



# RADIO TEST REPORT


Test Report No. : 11166424H-R2

**Applicant** : silex technology, Inc.  
**Type of Equipment** : Wireless LAN PCI Express Mini Card Module  
**Model No.** : SX-PCEAN  
**FCC ID** : N6C-SXPCEAN  
**Test regulation** : FCC Part 15 Subpart E: 2016  
(Class II permissive change)  
**Test Result** : Complied


1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
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. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
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 11166424H-R1. 11166424H-R1 is replaced with this report.

**Date of test:** April 1 to August 26, 2016

**Representative test engineer:**

  
Yuta Moriya  
Engineer  
Consumer Technology Division

**Approved by:**

  
Tsubasa Takayama  
Engineer  
Consumer Technology Division

**NVLAP**<sup>®</sup>  
TESTING

NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation. \*As for the range of Accreditation in NVLAP, you may refer to the WEB address, [http://japan.ul.com/resources/emc\\_accredited/](http://japan.ul.com/resources/emc_accredited/)

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

13-EM-F0429



<b>CONTENTS</b>	<b>PAGE</b>
<b>SECTION 1: Customer information.....</b>	<b>4</b>
<b>SECTION 2: Equipment under test (E.U.T.).....</b>	<b>4</b>
<b>SECTION 3: Test specification, procedures &amp; results.....</b>	<b>5</b>
<b>SECTION 4: Operation of E.U.T. during testing.....</b>	<b>8</b>
<b>SECTION 5: Radiated Spurious Emission and Band Edge Compliance .....</b>	<b>12</b>
<b>SECTION 6: Antenna Terminal Conducted Tests.....</b>	<b>15</b>
<b>APPENDIX 1: Test data .....</b>	<b>16</b>
99 % Occupied Bandwidth.....	16
6 dB Bandwidth .....	19
Maximum Conducted Output Power .....	22
Average Output Power .....	27
Maximum Power Spectral Density .....	31
Radiated Spurious Emission .....	37
<b>APPENDIX 2: Test instruments .....</b>	<b>68</b>
<b>APPENDIX 3: Photographs of test setup .....</b>	<b>70</b>
Radiated Spurious Emission .....	70
Worst Case Position .....	73

## **SECTION 1: Customer information**

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

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

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

Type of Equipment : Wireless LAN PCI Express Mini Card Module  
Model No. : SX-PCEAN  
Serial No. : Refer to Section 4, Clause 4.2  
Rating : DC 3.3 V  
Receipt Date of Sample : February 15, 2016  
Country of Mass-production : Japan  
Condition of EUT : Production model  
Modification of EUT : No Modification by the test lab

### **2.2 Product Description**

Model No: SX-PCEAN (referred to as the EUT in this report) is the Wireless LAN PCI Express Mini Card Module.

#### **General Specification**

Clock frequency(ies) in the system : 40 MHz

#### **Radio Specification**

Radio Type : Transceiver  
Method of Frequency Generation : Synthesizer  
Power Supply (inner) : DC 1.2 V

	IEEE802.11b	IEEE802.11g	IEEE802.11a	IEEE802.11n (20 M band)	IEEE802.11n (40 M band)
Frequency of operation	2412 MHz - 2462 MHz	2412 MHz - 2462 MHz	5180 MHz - 5320 MHz 5745 MHz - 5825 MHz *1)	2412 MHz - 2462 MHz 5180 MHz - 5320 MHz 5745 MHz - 5825 MHz *1)	2422 MHz - 2452MHz 5190 MHz - 5310MHz 5755 MHz - 5795MHz *1)
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK)		
Channel spacing	5 MHz		20 MHz	2.4 GHz band 5 MHz 5 GHz band 20 MHz	2.4 GHz band 5 MHz 5 GHz band 40 MHz
Antenna type	[Antenna 1] Model Name: ANTDP-027A0 Sleeve antenna (Omni-Directional): SANSEI ELECTRIC CO.,LTD. [Antenna 2] Model Name: ANTI267-164C/U-100B Inverted-F Antenna (Omni-Directional): NISSEI ELECTRIC CO.,LTD. [Antenna 3] Model Name: AA222 Printed PCB Antenna: Unicon Technologies Corp.				
Antenna Gain: G <sub>ANT</sub>	Antenna 1: 1.5 dBi@2.4 GHz Band, 2.1 dBi@5 GHz Band Antenna 2: 1.27 dBi@2.4 GHz Band, 3.71 dBi@5.25 GHz Band, 3.94 dBi@5.6 GHz Band, 4.31 dBi@5.85 GHz Band Antenna 3: 2.6 dBi@2.4 GHz Band, 3.3 dBi@5 GHz Band				
Antenna Connector type	Antenna 1: U.FL Alternative connector Antenna 2: U.FL Alternative connector Antenna 3: U.FL Alternative connector				

\*1) W58 band is applied for this report.

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

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

### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart E  
FCC part 15 final revised on April 6, 2016.

Title : FCC 47CFR Part15 Radio Frequency Device Subpart E  
Unlicensed National Information Infrastructure Devices  
Section 15.407 General technical requirements

### **3.2 Procedures and results**

Item	Test Procedure	Specification	Worst margin	Results	Remarks
26 dB Emission Bandwidth	FCC: KDB Publication Number 789033 IC: -	FCC: 15.407 (a) (1) (2) (3) IC: -	See data	N/A	Conducted
Maximum Conducted Output Power	FCC: KDB Publication Number 789033 IC: -	FCC: 15.407 (a) (1) (2) (3) IC: RSS-247 6.2.1 (1) 6.2.2 (1) 6.2.3 (1) 6.2.4 (1)		Complied	Conducted
Maximum Power Spectral Density	FCC: KDB Publication Number 789033 IC: -	FCC : 15.407 (a) (1) (2) (3) IC: RSS-247 6.2.1 (1) 6.2.2 (1) 6.2.3 (1) 6.2.4 (1)		Complied	Conducted
Spurious Emission Restricted Band Edge	FCC: ANSI C63.10-2013 KDB Publication Number 789033 IC: -	FCC: 15.407 (b), 15.205 and 15.209 IC: RSS-247 6.2.1 (2) 6.2.2 (2) 6.2.3 (2) 6.2.4 (2)	0.1 dB 4887.330 MHz, AV, Hori.	Complied	Conducted (< 30 MHz) / Radiated (> 30 MHz) *1)
6 dB Emission Bandwidth	FCC: ANSI C63.10-2013 IC: -	FCC: 15.407 (e) IC: RSS-247 6.2.4 (1)	See data	Complied	Conducted

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

\*1) Radiated test was selected over 30 MHz based on section FCC 15.407 (b) and KDB 789033 D02 G.3.b).

\* In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred.

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

The RF Module has own regulator.

The RF Module is constantly provided voltage through own regulator regardless of input voltage (DC 1.2 V).

Therefore, this EUT complies with the requirement.

#### **FCC Part 15.203/212 Antenna requirement**

The EUT has a unique antenna connector (U.FL on the Module and Reverse SMA for Antenna itself).

Therefore the equipment complies with the requirement of 15.203/212.

### 3.3 Addition to standard

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

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

### 3.4 Uncertainty

#### EMI

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

[For test data of April 1 to June 13, 2016]

Antenna terminal test Uncertainty (+/-)							
Power meter		Conducted emission and Power density			Conducted emission		Channel power
Below 1 GHz	Above 1 GHz	Below 1 GHz	1 GHz - 3 GHz	3 GHz - 18 GHz	18 GHz - 26.5 GHz	26.5 GHz - 40 GHz	
0.9 dB	1.0 dB	1.4 dB	1.7 dB	2.8 dB	2.8 dB	2.9 dB	2.6 dB

Test distance	Radiated emission (+dB) 9 kHz - 30 MHz
3m	3.8 dB
10m	3.7 dB

Polarity	Radiated emission (Below 1 GHz)			
	(3 m*)(+dB)		(10 m*)(+dB)	
	30 MHz - 200 MHz	200 MHz - 1000 MHz	30 MHz - 200 MHz	200 MHz - 1000 MHz
Horizontal	4.8 dB	5.2 dB	4.8 dB	5.0 dB
Vertical	4.5 dB	5.9 dB	4.8 dB	5.1 dB

Radiated emission				
(3 m*)(+dB)		(1 m*)(+dB)	(0.5 m*)(+dB)	(10 m*)(+dB)
1 GHz - 6 GHz	6 GHz - 18 GHz	10 GHz - 26.5 GHz	26.5 GHz - 40 GHz	1 GHz - 18 GHz
5.1 dB	5.3 dB	5.1 dB	5.1 dB	5.3 dB

\*Measurement distance

[For test data of August 26, 2016]

Radiated emission (Above 1 GHz)				
(3 m*) (+/-)		(1 m*) (+/-)		(10 m*) (+/-)
1 GHz - 6 GHz	6 GHz - 18 GHz	10 GHz - 26.5 GHz	26.5 GHz - 40 GHz	1 GHz - 18 GHz
5.2 dB	5.4 dB	5.5 dB	5.5 dB	5.4 dB

\*Measurement distance

#### Radiated emission test

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

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

### 3.5 Test Location

UL Japan, Inc. Ise EMC Lab. \*NVLAP Lab. code: 200572-0  
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
Telephone: +81 596 24 8999, Facsimile: +81 596 24 8124

Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	2973C-1	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	2973C-2	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	2973C-3	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	-	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	2973C-4	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	-	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	-	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.6 shielded room	-	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	-	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	-	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	-	3.1 x 5.0 x 2.7	N/A	-	-
No.9 measurement room	-	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.11 measurement room	-	6.2 x 4.7 x 3.0	4.8 x 4.6	-	-

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

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

Refer to APPENDIX.

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

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

### **4.1 Operating Mode(s)**

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.

<b>Mode</b>	<b>Remarks*</b>
IEEE 802.11a (11a)	6 Mbps, PN9
IEEE 802.11n MIMO 20MHz BW (11n-20): 5GHz	MCS 8, PN9
IEEE 802.11n MIMO 40MHz BW (11n-40): 5GHz	MCS 8, PN9
*Transmitting duty was close to 100% on all tests.	
*The worst condition was determined based on the test result of Maximum Conducted Output Power (Mid Channel)	
*EUT has the power settings by the software as follows; Power settings: 11a(6 Mbps): 15 dBm (5745 MHz to 5825 MHz) 11n-20 5 GHz (MCS8): 13.5 dBm (5745 MHz to 5825 MHz) 11n-40 5 GHz (MCS8): 11.0 dBm (5755 MHz to 5795 MHz)	
Software:            Atheros Radio Test (ART) - Revision 0.9 BUILD #27 ART_11n - Customer Version (ANWI BUILD)	
*Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	



\*The details of Operating mode(s)

Test Item	Operating Mode	Tested Antenna port	Tested Frequency
			Upper Band
99 % Occupied Bandwidth, 6 dB Bandwidth	11a Tx 11n-20 Tx	1 *3)	5745 MHz 5785 MHz 5825 MHz
	11n-40 Tx	1 *3)	5755 MHz 5795 MHz
Maximum Conducted Output Power, Maximum Power Spectral Density	11a Tx	0, 1	5745 MHz 5785 MHz 5825 MHz
	11n-20 Tx	0+1	5745 MHz 5785 MHz 5825 MHz
	11n-40 Tx	0+1	5755 MHz 5795 MHz
Radiated Spurious Emission (Above 1 GHz) *4)	11n-20 Tx *2)	0+1	5745 MHz 5785 MHz 5825 MHz
	11n-40 Tx	0+1	5755 MHz 5795 MHz
Radiated Spurious Emission (Below 1 GHz) *1) *4)	11n-20 Tx	0+1	5825 MHz
Conducted Spurious Emission *3)	11n-20 Tx	1	5825 MHz
<p>*1) The mode was tested as a representative, because it had the highest power at antenna terminal test.  *2) Since 11a and 11n-20 have the same modulation method and no differences in transmitting specification, test was performed on the representative mode that had the highest peak output power.  *3) After the comparison between Antenna 0 and Antenna 1, test was performed with the antenna that had higher power as a representative.  *4) After the comparison MIMO and SISO in pre-check, test was performed with MIMO as a representative as it had worst case.</p>			

**UL Japan, Inc.**

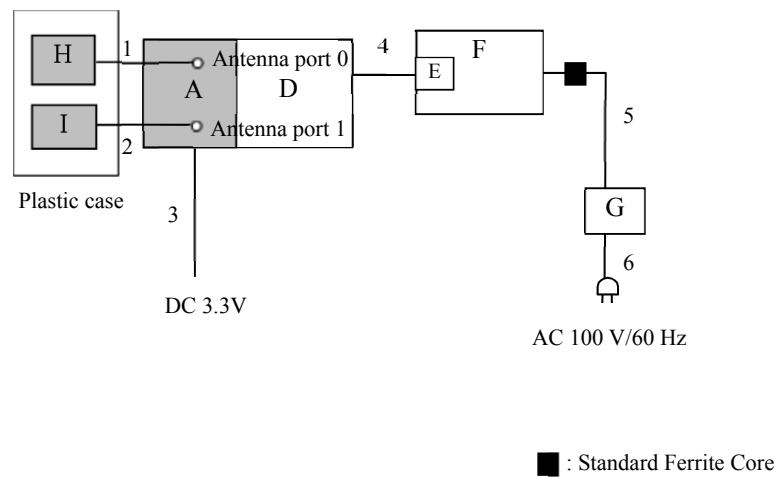
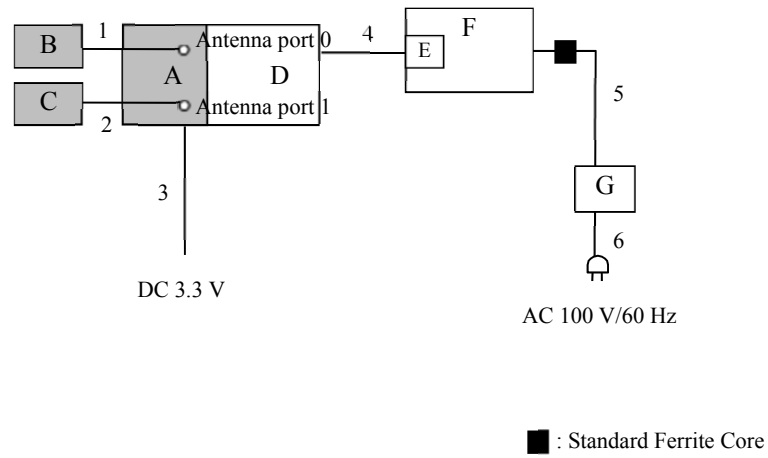
**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## 4.2 Configuration and peripherals



\* Cabling and setup 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	Remark
A	Wireless LAN PCI Express Mini Card Module	SX-PCEAN	00809261B68D	silex technology, Inc.	EUT
B	Antenna	ANTDP-027A0 101	01	Sansei Electric Co., Ltd.	EUT *Antenna 1
		ANT1267-164C /U-100B	01	NISSEI ELECTRIC CO.,LTD.	EUT *Antenna 2
C	Antenna	ANTDP-027A0 102	02	Sansei Electric Co., Ltd.	EUT *Antenna 1
		ANT1267-164C /U-100B	02	NISSEI ELECTRIC CO.,LTD.	EUT *Antenna 2
D	Module Jig(PCB)	-	-	-	-
E	Express Card Adaptor	-	-	-	-
F	Laptop PC	T410	-	Lenovo	-
G	AC Adaptor	42P4118	-	Lenovo	-
H	Antenna	AA222	001	Unictron Technologies Corp.	EUT *Antenna 3
I	Antenna	AA222	002	Unictron Technologies Corp.	EUT *Antenna 3

**List of cables used**

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	Antenna Cable	0.10	Shielded	Shielded	-
2	Antenna Cable	0.10	Shielded	Shielded	-
3	DC Power Cable	0.50	Unshielded	Unshielded	-
4	HDMI Cable	0.25	Shielded	Shielded	-
5	DC Power Cable	1.80	Unshielded	Unshielded	-
6	AC Power Cable	1.00	Unshielded	Unshielded	-

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## **SECTION 5: Radiated Spurious Emission and Band Edge Compliance**

### **Test Procedure**

< Below 1GHz >

EUT was placed on a urethane platform of nominal size, 0.5 m by 1.0 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.

< Above 1GHz >

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane.

The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane.

The height of the measuring antenna varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

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. \*) or  
78.2 dBuV/m, 3 m (-17 dBm e.i.r.p. \*) in the Section 15.407 (b) or  
Apply to limit in the Section 15.209 (a). \*2)

Apply to limit 68.2 dBuV/m, 3 m (-27 dBm e.i.r.p. \*) in the Section 15.407 (b) (1) (2) (3).

-27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge in the KDB926956 D01.\*1)

\*1) This limit is used for antenna 2, 3.

\*2) This limit is used for antenna 1.

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 200 MHz	200 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 VBW: 3 MHz	Method AD *1) RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (RMS) Trace: ≥ 100 traces If duty cycle was less than 98%, a duty factor was added to the results.
Test Distance	3 m	4.4 m*2)/ 4.45 m *3) (1 GHz – 10GHz), 1 m*4) (10 GHz – 26.5 GHz)/ *5) (10 GHz – 40 GHz), 0.5 m*6) (26.5 GHz – 40 GHz)	

\*1) The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01r03 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on April 8, 2016)".

\*2) Distance Factor:  $20 \times \log(4.4 \text{ m}/3.0 \text{ m}) = 3.3 \text{ dB}$  (Antenna 1, 2)

\*3) Distance Factor:  $20 \times \log(4.45 \text{ m}/3.0 \text{ m}) = 3.43 \text{ dB}$  (Antenna 3)

\*4) Distance Factor:  $20 \times \log(1.0 \text{ m}/3.0 \text{ m}) = -9.5 \text{ dB}$  (Antenna 1)

\*5) Distance Factor:  $20 \times \log(1.0 \text{ m}/3.0 \text{ m}) = -9.5 \text{ dB}$  (Antenna 2, 3)

\*6) Distance Factor:  $20 \times \log(0.5 \text{ m}/3.0 \text{ m}) = -15.6 \text{ dB}$  (Antenna 1)

[Module and Antenna 2, 3]

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT (Module and Antenna 2, 3) to see the position of maximum noise, and the test was made at the position that has the maximum noise.

[Antenna 1]

- The carrier level and noise levels were confirmed at each position of X0, X90, Y0, Y90, Z0 and Z90 axes of Antenna to see the position of maximum noise, and the test was made at the position that has the maximum noise.

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

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

## **SECTION 6: Antenna Terminal Conducted Tests**

### **Test Procedure**

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

<b>Test</b>	<b>Span</b>	<b>RBW</b>	<b>VBW</b>	<b>Sweep time</b>	<b>Detector</b>	<b>Trace</b>	<b>Instrument used and Test method</b>
26 dB Bandwidth	Enough to capture the emission	Close to 1 % of EBW	> RBW	Auto	Peak	Max Hold	Spectrum Analyzer
99 % Occupied Bandwidth *1)	Enough width to display emission skirts	1 % to 5 % of OBW	$\geq 3$ RBW	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: 80 MHz BW) (Method PM)
Maximum Power Spectral Density	Encompass the entire EBW	470 kHz *2)	$\geq 3$ RBW	Auto	RMS Power Averaging (200 times)	Clear Write	Spectrum Analyzer
Conducted Spurious Emission*3)	9 kHz – 150 kHz	200 Hz	620 Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150 kHz – 30 MHz	9.1 kHz	27 kHz				

\* The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01r03 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on April 8, 2016)".

\*1) Peak hold was applied as Worst-case measurement.

\*2) KDB 789033 D02 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 RBW Correction Factor ( $10 \log(500 \text{ kHz} / 470 \text{ kHz})$ ) was added to the test result.

\*3) 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 = 9.1 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**

**99 % Occupied Bandwidth**

Test place Ise EMC Lab. No.6 Measurement Room  
Report No. 11166424H  
Date April 22, 2016  
Temperature / Humidity 23deg. C / 44 % RH  
Engineer Satofumi Matsuyama  
Mode Tx

11a 6 Mbps

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [MHz]	Limit [MHz]
Antenna 1	5745	-	18.038	-
	5785	-	18.140	-
	5825	-	17.768	-

11n-20 MCS 8

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [MHz]	Limit [MHz]
Antenna 1	5745	-	18.790	-
	5785	-	18.918	-
	5825	-	18.723	-

11n-40 MCS 8

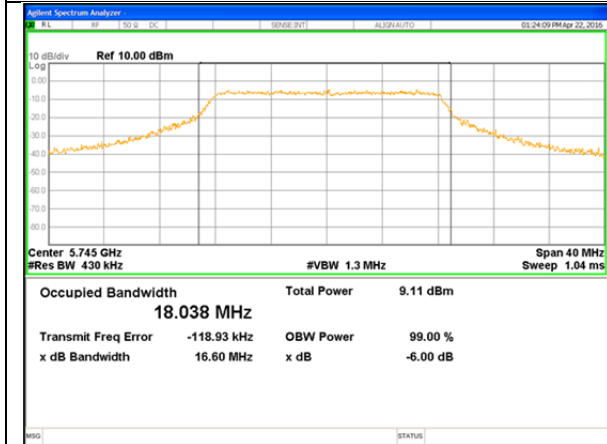
Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [MHz]	Limit [MHz]
Antenna 1	5755	-	37.860	-
	5795	-	37.878	-



**99 % Occupied Bandwidth**

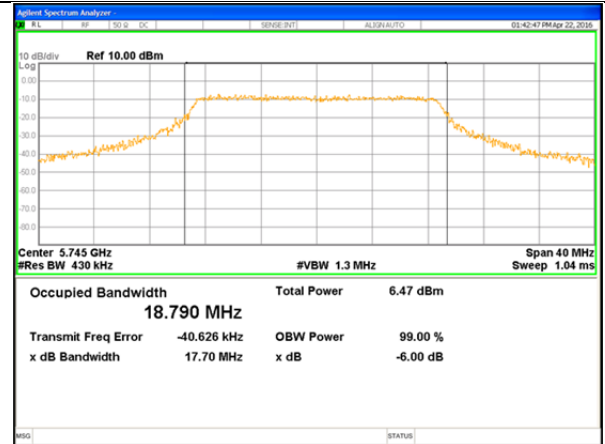
**11a, Antenna 1**

**5745 MHz**

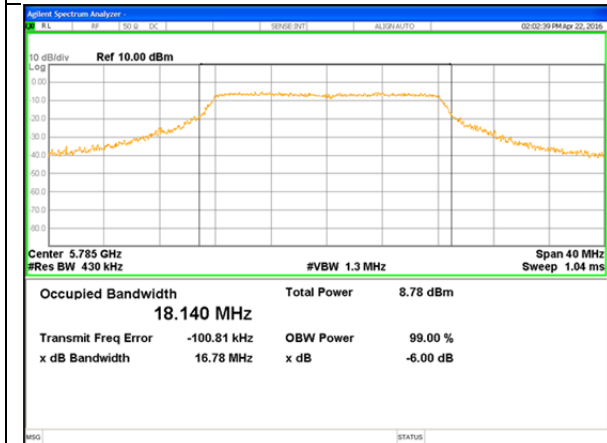


**11n-20 Antenna 1**

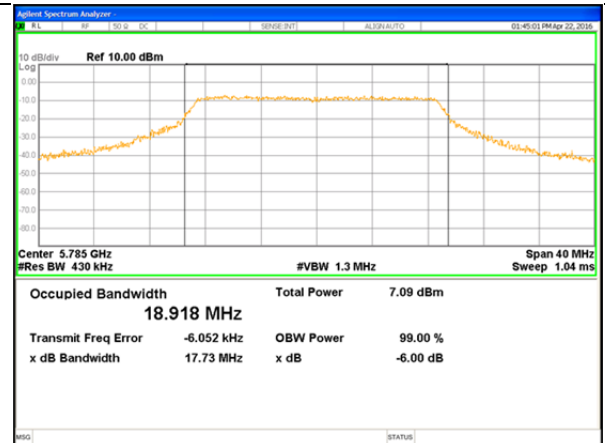
**5745 MHz**



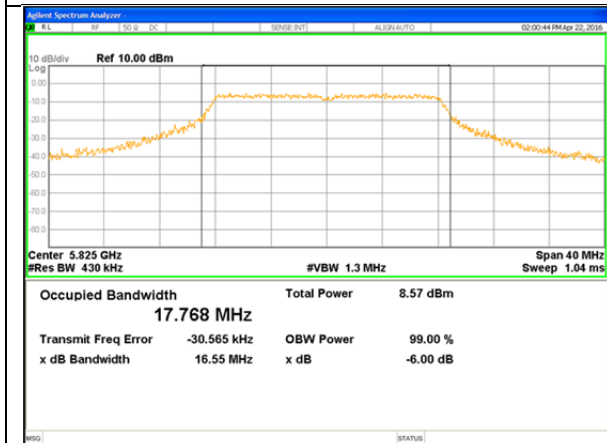
**5785 MHz**



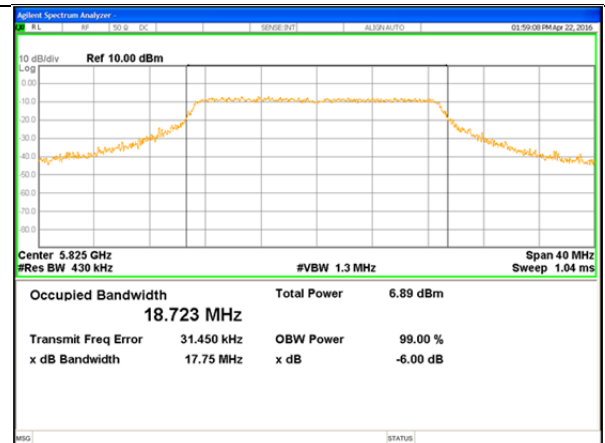
**5785 MHz**



**5825 MHz**



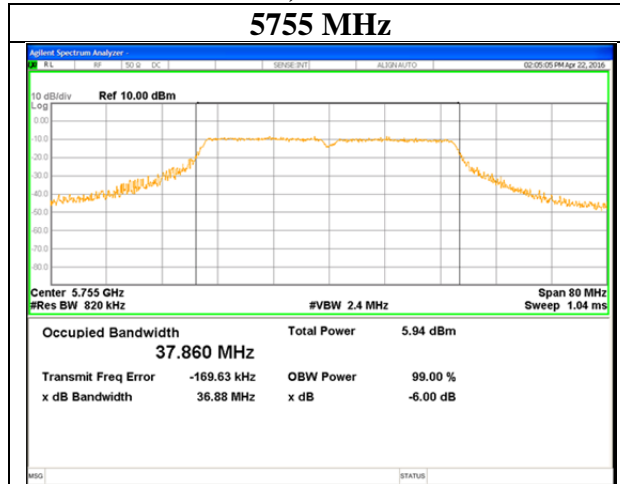
**5825 MHz**



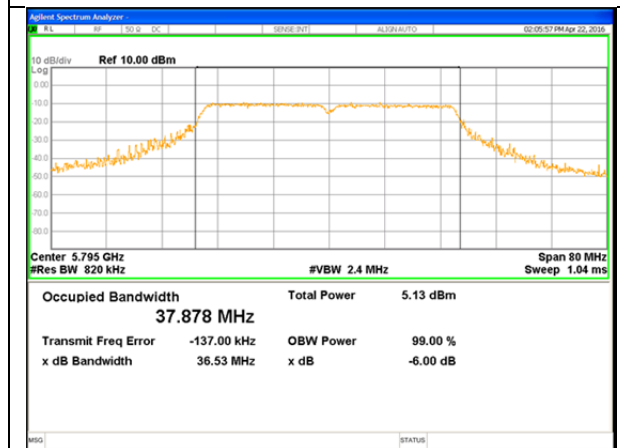
## 99 % Occupied Bandwidth

### 11n-40, Antenna 1

#### 5755 MHz



#### 5795 MHz



## 6 dB Bandwidth

Test place Ise EMC Lab. No.6 Measurement Room  
Report No. 11166424H  
Date April 22, 2016  
Temperature / Humidity 23deg. C / 44 % RH  
Engineer Satofumi Matsuyama  
Mode Tx

### 11a 6 Mbps

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [kHz]
Antenna 1	5745	16.390	> 500
	5785	16.420	> 500
	5825	16.410	> 500

### 11n-20 MCS 8

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [kHz]
Antenna 1	5745	17.620	> 500
	5785	17.600	> 500
	5825	17.600	> 500

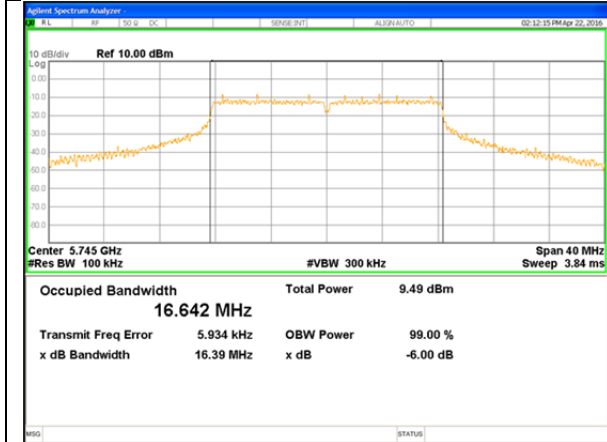
### 11n-40 MCS 8

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [kHz]
Antenna 1	5755	36.330	> 500
	5795	36.090	> 500

**6 dB Bandwidth**

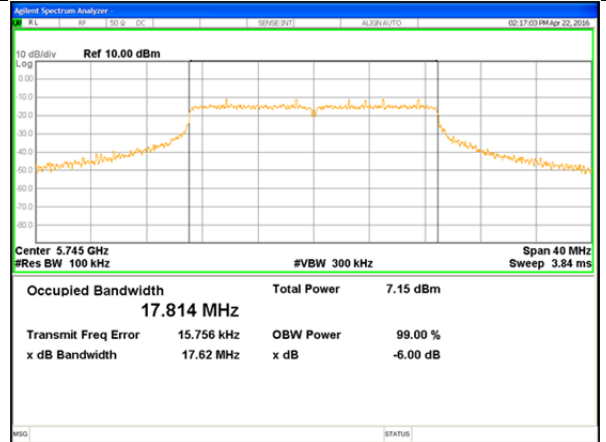
**11a, Antenna 1**

**5745 MHz**

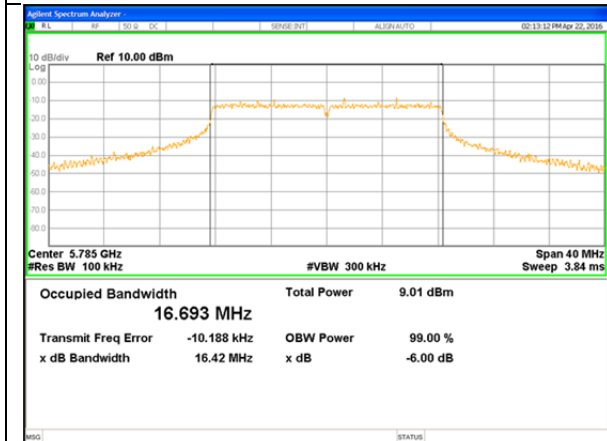


**11n-20, Antenna 1**

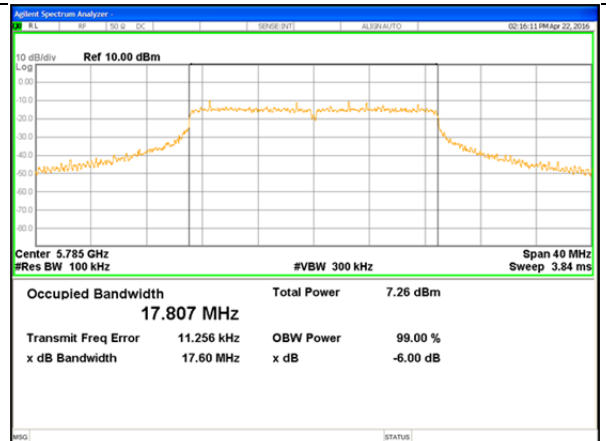
**5745 MHz**



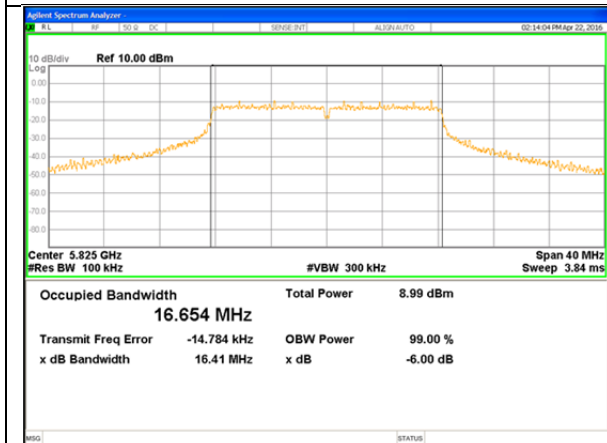
**5785 MHz**



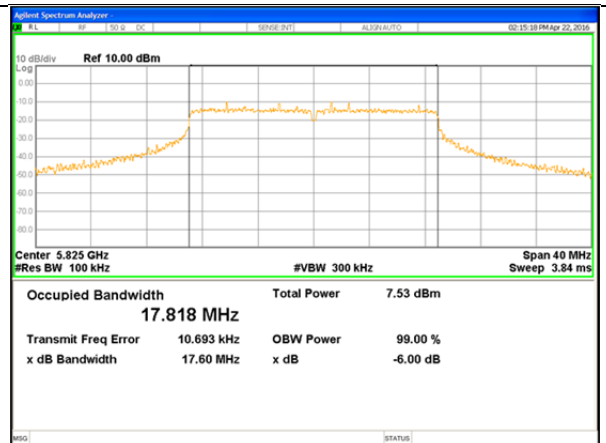
**5785 MHz**



**5825 MHz**



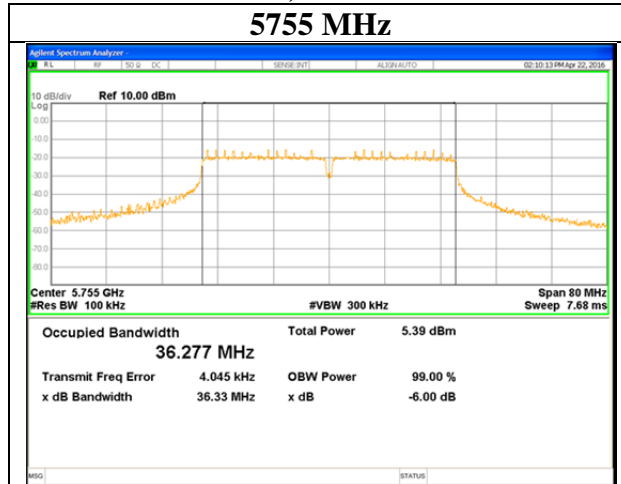
**5825 MHz**



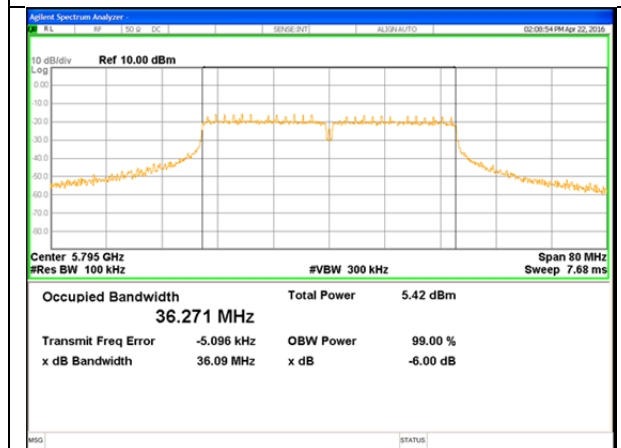
## 6 dB Bandwidth

### 11n-40, Antenna 1

#### 5755 MHz



#### 5795 MHz



## Maximum Conducted Output Power

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11a

### Antenna 0

Applied limit: 15.407

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	Conducted Power				e.i.r.p.			
						Result [dBm]	[mW]	Limit [dBm]	Margin [dB]	Result [dBm]	[mW]	Limit [dBm]	Margin [dB]
5745	2.12	1.52	10.12	0.03	4.31	13.79	23.93	30.00	16.21	18.10	64.57	36.00	17.90
5785	2.09	1.53	10.12	0.03	4.31	13.77	23.82	30.00	16.23	18.08	64.27	36.00	17.92
5825	2.56	1.54	10.11	0.03	4.31	14.24	26.55	30.00	15.76	18.55	71.61	36.00	17.45

Sample Calculation:

Conducted Power Result = Reading + Cable Loss + Atten. Loss + Duty Factor

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

Conducted Power Limit (5725 - 5850 MHz) = 1W (30dBm)

e.i.r.p. Limit (5725 - 5850 MHz) = 2W (36dBm)

### Antenna 1

Applied limit: 15.407

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	Conducted Power				e.i.r.p.			
						Result [dBm]	[mW]	Limit [dBm]	Margin [dB]	Result [dBm]	[mW]	Limit [dBm]	Margin [dB]
5745	2.16	1.52	10.12	0.03	4.31	13.83	24.15	30.00	16.17	18.14	65.16	36.00	17.86
5785	2.17	1.53	10.12	0.03	4.31	13.85	24.27	30.00	16.15	18.16	65.46	36.00	17.84
5825	2.30	1.54	10.11	0.03	4.31	13.98	25.00	30.00	16.02	18.29	67.45	36.00	17.71

Sample Calculation:

Conducted Power Result = Reading + Cable Loss + Atten. Loss + Duty Factor

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

Conducted Power Limit (5725 - 5850 MHz) = 1W (30dBm)

e.i.r.p. Limit (5725 - 5850 MHz) = 2W (36dBm)

## Maximum Conducted Output Power

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11n-20

### Antenna 0+1

Applied limit: 15.407

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			Antenna			Result [dBm]	Limit [dBm]	Margin [dB]	Antenna			Result [dBm]	Limit [dBm]	Margin [dB]
0 [mW]	1 [mW]	Sum [mW]	0 [mW]	1 [mW]	Sum [mW]									
5745	-	-	15.03	16.07	31.10	14.93	30.00	15.07	40.55	43.35	83.90	19.24	36.00	16.76
5785	-	-	14.66	16.26	30.91	14.90	30.00	15.10	39.54	43.85	83.39	19.21	36.00	16.79
5825	-	-	16.94	18.07	35.02	15.44	30.00	14.56	45.71	48.75	94.46	19.75	36.00	16.25

Antenna 0							Antenna 1						
Tested Frequency [MHz]	Duty Factor [dB]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result		Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result	
						Cond. Power [dBm]	e.i.r.p. [dBm]					Cond. Power [dBm]	e.i.r.p. [dBm]
5745	0.05	0.08	1.52	10.12	4.31	11.77	16.08	0.37	1.52	10.12	4.31	12.06	16.37
5785	0.05	-0.04	1.53	10.12	4.31	11.66	15.97	0.41	1.53	10.12	4.31	12.11	16.42
5825	0.05	0.59	1.54	10.11	4.31	12.29	16.60	0.87	1.54	10.11	4.31	12.57	16.88

Sample Calculation:

Conducted Power Result = Reading + Cable Loss + Atten. Loss + Duty Factor

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

Conducted Power Limit (5725 - 5850 MHz) = 1W (30dBm)

e.i.r.p. Limit (5725 - 5850 MHz) = 2W (36dBm)

## Maximum Conducted Output Power

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11n-40

### Antenna 0+1

Applied limit: 15.407

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			Antenna			Result [dBm]	Limit [dBm]	Margin [dB]	Antenna			Result [dBm]	Limit [dBm]	Margin [dB]
			0 [mW]	1 [mW]	Sum [mW]				0 [mW]	1 [mW]	Sum [mW]			
5755	-	-	8.47	8.91	17.38	12.40	30.00	17.60	22.86	24.04	46.90	16.71	36.00	19.29
5795	-	-	8.13	8.97	17.10	12.33	30.00	17.67	21.93	24.21	46.14	16.64	36.00	19.36

Tested Frequency [MHz]	Duty Factor [dB]	Antenna 0						Antenna 1					
		Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result		Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result	
						Cond. Power [dBm]	e.i.r.p. [dBm]					Cond. Power [dBm]	e.i.r.p. [dBm]
5755	0.12	-2.48	1.52	10.12	4.31	9.28	13.59	-2.26	1.52	10.12	4.31	9.50	13.81
5795	0.12	-2.67	1.53	10.12	4.31	9.10	13.41	-2.24	1.53	10.12	4.31	9.53	13.84

Sample Calculation:

Conducted Power Result = Reading + Cable Loss + Atten. Loss + Duty Factor

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

Conducted Power Limit (5725 - 5850 MHz) = 1W (30dBm)

e.i.r.p. Limit (5725 - 5850 MHz) = 2W (36dBm)



## Maximum Conducted Output Power

Test place : Ise EMC Lab. No.4 Measurement Room  
Report No. : 11166424H  
Date : April 5, 2016  
Temperature / Humidity : 23deg. C / 48 % RH  
Engineer : Shinichi Miyazono  
Mode : Tx 11a

### Antenna 0, 5785 MHz

Mode	Rate Mbps	Reading [dBm]	Remarks
11a	6	1.97	*
	9	1.95	
	12	1.93	
	18	1.91	
	24	1.66	
	36	1.94	
	48	1.88	
	54	1.66	

\* Worst rate

Sample Calculation:

Burst power = Reading

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

### Antenna 1, 5785 MHz

Mode	Rate Mbps	Reading [dBm]	Remarks
11a	6	2.68	*
	9	2.23	
	12	2.31	
	18	2.17	
	24	2.70	
	36	2.35	
	48	2.65	
	54	2.16	

\* Worst rate

Sample Calculation:

Burst power = Reading

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

## Maximum Conducted Output Power

Test place : Ise EMC Lab. No.4 Measurement Room  
Report No. : 11166424H  
Date : April 5, 2016  
Temperature / Humidity : 23deg. C / 48 % RH  
Engineer : Shinichi Miyazono  
Mode : Tx

### 11n-20 5785 MHz

Mode	MCS Number	Reading Antenna						Remarks
		0	1	0	1	0+1	0+1	
		[dBm]	[dBm]	[mW]	[mW]	[mW]	[dBm]	
11n	0	0.26	0.75	-	-	-	-	* 1 TX
	1	-0.18	0.52	-	-	-	-	
	2	0.10	0.40	-	-	-	-	
	3	0.15	0.60	-	-	-	-	
	4	0.09	0.66	-	-	-	-	
	5	-0.05	0.46	-	-	-	-	
	6	0.11	0.61	-	-	-	-	
	7	0.07	0.56	-	-	-	-	
	8	0.45	0.78	1.11	1.20	2.31	3.63	* 2 TX
	9	0.26	0.44	1.06	1.11	2.17	3.36	
	10	-0.01	0.72	1.00	1.18	2.18	3.38	
	11	0.20	0.75	1.05	1.19	2.24	3.49	
	12	0.42	0.72	1.10	1.18	2.28	3.58	
	13	0.37	0.74	1.09	1.19	2.27	3.57	
	14	0.15	0.43	1.04	1.10	2.14	3.30	
15	-0.06	0.75	0.99	1.19	2.17	3.37		

\* Worst rate

Sample Calculation:

Burst power = Reading

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

### 11n-40 5755 MHz

Mode	MCS Number	Reading Antenna						Remarks
		0	1	0	1	0+1	0+1	
		[dBm]	[dBm]	[mW]	[mW]	[mW]	[dBm]	
11n	0	-1.79	-1.64	-	-	-	-	* 1 TX
	1	-2.37	-2.08	-	-	-	-	
	2	-2.36	-1.65	-	-	-	-	
	3	-2.53	-2.05	-	-	-	-	
	4	-2.91	-1.78	-	-	-	-	
	5	-2.26	-2.01	-	-	-	-	
	6	-2.62	-1.73	-	-	-	-	
	7	-2.49	-1.87	-	-	-	-	
	8	-2.28	-2.03	0.59	0.63	1.22	0.86	* 2 TX
	9	-2.65	-2.20	0.54	0.60	1.15	0.59	
	10	-2.40	-2.50	0.58	0.56	1.14	0.56	
	11	-2.35	-2.42	0.58	0.57	1.15	0.63	
	12	-2.55	-2.21	0.56	0.60	1.16	0.63	
	13	-2.65	-2.14	0.54	0.61	1.15	0.62	
	14	-2.73	-2.18	0.53	0.61	1.14	0.56	
15	-2.39	-2.09	0.58	0.62	1.19	0.77		

\* Worst rate

Sample Calculation:

Burst power = Reading

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

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

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

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11a

**Antenna 0**

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average)	
				[dBm]	[mW]
5745	2.12	1.52	10.12	13.76	23.77
5785	2.09	1.53	10.12	13.74	23.66
5825	2.56	1.54	10.11	14.21	26.36

Sample Calculation:

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

**Antenna 1**

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average)	
				[dBm]	[mW]
5745	2.16	1.52	10.12	13.80	23.99
5785	2.17	1.53	10.12	13.82	24.10
5825	2.30	1.54	10.11	13.95	24.83

Sample Calculation:

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

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

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11n-20

Tested Frequency [MHz]	Antenna 0				Antenna 1				Antenna 0+1			
	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Result (Timed average)			
									Antenna		Sum	
								0 [mW]	1 [mW]	0+1 [mW]	0+1 [dBm]	
5745	0.08	1.52	10.12	11.72	0.37	1.52	10.12	12.01	14.86	15.89	30.74	14.88
5785	-0.04	1.53	10.12	11.61	0.41	1.53	10.12	12.06	14.49	16.07	30.56	14.85
5825	0.59	1.54	10.11	12.24	0.87	1.54	10.11	12.52	16.75	17.86	34.61	15.39

Sample Calculation:

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

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

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11n-40

Tested Frequency [MHz]	Antenna 0				Antenna 1				Antenna 0+1			
	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Result (Timed average) Antenna		Sum 0+1	
									0 [mW]	1 [mW]	[mW]	[dBm]
5755	-2.48	1.52	10.12	9.16	-2.26	1.52	10.12	9.38	8.24	8.67	16.91	12.28
5795	-2.67	1.53	10.12	8.98	-2.24	1.53	10.12	9.41	7.91	8.73	16.64	12.21

Sample Calculation:

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

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

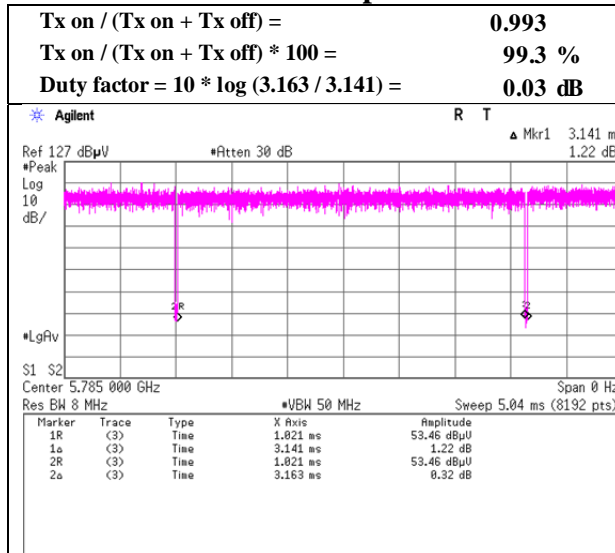
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

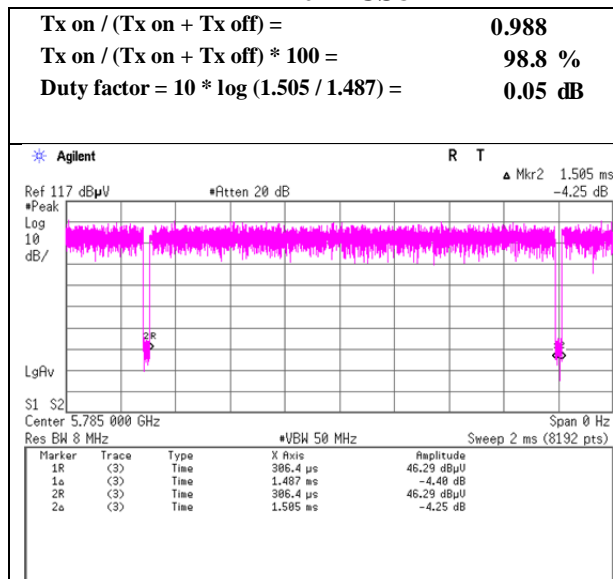
### Burst rate confirmation

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
 Report No. : 11166424H  
 Date : April 1, 2016  
 Temperature / Humidity : 23deg. C / 33 % RH  
 Engineer : Shinichi Miyazono  
 Mode : Tx

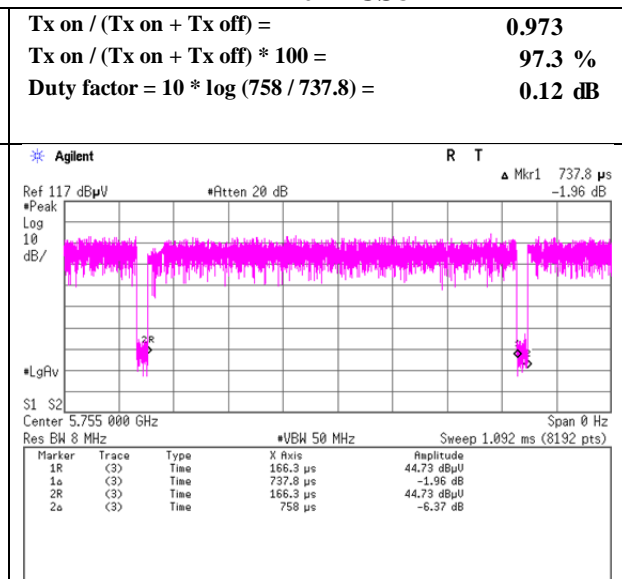
#### 11a 6Mbps



#### 11n-20 MCS8



#### 11n-40 MCS8



## Maximum Power Spectral Density

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11a

**6Mbps Antenna 1**

Applied limit: 15.407

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
							Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5745	-11.93	1.52	10.12	0.03	4.31	0.27	0.01	30.00	29.99	4.32	36.00	31.68
5785	-12.11	1.53	10.12	0.03	4.31	0.27	-0.16	30.00	30.16	4.15	36.00	31.85
5825	-11.76	1.54	10.11	0.03	4.31	0.27	0.19	30.00	29.81	4.50	36.00	31.50

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 Factor

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

The conducted PSD limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725 MHz-5850 MHz for IC)

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

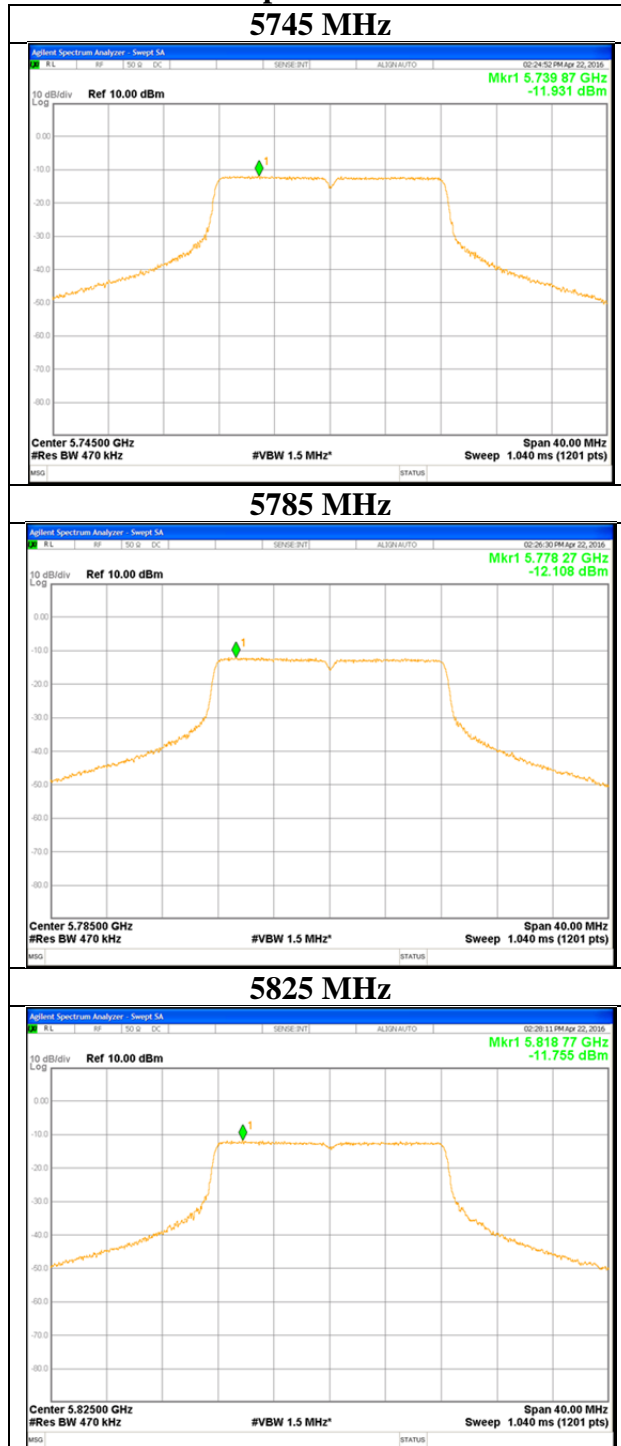
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Maximum Power Spectral Density

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11a

### 6Mbps Antenna 1



UL Japan, Inc.

Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124



## Maximum Power Spectral Density

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11n-20

Applied limit: 15.407

Tested Frequency [MHz]	PSD (Conducted)							PSD (e.i.r.p.)						
	Antenna			Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]	Antenna			Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]		
	0 [mW/MHz]	1 [mW/MHz]	Sum [mW/MHz]				0 [mW/MHz]	1 [mW/MHz]	Sum [mW/MHz]					
5745	0.59	0.65	1.24	0.92	30.00	29.08	1.60	1.74	3.34	5.23	36.00	30.77		
5785	0.59	0.63	1.22	0.85	30.00	29.15	1.59	1.69	3.28	5.16	36.00	30.84		
5825	0.63	0.66	1.29	1.12	30.00	28.88	1.70	1.78	3.49	5.43	36.00	30.57		

Tested Frequency [MHz]	Duty Factor [dB]	RBW Correction Factor [dB]	Antenna 0					Antenna 1					PSD Result Cond. [dBm/MHz]	PSD Result e.i.r.p. [dBm/MHz]
			PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result Cond. [dBm/MHz]	PSD Result e.i.r.p. [dBm/MHz]	PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]		
5745	0.05	0.27	-14.24	1.52	10.12	4.31	-2.28	2.03	-13.86	1.52	10.12	4.31	-1.90	2.41
5785	0.05	0.27	-14.26	1.53	10.12	4.31	-2.29	2.02	-14.00	1.53	10.12	4.31	-2.03	2.28
5825	0.05	0.27	-13.96	1.54	10.11	4.31	-1.99	2.32	-13.77	1.54	10.11	4.31	-1.80	2.51

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 (Specified bandwidth / Measured bandwidth)

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

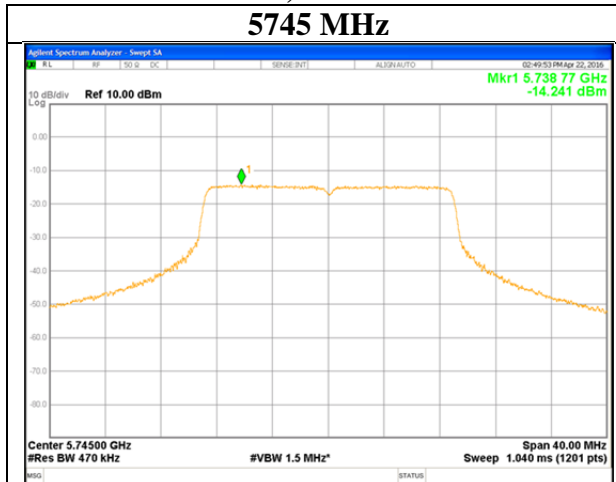
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

The conducted PSD limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725 MHz-5850 MHz for IC)

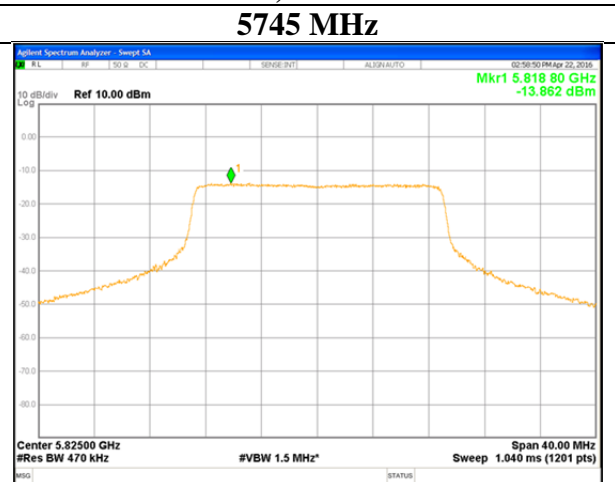
## Maximum Power Spectral Density

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11166424H
Date	April 22, 2016
Temperature / Humidity	23deg. C / 44 % RH
Engineer	Satofumi Matsuyama
Mode	Tx 11n-20

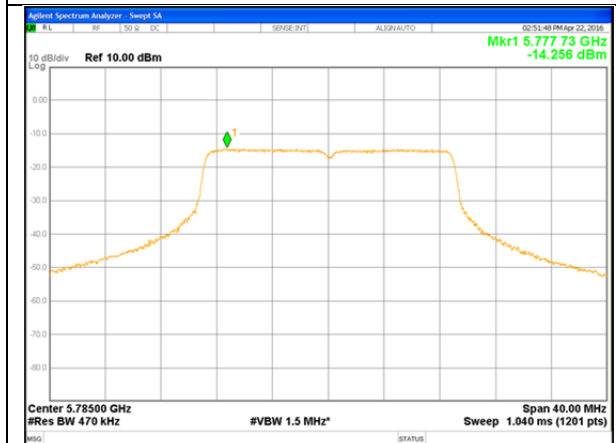
**11n-20, Antenna 0**



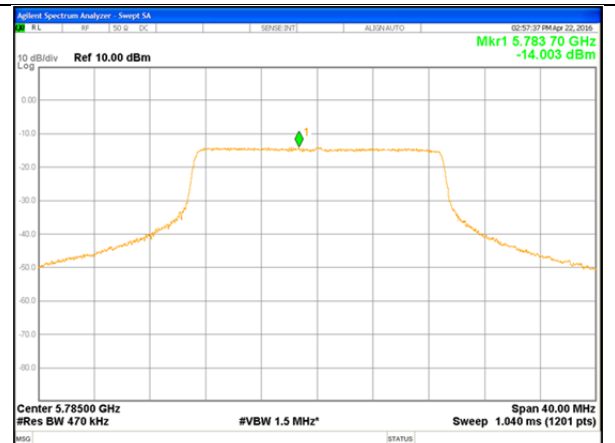
**11n-20, Antenna 1**



**5785 MHz**



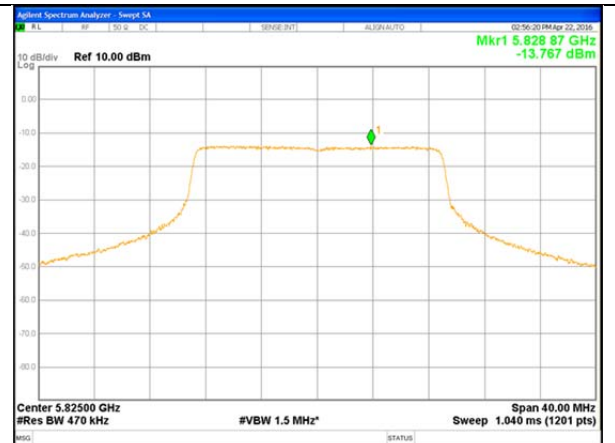
**5785 MHz**



**5825 MHz**



**5825 MHz**



**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Maximum Power Spectral Density

Test place : Ise EMC Lab. No.6 Measurement Room  
Report No. : 11166424H  
Date : April 22, 2016  
Temperature / Humidity : 23deg. C / 44 % RH  
Engineer : Satofumi Matsuyama  
Mode : Tx 11n-40

Applied limit: 15.407

Tested Frequency [MHz]	PSD (Conducted)							PSD (e.i.r.p.)						
	Antenna			Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]	Antenna			Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]		
	0 [mW/MHz]	1 [mW/MHz]	Sum [mW/MHz]				0 [mW/MHz]	1 [mW/MHz]	Sum [mW/MHz]					
5755	0.19	0.20	0.39	-4.14	30.00	34.14	0.51	0.53	1.04	0.17	36.00	35.83		
5795	0.16	0.19	0.35	-4.59	30.00	34.59	0.44	0.50	0.94	-0.28	36.00	36.28		

Tested Frequency [MHz]	Duty Factor [dB]	RBW Correction Factor [dB]	Antenna 0					Antenna 1					PSD Result	
			PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result Cond. [dBm/MHz]	PSD Result e.i.r.p. [dBm/MHz]	PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result Cond. [dBm/MHz]	PSD Result e.i.r.p. [dBm/MHz]
			5755	0.12	0.27	-19.25	1.52	10.12	4.31	-7.22	-2.91	-19.12	1.52	10.12
5795	0.12	0.27	-19.96	1.53	10.12	4.31	-7.92	-3.61	-19.34	1.53	10.12	4.31	-7.30	-2.99

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 Factor

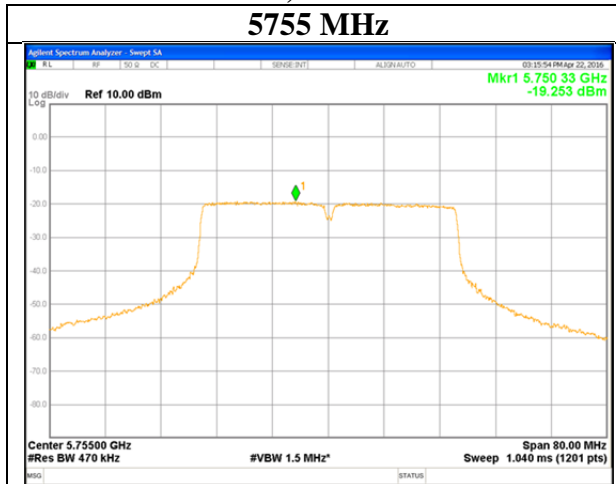
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

The conducted PSD limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725 MHz-5850 MHz for IC)

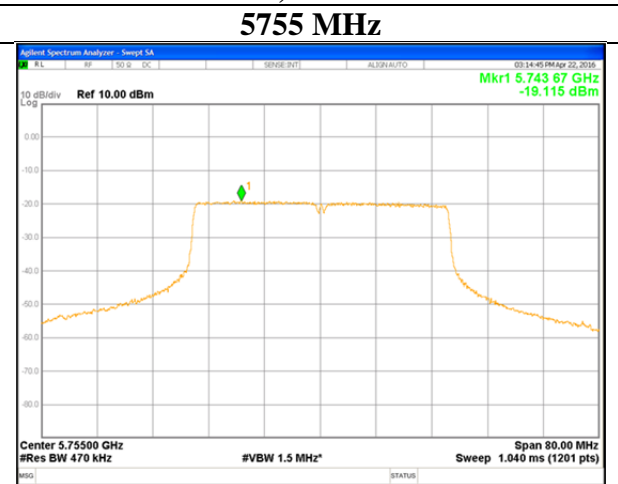
**Maximum Power Spectral Density**

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11166424H
Date	April 22, 2016
Temperature / Humidity	23deg. C / 44 % RH
Engineer	Satofumi Matsuyama
Mode	Tx 11n-40

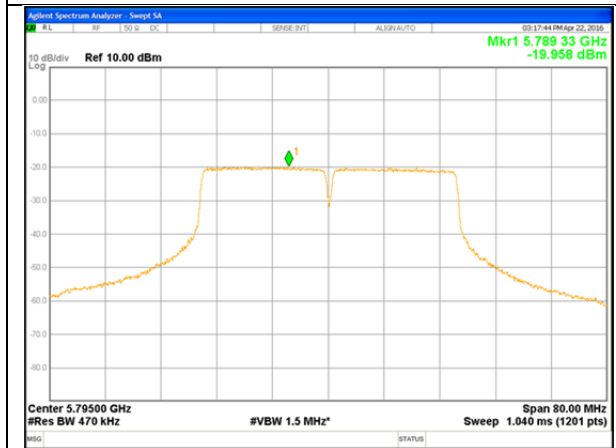
**11n-40, Antenna 0**



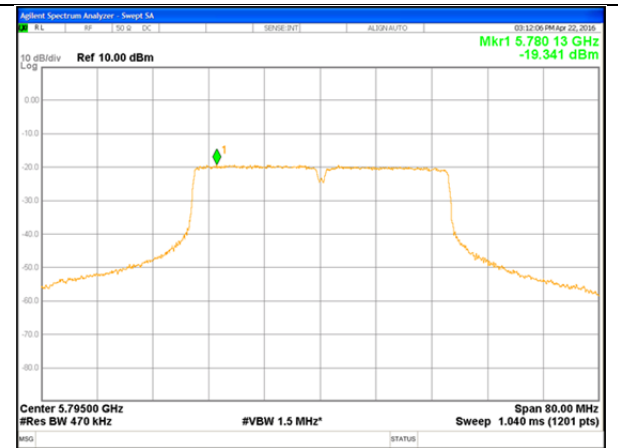
**11n-40, Antenna 1**



**5795 MHz**



**5795 MHz**



**Radiated Spurious Emission**  
**(Antenna: ANTDP-027A0)**

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : April 1, 2016 April 2, 2016  
Temperature / Humidity : 23deg. C / 33 % RH 23deg. C / 44 % RH  
Engineer : Shinichi Miyazono Takafumi Noguchi  
(1 GHz - 10 GHz) (10 GHz - 40 GHz)  
Mode : Tx 11n-20 5745 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2497.612	PK	59.0	28.1	6.1	32.1	-	61.1	73.9	12.8	
Hori	3830.062	PK	46.5	29.7	6.8	31.6	-	51.4	73.9	22.5	
Hori	4865.080	PK	51.3	33.1	7.2	31.3	-	60.3	73.9	13.6	
Hori	5467.830	PK	53.5	33.0	7.5	31.4	-	62.6	68.2	5.6	
Hori	5715.000	PK	62.8	33.1	7.6	31.4	-	72.1	109.4	37.3	
Hori	5725.000	PK	68.6	33.1	7.6	31.4	-	77.9	122.2	44.3	
Hori	11490.000	PK	50.3	40.2	-1.7	33.1	-	55.7	73.9	18.2	
Hori	17235.000	PK	52.1	42.2	0.1	32.6	-	61.8	68.2	6.4	
Hori	2497.612	AV	47.8	28.1	6.1	32.1	-	49.9	53.9	4.0	
Hori	3830.062	AV	41.8	29.7	6.8	31.6	-	46.7	53.9	7.2	
Hori	4865.080	AV	40.9	33.1	7.2	31.3	-	49.9	53.9	4.0	
Hori	11490.000	AV	40.4	40.2	-1.7	33.1	-	45.8	53.9	8.1	
Vert	2497.650	PK	58.7	28.1	6.1	32.1	-	60.8	73.9	13.1	
Vert	3830.060	PK	46.4	29.7	6.8	31.6	-	51.3	73.9	22.6	
Vert	4913.420	PK	51.3	33.2	7.3	31.3	-	60.5	73.9	13.4	
Vert	5715.000	PK	58.1	33.1	7.6	31.4	-	67.4	109.4	42.0	
Vert	5725.000	PK	64.5	33.1	7.6	31.4	-	73.8	122.2	48.4	
Vert	11490.000	PK	51.0	40.2	-1.7	33.1	-	56.4	73.9	17.5	
Vert	17235.000	PK	55.8	42.2	0.1	32.6	-	65.5	68.2	2.7	
Vert	2497.650	AV	47.2	28.1	6.1	32.1	-	49.3	53.9	4.6	
Vert	3830.060	AV	42.0	29.7	6.8	31.6	-	46.9	53.9	7.0	
Vert	4913.420	AV	43.0	33.2	7.3	31.3	-	52.2	53.9	1.7	
Vert	11490.000	AV	41.1	40.2	-1.7	33.1	-	46.5	53.9	7.4	

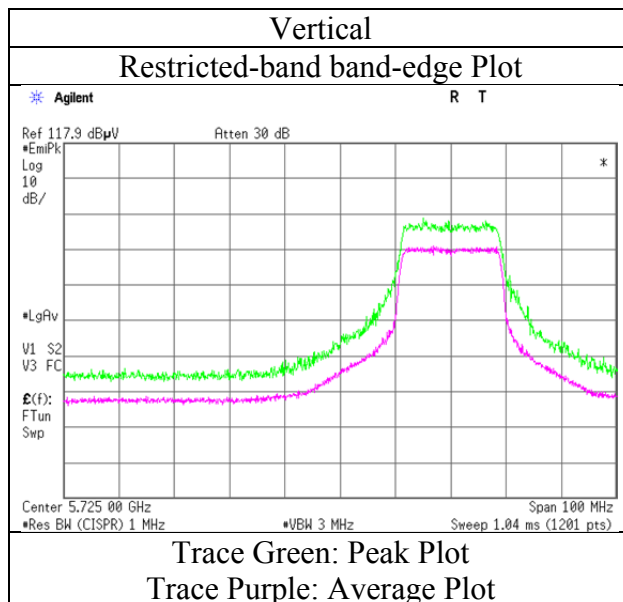
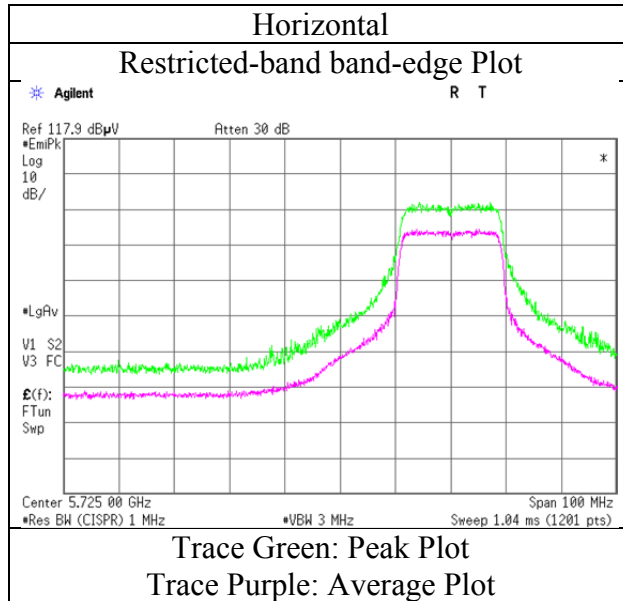
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1GHz-10GHz 20log(4.4m/3.0m)= 3.3dB  
10GHz-26.5GHz 20log(1.0m/3.0m)= -9.5dB  
26.5GHz-40GHz 20log(0.5m/3.0m)= -15.6dB

**Radiated Spurious Emission**  
**(Antenna: ANTDP-027A0)**

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : April 1, 2016  
Temperature / Humidity : 23deg. C / 33 % RH  
Engineer : Shinichi Miyazono  
Mode : Tx 11n-20 5745 MHz



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

**Radiated Spurious Emission**  
**(Antenna: ANTDP-027A0)**

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : April 1, 2016                      April 2, 2016  
Temperature / Humidity : 23deg. C / 33 % RH              23deg. C / 44 % RH  
Engineer : Shinichi Miyazono              Takafumi Noguchi  
                  (1 GHz - 10 GHz)              (10 GHz - 40 GHz)  
Mode : Tx 11n-20 5785 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2497.632	PK	58.2	28.1	6.1	32.1	-	60.3	73.9	13.6	
Hori	3856.750	PK	48.4	29.7	6.8	31.6	-	53.3	73.9	20.6	
Hori	4887.330	PK	53.9	33.1	7.3	31.3	-	63.0	73.9	10.9	
Hori	5469.210	PK	55.3	33.0	7.5	31.4	-	64.4	68.2	3.8	
Hori	11570.000	PK	51.1	40.1	-1.7	33.1	-	56.4	73.9	17.5	
Hori	17355.000	PK	53.9	42.4	0.0	32.6	-	63.7	68.2	4.5	
Hori	2497.632	AV	47.9	28.1	6.1	32.1	-	50.0	53.9	3.9	
Hori	3856.750	AV	45.4	29.7	6.8	31.6	-	50.3	53.9	3.6	
Hori	4887.330	AV	44.7	33.1	7.3	31.3	-	53.8	53.9	0.1	
Hori	11570.000	AV	41.5	40.1	-1.7	33.1	-	46.8	53.9	7.1	
Vert	2497.417	PK	59.5	28.1	6.1	32.1	-	61.6	73.9	12.3	
Vert	3856.730	PK	48.2	29.7	6.8	31.6	-	53.1	73.9	20.8	
Vert	4905.040	PK	53.1	33.2	7.3	31.3	-	62.3	73.9	11.6	
Vert	11570.000	PK	52.7	40.1	-1.7	33.1	-	58.0	73.9	15.9	
Vert	17355.000	PK	54.4	42.4	0.0	32.6	-	64.2	68.2	4.0	
Vert	2497.417	AV	47.4	28.1	6.1	32.1	-	49.5	53.9	4.4	
Vert	3856.730	AV	44.8	29.7	6.8	31.6	-	49.7	53.9	4.2	
Vert	4905.040	AV	44.4	33.2	7.3	31.3	-	53.6	53.9	0.3	
Vert	11570.000	AV	42.7	40.1	-1.7	33.1	-	48.0	53.9	5.9	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor:    1GHz-10GHz    20log(4.4m/3.0m)= 3.3dB  
                          10GHz-26.5GHz    20log(1.0m/3.0m)= -9.5dB  
                          26.5GHz-40GHz    20log(0.5m/3.0m)= -15.6dB

## Radiated Spurious Emission (Antenna: ANTDP-027A0)

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : April 1, 2016      April 2, 2016      April 2, 2016  
Temperature / Humidity : 23deg. C / 33 % RH      23deg. C / 44 % RH      23deg. C / 44 % RH  
Engineer : Shinichi Miyazono      Takafumi Noguchi      Takafumi Noguchi  
            (1 GHz - 10 GHz)      (10 GHz - 40 GHz)      (Below 1 GHz)  
Mode : Tx 11n-20 5825 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	120.000	QP	35.7	12.8	8.3	32.0	-	24.8	43.5	18.7	
Hori	461.047	QP	33.5	16.8	11.0	32.2	-	29.1	46.0	16.9	
Hori	766.650	QP	31.0	20.4	12.6	31.8	-	32.2	46.0	13.8	
Hori	855.713	QP	33.2	21.3	13.1	31.3	-	36.3	46.0	9.7	
Hori	898.168	QP	31.5	21.8	13.3	31.1	-	35.5	46.0	10.5	
Hori	960.008	QP	35.0	22.2	13.6	30.9	-	39.9	53.9	14.0	
Hori	2497.567	PK	59.9	28.1	6.1	32.1	-	62.0	73.9	11.9	
Hori	3883.412	PK	49.7	29.8	6.8	31.6	-	54.7	73.9	19.2	
Hori	4887.590	PK	54.0	33.1	7.3	31.3	-	63.1	73.9	10.8	
Hori	5472.920	PK	55.5	33.0	7.5	31.4	-	64.6	68.2	3.6	
Hori	5850.000	PK	66.7	33.2	7.7	31.5	-	76.1	122.2	46.1	
Hori	5860.000	PK	58.6	33.2	7.7	31.5	-	68.0	109.4	41.4	
Hori	11650.000	PK	54.0	40.1	-1.6	33.1	-	59.4	73.9	14.5	
Hori	17475.000	PK	52.6	42.6	0.0	32.6	-	62.6	68.2	5.6	
Hori	2497.567	AV	47.9	28.1	6.1	32.1	-	50.0	53.9	3.9	
Hori	3883.412	AV	47.3	29.8	6.8	31.6	-	52.3	53.9	1.6	
Hori	4887.590	AV	44.6	33.1	7.3	31.3	-	53.7	53.9	0.2	
Hori	11650.000	AV	43.3	40.1	-1.6	33.1	-	48.7	53.9	5.2	
Vert	120.000	QP	29.2	12.8	8.3	32.0	-	18.3	43.5	25.2	
Vert	553.215	QP	33.2	18.4	11.5	32.2	-	30.9	46.0	15.1	
Vert	764.627	QP	30.0	20.4	12.6	31.8	-	31.2	46.0	14.8	
Vert	855.484	QP	27.6	21.3	13.1	31.3	-	30.7	46.0	15.3	
Vert	898.242	QP	26.9	21.8	13.3	31.1	-	30.9	46.0	15.1	
Vert	960.008	QP	29.1	22.2	13.6	30.9	-	34.0	53.9	19.9	
Vert	2497.700	PK	60.0	28.1	6.1	32.1	-	62.1	73.9	11.8	
Vert	3883.357	PK	48.3	29.8	6.8	31.6	-	53.3	73.9	20.6	
Vert	4905.092	PK	54.3	33.2	7.3	31.3	-	63.5	73.9	10.4	
Vert	5850.000	PK	62.4	33.2	7.7	31.5	-	71.8	122.2	50.4	
Vert	5860.000	PK	55.7	33.2	7.7	31.5	-	65.1	109.4	44.3	
Vert	11650.000	PK	55.1	40.1	-1.6	33.1	-	60.5	73.9	13.4	
Vert	17475.000	PK	52.6	42.6	0.0	32.6	-	62.6	68.2	5.6	
Vert	2497.700	AV	47.7	28.1	6.1	32.1	-	49.8	53.9	4.1	
Vert	3883.357	AV	45.8	29.8	6.8	31.6	-	50.8	53.9	3.1	
Vert	4905.092	AV	44.5	33.2	7.3	31.3	-	53.7	53.9	0.2	
Vert	11650.000	AV	44.1	40.1	-1.6	33.1	-	49.5	53.9	4.4	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

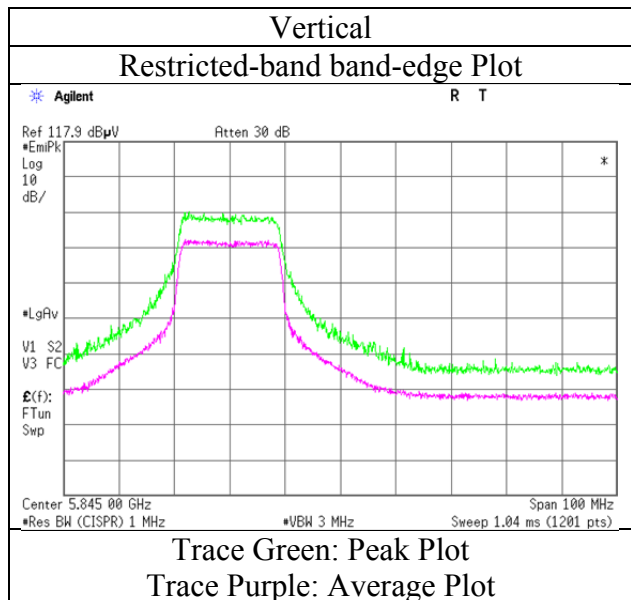
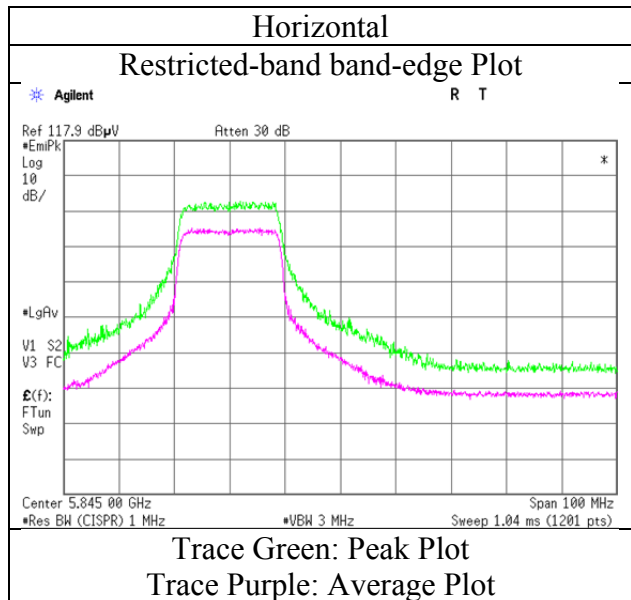
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Distance factor:      1GHz-10GHz      20log(4.4m/3.0m)= 3.3dB  
                            10GHz-26.5GHz      20log(1.0m/3.0m)= -9.5dB  
                            26.5GHz-40GHz      20log(0.5m/3.0m)= -15.6dB



**Radiated Spurious Emission**  
**(Antenna: ANTDP-027A0)**

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : April 1, 2016  
Temperature / Humidity : 23deg. C / 33 % RH  
Engineer : Shinichi Miyazono  
Mode : Tx 11n-20 5825 MHz



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

**Radiated Spurious Emission**  
**(Antenna: ANTDP-027A0)**

Test place Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. 11166424H  
Date April 1, 2016 April 2, 2016  
Temperature / Humidity 23deg. C / 33 % RH 23deg. C / 44 % RH  
Engineer Shinichi Miyazono Takafumi Noguchi  
(1 GHz - 10 GHz) (10 GHz - 40 GHz)  
Mode Tx 11n-40 5755 MHz

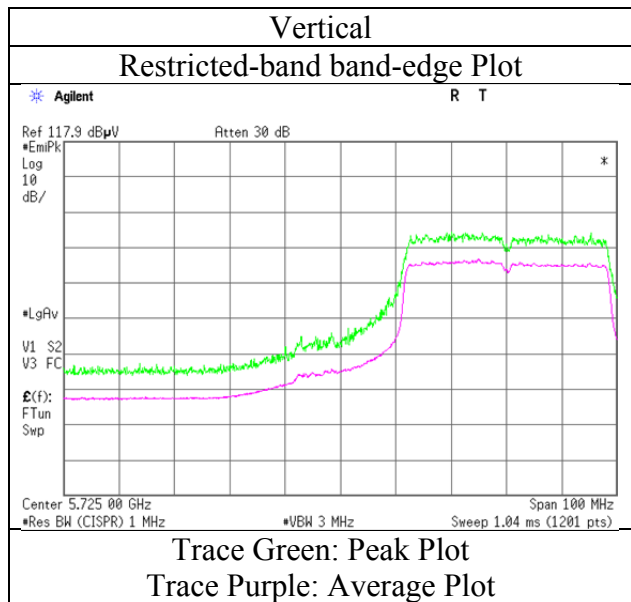
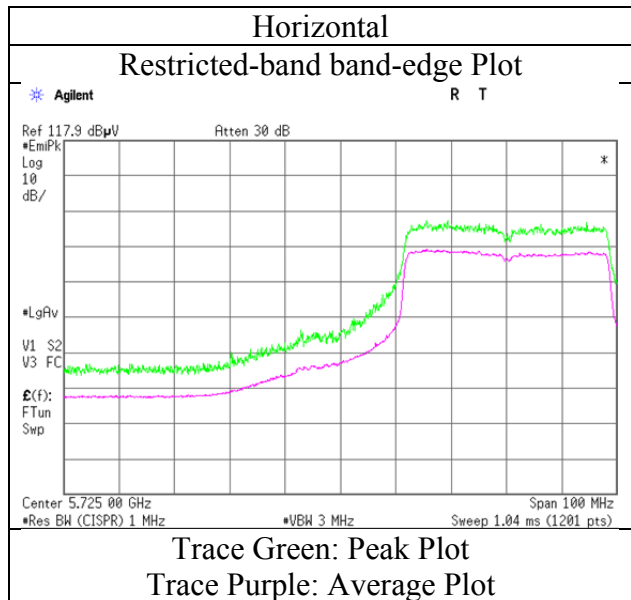
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2497.597	PK	58.9	28.1	6.1	32.1	-	61.0	73.9	12.9	
Hori	3836.680	PK	46.1	29.7	6.8	31.6	-	51.0	73.9	22.9	
Hori	4875.080	PK	51.3	33.1	7.2	31.3	-	60.3	73.9	13.6	
Hori	5468.620	PK	52.3	33.0	7.5	31.4	-	61.4	68.2	6.8	
Hori	5715.000	PK	62.7	33.1	7.6	31.4	-	72.0	109.4	37.4	
Hori	5725.000	PK	65.7	33.1	7.6	31.4	-	75.0	122.2	47.2	
Hori	11510.000	PK	45.4	40.2	-1.7	33.1	-	50.8	73.9	23.1	
Hori	17265.000	PK	47.3	42.3	0.0	32.6	-	57.0	68.2	11.2	
Hori	2497.597	AV	47.9	28.1	6.1	32.1	0.1	50.1	53.9	3.8	
Hori	3836.680	AV	42.3	29.7	6.8	31.6	0.1	47.3	53.9	6.6	
Hori	4875.080	AV	40.6	33.1	7.2	31.3	0.1	49.7	53.9	4.2	
Hori	11510.000	AV	36.1	40.2	-1.7	33.1	0.1	41.6	53.9	12.3	
Vert	2497.623	PK	58.8	28.1	6.1	32.1	-	60.9	73.9	13.0	
Vert	3836.722	PK	46.4	29.7	6.8	31.6	-	51.3	73.9	22.6	
Vert	4917.620	PK	51.0	33.2	7.3	31.3	-	60.2	73.9	13.7	
Vert	5715.000	PK	59.7	33.1	7.6	31.4	-	69.0	109.4	40.4	
Vert	5725.000	PK	63.4	33.1	7.6	31.4	-	72.7	122.2	49.5	
Vert	11510.000	PK	47.8	40.2	-1.7	33.1	-	53.2	73.9	20.7	
Vert	17265.000	PK	47.9	42.3	0.0	32.6	-	57.6	68.2	10.6	
Vert	2497.623	AV	47.3	28.1	6.1	32.1	0.1	49.5	53.9	4.4	
Vert	3836.722	AV	41.5	29.7	6.8	31.6	0.1	46.5	53.9	7.4	
Vert	4917.620	AV	39.5	33.2	7.3	31.3	0.1	48.8	53.9	5.1	
Vert	11510.000	AV	37.5	40.2	-1.7	33.1	0.1	43.0	53.9	10.9	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)+Duty Factor  
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Distance factor: 1GHz-10GHz 20log(4.4m/3.0m)= 3.3dB  
10GHz-26.5GHz 20log(1.0m/3.0m)= -9.5dB  
26.5GHz-40GHz 20log(0.5m/3.0m)= -15.6dB

**Radiated Spurious Emission**  
**(Antenna: ANTDP-027A0)**

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No.	11166424H
Date	April 1, 2016
Temperature / Humidity	23deg. C / 33 % RH
Engineer	Shinichi Miyazono
Mode	Tx 11n-40 5755 MHz



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

**Radiated Spurious Emission**  
**(Antenna: ANTDP-027A0)**

Test place Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. 11166424H  
Date April 1, 2016 April 2, 2016  
Temperature / Humidity 23deg. C / 33 % RH 23deg. C / 44 % RH  
Engineer Shinichi Miyazono Takafumi Noguchi  
(1 GHz - 10 GHz) (10 GHz - 40 GHz)  
Mode Tx 11n-40 5795 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2497.601	PK	59.8	28.1	6.1	32.1	-	61.9	73.9	12.0	
Hori	3863.397	PK	47.1	29.8	6.8	31.6	-	52.1	73.9	21.8	
Hori	4888.960	PK	51.9	33.1	7.3	31.3	-	61.0	73.9	12.9	
Hori	5462.710	PK	53.7	33.0	7.5	31.4	-	62.8	68.2	5.4	
Hori	5850.000	PK	57.2	33.2	7.7	31.5	-	66.6	122.2	55.6	
Hori	5860.000	PK	52.3	33.2	7.7	31.5	-	61.7	109.4	47.7	
Hori	11590.000	PK	47.0	40.1	-1.6	33.1	-	52.4	73.9	21.5	
Hori	17385.000	PK	46.2	42.5	0.0	32.6	-	56.1	68.2	12.1	
Hori	2497.601	AV	47.9	28.1	6.1	32.1	0.1	50.1	53.9	3.8	
Hori	3863.397	AV	43.5	29.8	6.8	31.6	0.1	48.6	53.9	5.3	
Hori	4888.960	AV	41.3	33.1	7.3	31.3	0.1	50.5	53.9	3.4	
Hori	11590.000	AV	36.8	40.1	-1.6	33.1	0.1	42.3	53.9	11.6	
Vert	2497.688	PK	59.7	28.1	6.1	32.1	-	61.8	73.9	12.1	
Vert	3863.383	PK	46.7	29.8	6.8	31.6	-	51.7	73.9	22.2	
Vert	4915.000	PK	50.5	33.2	7.3	31.3	-	59.7	73.9	14.2	
Vert	5850.000	PK	52.8	33.2	7.7	31.5	-	62.2	122.2	60.0	
Vert	5860.000	PK	49.5	33.2	7.7	31.5	-	58.9	109.4	50.5	
Vert	11590.000	PK	46.7	40.1	-1.6	33.1	-	52.1	73.9	21.8	
Vert	17385.000	PK	47.4	42.5	0.0	32.6	-	57.3	68.2	10.9	
Vert	2497.688	AV	47.5	28.1	6.1	32.1	0.1	49.7	53.9	4.2	
Vert	3863.383	AV	43.1	29.8	6.8	31.6	0.1	48.2	53.9	5.7	
Vert	4915.000	AV	42.8	33.2	7.3	31.3	0.1	52.1	53.9	1.8	
Vert	11590.000	AV	36.7	40.1	-1.6	33.1	0.1	42.2	53.9	11.7	

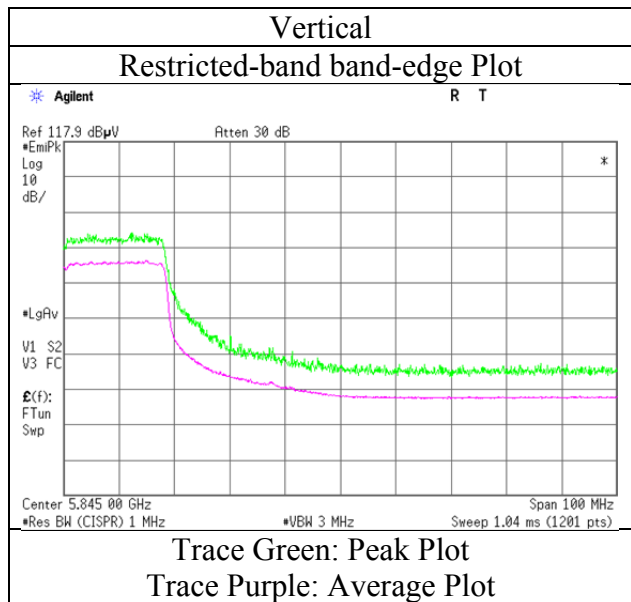
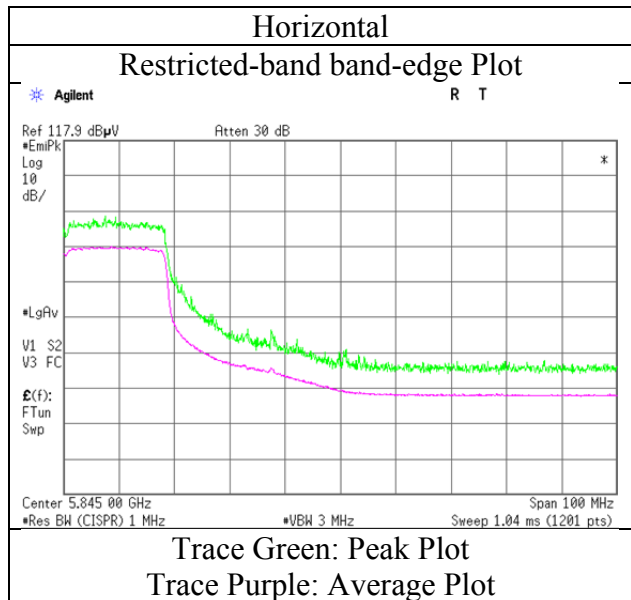
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)+Duty Factor

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

Distance factor: 1GHz-10GHz 20log(4.4m/3.0m)= 3.3dB  
10GHz-26.5GHz 20log(1.0m/3.0m)= -9.5dB  
26.5GHz-40GHz 20log(0.5m/3.0m)= -15.6dB

**Radiated Spurious Emission**  
**(Antenna: ANTDP-027A0)**

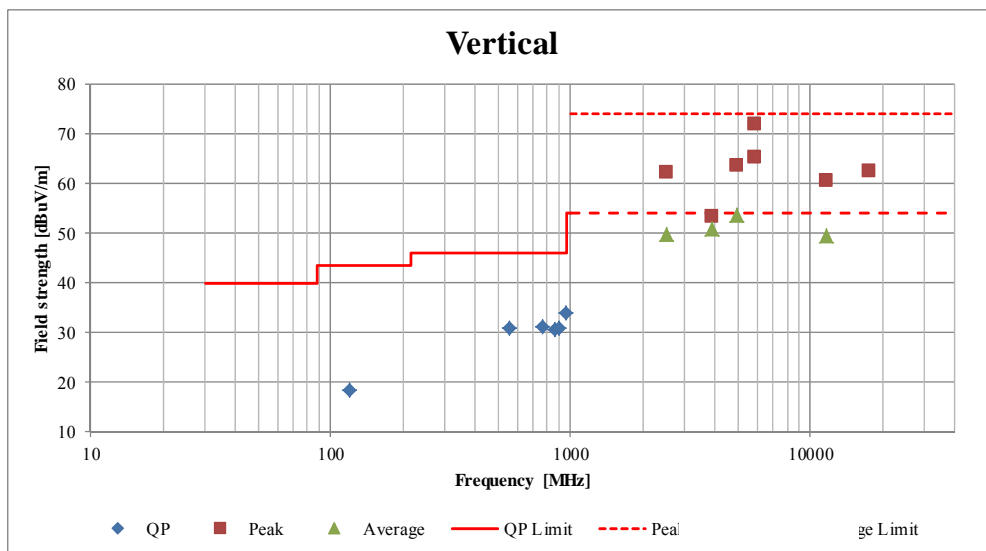
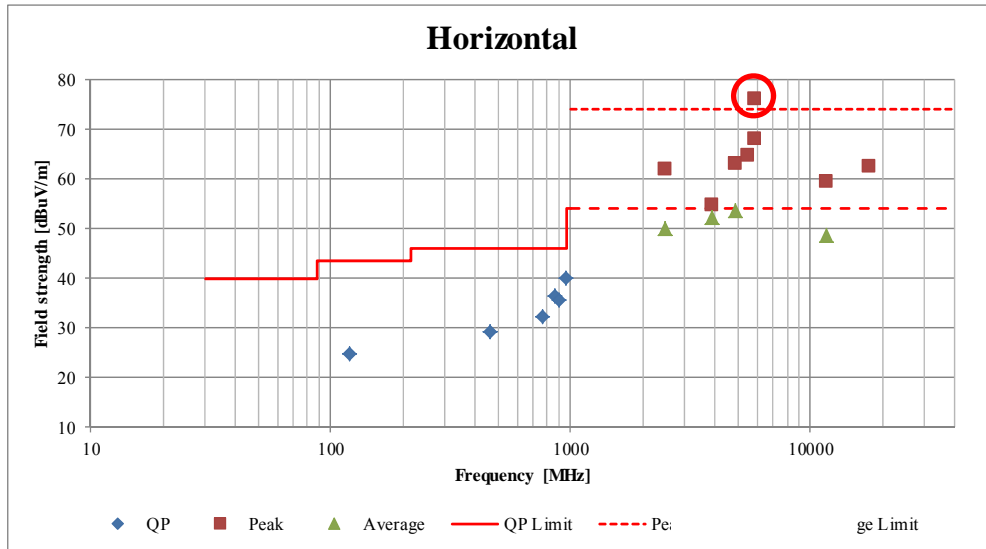
Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : April 1, 2016  
Temperature / Humidity : 23deg. C / 33 % RH  
Engineer : Shinichi Miyazono  
Mode : Tx 11n-40 5795 MHz



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

**Radiated Spurious Emission**  
**(Plot data, Worst case)**  
**(Antenna: ANTDP-027A0)**

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber		
Report No.	11166424H		
Date	April 1, 2016	April 2, 2016	April 2, 2016
Temperature / Humidity	23deg. C / 33 % RH	23deg. C / 44 % RH	23deg. C / 44 % RH
Engineer	Shinichi Miyazono (1 GHz - 10 GHz)	Takafumi Noguchi (10 GHz - 40 GHz)	Takafumi Noguchi (Below 1 GHz)
Mode	Tx 11n-20 5825 MHz		



\*These plots data contains sufficient number to show the trend of characteristic features for EUT.  
○ :It was applied to the out of band emission(OOBE) limits for section 15.407(b)(4)(i).

**Radiated Spurious Emission**  
**(Antenna: ANT1267-164C/U-100B)**

Test place Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. 11166424H  
Date June 13, 2016 June 13, 2016  
Temperature / Humidity 23deg. C / 67 % RH 22deg. C / 72 % RH  
Engineer Keisuke Kawamura Shinichi Miyazono  
(1 GHz - 18 GHz) (18 GHz - 40 GHz)  
Mode Tx 11n-20 5745 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2494.111	PK	59.2	28.1	6.1	32.1	-	61.3	73.9	12.6	
Hori	3830.062	PK	44.7	29.7	6.8	31.6	-	49.6	73.9	24.3	
Hori	4905.523	PK	53.9	33.2	7.3	31.3	-	63.1	73.9	10.8	
Hori	5283.011	PK	53.8	33.2	7.4	31.3	-	63.1	68.2	5.1	
Hori	5650.000	PK	51.8	33.1	7.6	31.4	-	61.1	68.2	7.1	
Hori	5700.000	PK	55.5	33.1	7.6	31.4	-	64.8	105.2	40.4	
Hori	5720.000	PK	64.9	33.1	7.6	31.4	-	74.2	110.8	36.6	
Hori	5725.000	PK	68.9	33.1	7.6	31.4	-	78.2	122.2	44.0	
Hori	11490.000	PK	51.4	40.2	-1.7	33.1	-	56.8	73.9	17.1	
Hori	17235.000	PK	47.6	42.2	0.1	32.6	-	57.3	68.2	10.9	
Hori	2494.111	AV	44.7	28.1	6.1	32.1	-	46.8	53.9	7.1	
Hori	3830.062	AV	38.7	29.7	6.8	31.6	-	43.6	53.9	10.3	
Hori	4905.523	AV	43.9	33.2	7.3	31.3	-	53.1	53.9	0.8	
Hori	11490.000	AV	41.4	40.2	-1.7	33.1	-	46.8	53.9	7.1	
Vert	2494.111	PK	54.8	28.1	6.1	32.1	-	56.9	73.9	17.0	
Vert	3830.062	PK	43.4	29.7	6.8	31.6	-	48.3	73.9	25.6	
Vert	4905.523	PK	50.0	33.2	7.3	31.3	-	59.2	73.9	14.7	
Vert	5472.211	PK	51.4	33.0	7.5	31.4	-	60.5	68.2	7.7	
Vert	5650.000	PK	50.0	33.1	7.6	31.4	-	59.3	68.2	8.9	
Vert	5700.000	PK	52.2	33.1	7.6	31.4	-	61.5	105.2	43.7	
Vert	5720.000	PK	66.1	33.1	7.6	31.4	-	75.4	110.8	35.4	
Vert	5725.000	PK	69.8	33.1	7.6	31.4	-	79.1	122.2	43.1	
Vert	11490.000	PK	52.1	40.2	-1.7	33.1	-	57.5	73.9	16.4	
Vert	17235.000	PK	55.0	42.2	0.1	32.6	-	64.7	68.2	3.5	
Vert	2494.111	AV	42.8	28.1	6.1	32.1	-	44.9	53.9	9.0	
Vert	3830.062	AV	38.2	29.7	6.8	31.6	-	43.1	53.9	10.8	
Vert	4905.523	AV	41.8	33.2	7.3	31.3	-	51.0	53.9	2.9	
Vert	11490.000	AV	43.3	40.2	-1.7	33.1	-	48.7	53.9	5.2	

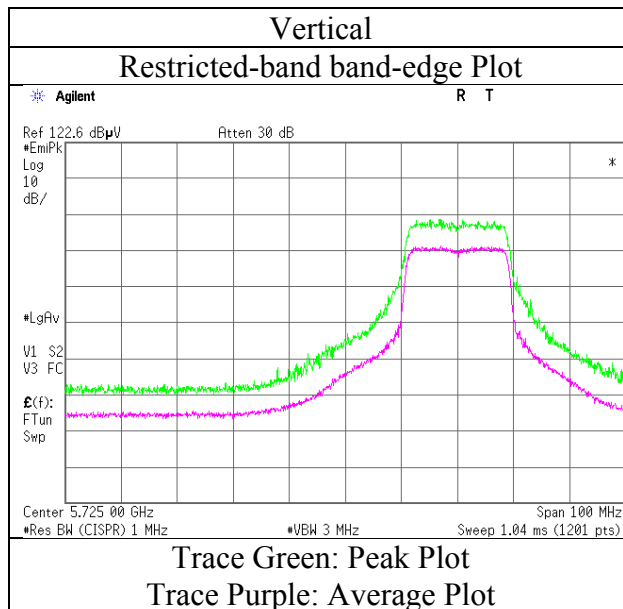
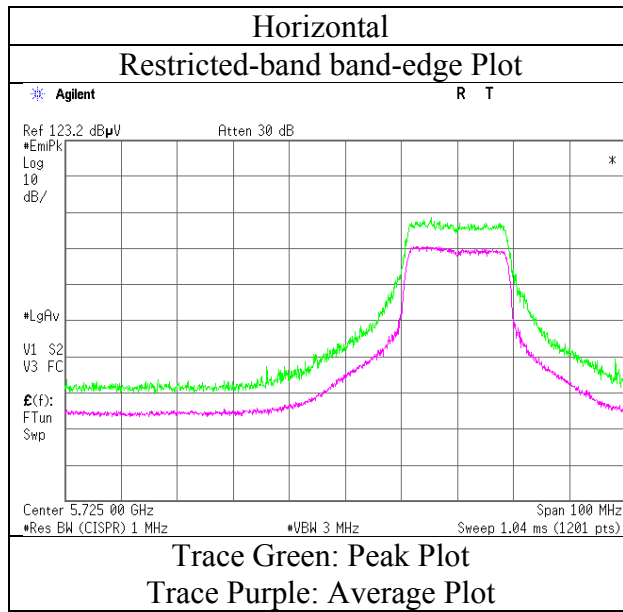
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (4.4 m / 3.0 m) = 3.33 dB  
10 GHz - 40 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**  
**(Antenna: ANT1267-164C/U-100B)**

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No.	11166424H
Date	June 13, 2016
Temperature / Humidity	23deg. C / 67 % RH
Engineer	Keisuke Kawamura
Mode	Tx 11n-20 5745 MHz



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



**Radiated Spurious Emission**  
**(Antenna: ANT1267-164C/U-100B)**

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : June 13, 2016  
Temperature / Humidity : 23deg. C / 67 % RH      22deg. C / 72 % RH  
Engineer : Keisuke Kawamura      Shinichi Miyazono  
              (1 GHz - 18 GHz)      (18 GHz - 40 GHz)  
Mode : Tx 11n-20 5785 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2494.111	PK	59.8	28.1	6.1	32.1	-	61.9	73.9	12.0	
Hori	3856.751	PK	47.2	29.7	6.8	31.6	-	52.1	73.9	21.8	
Hori	4905.523	PK	53.6	33.2	7.3	31.3	-	62.8	73.9	11.1	
Hori	5283.011	PK	53.8	33.2	7.4	31.3	-	63.1	68.2	5.1	
Hori	11570.000	PK	51.2	40.1	-1.7	33.1	-	56.5	73.9	17.4	
Hori	17355.000	PK	50.4	42.4	0.0	32.6	-	60.2	68.2	8.0	
Hori	2494.111	AV	44.4	28.1	6.1	32.1	-	46.5	53.9	7.4	
Hori	3856.751	AV	42.9	29.7	6.8	31.6	-	47.8	53.9	6.1	
Hori	4905.523	AV	44.5	33.2	7.3	31.3	-	53.7	53.9	0.2	
Hori	11570.000	AV	42.3	40.1	-1.7	33.1	-	47.6	53.9	6.3	
Vert	2494.111	PK	55.4	28.1	6.1	32.1	-	57.5	73.9	16.4	
Vert	3856.751	PK	46.8	29.7	6.8	31.6	-	51.7	73.9	22.2	
Vert	4905.523	PK	52.7	33.2	7.3	31.3	-	61.9	73.9	12.0	
Vert	5472.211	PK	55.8	33.0	7.5	31.4	-	64.9	68.2	3.3	
Vert	11570.000	PK	51.6	40.1	-1.7	33.1	-	56.9	73.9	17.0	
Vert	17355.000	PK	53.7	42.4	0.0	32.6	-	63.5	68.2	4.7	
Vert	2494.111	AV	42.1	28.1	6.1	32.1	-	44.2	53.9	9.7	
Vert	3856.751	AV	42.3	29.7	6.8	31.6	-	47.2	53.9	6.7	
Vert	4905.523	AV	43.4	33.2	7.3	31.3	-	52.6	53.9	1.3	
Vert	11570.000	AV	43.4	40.1	-1.7	33.1	-	48.7	53.9	5.2	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor:      1 GHz - 10 GHz      20log (4.4 m / 3.0 m) = 3.33 dB  
                              10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**  
**(Antenna: ANT1267-164C/U-100B)**

Test place Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. 11166424H  
Date June 13, 2016 June 13, 2016 June 13, 2016  
Temperature / Humidity 23deg. C / 67 % RH 22deg. C / 72 % RH 22deg. C / 72 % RH  
Engineer Keisuke Kawamura Shinichi Miyazono Shinichi Miyazono  
(1 GHz - 18 GHz) (18 GHz - 40 GHz) (Below 1 GHz)  
Mode Tx 11n-20 5825 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	72.002	QP	40.3	6.2	7.8	32.1	-	22.2	40.0	17.8	
Hori	99.770	QP	46.6	9.9	8.1	32.1	-	32.5	43.5	11.0	
Hori	120.002	QP	43.5	12.8	8.3	32.0	-	32.6	43.5	10.9	
Hori	177.100	QP	30.2	15.9	8.9	32.0	-	23.0	43.5	20.5	
Hori	499.061	QP	41.1	17.5	11.2	32.2	-	37.6	46.0	8.4	
Hori	698.603	QP	38.3	19.8	12.3	32.2	-	38.2	46.0	7.8	
Hori	2494.111	PK	59.0	28.1	6.1	32.1	-	61.1	73.9	12.8	
Hori	3883.412	PK	49.4	29.8	6.8	31.6	-	54.4	73.9	19.5	
Hori	4905.523	PK	54.6	33.2	7.3	31.3	-	63.8	73.9	10.1	
Hori	5283.011	PK	54.8	33.2	7.4	31.3	-	64.1	68.2	4.1	
Hori	5850.000	PK	64.1	33.2	7.7	31.5	-	73.5	122.2	48.7	
Hori	5855.000	PK	63.5	33.2	7.7	31.5	-	72.9	110.8	37.9	
Hori	5875.000	PK	49.3	33.2	7.7	31.5	-	58.7	105.2	46.5	
Hori	5925.000	PK	47.1	33.2	7.7	31.5	-	56.5	68.2	11.7	
Hori	11650.000	PK	51.6	40.1	-1.6	33.1	-	57.0	73.9	16.9	
Hori	17475.000	PK	47.1	42.6	0.0	32.6	-	57.1	68.2	11.1	Floor noise
Hori	2494.111	AV	44.9	28.1	6.1	32.1	-	47.0	53.9	6.9	
Hori	3883.412	AV	46.5	29.8	6.8	31.6	-	51.5	53.9	2.4	
Hori	4905.523	AV	44.5	33.2	7.3	31.3	-	53.7	53.9	0.2	
Hori	11650.000	AV	43.4	40.1	-1.6	33.1	-	48.8	53.9	5.1	
Vert	34.980	QP	34.1	15.7	7.2	32.1	-	24.9	40.0	15.1	
Vert	71.996	QP	40.2	6.2	7.8	32.1	-	22.1	40.0	17.9	
Vert	99.741	QP	55.6	9.9	8.1	32.1	-	41.5	43.5	2.0	
Vert	299.021	QP	41.2	13.4	9.9	31.8	-	32.7	46.0	13.3	
Vert	499.122	QP	38.6	17.5	11.2	32.2	-	35.1	46.0	10.9	
Vert	698.802	QP	34.1	19.8	12.3	32.2	-	34.0	46.0	12.0	
Vert	2494.111	PK	54.6	28.1	6.1	32.1	-	56.7	73.9	17.2	
Vert	3883.412	PK	47.0	29.8	6.8	31.6	-	52.0	73.9	21.9	
Vert	4905.523	PK	50.4	33.2	7.3	31.3	-	59.6	73.9	14.3	
Vert	5472.211	PK	54.9	33.0	7.5	31.4	-	64.0	68.2	4.2	
Vert	5850.000	PK	64.4	33.2	7.7	31.5	-	73.8	122.2	48.4	
Vert	5855.000	PK	62.1	33.2	7.7	31.5	-	71.5	110.8	39.3	
Vert	5875.000	PK	47.7	33.2	7.7	31.5	-	57.1	105.2	48.1	
Vert	5925.000	PK	46.4	33.2	7.7	31.5	-	55.8	68.2	12.4	
Vert	11650.000	PK	52.3	40.1	-1.6	33.1	-	57.7	73.9	16.2	
Vert	17475.000	PK	51.8	42.6	0.0	32.6	-	61.8	68.2	6.4	
Vert	2494.111	AV	42.7	28.1	6.1	32.1	-	44.8	53.9	9.1	
Vert	3883.412	AV	42.6	29.8	6.8	31.6	-	47.6	53.9	6.3	
Vert	4905.523	AV	42.0	33.2	7.3	31.3	-	51.2	53.9	2.7	
Vert	11650.000	AV	44.0	40.1	-1.6	33.1	-	49.4	53.9	4.5	

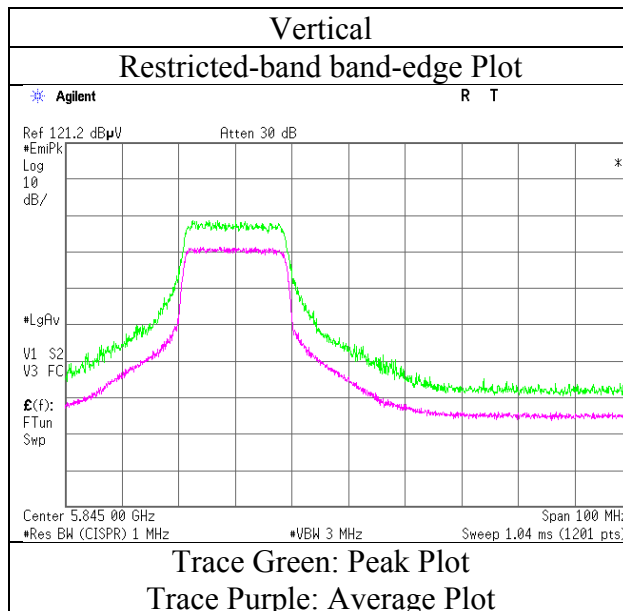
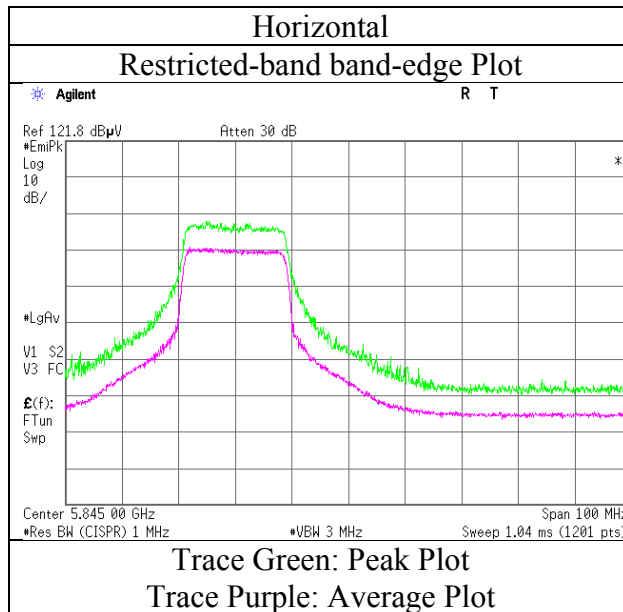
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (4.4 m / 3.0 m) = 3.33 dB  
10 GHz - 40 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**  
**(Antenna: ANT1267-164C/U-100B)**

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No.	11166424H
Date	June 13, 2016
Temperature / Humidity	23deg. C / 67 % RH
Engineer	Keisuke Kawamura
Mode	Tx 11n-20 5825 MHz



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

**Radiated Spurious Emission**  
**(Antenna: ANT1267-164C/U-100B)**

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : June 13, 2016  
Temperature / Humidity : 23deg. C / 67 % RH      22deg. C / 72 % RH  
Engineer : Keisuke Kawamura      Shinichi Miyazono  
            (1 GHz - 18 GHz)      (18 GHz - 40 GHz)  
Mode : Tx 11n-40 5755 MHz

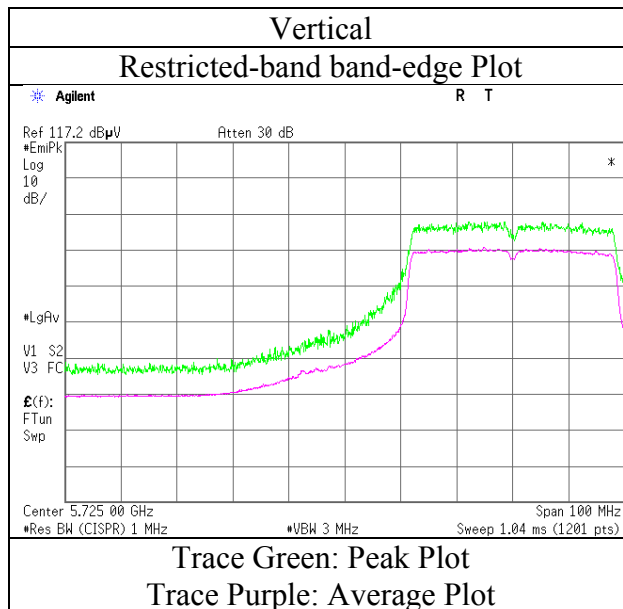
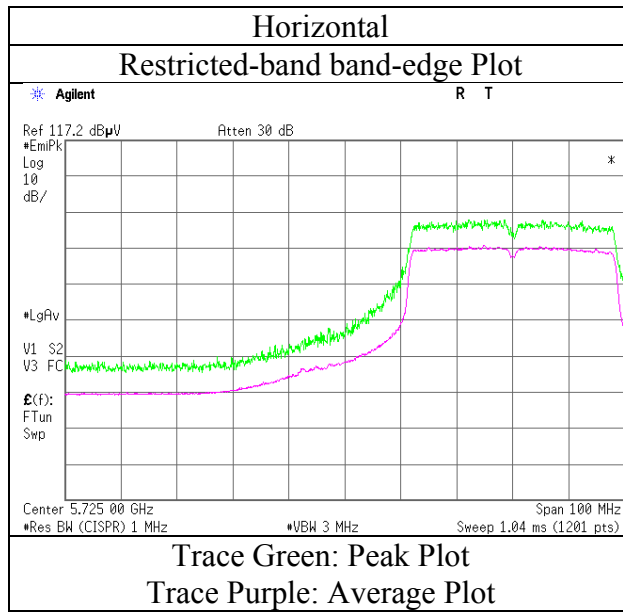
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2494.111	PK	59.0	28.1	6.1	32.1	-	61.1	73.9	12.8	
Hori	3836.681	PK	46.0	29.7	6.8	31.6	-	50.9	73.9	23.0	
Hori	4905.523	PK	47.8	33.2	7.3	31.3	-	57.0	73.9	16.9	
Hori	5283.011	PK	48.7	33.2	7.4	31.3	-	58.0	68.2	10.2	
Hori	5650.000	PK	49.0	33.1	7.6	31.4	-	58.3	68.2	9.9	
Hori	5700.000	PK	54.9	33.1	7.6	31.4	-	64.2	105.2	41.0	
Hori	5720.000	PK	64.3	33.1	7.6	31.4	-	73.6	110.8	37.2	
Hori	5725.000	PK	66.2	33.1	7.6	31.4	-	75.5	122.2	46.7	
Hori	11510.000	PK	44.9	40.2	-1.7	33.1	-	50.3	73.9	23.6	Floor noise
Hori	17265.000	PK	47.1	42.3	0.0	32.6	-	56.8	68.2	11.4	Floor noise
Hori	2494.111	AV	44.6	28.1	6.1	32.1	0.1	46.8	53.9	7.1	
Hori	3836.681	AV	39.9	29.7	6.8	31.6	0.1	44.9	53.9	9.0	
Hori	4905.523	AV	40.7	33.2	7.3	31.3	0.1	50.0	53.9	3.9	
Hori	11510.000	AV	34.9	40.2	-1.7	33.1	-	40.3	53.9	13.6	Floor noise
Vert	2494.111	PK	54.4	28.1	6.1	32.1	-	56.5	73.9	17.4	
Vert	3836.681	PK	44.5	29.7	6.8	31.6	-	49.4	73.9	24.5	
Vert	4905.523	PK	48.2	33.2	7.3	31.3	-	57.4	73.9	16.5	
Vert	5472.211	PK	51.7	33.0	7.5	31.4	-	60.8	68.2	7.4	
Vert	5650.000	PK	49.2	33.1	7.6	31.4	-	58.5	68.2	9.7	
Vert	5700.000	PK	54.1	33.1	7.6	31.4	-	63.4	105.2	41.8	
Vert	5720.000	PK	64.4	33.1	7.6	31.4	-	73.7	110.8	37.1	
Vert	5725.000	PK	66.8	33.1	7.6	31.4	-	76.1	122.2	46.1	
Vert	11510.000	PK	45.0	40.2	-1.7	33.1	-	50.4	73.9	23.5	Floor noise
Vert	17265.000	PK	44.3	42.3	0.0	32.6	-	54.0	68.2	14.2	Floor noise
Vert	2494.111	AV	42.4	28.1	6.1	32.1	0.1	44.6	53.9	9.3	
Vert	3836.681	AV	37.4	29.7	6.8	31.6	0.1	42.4	53.9	11.5	
Vert	4905.523	AV	39.1	33.2	7.3	31.3	0.1	48.4	53.9	5.5	
Vert	11510.000	AV	35.3	40.2	-1.7	33.1	-	40.7	53.9	13.2	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor  
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor:      1 GHz - 10 GHz      20log (4.4 m / 3.0 m) = 3.33 dB  
                                 10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**  
**(Antenna: ANT1267-164C/U-100B)**

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No.	11166424H
Date	June 13, 2016
Temperature / Humidity	23deg. C / 67 % RH
Engineer	Keisuke Kawamura
Mode	Tx 11n-40 5755 MHz



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

**Radiated Spurious Emission**  
**(Antenna: ANT1267-164C/U-100B)**

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : June 13, 2016  
Temperature / Humidity : 23deg. C / 67 % RH      22deg. C / 72 % RH  
Engineer : Keisuke Kawamura      Shinichi Miyazono  
            (1 GHz - 18 GHz)      (18 GHz - 40 GHz)  
Mode : Tx 11n-40 5795 MHz

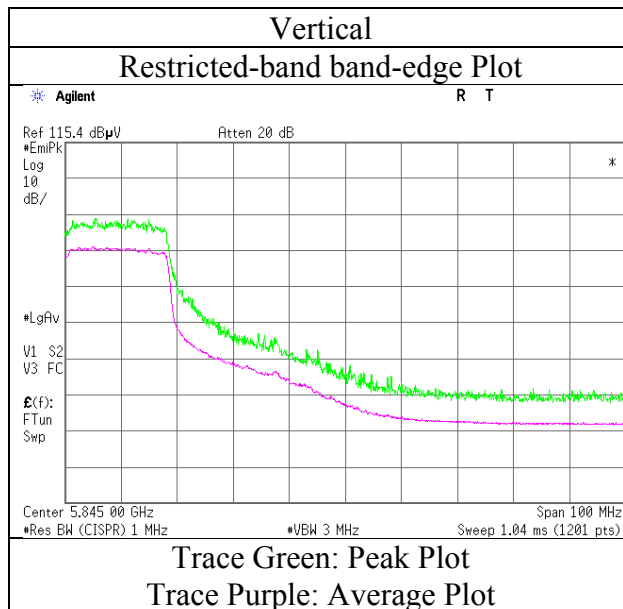
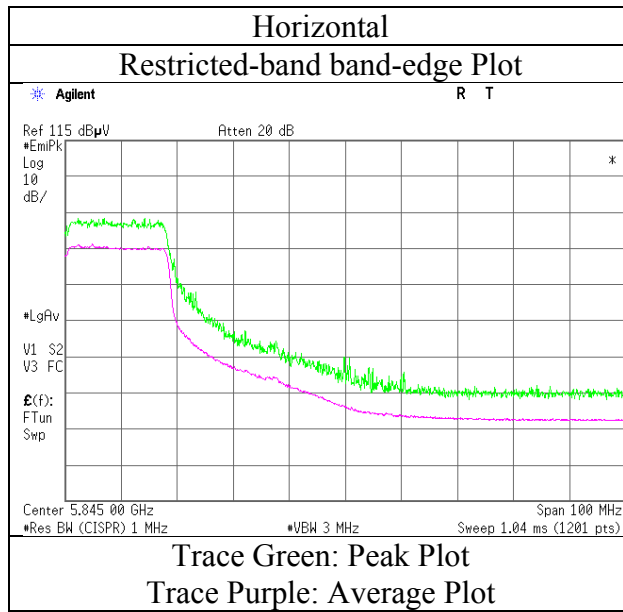
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2494.111	PK	59.1	28.1	6.1	32.1	-	61.2	73.9	12.7	
Hori	3863.397	PK	47.3	29.8	6.8	31.6	-	52.3	73.9	21.6	
Hori	4905.523	PK	50.1	33.2	7.3	31.3	-	59.3	73.9	14.6	
Hori	5283.011	PK	51.1	33.2	7.4	31.3	-	60.4	68.2	7.8	
Hori	5850.000	PK	52.6	33.2	7.7	31.5	-	62.0	122.2	60.2	
Hori	5855.000	PK	49.5	33.2	7.7	31.5	-	58.9	110.8	51.9	
Hori	5875.000	PK	44.3	33.2	7.7	31.5	-	53.7	105.2	51.5	
Hori	5925.000	PK	43.7	33.2	7.7	31.5	-	53.1	68.2	15.1	
Hori	11590.000	PK	44.9	40.1	-1.6	33.1	-	50.3	73.9	23.6	Floor noise
Hori	17385.000	PK	47.1	42.5	0.0	32.6	-	57.0	68.2	11.2	Floor noise
Hori	2494.111	AV	44.8	28.1	6.1	32.1	0.1	47.0	53.9	6.9	
Hori	3863.397	AV	43.0	29.8	6.8	31.6	0.1	48.1	53.9	5.8	
Hori	4905.523	AV	41.8	33.2	7.3	31.3	0.1	51.1	53.9	2.8	
Hori	11590.000	AV	34.9	40.1	-1.6	33.1	-	40.3	53.9	13.6	Floor noise
Vert	2494.111	PK	54.6	28.1	6.1	32.1	-	56.7	73.9	17.2	
Vert	3863.397	PK	44.6	29.8	6.8	31.6	-	49.6	73.9	24.3	
Vert	4905.523	PK	49.0	33.2	7.3	31.3	-	58.2	73.9	15.7	
Vert	5472.211	PK	53.1	33.0	7.5	31.4	-	62.2	68.2	6.0	
Vert	5850.000	PK	53.5	33.2	7.7	31.5	-	62.9	122.2	59.3	
Vert	5855.000	PK	50.5	33.2	7.7	31.5	-	59.9	110.8	50.9	
Vert	5875.000	PK	44.7	33.2	7.7	31.5	-	54.1	105.2	51.1	
Vert	5925.000	PK	44.7	33.2	7.7	31.5	-	54.1	68.2	14.1	
Vert	11590.000	PK	45.0	40.1	-1.6	33.1	-	50.4	73.9	23.5	Floor noise
Vert	17385.000	PK	44.3	42.5	0.0	32.6	-	54.2	68.2	14.0	Floor noise
Vert	2494.111	AV	42.6	28.1	6.1	32.1	0.1	44.8	53.9	9.1	
Vert	3863.397	AV	38.7	29.8	6.8	31.6	0.1	43.8	53.9	10.1	
Vert	4905.523	AV	40.0	33.2	7.3	31.3	0.1	49.3	53.9	4.6	
Vert	11590.000	AV	35.3	40.1	-1.6	33.1	-	40.7	53.9	13.2	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor  
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor:      1 GHz - 10 GHz      20log (4.4 m / 3.0 m) = 3.33 dB  
                                 10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**  
**(Antenna: ANT1267-164C/U-100B)**

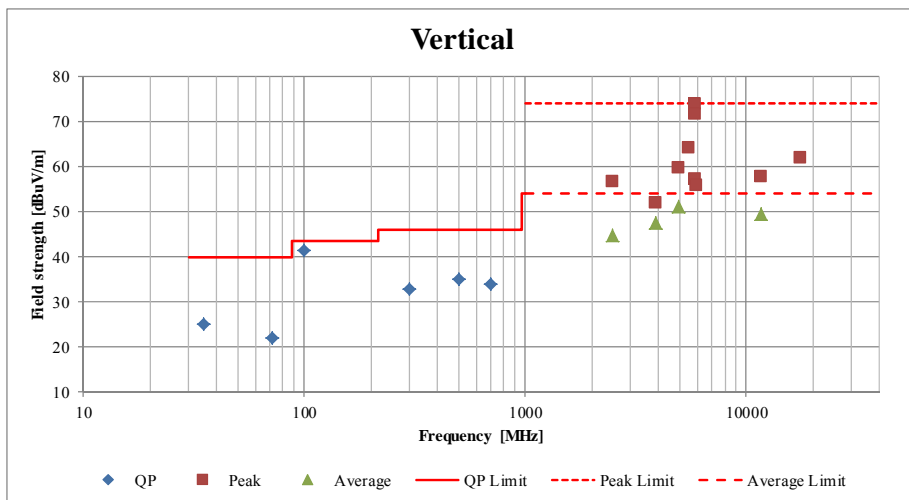
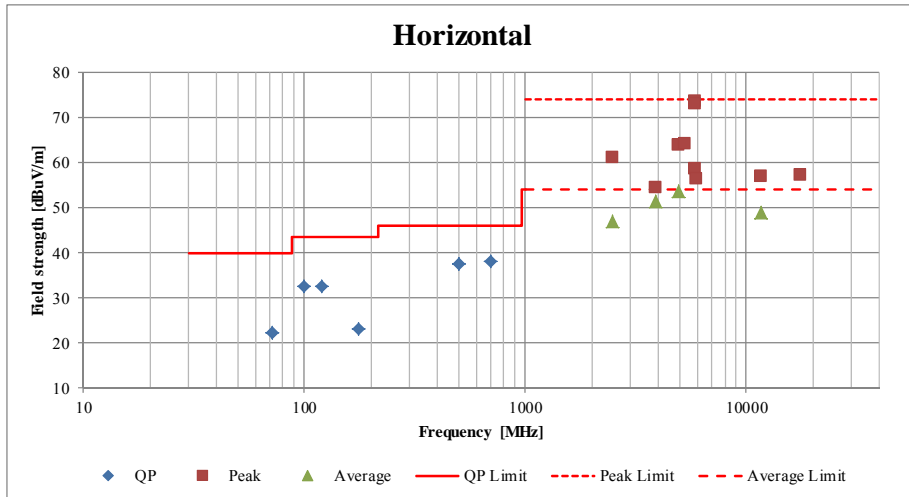
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No.	11166424H
Date	June 13, 2016
Temperature / Humidity	23deg. C / 67 % RH
Engineer	Keisuke Kawamura
Mode	Tx 11n-40 5795 MHz



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

**Radiated Spurious Emission**  
**(Plot data, Worst case)**  
**(Antenna: ANT1267-164C/U-100B)**

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber		
Report No.	11166424H		
Date	June 13, 2016	June 13, 2016	June 13, 2016
Temperature / Humidity	23deg. C / 67 % RH	22deg. C / 72 % RH	22deg. C / 72 % RH
Engineer	Keisuke Kawamura (1 GHz - 18 GHz)	Shinichi Miyazono (18 GHz - 40 GHz)	Shinichi Miyazono (Below 1 GHz)
Mode	Tx 11n-20 5825 MHz		



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



**Radiated Spurious Emission**  
**(Antenna: AA222)**

Test place : Ise EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : August 26, 2016 August 26, 2016  
Temperature / Humidity : 23deg. C / 59 % RH 23deg. C / 53 % RH  
Engineer : Yuta Moriya Hiroyuki Furutaka  
(1 GHz - 10 GHz) (10 GHz - 40 GHz)  
(Below 1GHz)  
Mode : Tx 11n-20 5745 MHz

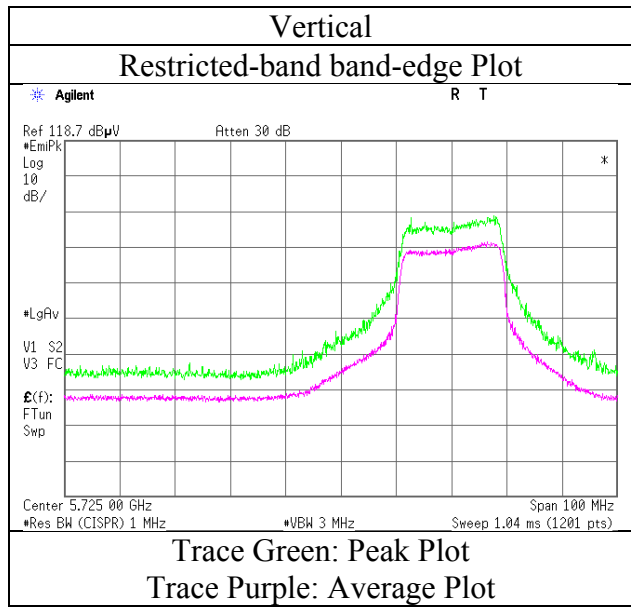
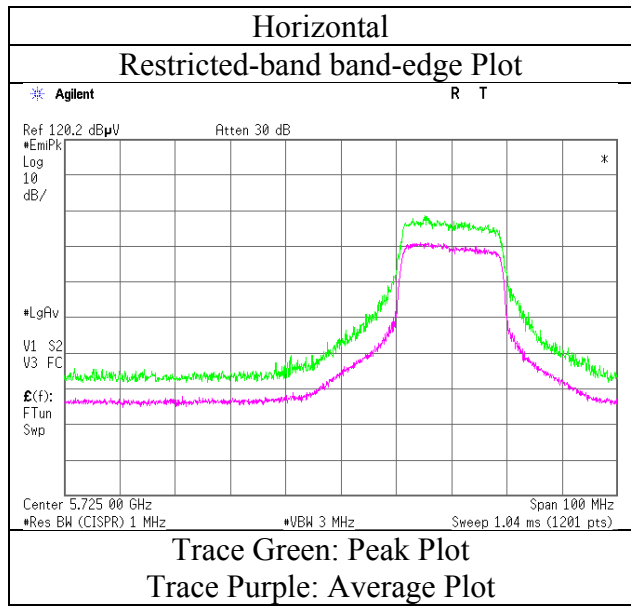
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2488.323	PK	62.7	26.8	6.1	32.6	-	63.0	73.9	10.9	
Hori	3830.517	PK	44.7	28.9	6.7	32.0	-	48.3	73.9	25.6	
Hori	5442.014	PK	52.3	31.2	7.4	31.8	-	59.1	73.9	14.8	
Hori	5650.000	PK	45.7	31.3	7.4	31.8	-	52.6	68.2	15.6	
Hori	5700.000	PK	50.0	31.4	7.5	31.8	-	57.1	105.2	48.1	
Hori	5720.000	PK	62.4	31.4	7.5	31.8	-	69.5	110.8	41.3	
Hori	5725.000	PK	65.1	31.4	7.5	31.8	-	72.2	122.2	50.0	
Hori	11490.000	PK	48.6	39.1	-1.8	33.4	-	52.5	73.9	21.4	
Hori	17235.000	PK	53.1	42.2	-0.3	32.7	-	62.3	68.2	5.9	
Hori	2488.323	AV	51.0	26.8	6.1	32.6	-	51.3	53.9	2.6	
Hori	3830.517	AV	37.8	28.9	6.7	32.0	-	41.4	53.9	12.5	
Hori	5442.014	AV	41.6	31.2	7.4	31.8	-	48.4	53.9	5.5	
Hori	11490.000	AV	39.3	39.1	-1.8	33.4	-	43.2	53.9	10.7	
Vert	2497.751	PK	59.7	26.8	6.1	32.6	-	60.0	73.9	13.9	
Vert	3830.517	PK	44.9	28.9	6.7	32.0	-	48.5	73.9	25.4	
Vert	5440.655	PK	51.9	31.2	7.4	31.8	-	58.7	73.9	15.2	
Vert	5650.000	PK	49.3	31.3	7.4	31.8	-	56.2	68.2	12.0	
Vert	5700.000	PK	48.1	31.4	7.5	31.8	-	55.2	105.2	50.0	
Vert	5720.000	PK	62.8	31.4	7.5	31.8	-	69.9	110.8	40.9	
Vert	5725.000	PK	66.1	31.4	7.5	31.8	-	73.2	122.2	49.0	
Vert	11490.000	PK	52.1	39.1	-1.8	33.4	-	56.0	73.9	17.9	
Vert	17235.000	PK	54.5	42.2	-0.3	32.7	-	63.7	68.2	4.5	
Vert	2497.751	AV	50.7	26.8	6.1	32.6	-	51.0	53.9	2.9	
Vert	3830.517	AV	39.3	28.9	6.7	32.0	-	42.9	53.9	11.0	
Vert	5440.655	AV	42.4	31.2	7.4	31.8	-	49.2	53.9	4.7	
Vert	11490.000	AV	43.1	39.1	-1.8	33.4	-	47.0	53.9	6.9	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)  
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz 20log(4.45 m / 3.0 m) = 3.43 dB  
10 GHz - 40 GHz 20log(1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**  
**(Antenna: AA222)**

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11166424H
Date	August 26, 2016
Temperature / Humidity	23deg. C / 59 % RH
Engineer	Yuta Moriya
Mode	Tx 11n-20 5745 MHz



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

**Radiated Spurious Emission**  
**(Antenna: AA222)**

Test place : Ise EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 11166424H  
Date : August 26, 2016  
Temperature / Humidity : 23deg. C / 59 % RH      August 26, 2016      23deg. C / 53 % RH  
Engineer : Yuta Moriya      Hiroyuki Furutaka  
                  (1 GHz - 10 GHz)      (10 GHz - 40 GHz)

Mode : Tx 11n-20 5785 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2489.041	PK	61.4	26.8	6.1	32.6	-	61.7	73.9	12.2	
Hori	3856.740	PK	46.2	29.0	6.7	32.0	-	49.9	73.9	24.0	
Hori	5377.704	PK	51.0	31.3	7.3	31.8	-	57.8	73.9	16.1	
Hori	11570.000	PK	49.7	39.1	-1.8	33.4	-	53.6	73.9	20.3	
Hori	17355.000	PK	51.0	42.8	-0.2	32.7	-	60.9	68.2	7.3	
Hori	2489.041	AV	50.6	26.8	6.1	32.6	-	50.9	53.9	3.0	
Hori	3856.740	AV	40.8	29.0	6.7	32.0	-	44.5	53.9	9.4	
Hori	5377.704	AV	42.5	31.3	7.3	31.8	-	49.3	53.9	4.6	
Hori	11570.000	AV	40.5	39.1	-1.8	33.4	-	44.4	53.9	9.5	
Vert	2489.041	PK	57.5	26.8	6.1	32.6	-	57.8	73.9	16.1	
Vert	3856.740	PK	45.2	29.0	6.7	32.0	-	48.9	73.9	25.0	
Vert	5377.704	PK	51.2	31.3	7.3	31.8	-	58.0	73.9	15.9	
Vert	11570.000	PK	51.8	39.1	-1.8	33.4	-	55.7	73.9	18.2	
Vert	17355.000	PK	50.1	42.8	-0.2	32.7	-	60.0	68.2	8.2	
Vert	2489.041	AV	48.6	26.8	6.1	32.6	-	48.9	53.9	5.0	
Vert	3856.740	AV	40.9	29.0	6.7	32.0	-	44.6	53.9	9.3	
Vert	5377.704	AV	43.0	31.3	7.3	31.8	-	49.8	53.9	4.1	
Vert	11570.000	AV	42.2	39.1	-1.8	33.4	-	46.1	53.9	7.8	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor:      1 GHz - 10 GHz      20log(4.45 m / 3.0 m) = 3.43 dB  
                              10 GHz - 40 GHz      20log(1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**  
**(Antenna: AA222)**

Test place Ise EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11166424H  
Date August 26, 2016 August 26, 2016  
Temperature / Humidity 23deg. C / 59 % RH 23deg. C / 53 % RH  
Engineer Yuta Moriya Hiroyuki Furutaka  
(1 GHz - 10 GHz) (10 GHz - 40 GHz)  
(Below 1GHz)  
Mode Tx 11n-20 5825 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	72.000	QP	40.7	6.0	7.7	32.2	-	22.2	40.0	17.8	
Hori	99.932	QP	48.8	9.7	8.0	32.2	-	34.3	43.5	9.2	
Hori	299.820	QP	48.9	13.5	9.9	31.9	-	40.4	46.0	5.6	
Hori	499.740	QP	45.0	17.6	11.2	31.9	-	41.9	46.0	4.1	
Hori	773.640	QP	34.4	20.5	12.8	31.6	-	36.1	46.0	9.9	
Hori	898.529	QP	29.8	22.1	13.4	30.9	-	34.4	46.0	11.6	
Hori	2488.323	PK	62.5	26.8	6.1	32.6	-	62.8	73.9	11.1	
Hori	3883.420	PK	46.0	29.0	6.7	32.0	-	49.7	73.9	24.2	
Hori	5442.014	PK	50.2	31.2	7.4	31.8	-	57.0	73.9	16.9	
Hori	5850.000	PK	64.3	31.6	7.5	31.8	-	71.6	122.2	50.6	
Hori	5855.000	PK	63.3	31.6	7.5	31.8	-	70.6	110.8	40.2	
Hori	5875.000	PK	48.1	31.6	7.5	31.8	-	55.4	105.2	49.8	
Hori	5925.000	PK	42.5	31.6	7.5	31.8	-	49.8	68.2	18.4	
Hori	11650.000	PK	50.7	39.0	-1.7	33.4	-	54.6	73.9	19.3	
Hori	17475.000	PK	50.3	43.5	-0.1	32.7	-	61.0	68.2	7.2	
Hori	2488.323	AV	52.1	26.8	6.1	32.6	-	52.4	53.9	1.5	
Hori	3883.420	AV	40.6	29.0	6.7	32.0	-	44.3	53.9	9.6	
Hori	5442.014	AV	42.1	31.2	7.4	31.8	-	48.9	53.9	5.0	
Hori	11650.000	AV	41.8	39.0	-1.7	33.4	-	45.7	53.9	8.2	
Vert	39.703	QP	35.8	14.1	7.2	32.2	-	24.9	40.0	15.1	
Vert	72.000	QP	47.2	6.0	7.7	32.2	-	28.7	40.0	11.3	
Vert	99.906	QP	54.3	9.7	8.0	32.2	-	39.8	43.5	3.7	
Vert	298.700	QP	45.4	13.5	9.9	31.9	-	36.9	46.0	9.1	
Vert	497.740	QP	36.5	17.6	11.2	31.9	-	33.4	46.0	12.6	
Vert	699.700	QP	32.2	19.8	12.4	32.1	-	32.3	46.0	13.7	
Vert	2497.751	PK	59.3	26.8	6.1	32.6	-	59.6	73.9	14.3	
Vert	3883.420	PK	47.4	29.0	6.7	32.0	-	51.1	73.9	22.8	
Vert	5440.655	PK	52.2	31.2	7.4	31.8	-	59.0	73.9	14.9	
Vert	5850.000	PK	65.1	31.6	7.5	31.8	-	72.4	122.2	49.8	
Vert	5855.000	PK	61.2	31.6	7.5	31.8	-	68.5	110.8	42.3	
Vert	5875.000	PK	47.9	31.6	7.5	31.8	-	55.2	105.2	50.0	
Vert	5925.000	PK	45.8	31.6	7.5	31.8	-	53.1	68.2	15.1	
Vert	11650.000	PK	53.2	39.0	-1.7	33.4	-	57.1	73.9	16.8	
Vert	17475.000	PK	49.6	43.5	-0.1	32.7	-	60.3	68.2	7.9	
Vert	2497.751	AV	50.7	26.8	6.1	32.6	-	51.0	53.9	2.9	
Vert	3883.420	AV	41.6	29.0	6.7	32.0	-	45.3	53.9	8.6	
Vert	5440.655	AV	43.5	31.2	7.4	31.8	-	50.3	53.9	3.6	
Vert	11650.000	AV	43.2	39.0	-1.7	33.4	-	47.1	53.9	6.8	

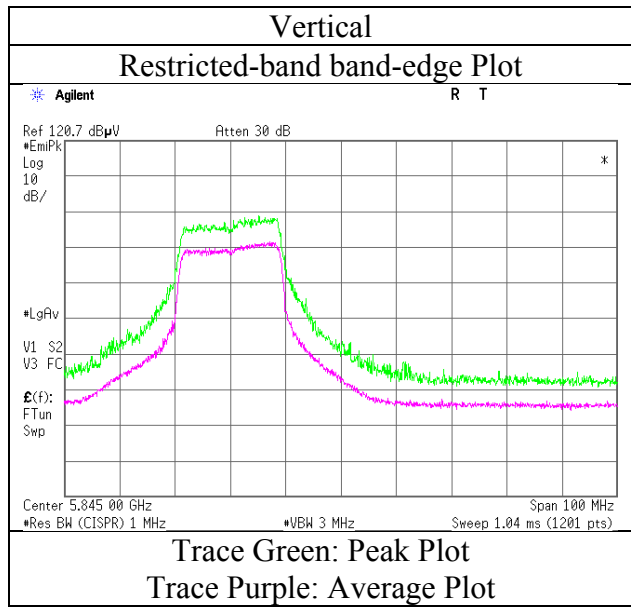
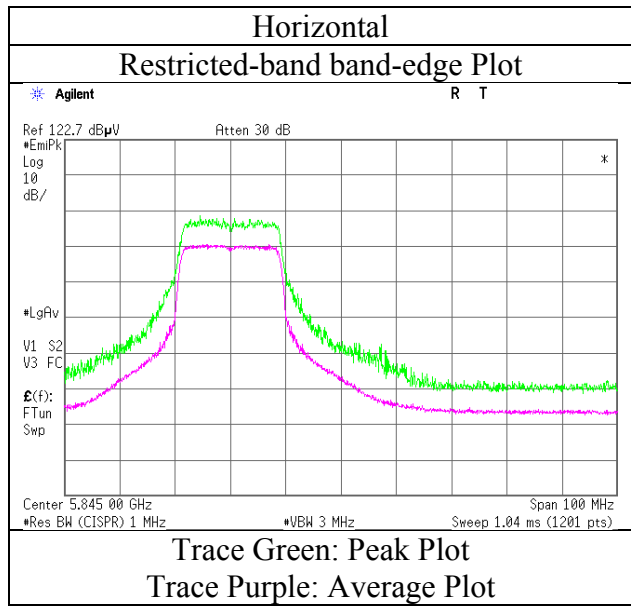
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (4.45 m / 3.0 m) = 3.43 dB  
10 GHz - 40 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**  
**(Antenna: AA222)**

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11166424H
Date	August 26, 2016
Temperature / Humidity	23deg. C / 59 % RH
Engineer	Yuta Moriya
Mode	Tx 11n-20 5825 MHz



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

**Radiated Spurious Emission**  
**(Antenna: AA222)**

Test place Ise EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11166424H  
Date August 26, 2016 August 26, 2016  
Temperature / Humidity 23deg. C / 59 % RH 23deg. C / 53 % RH  
Engineer Yuta Moriya Hiroyuki Furutaka  
(1 GHz - 10 GHz) (10 GHz - 40 GHz)  
(Below 1GHz)  
Mode Tx 11n-40 5755 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2488.323	PK	61.5	26.8	6.1	32.6	-	61.8	73.9	12.1	
Hori	3836.805	PK	44.0	28.9	6.7	32.0	-	47.6	73.9	26.3	
Hori	5650.000	PK	44.5	31.3	7.4	31.8	-	51.4	68.2	16.8	
Hori	5700.000	PK	51.1	31.4	7.5	31.8	-	58.2	105.2	47.0	
Hori	5720.000	PK	61.5	31.4	7.5	31.8	-	68.6	110.8	42.2	
Hori	5725.000	PK	63.9	31.4	7.5	31.8	-	71.0	122.2	51.2	
Hori	11510.000	PK	44.6	39.1	-1.8	33.4	-	48.5	73.9	25.4	
Hori	17265.000	PK	46.8	42.3	-0.2	32.7	-	56.2	68.2	12.0	
Hori	2488.323	AV	52.1	26.8	6.1	32.6	0.1	52.5	53.9	1.4	
Hori	3836.805	AV	37.3	28.9	6.7	32.0	0.1	41.0	53.9	12.9	
Hori	11510.000	AV	36.0	39.1	-1.8	33.4	0.1	40.0	53.9	13.9	
Vert	2488.323	PK	59.4	26.8	6.1	32.6	-	59.7	73.9	14.2	
Vert	3836.805	PK	44.5	28.9	6.7	32.0	-	48.1	73.9	25.8	
Vert	5650.000	PK	45.2	31.3	7.4	31.8	-	52.1	68.2	16.1	
Vert	5700.000	PK	50.3	31.4	7.5	31.8	-	57.4	105.2	47.8	
Vert	5720.000	PK	61.3	31.4	7.5	31.8	-	68.4	110.8	42.4	
Vert	5725.000	PK	65.2	31.4	7.5	31.8	-	72.3	122.2	49.9	
Vert	11510.000	PK	45.0	39.1	-1.8	33.4	-	48.9	73.9	25.0	
Vert	17265.000	PK	45.8	42.3	-0.2	32.7	-	55.2	68.2	13.0	
Vert	2488.323	AV	50.2	26.8	6.1	32.6	0.1	50.6	53.9	3.3	
Vert	3836.805	AV	38.5	28.9	6.7	32.0	0.1	42.2	53.9	11.7	
Vert	11510.000	AV	36.4	39.1	-1.8	33.4	0.1	40.4	53.9	13.5	

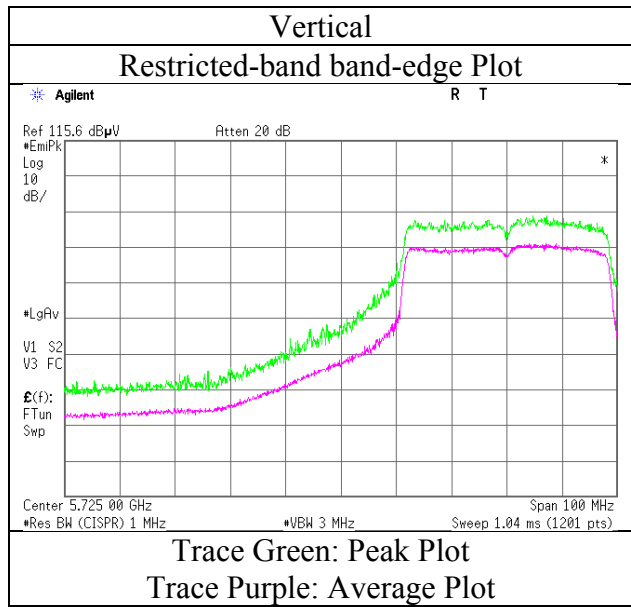
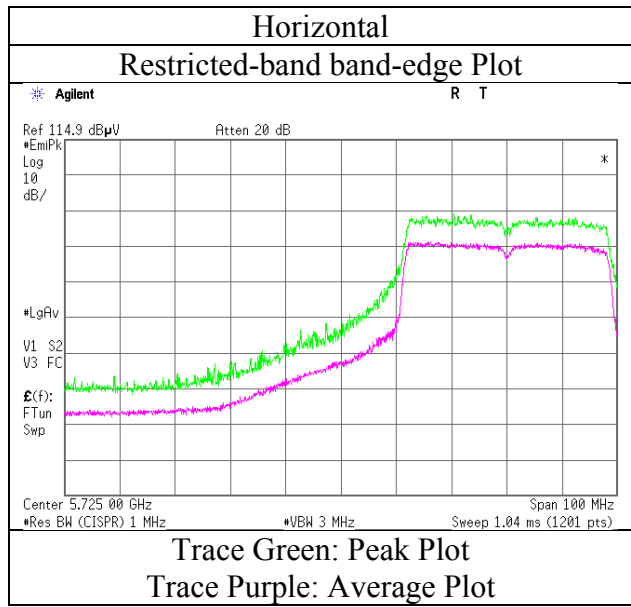
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

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

Distance factor: 1 GHz - 10 GHz 20log(4.45 m / 3.0 m) = 3.43 dB  
10 GHz - 40 GHz 20log(1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**  
**(Antenna: AA222)**

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11166424H
Date	August 26, 2016
Temperature / Humidity	23deg. C / 59 % RH
Engineer	Yuta Moriya
Mode	Tx 11n-40 5755 MHz



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

**Radiated Spurious Emission**  
**(Antenna: AA222)**

Test place Ise EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11166424H  
Date August 26, 2016 August 26, 2016  
Temperature / Humidity 23deg. C / 59 % RH 23deg. C / 53 % RH  
Engineer Yuta Moriya Hiroyuki Furutaka  
(1 GHz - 10 GHz) (10 GHz - 40 GHz)

Mode Tx 11n-40 5795 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2488.323	PK	63.1	26.8	6.1	32.6	-	63.4	73.9	10.5	
Hori	3863.494	PK	44.5	29.0	6.7	32.0	-	48.2	73.9	25.7	
Hori	5850.000	PK	50.9	31.6	7.5	31.8	-	58.2	122.2	64.0	
Hori	5855.000	PK	48.1	31.6	7.5	31.8	-	55.4	110.8	55.4	
Hori	5875.000	PK	44.3	31.6	7.5	31.8	-	51.6	105.2	53.6	
Hori	5925.000	PK	43.0	31.6	7.5	31.8	-	50.3	68.2	17.9	
Hori	11590.000	PK	45.2	39.1	-1.8	33.4	-	49.1	73.9	24.8	
Hori	17385.000	PK	44.7	43.0	-0.2	32.7	-	54.8	68.2	13.4	
Hori	2488.323	AV	52.6	26.8	6.1	32.6	0.1	53.0	53.9	0.9	
Hori	3863.494	AV	39.5	29.0	6.7	32.0	0.1	43.3	53.9	10.6	
Hori	11590.000	AV	36.1	39.1	-1.8	33.4	0.1	40.1	53.9	13.8	
Vert	2488.323	PK	59.9	26.8	6.1	32.6	-	60.2	73.9	13.7	
Vert	3863.494	PK	46.1	29.0	6.7	32.0	-	49.8	73.9	24.1	
Vert	5850.000	PK	51.3	31.6	7.5	31.8	-	58.6	122.2	63.6	
Vert	5855.000	PK	47.7	31.6	7.5	31.8	-	55.0	110.8	55.8	
Vert	5875.000	PK	45.5	31.6	7.5	31.8	-	52.8	105.2	52.4	
Vert	5925.000	PK	43.1	31.6	7.5	31.8	-	50.4	68.2	17.8	
Vert	11590.000	PK	46.9	39.1	-1.8	33.4	-	50.8	73.9	23.1	
Vert	17385.000	PK	44.8	43.0	-0.2	32.7	-	54.9	68.2	13.3	
Vert	2488.323	AV	51.1	26.8	6.1	32.6	0.1	51.5	53.9	2.4	
Vert	3863.494	AV	41.1	29.0	6.7	32.0	0.1	44.9	53.9	9.0	
Vert	11590.000	AV	37.0	39.1	-1.8	33.4	0.1	41.0	53.9	12.9	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

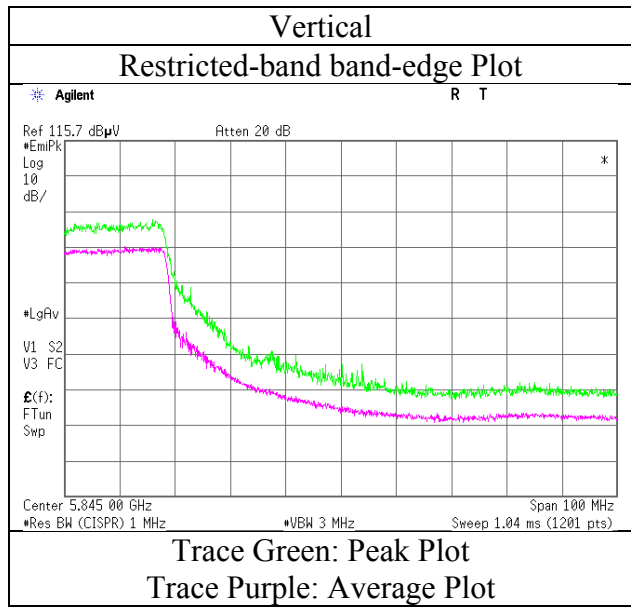
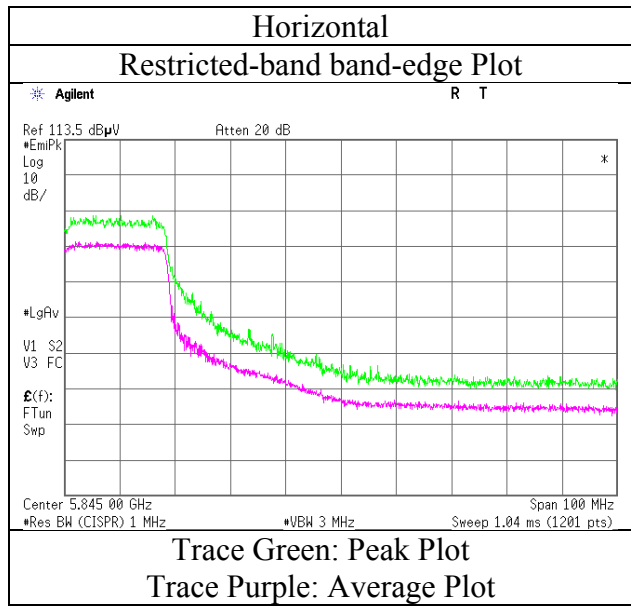
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz 20log(4.45 m / 3.0 m) = 3.43 dB  
10 GHz - 40 GHz 20log(1.0 m / 3.0 m) = -9.5 dB



**Radiated Spurious Emission**  
**(Antenna: AA222)**

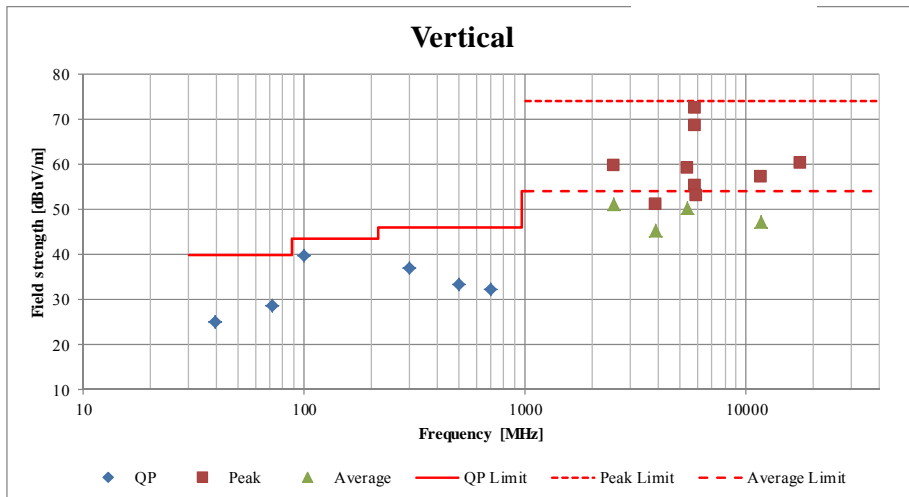
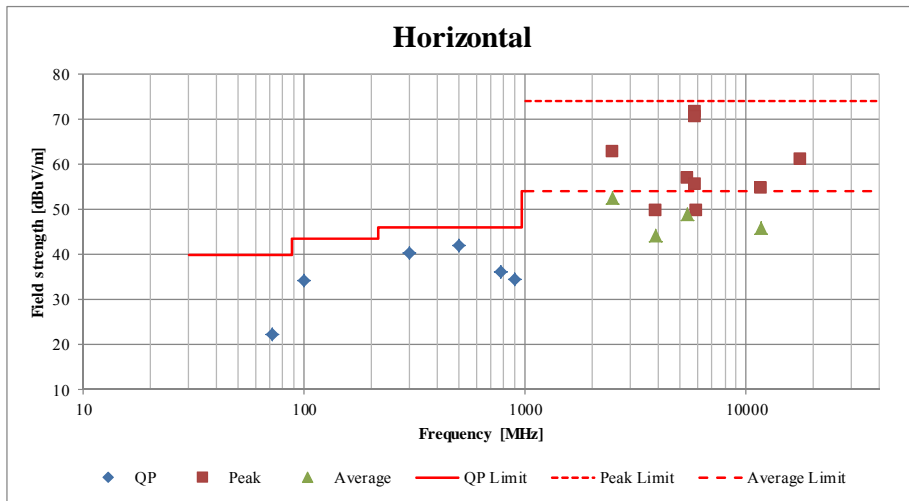
Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11166424H
Date	August 26, 2016
Temperature / Humidity	23deg. C / 59 % RH
Engineer	Yuta Moriya
Mode	Tx 11n-40 5795 MHz



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

**Radiated Spurious Emission**  
**(Plot data, Worst case)**  
**(Antenna: AA222)**

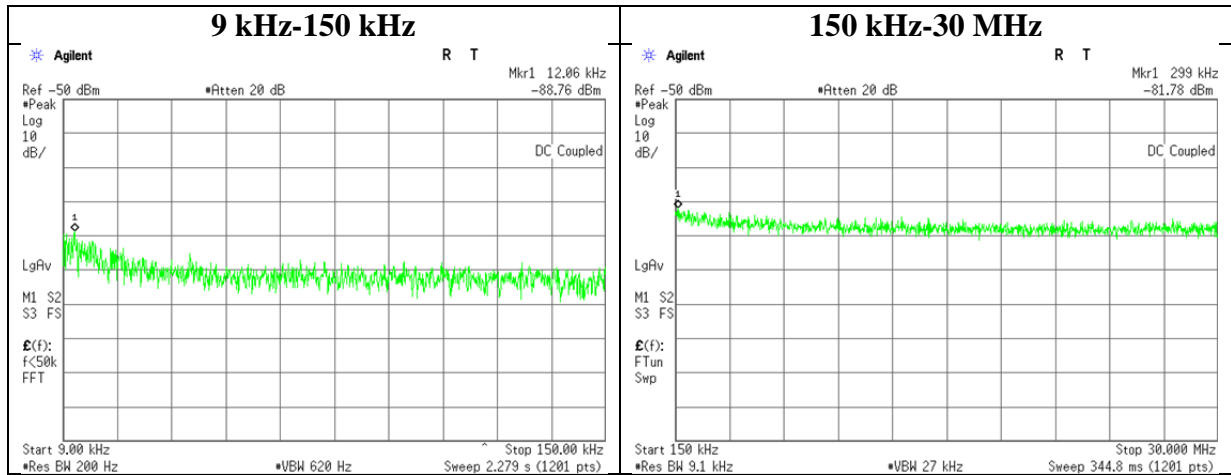
Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber	
Report No.	11166424H	
Date	August 26, 2016	August 26, 2016
Temperature / Humidity	23deg. C / 59 % RH	23deg. C / 53 % RH
Engineer	Yuta Moriya (1 GHz - 10 GHz)	Hiroyuki Furutaka (10 GHz - 40 GHz) (Below 1GHz)
Mode	Tx 11n-20 5825 MHz	



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

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.4 Measurement Room
Report No.	11166424H
Date	April 6, 2016
Temperature / Humidity	24deg. C / 45 % RH
Engineer	Shinichi Miyazono
Mode	Tx 11n-20 5825 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
12.06	-88.8	0.00	9.8	4.31	2	-71.6	300	6.0	-10.4	45.9	56.3	
299.00	-81.8	0.01	9.9	4.31	2	-64.6	300	6.0	-3.3	18.0	21.3	

$$E = \text{EIRP} - 20 \cdot \log(D) + \text{Ground bounce} + 104.8 \text{ [dBuV/m]}$$

$$\text{EIRP} = \text{Reading} + \text{Cable Loss} + \text{Attenuator} + \text{Antenna Gain} + 10 \cdot \log(N)$$

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## APPENDIX 2: Test instruments

### Test equipment (1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2015/10/02 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	1501	RE	2016/01/21 * 12
MJM-26	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2016/02/24 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2015/08/10 * 12 *1)
MCC-141	Microwave Cable	Junkosha	MWX221	1305S002R(1m) / 1405S146(5m)	RE	2015/06/22 * 12 *1)
MPA-12	MicroWave System Amplifier	Agilent	83017A	00650	RE	2015/10/01 * 12
MMM-10	DIGITAL HiTESTER	Hioki	3805	051201148	RE	2016/01/18 * 12
MTR-10	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	RE	2016/01/29 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2015/11/02 * 12
MLA-23	Logperiodic Antenna(200-1000MHz)	Schwarzbeck	VUSLP9111B	911B-192	RE	2016/01/30 * 12
MCC-50	Coaxial Cable	UL Japan	-	-	RE	2015/06/19 * 12 *1)
MAT-68	Attenuator	Anritsu	MP721B	6200961025	RE	2015/11/12 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2016/03/18 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2015/06/06 * 12 *1)
MCC-54	Microwave Cable	Suhner	SUCOFLEX101	2873(1m) / 2876(5m)	RE	2016/03/18 * 12
MHA-29	Horn Antenna 26.5-40GHz	ETS LINDGREN	3160-10	00152399	RE	2015/09/04 * 12
MPA-22	Pre Amplifier	MITEQ, Inc	AMF-6F-2600400-3 3-8P / AMF-4F-2600400-3 3-8P	1871355 /1871328	RE	2015/09/03 * 12
MSA-14	Spectrum Analyzer	Agilent	E4440A	MY48250080	AT	2015/10/07 * 12
MPM-12	Power Meter	Anritsu	ML2495A	0825002	AT	2015/06/09 * 12 *1)
MPSE-17	Power sensor	Anritsu	MA2411B	0738285	AT	2015/06/09 * 12 *1)
MTA-43	Terminator	Mini-Circuits	ANNE-50X+	MUU3460140	AT	Pre Check
MAT-58	Attenuator(10dB)	Suhner	6810.19.A	-	AT	2016/01/18 * 12
MAT-10	Attenuator(10dB)	Weinschel Corp	2	BL1173	AT	2015/11/10 * 12
MCC-206	Microwave Cable	RS Components	R-132G7210200CD	-	AT	2016/02/08 * 12
MCC-173	Microwave Cable	Junkosha	MWX221	1409S496	AT	2016/03/11 * 12
MCC-38	Coaxial Cable	UL Japan	-	-	AT	2015/12/07 * 12
MMM-12	DIGITAL HiTESTER	Hioki	3805	060500120	AT	2016/02/23 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	1401	AT	2016/01/21 * 12
MRENT-127	Spectrum Analyzer	KEYSIGHT	N9030A	US51350215	AT	2015/11/02 * 12
MCC-92	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	30813/2	AT	2015/05/01 * 12 *1)
MCC-209	Microwave Cable	RS Components	R-132G7210200CD	-	AT	2016/04/01 * 12
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2015/10/01 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	1301	RE	2016/01/21 * 12
MJM-16	Measure	KOMELON	KMC-36	-	RE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2015/11/06 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2016/05/29 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2016/03/24 * 12
MMM-08	DIGITAL HiTESTER	Hioki	3805	51201197	RE	2016/01/13 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2015/09/02 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2015/10/11 * 12
MLA-22	Logperiodic Antenna(200-1000MHz)	Schwarzbeck	VUSLP9111B	911B-191	RE	2016/01/30 * 12

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

**Test equipment (2/2)**

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MCC-51	Coaxial cable	UL Japan	-	-	RE	2016/07/26 * 12
MAT-70	Attenuator(6dB)	Agilent	8491A-006	MY52460153	RE	2016/04/05 * 12
MPA-13	Pre Amplifier	SONOMA	310	260834	RE	2016/03/24 * 12
MHF-22	High Pass Filter 7-20GHz	TOKIMEC	TF37NCCB	602	RE	2016/01/19 * 12
MCC-177	Microwave Cable	Junkosha	MMX221-00500D MSDMS	1502S304	RE	2016/03/10 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2016/05/29 * 12

**\*1) This test equipment was used for the tests before the expiration date of the calibration.**

**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: RE: Radiated Emission  
AT: Antenna Terminal Conducted test**

---

**UL Japan, Inc.**

**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124