20.5        | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\cdot\text{LOG}((\{10^{\wedge}( \text{Electric Field Strength [dBuV/m]} / 20 ) * 10^{\wedge}(-6) * \text{Distance:3[m]} )^{\wedge}2\} / 30) * 10^{\wedge}3)$

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$

6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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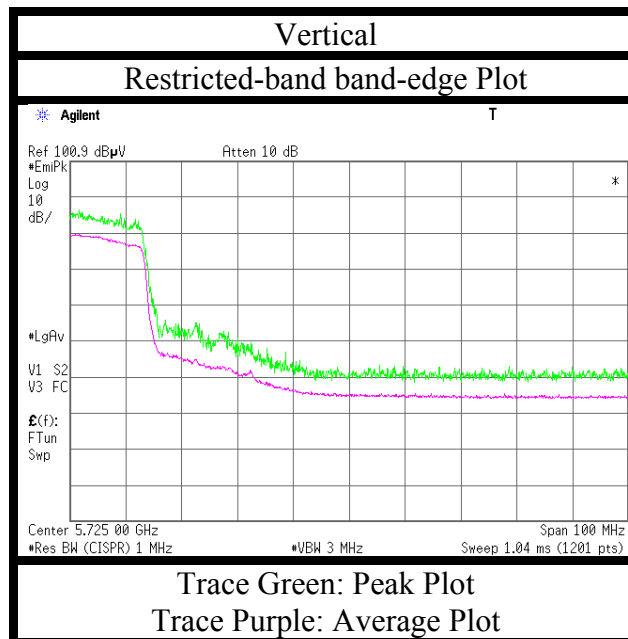
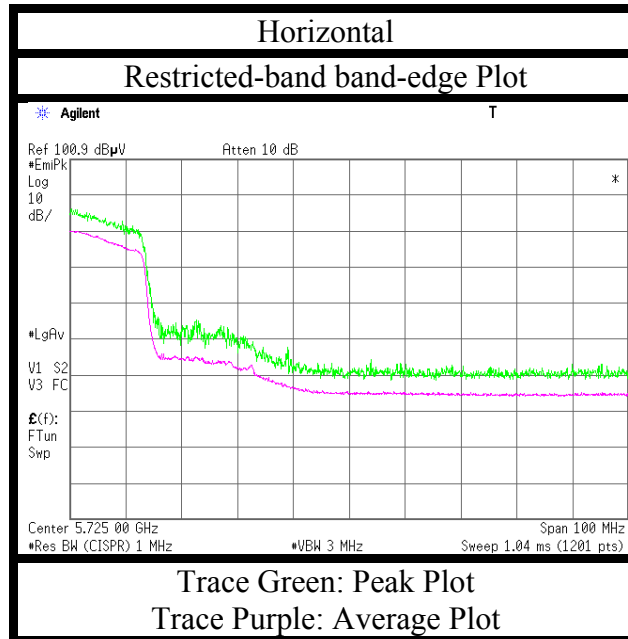
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5670 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5670 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5725.0          | PK       | 45.4           | 32.6            | 15.8      | 38.8      | 3.3                  | 58.3            | -36.9               | -27.0       | 9.9         | 100         | 206          |        |
| Vert.    | 5725.0          | PK       | 45.4           | 32.6            | 15.8      | 38.8      | 3.3                  | 58.3            | -36.9               | -27.0       | 9.9         | 100         | 237          |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 / 30 ) \* 10 ^ 3 )

Distance factor : 1 GHz - 6.8 GHz : 20log (4.37 m / 3.0 m) = 3.27 dB

6.8 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

**UL Japan, Inc.**

**Shonan EMC Lab.**

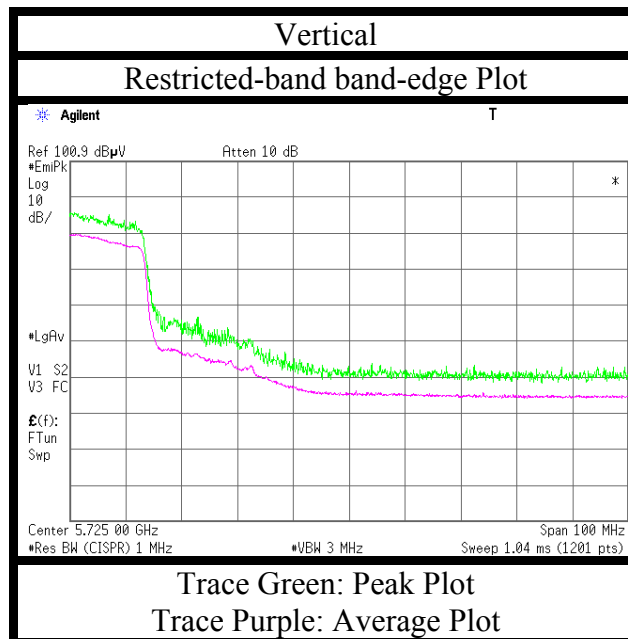
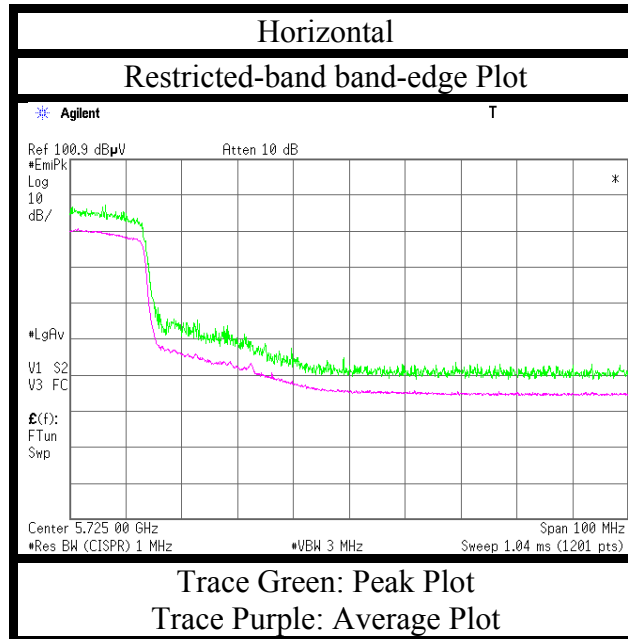
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

|             |                                                                |
|-------------|----------------------------------------------------------------|
| Test place  | Shonan EMC Lab. No3 Semi Anechoic Chamber                      |
| Report No.  | 11014760S-C-R2                                                 |
| Date        | November 17, 2015                                              |
| Temperature | 22 deg. C /                                                    |
| / Humidity  | 55 % RH                                                        |
| Engineer    | Wataru Kojima<br>(1 GHz-6.4 GHz)                               |
| Mode        | Tx 5670 MHz, Antenna cable 199 mm<br>Tx, IEEE802.11n HT40, PN9 |



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 and No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015    November 19, 2015    November 20, 2015    November 21, 2015    November 25, 2015  
Temperature : 22 deg. C /    23 deg. C /    22 deg. C /    20 deg. C /    20 deg. C /  
/ Humidity : 55 % RH    52 % RH    45 % RH    50 % RH    50 % RH  
Engineer : Wataru Kojima    Yohsuke Ishikawa    Yohsuke Ishikawa    Tomohiro Hara    Kenichi Adachi  
(1 GHz-6.4 GHz)    (6.4 GHz-13 GHz)    (13 GHz-18 GHz)    (18 GHz-26.5GHz)    (26.5 GHz-40 GHz)  
(No.3 SAC)    (No.2 SAC)    (No.2 SAC)    (No.2 SAC)    (No.2 SAC)  
Mode : Tx 5755 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 11510.0         | PK       | 42.1           | 39.9            | 8.6       | 33.8      | 2.2                  | 59.0            | 73.9           | 14.9        | 100         | 0            |              |
| Hori.    | 23020.0         | PK       | 47.3           | 40.9            | 12.6      | 46.8      | -9.5                 | 44.5            | 73.9           | 29.4        | 100         | 350          |              |
| Hori.    | 11510.0         | AV       | 33.5           | 39.9            | 8.6       | 33.8      | 2.2                  | 50.4            | 53.9           | 3.5         | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 23020.0         | AV       | 40.6           | 40.9            | 12.6      | 46.8      | -9.5                 | 37.8            | 53.9           | 16.1        | 100         | 350          | VBW: 4.3 kHz |
| Vert.    | 9208.0          | PK       | 43.1           | 37.4            | 8.3       | 34.3      | 2.2                  | 56.7            | 73.9           | 17.2        | 156         | 326          |              |
| Vert.    | 11510.0         | PK       | 43.4           | 39.9            | 8.6       | 33.8      | 2.2                  | 60.3            | 73.9           | 13.6        | 100         | 0            |              |
| Vert.    | 23020.0         | PK       | 49.8           | 40.9            | 12.6      | 46.8      | -9.5                 | 47.0            | 73.9           | 26.9        | 100         | 11           |              |
| Vert.    | 9208.0          | AV       | 33.4           | 37.4            | 8.3       | 34.3      | 2.2                  | 47.0            | 53.9           | 6.9         | 156         | 326          | VBW: 4.3 kHz |
| Vert.    | 11510.0         | AV       | 33.2           | 39.9            | 8.6       | 33.8      | 2.2                  | 50.1            | 53.9           | 3.8         | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 23020.0         | AV       | 43.9           | 40.9            | 12.6      | 46.8      | -9.5                 | 41.1            | 53.9           | 12.8        | 100         | 11           | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37 \text{ m} / 3.0 \text{ m}) = 3.27 \text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87 \text{ m} / 3.0 \text{ m}) = 2.21 \text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5715.0          | PK       | 53.3           | 32.6            | 15.8      | 38.8      | 3.3                  | 66.2            | -29.0               | -27.0       | 2.0         | 100         | 175          |        |
| Hori.    | 5725.0          | PK       | 56.9           | 32.6            | 15.8      | 38.8      | 3.3                  | 69.8            | -25.4               | -17.0       | 8.4         | 100         | 175          |        |
| Hori.    | 17265.0         | PK       | 43.3           | 42.4            | 12.5      | 39.3      | -9.5                 | 49.4            | -45.8               | -27.0       | 18.8        | 100         | 0            |        |
| Vert.    | 5715.0          | PK       | 54.1           | 32.6            | 15.8      | 38.8      | 3.3                  | 67.0            | -28.2               | -27.0       | 1.2         | 100         | 31           |        |
| Vert.    | 5725.0          | PK       | 57.0           | 32.6            | 15.8      | 38.8      | 3.3                  | 69.9            | -25.3               | -17.0       | 8.3         | 100         | 31           |        |
| Vert.    | 17265.0         | PK       | 44.1           | 42.4            | 12.5      | 39.3      | -9.5                 | 50.2            | -45.0               | -27.0       | 18.0        | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \* 10 ^ 3

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37 \text{ m} / 3.0 \text{ m}) = 3.27 \text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87 \text{ m} / 3.0 \text{ m}) = 2.21 \text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

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**Shonan EMC Lab.**

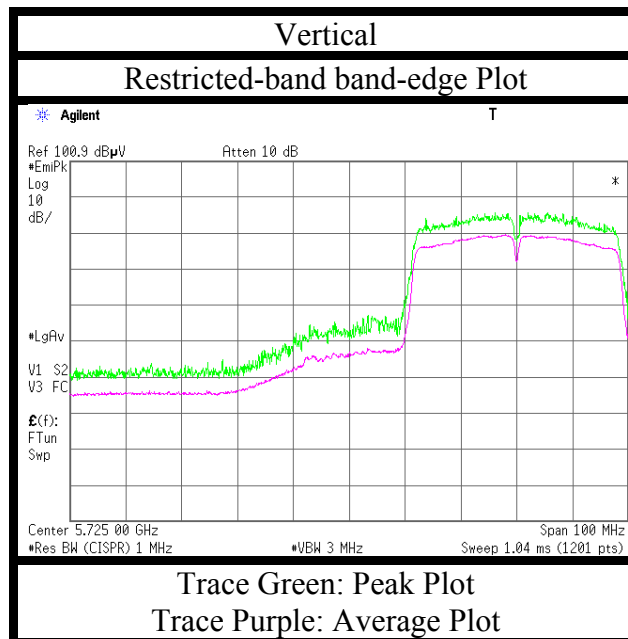
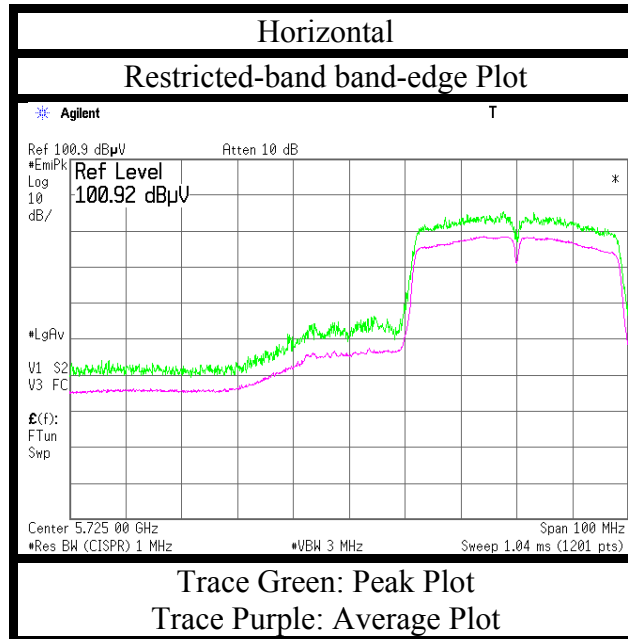
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5755 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

**UL Japan, Inc.**

**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5755 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5715.0          | PK       | 50.5           | 32.6            | 15.8      | 38.8      | 3.3                  | 63.3            | -31.9               | -27.0       | 4.9         | 100         | 281          |        |
| Hori.    | 5725.0          | PK       | 53.5           | 32.6            | 15.8      | 38.8      | 3.3                  | 66.3            | -28.9               | -17.0       | 11.9        | 100         | 281          |        |
| Vert.    | 5715.0          | PK       | 54.5           | 32.6            | 15.8      | 38.8      | 3.3                  | 67.3            | -27.9               | -27.0       | <b>0.9</b>  | 100         | 48           |        |
| Vert.    | 5725.0          | PK       | 59.6           | 32.6            | 15.8      | 38.8      | 3.3                  | 72.5            | -22.7               | -17.0       | 5.7         | 100         | 48           |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30 ) \* 10 ^ 3 )

Distance factor : 1 GHz - 6.8 GHz : 20log (4.37 m / 3.0 m) = 3.27 dB

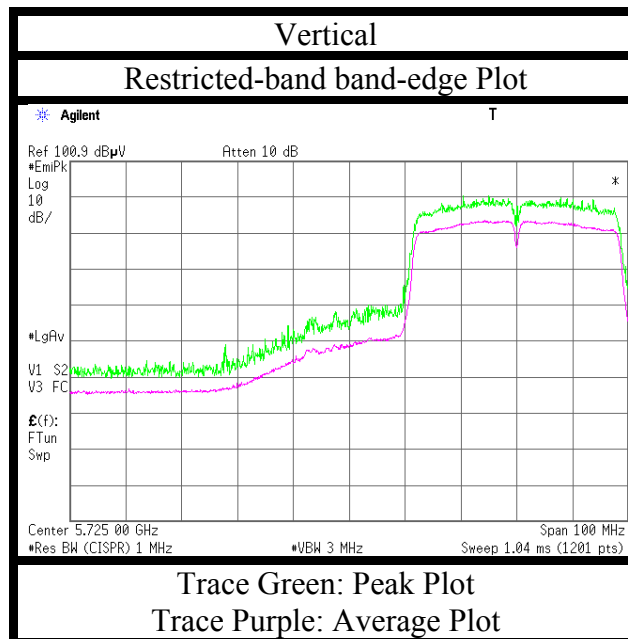
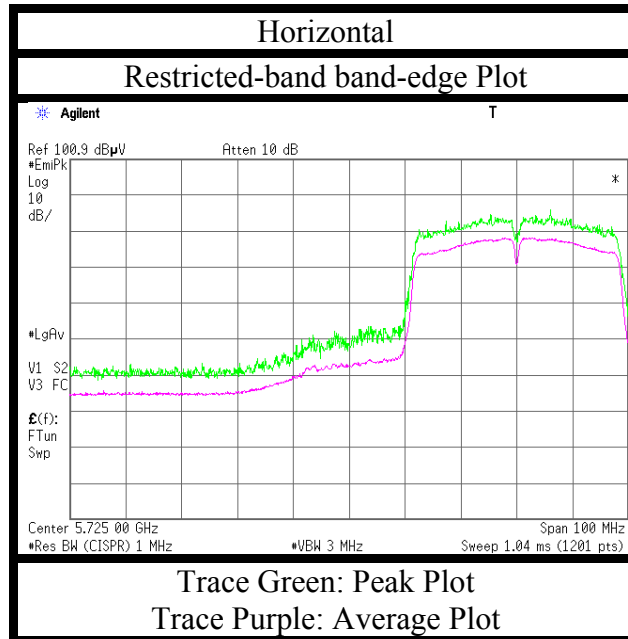
6.8 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5755 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No2 and No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015    November 19, 2015    November 20, 2015    November 21, 2015    November 25, 2015  
Temperature : 22 deg. C /    23 deg. C /    22 deg. C /    20 deg. C /    20 deg. C /  
/ Humidity : 55 % RH    52 % RH    45 % RH    50 % RH    50 % RH  
Engineer : Wataru Kojima    Yohsuke Ishikawa    Yohsuke Ishikawa    Tomohiro Hara    Kenichi Adachi  
(1 GHz-6.4 GHz)    (6.4 GHz-13 GHz)    (13 GHz-18 GHz)    (18 GHz-26.5GHz)    (26.5 GHz-40 GHz)  
(No.3 SAC)    (No.2 SAC)    (No.2 SAC)    (No.2 SAC)    (No.2 SAC)  
Mode : Tx 5795 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Inside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark       |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|--------------|
| Hori.    | 11590.0         | PK       | 42.5           | 39.9            | 8.7       | 33.9      | 2.2                  | 59.4            | 73.9           | 14.5        | 100         | 0            |              |
| Hori.    | 23180.0         | PK       | 47.9           | 40.9            | 12.7      | 46.7      | -9.5                 | 45.3            | 73.9           | 28.6        | 100         | 69           |              |
| Hori.    | 11590.0         | AV       | 34.1           | 39.9            | 8.7       | 33.9      | 2.2                  | 51.0            | 53.9           | 2.9         | 100         | 0            | VBW: 4.3 kHz |
| Hori.    | 23180.0         | AV       | 40.4           | 40.9            | 12.7      | 46.7      | -9.5                 | 37.8            | 53.9           | 16.1        | 100         | 69           | VBW: 4.3 kHz |
| Vert.    | 11590.0         | PK       | 42.5           | 39.9            | 8.7       | 33.9      | 2.2                  | 59.4            | 73.9           | 14.5        | 100         | 0            |              |
| Vert.    | 23180.0         | PK       | 51.0           | 40.9            | 12.7      | 46.7      | -9.5                 | 48.4            | 73.9           | 25.5        | 100         | 23           |              |
| Vert.    | 11590.0         | AV       | 33.8           | 39.9            | 8.7       | 33.9      | 2.2                  | 50.7            | 53.9           | 3.2         | 100         | 0            | VBW: 4.3 kHz |
| Vert.    | 23180.0         | AV       | 45.1           | 40.9            | 12.7      | 46.7      | -9.5                 | 42.5            | 53.9           | 11.4        | 100         | 23           | VBW: 4.3 kHz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5850.0          | PK       | 46.0           | 32.9            | 15.9      | 38.8      | 3.3                  | 59.3            | -35.9               | -17.0       | 18.9        | 100         | 134          |        |
| Hori.    | 5860.0          | PK       | 45.0           | 32.9            | 15.9      | 38.8      | 3.3                  | 58.3            | -36.9               | -27.0       | 9.9         | 100         | 134          |        |
| Hori.    | 17385.0         | PK       | 42.3           | 42.9            | 12.6      | 39.2      | -9.5                 | 49.1            | -46.1               | -27.0       | 19.1        | 100         | 0            |        |
| Vert.    | 5850.0          | PK       | 45.7           | 32.9            | 15.9      | 38.8      | 3.3                  | 59.0            | -36.2               | -17.0       | 19.2        | 100         | 57           |        |
| Vert.    | 5860.0          | PK       | 45.7           | 32.9            | 15.9      | 38.8      | 3.3                  | 59.0            | -36.2               | -27.0       | 9.2         | 100         | 57           |        |
| Vert.    | 9272.0          | PK       | 43.5           | 37.5            | 8.4       | 34.4      | 2.2                  | 57.2            | -38.0               | -27.0       | 11.0        | 126         | 319          |        |
| Vert.    | 17385.0         | PK       | 43.3           | 42.9            | 12.6      | 39.2      | -9.5                 | 50.1            | -45.1               | -27.0       | 18.1        | 100         | 0            |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

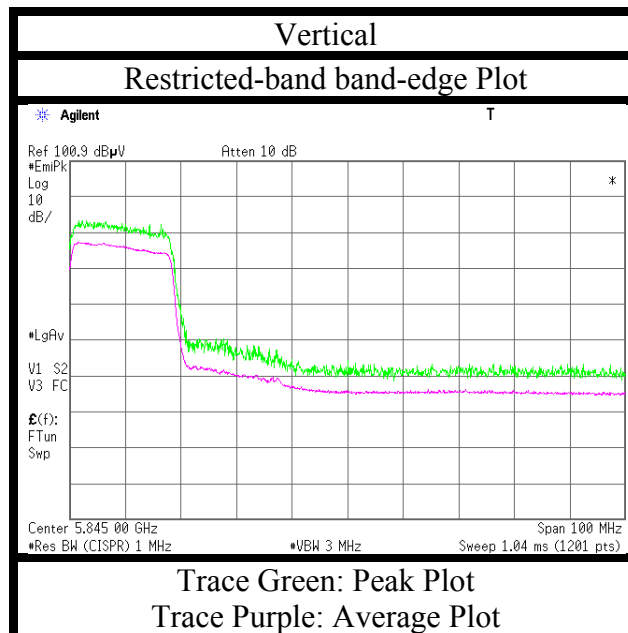
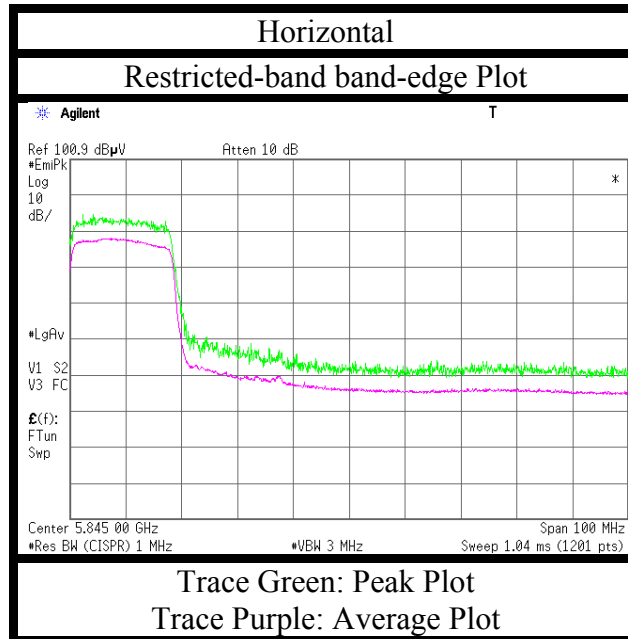
Result(EIRP[dBm])=10\*LOG (( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30) \*10^3)

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

Distance factor : 1 GHz - 6.8 GHz :  $20\log(4.37\text{ m} / 3.0\text{ m}) = 3.27\text{ dB}$   
6.8 GHz - 13 GHz :  $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5795 MHz, Antenna cable 400 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

**UL Japan, Inc.**

**Shonan EMC Lab.**

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## Radiated Spurious Emission

Test place : Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. : 11014760S-C-R2  
Date : November 17, 2015  
Temperature : 22 deg. C /  
/ Humidity : 55 % RH  
Engineer : Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode : Tx 5795 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9

### (above 1GHz Outside of the restricted band)

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5850.0          | PK       | 47.3           | 32.9            | 15.9      | 38.8      | 3.3                  | 60.5            | -34.7               | -17.0       | 17.7        | 100         | 262          |        |
| Hori.    | 5860.0          | PK       | 46.4           | 32.9            | 15.9      | 38.8      | 3.3                  | 59.7            | -35.5               | -27.0       | 8.5         | 100         | 262          |        |
| Vert.    | 5850.0          | PK       | 47.0           | 32.9            | 15.9      | 38.8      | 3.3                  | 60.3            | -34.9               | -17.0       | 17.9        | 109         | 289          |        |
| Vert.    | 5860.0          | PK       | 46.2           | 32.9            | 15.9      | 38.8      | 3.3                  | 59.5            | -35.7               | -27.0       | 8.7         | 109         | 289          |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30 ) \* 10 ^ 3 )

Distance factor : 1 GHz - 6.8 GHz : 20log (4.37 m / 3.0 m) = 3.27 dB

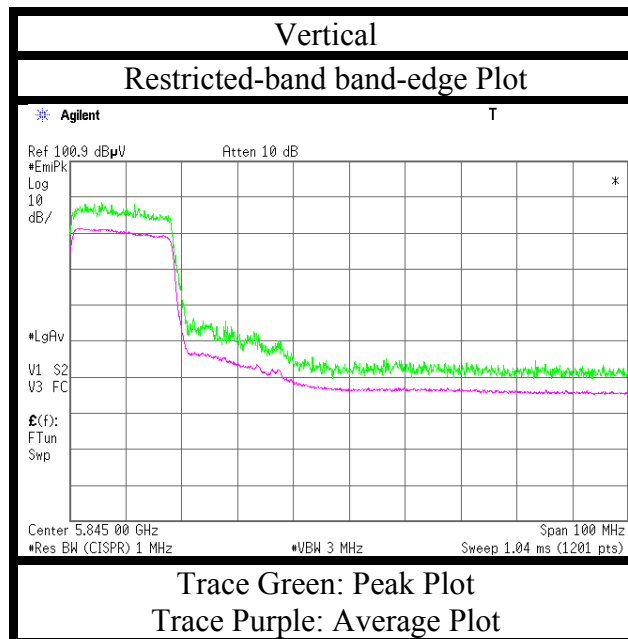
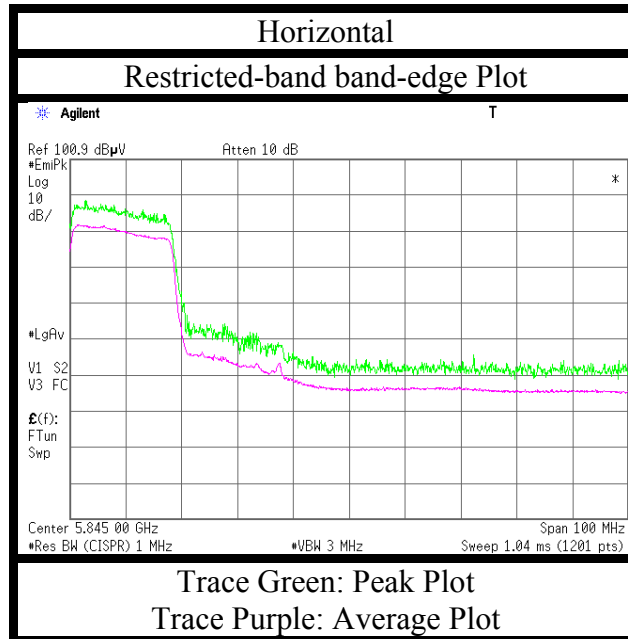
6.8 GHz - 13 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

\*This mode was performed only band edges measurement.

## Radiated Spurious Emission

Test place Shonan EMC Lab. No3 Semi Anechoic Chamber  
Report No. 11014760S-C-R2  
Date November 17, 2015  
Temperature 22 deg. C /  
/ Humidity 55 % RH  
Engineer Wataru Kojima  
(1 GHz-6.4 GHz)  
Mode Tx 5795 MHz, Antenna cable 199 mm  
Tx, IEEE802.11n HT40, PN9



\* Final result of restricted band edge was shown in tabular data.

**UL Japan, Inc.**

**Shonan EMC Lab.**

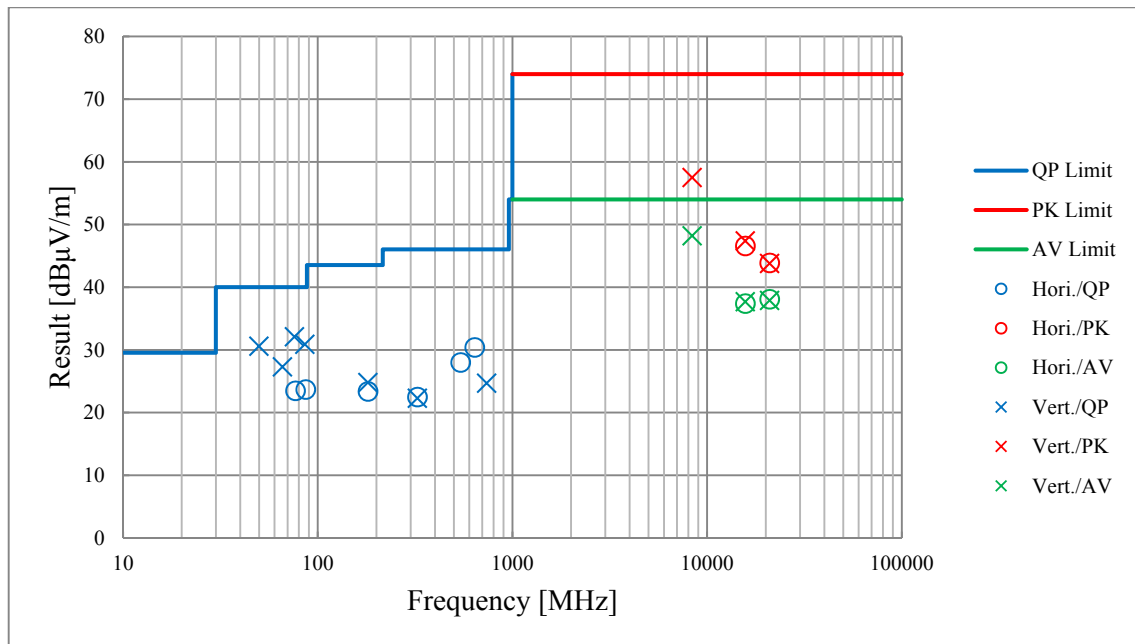
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

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## Radiated Spurious Emission (Plot data, Worst case)

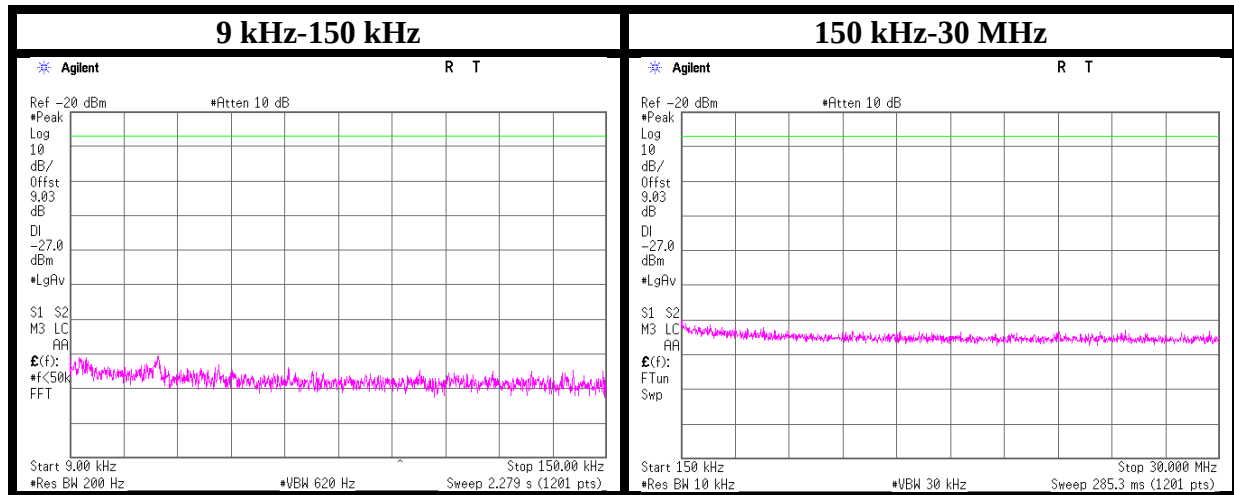
|             |                                                                |                                                    |                                                   |                                                 |                                                                        |
|-------------|----------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------|
| Test place  | Shonan EMC Lab. No2 and No3 Semi Anechoic Chamber              |                                                    |                                                   |                                                 |                                                                        |
| Report No.  | 11014760S-C-R2                                                 |                                                    |                                                   |                                                 |                                                                        |
| Date        | November 17, 2015                                              | November 19, 2015                                  | November 20, 2015                                 | November 21, 2015                               | November 25, 2015                                                      |
| Temperature | 22 deg. C /                                                    | 23 deg. C /                                        | 22 deg. C /                                       | 20 deg. C /                                     | 20 deg. C /                                                            |
| / Humidity  | 55 % RH                                                        | 52 % RH                                            | 45 % RH                                           | 50 % RH                                         | 50 % RH                                                                |
| Engineer    | Wataru Kojima<br>(1 GHz-6.4 GHz)<br>(No.3 SAC)                 | Yohsuke Ishikawa<br>(6.4 GHz-13 GHz)<br>(No.2 SAC) | Yohsuke Ishikawa<br>(13 GHz-18 GHz)<br>(No.2 SAC) | Tomohiro Hara<br>(18 GHz-26.5GHz)<br>(No.2 SAC) | Kenichi Adachi<br>(30 MHz-1000 MHz)<br>(26.5 GHz-40 GHz)<br>(No.2 SAC) |
| Mode        | Tx 5230 MHz, Antenna cable 400 mm<br>Tx, IEEE802.11n HT40, PN9 |                                                    |                                                   |                                                 |                                                                        |



\*These plots data contains sufficient number to show the trend of characteristic features for EUT.

## Conducted Spurious Emission

Test place Shonan EMC Lab. No.5 Shielded Room  
Report No. 11014760S-C-R2  
Date November 25, 2015  
Temperature / Humidity 20deg. C / 44 % RH  
Engineer Wataru Kojima  
Mode Tx 11n HT40 5230 MHz



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## APPENDIX 2: Test instruments

### Test equipment

| Control No.        | Instrument               | Manufacturer     | Model No                       | Serial No         | Test Item | Calibration Date *<br>Interval(month) |
|--------------------|--------------------------|------------------|--------------------------------|-------------------|-----------|---------------------------------------|
| SSA-03             | Spectrum Analyzer        | Agilent          | E4448A                         | MY482501<br>52    | AT        | 2015/09/16 * 12                       |
| SPM-07             | Power Meter              | Agilent          | 8990B                          | MY510027<br>2     | AT        | 2015/04/02 * 12                       |
| SPSS-04            | Power sensor             | Agilent          | N1923A                         | MY532600<br>9     | AT        | 2015/04/02 * 12                       |
| SAT10-10           | Attenuator               | Weinschel Corp.  | 54A-10                         | 37584             | AT        | 2015/04/09 * 12                       |
| SCC-G12            | Coaxial Cable            | Suhner           | SUCOFLEX<br>102                | 30790/2           | AT        | 2015/03/11 * 12                       |
| SOS-09             | Humidity Indicator       | A&D              | AD-5681                        | 4061484           | AT        | 2014/12/24 * 12                       |
| STS-05             | Digital Hitester         | Hioki            | 3805-50                        | 080997828         | AT        | 2015/11/18 * 12                       |
| SAF-04             | Pre Amplifier            | TOYO Corporation | TPA0118-36                     | 1440489           | RE        | 2015/03/23 * 12                       |
| SCC-G05            | Coaxial Cable            | Junkosha         | J12J102207-0<br>0              | APR-30-15-<br>037 | RE        | 2015/05/11 * 12                       |
| SCC-G22            | Coaxial Cable            | Suhner           | SUCOFLEX<br>104                | 296199/4          | RE        | 2015/05/19 * 12                       |
| SHA-02             | Horn Antenna             | Schwarzbeck      | BBHA9120D                      | 9120D-726         | RE        | 2015/08/10 * 12                       |
| SOS-03             | Humidity Indicator       | A&D              | AD-5681                        | 4063325           | RE        | 2015/10/22 * 12                       |
| KSA-08             | Spectrum Analyzer        | Agilent          | E4446A                         | MY461805<br>25    | RE, AT    | 2015/03/23 * 12                       |
| SJM-14             | Measure                  | ASKUL            | -                              | -                 | RE, CE    | -                                     |
| SAEC-02(SVS<br>WR) | Semi-Anechoic<br>Chamber | TDK              | SAEC-02(SV<br>SWR)             | 2                 | RE        | 2015/07/09 * 12                       |
| COTS-SEMI-1        | EMI Software             | TSJ              | TEPTO-DV(<br>RE,CE,RFI,M<br>F) | -                 | RE, CE    | -                                     |
| STS-02             | Digital Hitester         | Hioki            | 3805-50                        | 080997819         | RE, CE    | 2015/03/10 * 12                       |
| SAT10-06           | Attenuator               | Agilent          | 8493C-010                      | 74865             | RE, AT    | 2015/11/04 * 12                       |
| SFL-03             | Highpass Filter          | MICRO-TRONICS    | HPM50112                       | 028               | RE        | 2015/11/16 * 12                       |
| SAF-06             | Pre Amplifier            | TOYO Corporation | TPA0118-36                     | 1440491           | RE        | 2015/05/27 * 12                       |
| SCC-G04            | Coaxial Cable            | Junkosha         | J12J102207-0<br>0              | JUN-12-14-<br>018 | RE        | 2015/06/08 * 12                       |
| SCC-G23            | Coaxial Cable            | Suhner           | SUCOFLEX<br>104                | 297342/4          | RE        | 2015/05/19 * 12                       |
| SHA-03             | Horn Antenna             | Schwarzbeck      | BBHA9120D                      | 9120D-739         | RE        | 2015/08/11 * 12                       |
| SOS-05             | Humidity Indicator       | A&D              | AD-5681                        | 4062518           | RE        | 2015/10/22 * 12                       |
| SSA-02             | Spectrum Analyzer        | Agilent          | E4448A                         | MY482501<br>06    | RE        | 2015/03/26 * 12                       |
| SJM-15             | Measure                  | ASKUL            | -                              | -                 | RE        | -                                     |
| SAEC-03(SVS<br>WR) | Semi-Anechoic<br>Chamber | TDK              | SAEC-03(SV<br>SWR)             | 3                 | RE        | 2015/08/28 * 12                       |
| STS-03             | Digital Hitester         | Hioki            | 3805-50                        | 080997823         | RE        | 2015/11/18 * 12                       |
| SCC-G31            | Coaxial Cable            | Junkosha         | MWX241-01<br>000KMSKM<br>S     | OCT-08-13-<br>046 | AT        | 2015/04/09 * 12                       |
| SFL-03             | Highpass Filter          | MICRO-TRONICS    | HPM50112                       | 028               | RE        | 2015/11/16 * 12                       |
| SAF-08             | Pre Amplifier            | TOYO Corporation | HAP18-26W                      | 00000019          | RE        | 2015/03/23 * 12                       |
| SCC-G15            | Coaxial Cable            | Suhner           | SUCOFLEX<br>102                | 32703/2           | RE        | 2015/03/11 * 12                       |
| SHA-04             | Horn Antenna             | ETS LINDGREN     | 3160-09                        | LM3640            | RE        | 2015/03/17 * 12                       |
| SAEC-02(NSA<br>)   | Semi-Anechoic<br>Chamber | TDK              | SAEC-02(NS<br>A)               | 2                 | RE        | 2015/07/15 * 12                       |
| SCC-G19            | Coaxial Cable            | Suhner           | SUCOFLEX<br>102A               | 1188/2A           | RE        | 2015/03/11 * 12                       |
| SAF-10             | Pre Amplifier            | TOYO Corporation | HAP26-40W                      | 00000010          | RE        | 2015/03/23 * 12                       |
| SHA-06             | Horn Antenna             | ETS LINDGREN     | 3160-10                        | LM3459            | RE        | 2015/03/17 * 12                       |

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#### Test equipment

| Control No.                    | Instrument                | Manufacturer                                | Model No                             | Serial No               | Test Item | Calibration Date *<br>Interval(month) |
|--------------------------------|---------------------------|---------------------------------------------|--------------------------------------|-------------------------|-----------|---------------------------------------|
| SBA-02                         | Biconical Antenna         | Schwarzbeck                                 | BBA9106                              | 91032665                | RE        | 2015/11/02 * 12                       |
| SAT6-02                        | Attenuator                | JFW                                         | 50HF-006N                            | -                       | RE        | 2015/02/18 * 12                       |
| SCC-B1/B3/B5/B7/B8/B13/SRSE-02 | Coaxial Cable&RF Selector | Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO | 8D2W/12DSFA/141PE/141PE/141PE/NS4906 | -/0901-270(RF Selector) | RE        | 2015/04/17 * 12                       |
| SLA-02                         | Logperiodic Antenna       | Schwarzbeck                                 | UHALP9108A                           | UHALP9108-A0893         | RE        | 2015/11/03 * 12                       |
| KAT3-11                        | Attenuator                | JFW IND. INC.                               | 50HF-003N                            | -                       | RE        | 2015/08/31 * 12                       |
| SCC-B2/B4/B6/B7/B8/B13/SRSE-02 | Coaxial Cable&RF Selector | Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO | 8D2W/12DSFA/141PE/141PE/141PE/NS4906 | -/0901-270(RF Selector) | RE        | 2015/04/17 * 12                       |
| SAF-02                         | Pre Amplifier             | SONOMA                                      | 310N                                 | 290212                  | RE        | 2015/02/18 * 12                       |
| STR-07                         | Test Receiver             | Rohde & Schwarz                             | ESU26                                | 100484                  | RE        | 2015/09/04 * 12                       |
| SCC-B12/B13/SRSE-02            | Coaxial Cable&RF Selector | Suhner/Suhner/TOYO                          | RG223U/141PE/NS4906                  | -/0901-270(RF Selector) | CE        | 2015/04/17 * 12                       |
| SLS-03                         | LISN                      | Rohde & Schwarz                             | ENV216                               | 100513                  | CE        | 2015/02/25 * 12                       |
| SAT3-06                        | Attenuator                | JFW                                         | 50HF-003N                            | -                       | CE        | 2015/02/18 * 12                       |
| SOS-04                         | Humidity Indicator        | A&D                                         | AD-5681                              | 4061512                 | CE        | 2014/12/24 * 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

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