



# RADIO TEST REPORT

**Test Report No. : 11170944S-C-R1**  
**(Original test report: 11014760S-C-R2)**

**Applicant** : Sony Corporation  
**Type of Equipment** : Wireless Transceiver Module  
**Model No.** : BNSY25  
**FCC ID** : AK8BNSY25  
**Test regulation** : FCC Part 15 Subpart E: 2015  
**Test item** : Radiated spurious emission  
**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. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 11170944S-C. 11170944S-C is replaced with this report.

**Date of test:** March 7 to 30, 2016

**Representative test engineer:**



Yosuke Ishikawa  
Engineer  
Consumer Technology Division

**Approved by:**



Toyokazu Imamura  
Leader  
Consumer Technology Division



**JAB**  
Testing  
RTL02610

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

**UL Japan, Inc.**  
**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN  
Telephone : +81 463 50 6400  
Facsimile : +81 463 50 6401



<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>7</b>
<b>SECTION 5: Radiated Spurious Emission and Band Edge Compliance .....</b>	<b>9</b>
<b>APPENDIX 1: Test data .....</b>	<b>11</b>
Burst rate confirmation .....	11
Radiated Spurious Emission .....	12
<b>APPENDIX 2: Test instruments .....</b>	<b>54</b>
<b>APPENDIX 3: Photographs of test setup .....</b>	<b>55</b>
Radiated Spurious Emission .....	55
Pre-check of Worst Case Position .....	56

## **SECTION 1: Customer information**

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

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

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

Type of Equipment : Wireless Transceiver Module  
Model No. : BNSY25  
Serial No. : Refer to Section 4, Clause 4.2  
Rating : DC 3.3 V, DC 2.8 V, DC 1.8 V  
Receipt Date of Sample : February 22, 2016  
Country of Mass-production : China, Taiwan  
Condition of EUT : Production prototype  
(Not for Sale: This sample is equivalent to mass-produced items.)  
Modification of EUT : No Modification by the test lab.

### **2.2 Product Description**

Model: BNSY25 (referred to as the EUT in this report) is a Wireless Transceiver Module.  
\* BNSY25 is Controller IC (MT8591, etc.) and RF front-end part (DHSR-SY25).

### **General Specification**

Clock frequency(ies) in the system : 26 MHz

### **Radio Specification**

Radio Type : Transceiver  
Frequency of Operation : Wireless LAN part:  
2412-2462 MHz,  
5180-5320 MHz, 5500-5700 MHz, 5745-5825 MHz  
Bluetooth part:  
2402-2480 MHz  
Modulation : Wireless LAN part:  
2.4 GHz bands: DBPSK, DQPSK, CCK, OFDM  
5 GHz bands: OFDM  
Bluetooth part:  
BDR (Basic Data Rate): GFSK  
EDR (Enhanced Data Rate):  $\pi/4$ -DQPSK, 8DPSK  
LE (Low Energy mode): GFSK  
Antenna type : Dipole  
Antenna connector : MHF4  
Antenna Gain : 2400 - 2483.5 MHz: +1.43 dBi max (include antenna cable 350 mm)  
5150 - 5250 MHz: +0.59 dBi max (include antenna cable 350 mm)  
5250 - 5350 MHz: -0.33 dBi max (include antenna cable 350 mm)  
5470 - 5725 MHz: +0.08 dBi max (include antenna cable 350 mm)  
5725 - 5850 MHz: +0.05 dBi max (include antenna cable 350 mm)

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

\* Refer to the test reports: 11014760S-A-R1 and 11170944S-A-R1 for FCC 15.247 (Wireless LAN part).  
Refer to the test reports: 11014760S-B-R1 and 11170944S-B-R1 for FCC 15.247 (Bluetooth part).

---

**UL Japan, Inc.**

**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN  
Telephone : +81 463 50 6400  
Facsimile : +81 463 50 6401

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

### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart E: 2015, final revised on November 23, 2015

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

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

### **3.2 Procedures and results**

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.10- 2013	FCC: 15.407 (b) (6) / 15.207		-	*1)
	IC: RSS-Gen 8.8	IC: RSS-Gen 8.8			
26 dB Emission Bandwidth	FCC: KDB Publication Number 789033	FCC: 15.407 (a) (1) (2) (3)		-	*1)
	IC: -	IC: -			
Maximum Conducted Output Power	FCC: KDB Publication Number 789033	FCC: 15.407 (a) (1) (2) (3)	-	-	*1)
	IC: -	IC: RSS-247 6.2.1 (1) 6.2.2 (1) 6.2.3 (1) 6.2.4 (1)			
Maximum Power Spectral Density	FCC: KDB Publication Number 789033	FCC : 15.407 (a) (1) (2) (3)		-	*1)
	IC: -	IC: RSS-247 6.2.1 (1) 6.2.2 (1) 6.2.3 (1) 6.2.4 (1)			
Spurious Emission Restricted Band Edge	FCC: ANSI C63.10-2013 KDB Publication Number 789033	FCC: 15.407 (b), 15.205 and 15.209	0.2 dB 8288.000 MHz, AV, Horizontal (Tx, 11n-20, 5180 MHz)	Complied	Conducted (below 30 MHz) *1) / Radiated (above 30 MHz) *2)
	IC: -	IC: RSS-247 6.2.1 (2) 6.2.2 (2) 6.2.3 (2) 6.2.4 (2)			
6 dB Emission Bandwidth	FCC: ANSI C63.10-2013	FCC: 15.407 (e)		-	*1)
	IC: -	IC: RSS-247 6.2.4 (1)			
Dynamic Frequency Selection	FCC: KDB 905462 D02	FCC: 15.407(h)		-	*3)
	IC: FCC KDB 905462 D02	IC: RSS-247 6.3			

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

\*1) Refer to the original test report: 11014760S-C-R2.

\*2) Radiated test was selected over 30 MHz based on section FCC 15.407 (b) and KDB 789033 D02 G.3.b).

\*3) Refer to the test report: 11014760S-D.

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

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

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

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

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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### 3.3 Addition to standard

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

### 3.4 Uncertainty

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

Item	Frequency range	Uncertainty (+/-)			
		No. 1 SAC / SR	No. 2 SAC / SR	No. 3 SAC / SR	No. 4 SAC / SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.1 dB	2.1 dB	2.6 dB	2.2 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	2.7 dB	2.7 dB	3.1 dB	-
	30 MHz-300 MHz	4.4 dB	4.4 dB	4.6 dB	-
	300 MHz-1 GHz	5.6 dB	5.5 dB	5.3 dB	-
	1 GHz-13 GHz	5.2 dB	5.2 dB	5.2 dB	-
Radiated emission (Measurement distance: 1 m)	13 GHz-18 GHz	4.9 dB	4.9 dB	4.9 dB	-
	18 GHz-40 GHz	4.9 dB	4.9 dB	4.9 dB	-

SAC=Semi-Anechoic Chamber

SR= Shielded Room is applied besides radiated emission

#### Radiated emission test

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

### 3.5 Test Location

UL Japan, Inc. Shonan EMC Lab.

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

Telephone: +81 463 50 6400, Facsimile: +81 463 50 6401

JAB Accreditation No. RTL02610

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

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

Refer to APPENDIX.

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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

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

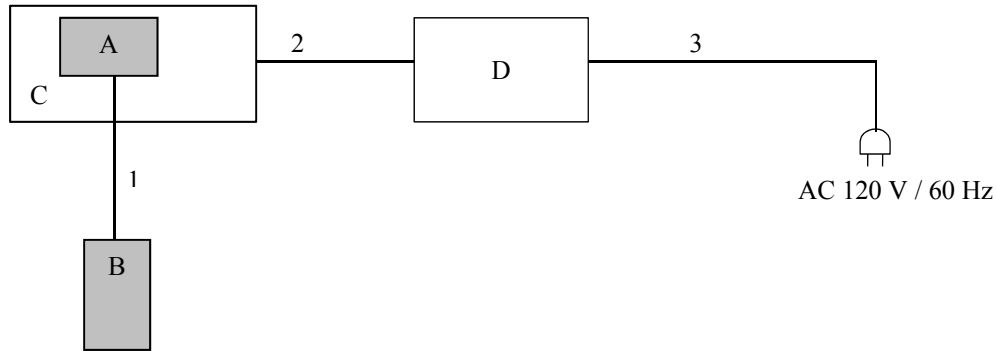
Test operating mode was determined as follows according to “Section 1 of 6 802.11 a/b/g/n testing - Managing Complex Regulatory Approvals -” of TCB Council Workshop October 2009.

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

<b>Test Item</b>	<b>Operating Mode</b>	<b>Tested Antenna cable (length)</b>	<b>Tested Frequency</b>			
			<b>Lower Band</b>	<b>Middle Band</b>	<b>Additional Band</b>	<b>Upper Band</b>
Radiated Spurious Emission (Below 1 GHz)	Tx 11n-40 *2)	350 mm	5230 MHz	-	-	-
Radiated Spurious Emission (Above 1 GHz)	Tx, 11a, *3) Tx, 11n-20	350 mm	5180 MHz 5240 MHz	5320 MHz	5500 MHz 5580 MHz 5700 MHz	5745 MHz 5785 MHz 5825 MHz
	Tx, 11n-40	350 mm	5190 MHz 5230 MHz	5310 MHz	5510 MHz 5550 MHz 5670 MHz	5755 MHz 5795 MHz
*2) The mode was tested as a representative, because it had the highest power at antenna terminal test. (original test report) *3) 11a mode was measured the band edge emissions only.						

## 4.2 Configuration and peripherals



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

### Description of EUT

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Wireless Transceiver Module	BNSY25	0F081530001703 *1) 0F08153000E603 *2)	Front-end: Wistron NeWeb Corporation	EUT
				Control IC: MediaTeK	
B	Antenna	Y121JT008A-X-S	-	WIESON TECHNOLOGIES CO., LTD	EUT
C	Jig board	-	-	Sony	-
D	AC Adaptor	AC-M1208WW	M1521540404	Sony	-

\*1) Used in March 7, 10 and 12

\*2) Used in March 26 and 30

### List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Cable (Antenna)	0.35	Shielded	Shielded	-
2	Output cord (AC Adaptor)	1.0	Unshielded	Unshielded	-
3	Power Supply Cord	0.7	Unshielded	Unshielded	-

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401



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

### **Test Procedure**

< Below 1 GHz >

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

< Above 1 GHz >

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 1 GHz >

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

< Above 1 GHz >

Inside of restricted bands (Section 15.205):

Apply to limit in the Section 15.209 (a).

Outside of the restricted bands:

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

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

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

Restricted band edge:

Apply to limit in the Section 15.209 (a).

Since this limit is severer than the limit of the inside of restricted bands.

\*Electric field strength to e.i.r.p. conversion:

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

**Test Antennas are used as below;**

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

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

\*1) The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01r01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on January 8, 2016)".

\*2) Distance Factor:  $20 \times \log(4.37 \text{ m}/3.0 \text{ m}) = 3.2 \text{ dB}$  (\*SVSWR setting, distance 4.5 m - volume offset 0.13 m)

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

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

	Test Antenna \ Frequency	Carrier	Spurious					
			30 MHz-1 GHz	1-6.4 GHz	6.4-13 GHz	13-18 GHz	18-26.5 GHz	26.5-40 GHz
Module	Horizontal	Z	X	Z	Z	Y	Z	X
	Vertical	Z	Z	Z	X	X	Z	X
Antenna	Horizontal	Y	X	Y	Y	Y	Y	X
	Vertical	Z	X	Z	X	Y	Y	X

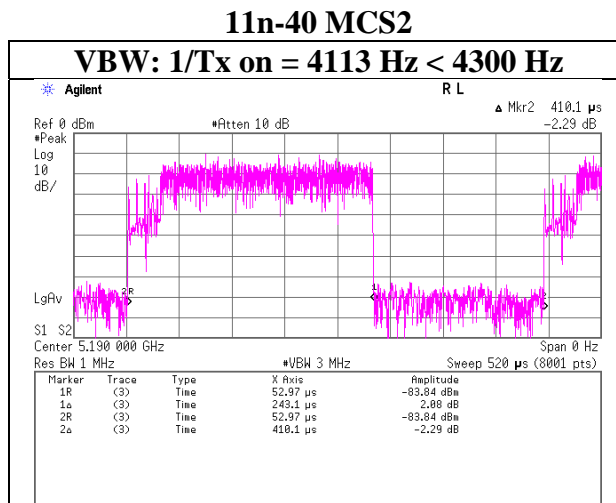
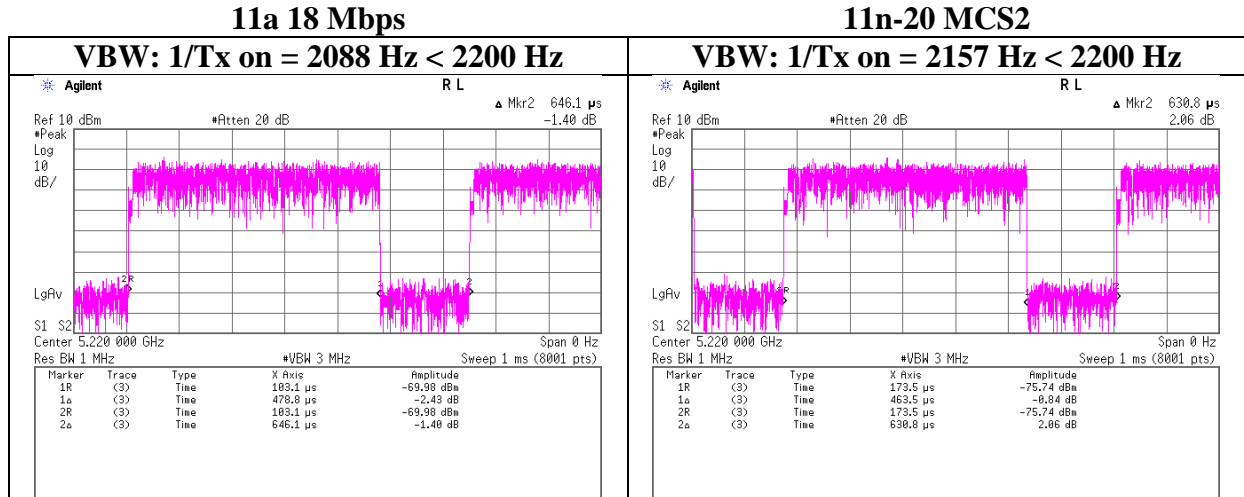
The test results and limit are rounded off to one decimal place, so some differences might be observed.

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

**APPENDIX 1: Test data**

**Burst rate confirmation**

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber	
Report No.	11170944S-C-R1	
Date	March 10, 2016	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa	Wataru Kojima
Mode	Tx	



## Radiated Spurious Emission

Test place : Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 11170944S-C-R1  
Date : March 10, 2016  
Temperature / Humidity : 25 deg. C / 35 % RH  
Engineer : Hiroyuki Morikawa  
(1-6.4 GHz)  
Mode : Tx 11a 5180 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.0	PK	46.8	32.2	15.5	39.2	3.2	58.5	73.9	15.4	197	185	
Hori.	5150.0	AV	35.9	32.2	15.5	39.2	3.2	47.6	53.9	6.3	197	185	VBW:2.2 kHz
Vert.	5150.0	PK	47.4	32.2	15.5	39.2	3.2	59.1	73.9	14.8	189	355	
Vert.	5150.0	AV	36.0	32.2	15.5	39.2	3.2	47.7	53.9	6.2	189	355	VBW:2.2 kHz

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

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

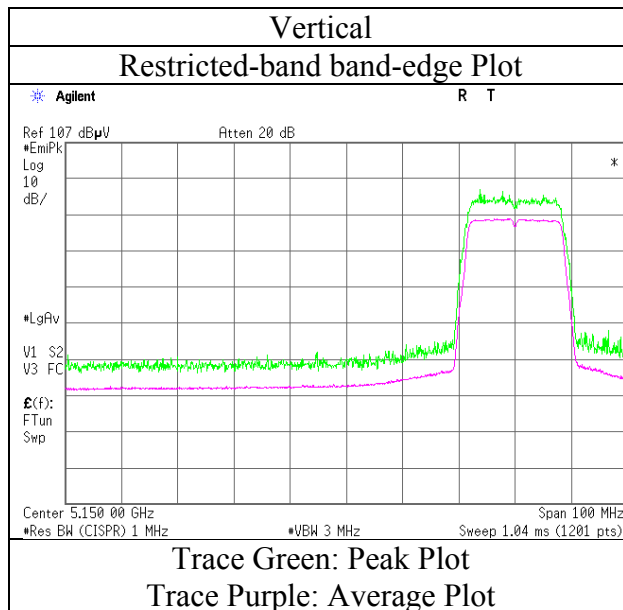
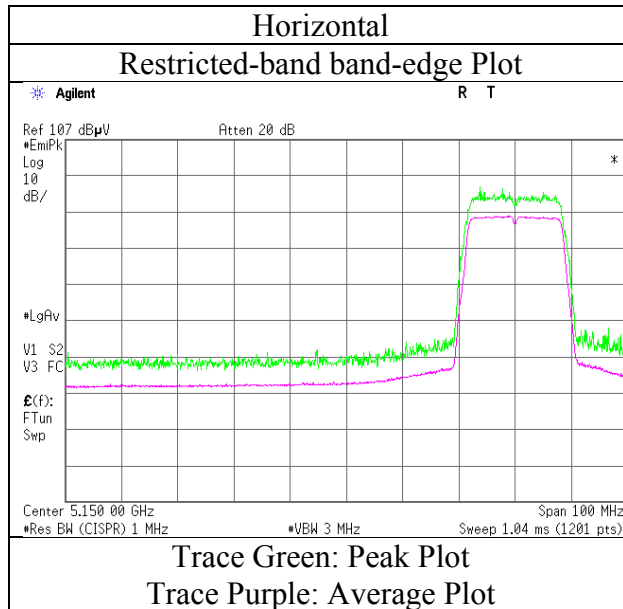
\* This mode was performed only band edges measurement.

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$

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

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11a 5180 MHz



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

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 11170944S-C-R1  
Date : March 10, 2016  
Temperature / Humidity : 25 deg. C / 35 % RH  
Engineer : Hiroyuki Morikawa  
(1-6.4 GHz)  
Mode : Tx 11a 5320 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.0	PK	45.8	32.2	15.7	38.9	3.2	58.0	73.9	15.9	165	124	VBW:2.2 kHz
Hori.	5350.0	AV	34.9	32.2	15.7	38.9	3.2	47.1	53.9	6.8	165	124	
Vert.	5350.0	PK	47.6	32.2	15.7	38.9	3.2	59.8	73.9	14.1	172	299	VBW:2.2 kHz
Vert.	5350.0	AV	35.6	32.2	15.7	38.9	3.2	47.8	53.9	6.1	172	299	

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

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

\* This mode was performed only band edges measurement.

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$

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

**UL Japan, Inc.**

**Shonan EMC Lab.**

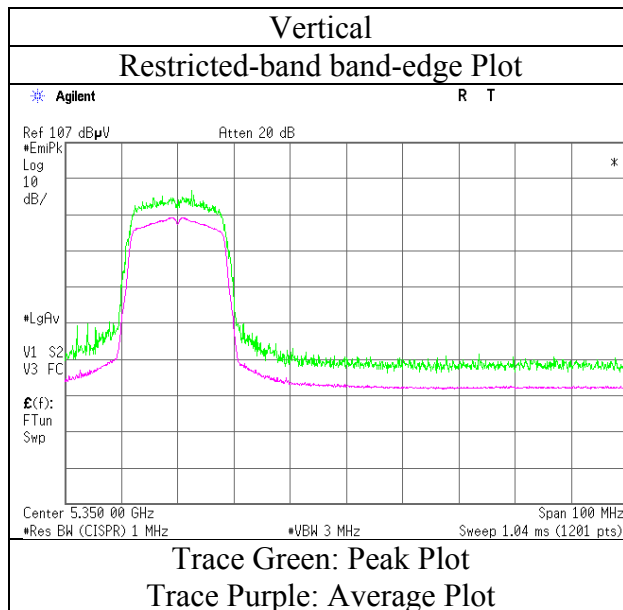
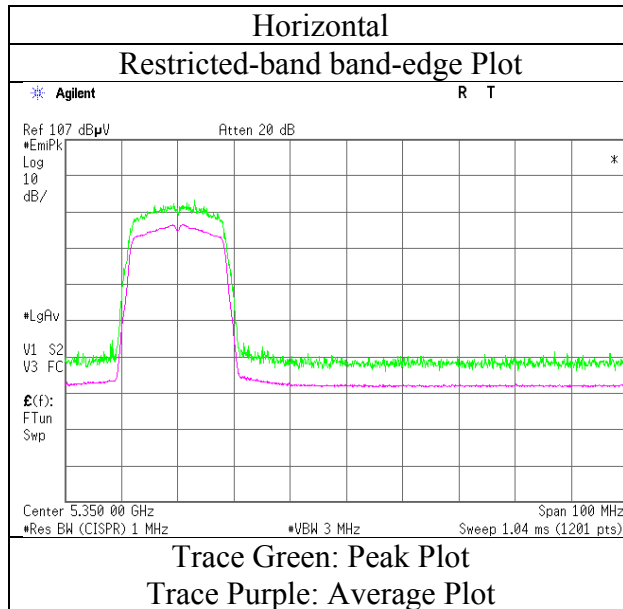
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11a 5320 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 11170944S-C-R1  
Date : March 10, 2016  
Temperature / Humidity : 25 deg. C / 35 % RH  
Engineer : Hiroyuki Morikawa  
(1-6.4 GHz)  
Mode : Tx 11a 5500 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.0	PK	46.8	32.2	15.8	38.8	3.2	59.2	73.9	14.7	172	148	VBW:2.2 kHz
Hori.	5460.0	AV	35.5	32.2	15.8	38.8	3.2	47.9	53.9	<b>6.0</b>	172	148	
Vert.	5460.0	PK	45.6	32.2	15.8	38.8	3.2	58.0	73.9	15.9	205	16	VBW:2.2 kHz
Vert.	5460.0	AV	35.3	32.2	15.8	38.8	3.2	47.7	53.9	6.2	205	16	

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

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

\* This mode was performed only band edges measurement.

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.0	PK	46.2	32.2	15.8	38.8	3.2	58.6	-36.6	-27.0	<b>9.6</b>	172	148	
Vert.	5470.0	PK	46.0	32.2	15.8	38.8	3.2	58.4	-36.8	-27.0	9.8	205	16	

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

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

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

\* This mode was performed only band edges measurement.

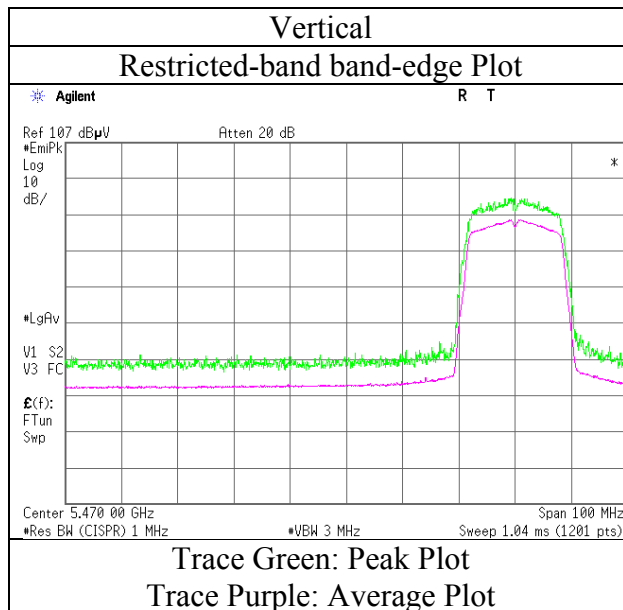
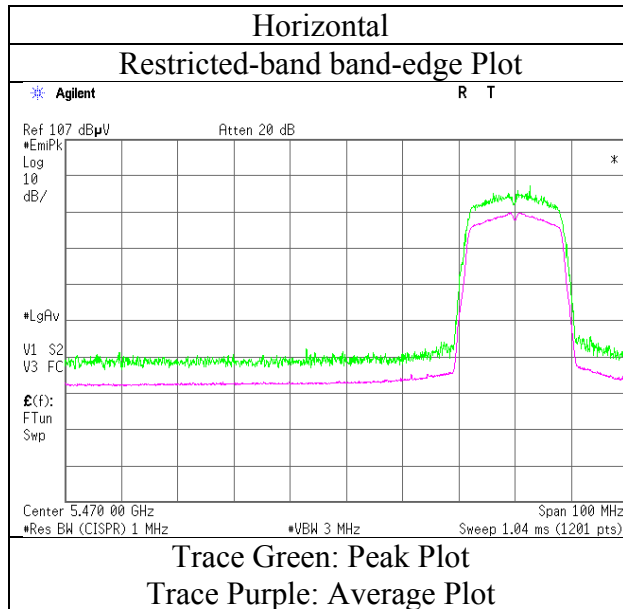
Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$

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



## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11a 5500 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 11170944S-C-R1  
Date : March 10, 2016  
Temperature / Humidity : 25 deg. C / 35 % RH  
Engineer : Hiroyuki Morikawa  
(1-6.4 GHz)  
Mode : Tx 11a 5700 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.0	PK	52.9	32.6	15.8	38.8	3.2	65.7	73.9	8.2	165	138	VBW:2.2 kHz
Hori.	5725.0	AV	35.7	32.6	15.8	38.8	3.2	48.5	53.9	<b>5.4</b>	165	138	
Vert.	5725.0	PK	49.3	32.6	15.8	38.8	3.2	62.1	73.9	11.8	163	241	VBW:2.2 kHz
Vert.	5725.0	AV	34.8	32.6	15.8	38.8	3.2	47.6	53.9	6.3	163	241	

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

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

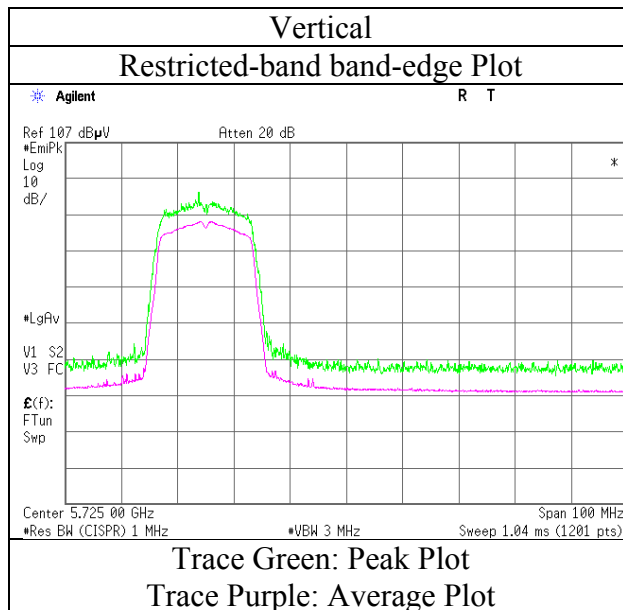
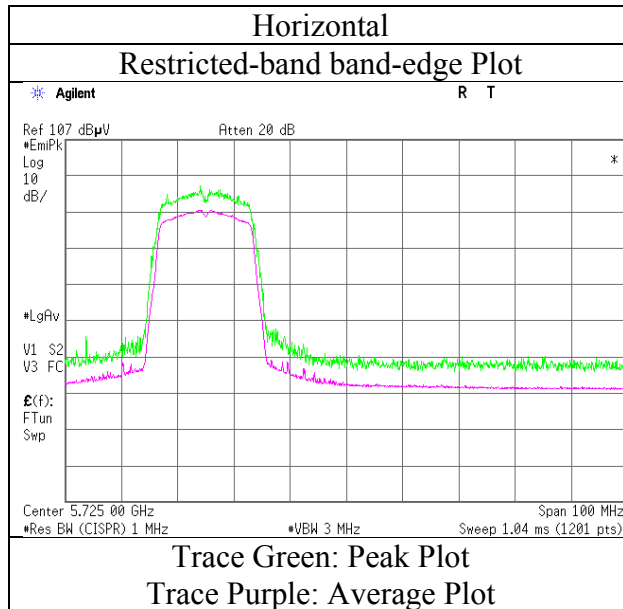
\* This mode was performed only band edges measurement.

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$

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

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11a 5700 MHz



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

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 11170944S-C-R1  
Date : March 10, 2016  
Temperature / Humidity : 25 deg. C / 35 % RH  
Engineer : Hiroyuki Morikawa  
(1-6.4 GHz)  
Mode : Tx 11a 5745 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5715.0	PK	49.9	32.6	15.8	38.8	3.2	62.7	-32.5	-27.0	5.5	182	150	
Hori.	5725.0	PK	57.0	32.6	15.8	38.8	3.2	69.8	-25.4	-17.0	8.4	182	150	
Vert.	5715.0	PK	47.8	32.6	15.8	38.8	3.2	60.6	-34.6	-27.0	7.6	194	241	
Vert.	5725.0	PK	51.4	32.6	15.8	38.8	3.2	64.2	-31.0	-17.0	14.0	194	241	

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

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

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

\* This mode was performed only band edges measurement.

Distance factor : 1 GHz - 13 GHz : 20log (4.35 m / 3.0 m) = 3.2 dB

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

**UL Japan, Inc.**

**Shonan EMC Lab.**

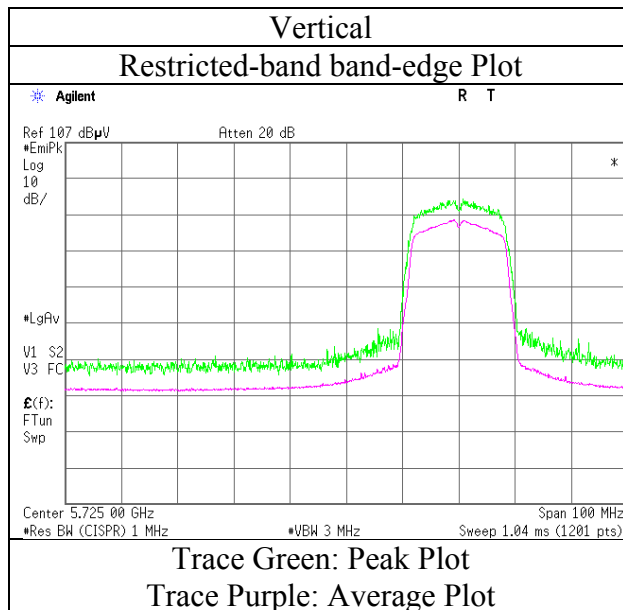
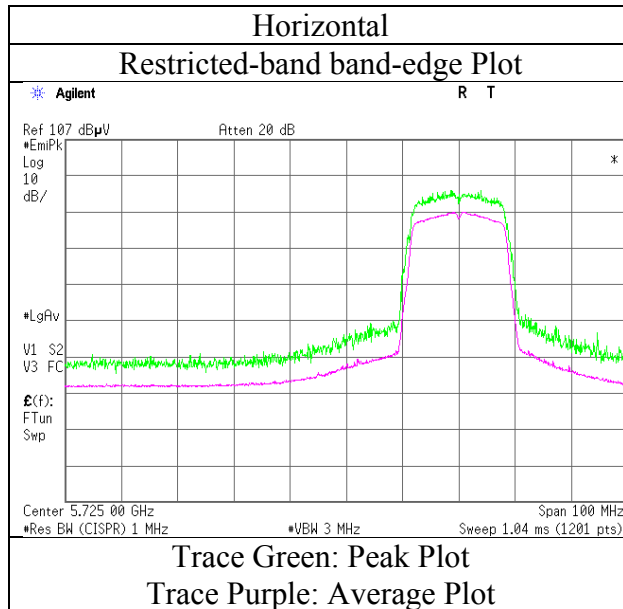
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11a 5745 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place : Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 11170944S-C-R1  
Date : March 10, 2016  
Temperature / Humidity : 25 deg. C / 35 % RH  
Engineer : Hiroyuki Morikawa  
(1-6.4 GHz)  
Mode : Tx 11a 5825 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.0	PK	51.4	32.9	15.9	38.8	3.2	64.6	-30.6	-17.0	13.6	186	150	
Hori.	5860.0	PK	45.8	32.9	15.9	38.8	3.2	59.0	-36.2	-27.0	<b>9.2</b>	186	150	
Vert.	5850.0	PK	49.8	32.9	15.9	38.8	3.2	63.0	-32.2	-17.0	15.2	137	338	
Vert.	5860.0	PK	45.6	32.9	15.9	38.8	3.2	58.8	-36.4	-27.0	9.4	137	338	

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

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

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

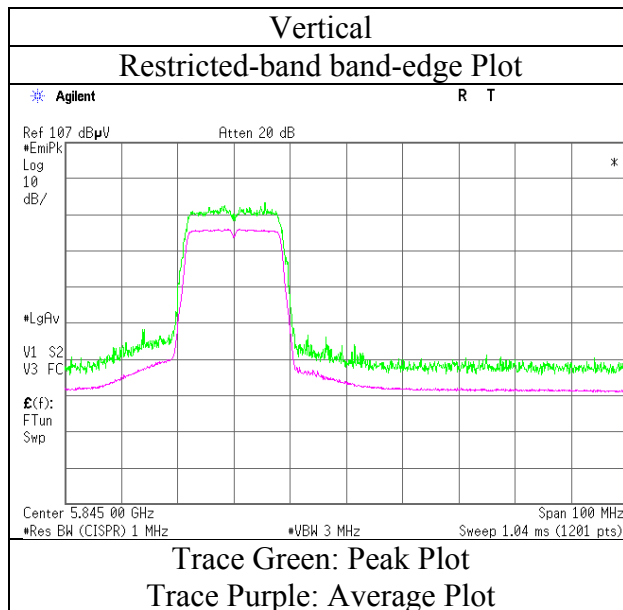
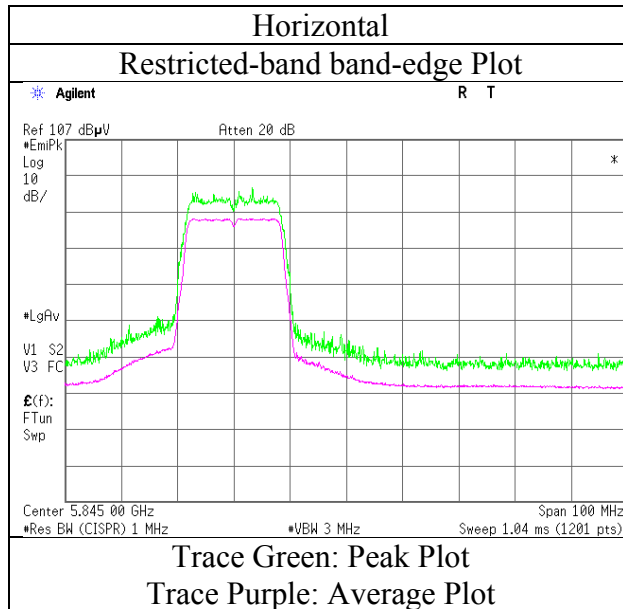
\* This mode was performed only band edges measurement.

Distance factor : 1 GHz - 13 GHz : 20log (4.35 m / 3.0 m) = 3.2 dB

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

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11a 5825 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11170944S-C-R1  
Date March 10, 2016 March 12, 2016 March 26, 2016 March 30, 2016 March 30, 2016  
Temperature / 25 deg. C / 24 deg. C / 25 deg. C / 26 deg. C / 25 deg. C /  
Humidity 35 % RH 28 % RH 31 % RH 31 % RH 37 % RH  
Engineer Wataru Kojima Shinichi Wataru Kojima Shinichi Yosuke  
Mode (1-2.8 GHz) (6.4-13 GHz) (13-18 GHz) (18-26.5 MHz) (26.5-40 GHz)  
Tx 11n-20 5180 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.0	PK	46.7	32.2	15.5	39.2	3.2	58.4	73.9	15.5	133	200	
Hori.	8288.0	PK	51.2	37.6	7.2	40.6	3.2	58.6	73.9	15.3	112	47	
Hori.	10360.0	PK	45.8	39.5	8.1	39.1	3.2	57.5	73.9	16.4	150	0	
Hori.	15540.0	PK	47.5	39.9	10.2	40.9	-9.5	47.2	73.9	26.7	100	0	
Hori.	20720.0	PK	53.8	40.3	6.7	46.1	-9.5	45.2	73.9	28.7	157	39	
Hori.	5150.0	AV	36.5	32.2	15.5	39.2	3.2	48.2	53.9	5.7	133	200	VBW:2.2 kHz
Hori.	8288.0	AV	46.3	37.6	7.2	40.6	3.2	53.7	53.9	0.2	112	47	VBW:2.2 kHz
Hori.	10360.0	AV	34.9	39.5	8.1	39.1	3.2	46.6	53.9	7.3	150	0	VBW:2.2 kHz
Hori.	15540.0	AV	37.2	39.9	10.2	40.9	-9.5	36.9	53.9	17.0	100	0	VBW:2.2 kHz
Hori.	20720.0	AV	50.2	40.3	6.7	46.1	-9.5	41.6	53.9	12.3	157	39	VBW:2.2 kHz
Vert.	5150.0	PK	46.5	32.2	15.5	39.2	3.2	58.2	73.9	15.7	156	55	
Vert.	8288.0	PK	47.4	37.6	7.2	40.6	3.2	54.8	73.9	19.1	297	105	
Vert.	10360.0	PK	44.5	39.5	8.1	39.1	3.2	56.2	73.9	17.7	150	0	
Vert.	15540.0	PK	46.9	39.9	10.2	40.9	-9.5	46.6	73.9	27.3	100	0	
Vert.	20720.0	PK	52.0	40.3	6.7	46.1	-9.5	43.4	73.9	30.5	154	15	
Vert.	5150.0	AV	36.0	32.2	15.5	39.2	3.2	47.7	53.9	6.2	156	55	VBW:2.2 kHz
Vert.	8288.0	AV	41.0	37.6	7.2	40.6	3.2	48.4	53.9	5.5	297	105	VBW:2.2 kHz
Vert.	10360.0	AV	34.6	39.5	8.1	39.1	3.2	46.3	53.9	7.6	150	0	VBW:2.2 kHz
Vert.	15540.0	AV	37.1	39.9	10.2	40.9	-9.5	36.8	53.9	17.1	100	0	VBW:2.2 kHz
Vert.	20720.0	AV	48.5	40.3	6.7	46.1	-9.5	39.9	53.9	14.0	154	15	VBW:2.2 kHz

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

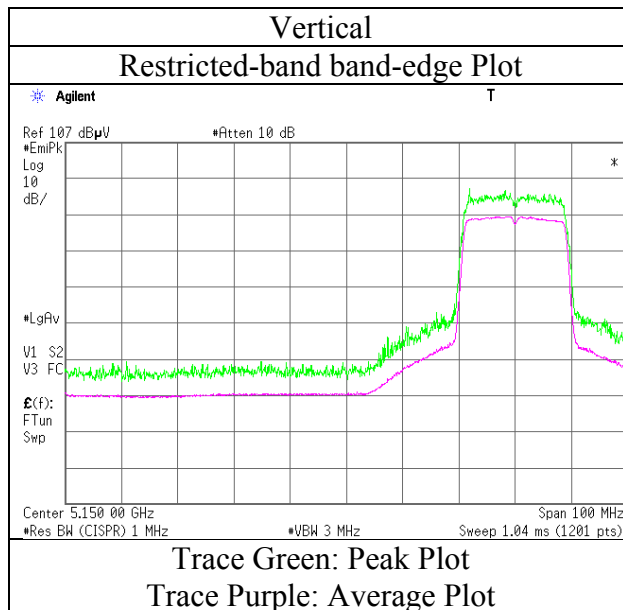
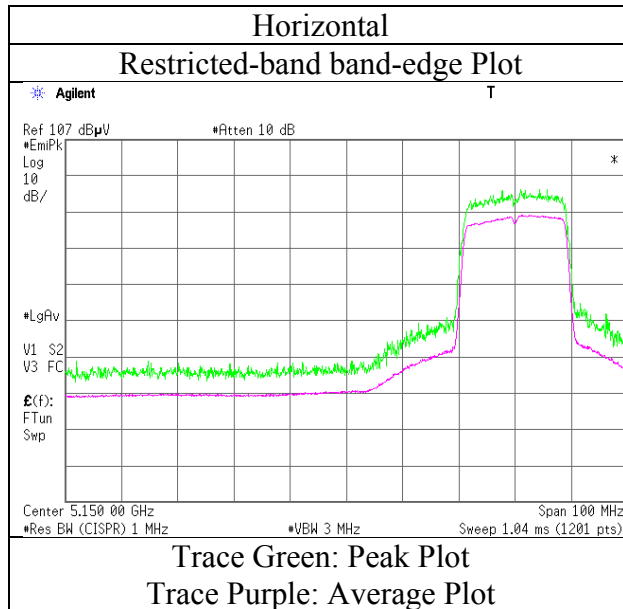
\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$



## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Wataru Kojima
Mode	Tx 11n-20 5180 MHz



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



## Radiated Spurious Emission

Test place Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11170944S-C-R1  
Date March 10, 2016 March 12, 2016 March 26, 2016 March 30, 2016 March 30, 2016  
Temperature / 25 deg. C / 24 deg. C / 25 deg. C / 26 deg. C / 25 deg. C /  
Humidity 35 % RH 28 % RH 31 % RH 31 % RH 37 % RH  
Engineer Wataru Kojima Shinichi Wataru Kojima Shinichi Yosuke  
Mode (1-2.8 GHz) (6.4-13 GHz) (13-18 GHz) (18-26.5 MHz) (26.5-40 GHz)  
Tx 11n-20 5320 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.0	PK	46.9	32.2	15.7	38.9	3.2	59.1	73.9	14.8	172	140	
Hori.	8512.0	PK	50.4	37.4	7.4	40.7	3.2	57.7	73.9	16.2	134	42	
Hori.	10640.0	PK	45.3	40.0	8.1	39.1	3.2	57.5	73.9	16.4	150	0	
Hori.	15960.0	PK	46.5	39.3	10.3	40.7	-9.5	45.9	73.9	28.0	100	0	
Hori.	21280.0	PK	55.8	40.5	6.8	46.5	-9.5	47.1	73.9	26.8	156	18	
Hori.	5350.0	AV	35.9	32.2	15.7	38.9	3.2	48.1	53.9	5.8	172	140	VBW:2.2 kHz
Hori.	8512.0	AV	44.8	37.4	7.4	40.7	3.2	52.1	53.9	1.8	134	42	VBW:2.2 kHz
Hori.	10640.0	AV	34.3	40.0	8.1	39.1	3.2	46.5	53.9	7.4	150	0	VBW:2.2 kHz
Hori.	15960.0	AV	35.4	39.3	10.3	40.7	-9.5	34.8	53.9	19.1	100	0	VBW:2.2 kHz
Hori.	21280.0	AV	52.5	40.5	6.8	46.5	-9.5	43.8	53.9	10.1	156	18	VBW:2.2 kHz
Vert.	5350.0	PK	46.7	32.2	15.7	38.9	3.2	58.9	73.9	15.0	100	79	
Vert.	8512.0	PK	47.6	37.4	7.4	40.7	3.2	54.9	73.9	19.0	291	275	
Vert.	10640.0	PK	44.9	40.0	8.1	39.1	3.2	57.1	73.9	16.8	150	0	
Vert.	15960.0	PK	46.0	39.3	10.3	40.7	-9.5	45.4	73.9	28.5	100	0	
Vert.	21280.0	PK	59.6	40.5	6.8	46.5	-9.5	50.9	73.9	23.0	154	15	
Vert.	5350.0	AV	35.6	32.2	15.7	38.9	3.2	47.8	53.9	6.1	100	79	VBW:2.2 kHz
Vert.	8512.0	AV	40.5	37.4	7.4	40.7	3.2	47.8	53.9	6.1	291	275	VBW:2.2 kHz
Vert.	10640.0	AV	34.5	40.0	8.1	39.1	3.2	46.7	53.9	7.2	150	0	VBW:2.2 kHz
Vert.	15960.0	AV	35.4	39.3	10.3	40.7	-9.5	34.8	53.9	19.1	100	0	VBW:2.2 kHz
Vert.	21280.0	AV	56.0	40.5	6.8	46.5	-9.5	47.3	53.9	6.6	154	15	VBW:2.2 kHz

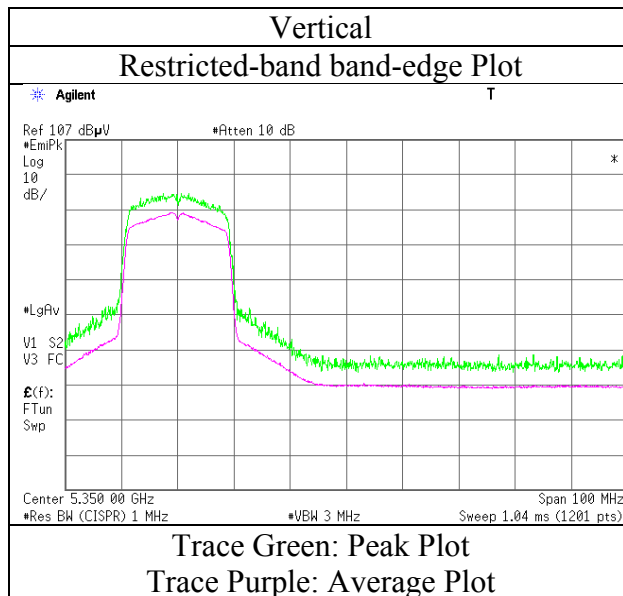
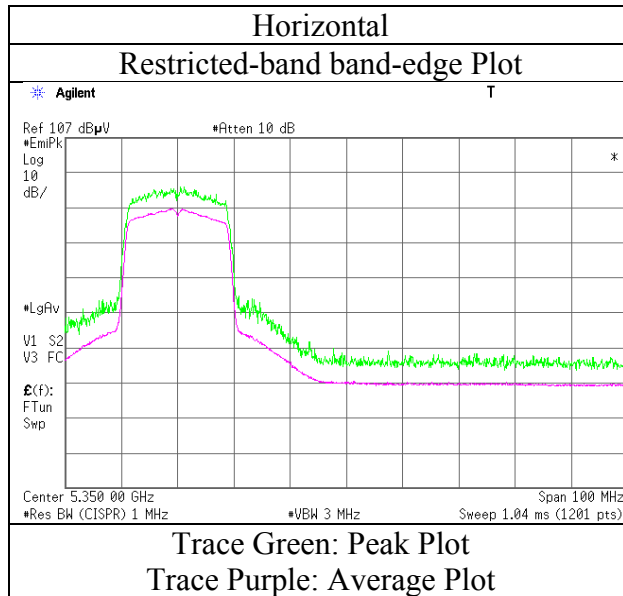
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log(4.35 m / 3.0 m) = 3.2 dB  
13 GHz - 40 GHz : 20log(1.0 m / 3.0 m) = -9.5 dB

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Wataru Kojima
Mode	Tx 11n-20 5320 MHz

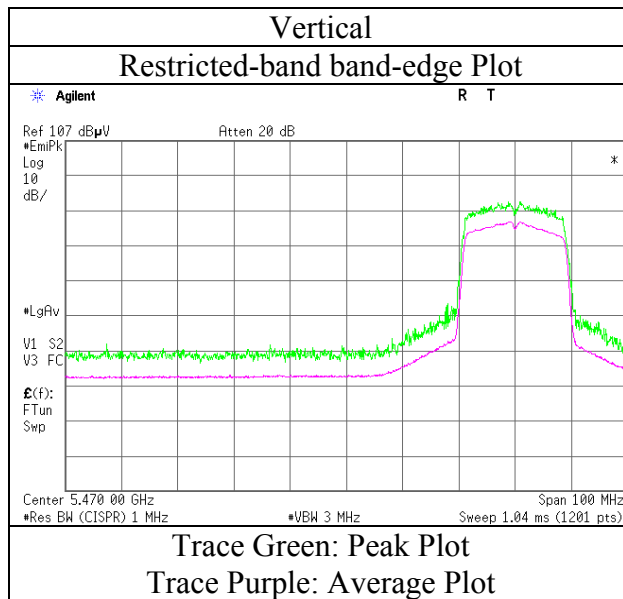
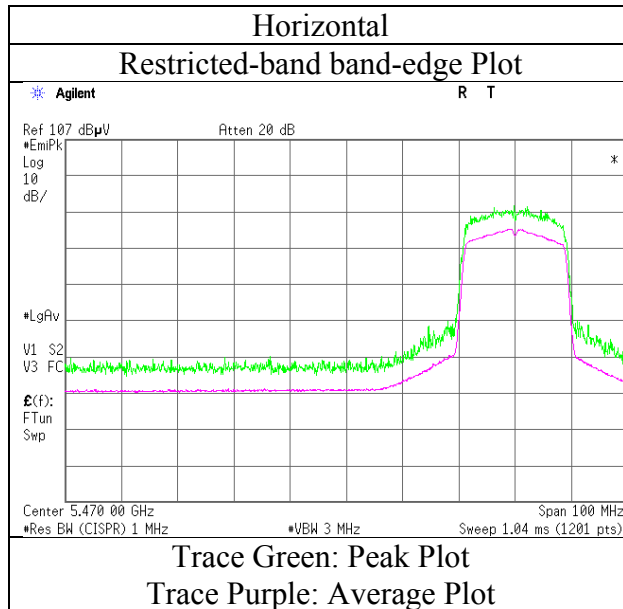


\* Final result of restricted band edge was shown in tabular data.



## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Wataru Kojima
Mode	Tx 11n-20 5500 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

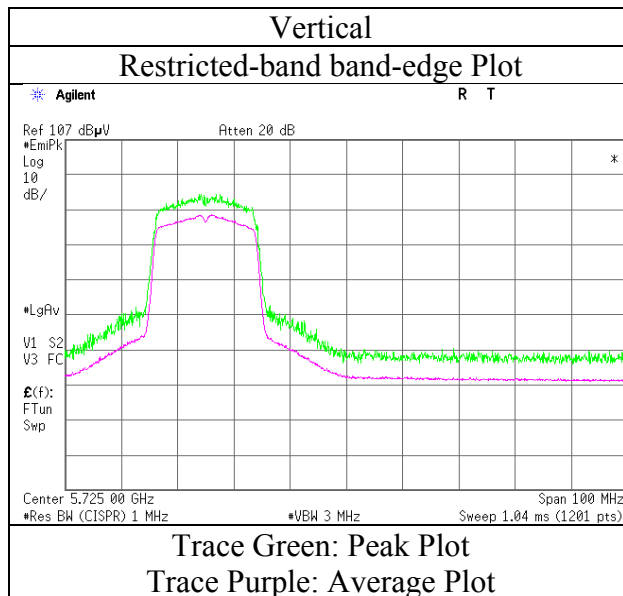
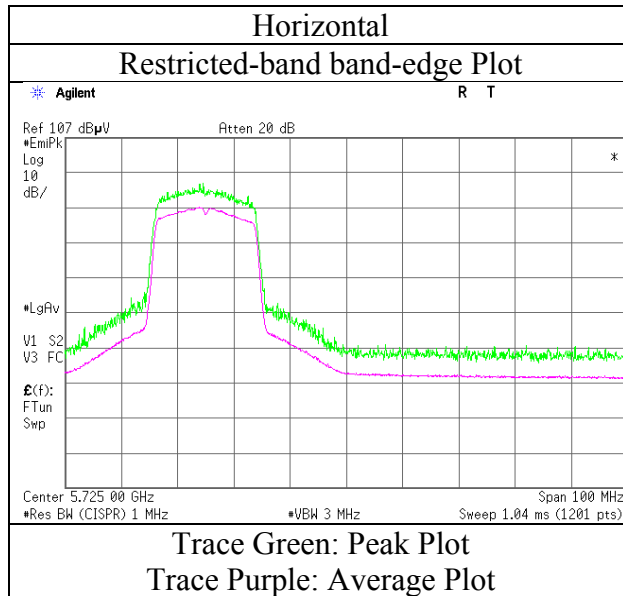






## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Wataru Kojima
Mode	Tx 11n-20 5700 MHz

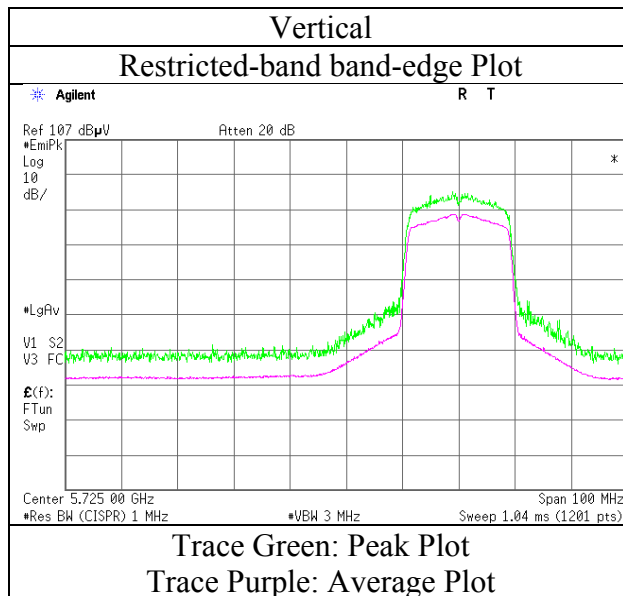
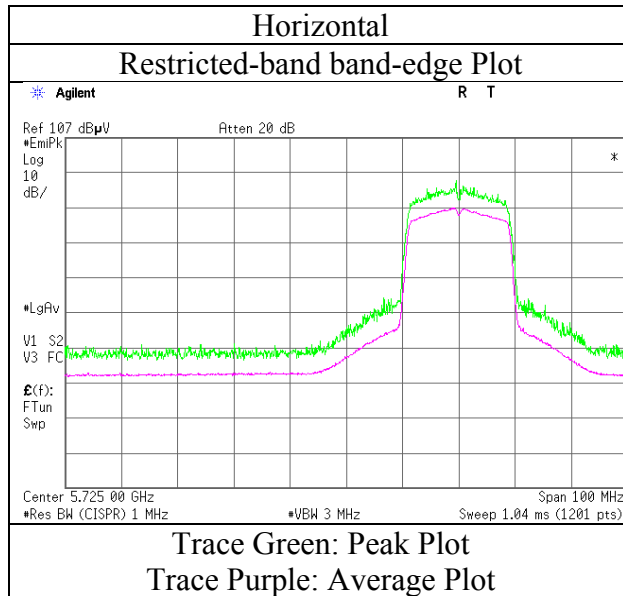


\* Final result of restricted band edge was shown in tabular data.



## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Wataru Kojima
Mode	Tx 11n-20 5745 MHz



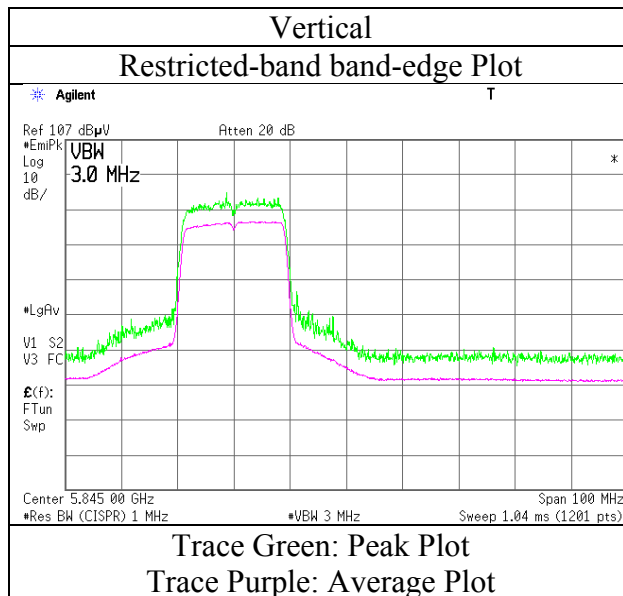
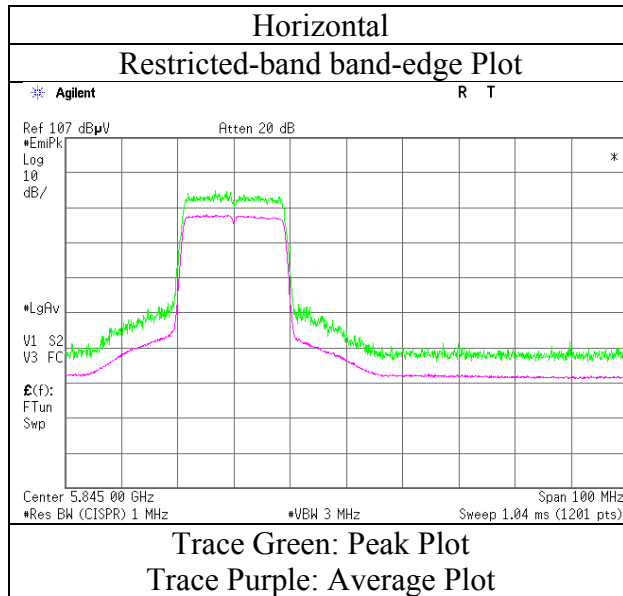
\* Final result of restricted band edge was shown in tabular data.





## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Wataru Kojima
Mode	Tx 11n-20 5825 MHz



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

## Radiated Spurious Emission

Test place Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11170944S-C-R1  
Date March 10, 2016 March 12, 2016 March 26, 2016 March 30, 2016 March 30, 2016  
Temperature / 25 deg. C / 24 deg. C / 25 deg. C / 26 deg. C / 25 deg. C /  
Humidity 35 % RH 28 % RH 31 % RH 31 % RH 37 % RH  
Engineer Hiroyuki Shinichi Wataru Kojima Shinichi Yosuke  
Morikawa Takano Takano Ishikawa  
Mode (1-2.8 GHz) (6.4-13 GHz) (13-18 GHz) (18-26.5 MHz) (26.5-40 GHz)  
Tx 11n-40 5190 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.0	PK	54.6	32.2	15.5	39.2	3.2	66.3	73.9	7.6	170	144	
Hori.	8304.0	PK	51.7	37.5	7.2	40.7	3.2	58.9	73.9	15.0	126	132	
Hori.	10380.0	PK	46.5	39.6	8.1	39.1	3.2	58.3	73.9	15.6	150	0	
Hori.	15570.0	PK	46.7	39.9	10.3	40.9	-9.5	46.5	73.9	27.4	100	0	
Hori.	20760.0	PK	52.4	40.3	6.7	46.1	-9.5	43.8	73.9	30.1	157	39	
Hori.	5150.0	AV	40.4	32.2	15.5	39.2	3.2	52.1	53.9	1.8	170	144	VBW:4.3 kHz
Hori.	8304.0	AV	46.1	37.5	7.2	40.7	3.2	53.3	53.9	0.6	126	132	VBW:4.3 kHz
Hori.	10380.0	AV	35.4	39.6	8.1	39.1	3.2	47.2	53.9	6.7	150	0	VBW:4.3 kHz
Hori.	15570.0	AV	38.0	39.9	10.3	40.9	-9.5	37.8	53.9	16.1	100	0	VBW:4.3 kHz
Hori.	20760.0	AV	47.2	40.3	6.7	46.1	-9.5	38.6	53.9	15.3	157	39	VBW:4.3 kHz
Vert.	5150.0	PK	53.6	32.2	15.5	39.2	3.2	65.3	73.9	8.6	188	64	
Vert.	8304.0	PK	49.2	37.5	7.2	40.7	3.2	56.4	73.9	17.5	398	299	
Vert.	10380.0	PK	45.2	39.6	8.1	39.1	3.2	57.0	73.9	16.9	150	0	
Vert.	15570.0	PK	46.4	39.9	10.3	40.9	-9.5	46.2	73.9	27.7	100	0	
Vert.	20760.0	PK	50.8	40.3	6.7	46.1	-9.5	42.2	73.9	31.7	155	15	
Vert.	5150.0	AV	40.9	32.2	15.5	39.2	3.2	52.6	53.9	1.3	188	64	VBW:4.3 kHz
Vert.	8304.0	AV	43.7	37.5	7.2	40.7	3.2	50.9	53.9	3.0	398	299	VBW:4.3 kHz
Vert.	10380.0	AV	35.4	39.6	8.1	39.1	3.2	47.2	53.9	6.7	150	0	VBW:4.3 kHz
Vert.	15570.0	AV	37.7	39.9	10.3	40.9	-9.5	37.5	53.9	16.4	100	0	VBW:4.3 kHz
Vert.	20760.0	AV	45.9	40.3	6.7	46.1	-9.5	37.3	53.9	16.6	155	15	VBW:4.3 kHz

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

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

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

**UL Japan, Inc.**

**Shonan EMC Lab.**

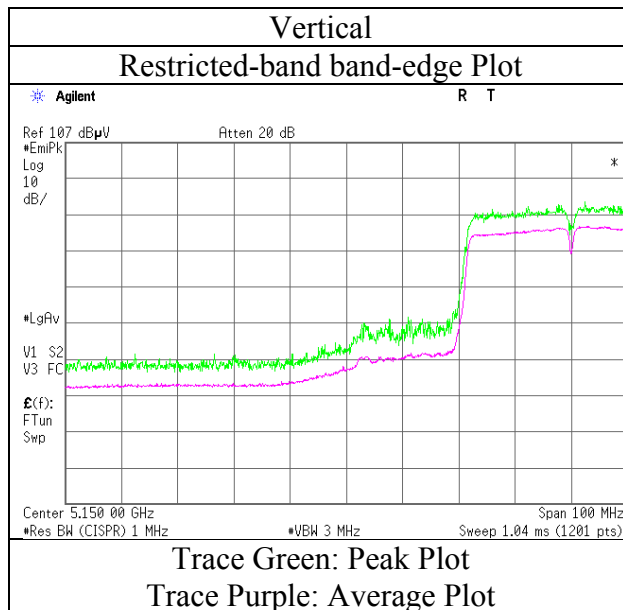
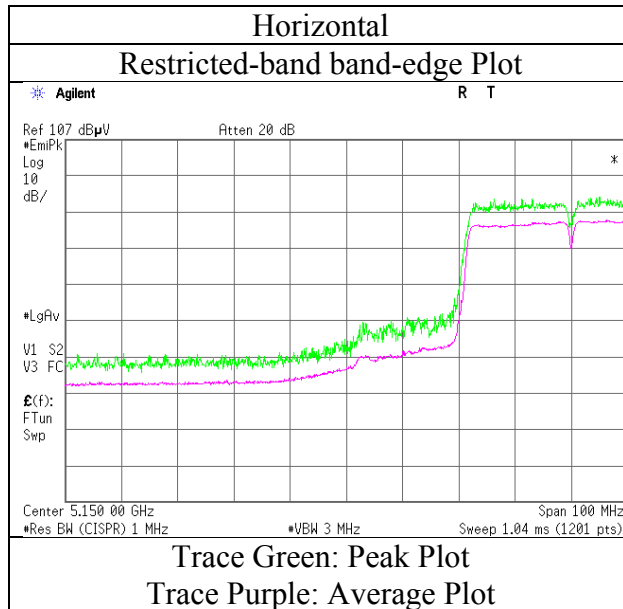
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 5190 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401



## Radiated Spurious Emission

Test place Shonan EMC Lab. No.1, 3 Semi Anechoic Chamber  
Report No. 11170944S-C-R1  
Date March 10, 2016, March 12, 2016, March 26, 2016, March 30, 2016, March 30, 2016, March 7, 2016  
Temperature / Humidity 25 deg. C / 35 % RH, 24 deg. C / 28 % RH, 25 deg. C / 31 % RH, 26 deg. C / 31 % RH, 25 deg. C / 37 % RH, 25 deg. C / 45 % RH  
Engineer Hiroyuki Morikawa, Shinichi Takano, Wataru Kojima, Shinichi Takano, Yosuke Ishikawa, Hiroyuki Morikawa  
Mode (1-2.8 GHz) (3AC), (6.4-13 GHz) (3AC), (13-18 GHz) (3AC), (18-26.5 MHz) (3AC), (26.5-40 GHz) (3AC), (30-1000 MHz) (1AC)  
Tx 11n-40 5230 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	168.3	QP	35.9	15.6	8.9	31.8	0.0	28.6	43.5	14.9	186	297	
Hori.	225.8	QP	35.3	16.7	9.4	31.7	0.0	29.7	46.0	16.3	145	5	
Hori.	639.0	QP	30.8	19.5	8.4	32.0	0.0	26.7	46.0	19.3	136	49	
Hori.	8368.0	PK	50.0	37.5	7.3	40.7	3.2	57.3	73.9	16.6	105	128	
Hori.	10460.0	PK	45.7	39.8	8.1	39.1	3.2	57.7	73.9	16.2	150	0	
Hori.	15690.0	PK	47.1	39.7	10.3	40.8	-9.5	46.8	73.9	27.1	100	0	
Hori.	20920.0	PK	51.5	40.3	6.7	46.2	-9.5	42.8	73.9	31.1	156	34	
Hori.	8368.0	AV	44.6	37.5	7.3	40.7	3.2	51.9	53.9	2.0	105	128	VBW:4.3 kHz
Hori.	10460.0	AV	36.0	39.8	8.1	39.1	3.2	48.0	53.9	5.9	150	0	VBW:4.3 kHz
Hori.	15690.0	AV	38.2	39.7	10.3	40.8	-9.5	37.9	53.9	16.0	100	0	VBW:4.3 kHz
Hori.	20920.0	AV	47.3	40.3	6.7	46.2	-9.5	38.6	53.9	15.3	156	34	VBW:4.3 kHz
Vert.	67.5	QP	48.8	6.3	7.3	31.8	0.0	30.6	40.0	9.4	100	58	
Vert.	167.9	QP	34.0	15.6	8.9	31.8	0.0	26.7	43.5	16.8	100	286	
Vert.	225.8	QP	34.7	16.7	9.4	31.7	0.0	29.1	46.0	16.9	100	124	
Vert.	8368.0	PK	48.0	37.5	7.3	40.7	3.2	55.3	73.9	18.6	349	303	
Vert.	10460.0	PK	45.9	39.8	8.1	39.1	3.2	57.9	73.9	16.0	150	0	
Vert.	15690.0	PK	46.6	39.7	10.3	40.8	-9.5	46.3	73.9	27.6	100	0	
Vert.	20920.0	PK	52.6	40.3	6.7	46.2	-9.5	43.9	73.9	30.0	155	14	
Vert.	8368.0	AV	41.2	37.5	7.3	40.7	3.2	48.5	53.9	5.4	349	303	VBW:4.3 kHz
Vert.	10460.0	AV	36.1	39.8	8.1	39.1	3.2	48.1	53.9	5.8	150	0	VBW:4.3 kHz
Vert.	15690.0	AV	37.7	39.7	10.3	40.8	-9.5	37.4	53.9	16.5	100	0	VBW:4.3 kHz
Vert.	20920.0	AV	48.2	40.3	6.7	46.2	-9.5	39.5	53.9	14.4	155	14	VBW:4.3 kHz

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

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

Distance factor : 1 GHz - 13 GHz : 20log(4.35 m / 3.0 m) = 3.2 dB  
13 GHz - 40 GHz : 20log(1.0 m / 3.0 m) = -9.5 dB

## Radiated Spurious Emission

Test place Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11170944S-C-R1  
Date March 10, 2016 March 12, 2016 March 26, 2016 March 30, 2016 March 30, 2016  
Temperature / 25 deg. C / 24 deg. C / 25 deg. C / 26 deg. C / 25 deg. C /  
Humidity 35 % RH 28 % RH 31 % RH 31 % RH 37 % RH  
Engineer Hiroyuki Shinichi Wataru Kojima Shinichi Yosuke  
Morikawa Takano Takano Ishikawa  
Mode (1-2.8 GHz) (6.4-13 GHz) (13-18 GHz) (18-26.5 MHz) (26.5-40 GHz)  
Tx 11n-40 5310 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.0	PK	51.0	32.2	15.7	38.9	3.2	63.2	73.9	10.7	210	328	
Hori.	8496.0	PK	51.3	37.4	7.4	40.7	3.2	58.6	73.9	15.3	125	131	
Hori.	10620.0	PK	45.8	40.0	8.1	39.1	3.2	58.0	73.9	15.9	150	0	
Hori.	15930.0	PK	45.2	39.3	10.3	40.7	-9.5	44.6	73.9	29.3	100	0	
Hori.	21240.0	PK	54.7	40.4	6.8	46.5	-9.5	45.9	73.9	28.0	155	19	
Hori.	5350.0	AV	40.3	32.2	15.7	38.9	3.2	52.5	53.9	1.4	210	328	VBW:4.3 kHz
Hori.	8496.0	AV	45.5	37.4	7.4	40.7	3.2	52.8	53.9	1.1	125	131	VBW:4.3 kHz
Hori.	10620.0	AV	35.3	40.0	8.1	39.1	3.2	47.5	53.9	6.4	150	0	VBW:4.3 kHz
Hori.	15930.0	AV	36.5	39.3	10.3	40.7	-9.5	35.9	53.9	18.0	100	0	VBW:4.3 kHz
Hori.	21240.0	AV	52.0	40.4	6.8	46.5	-9.5	43.2	53.9	10.7	155	19	VBW:4.3 kHz
Vert.	5350.0	PK	51.7	32.2	15.7	38.9	3.2	63.9	73.9	10.0	173	328	
Vert.	8496.0	PK	48.8	37.4	7.4	40.7	3.2	56.1	73.9	17.8	395	291	
Vert.	10620.0	PK	44.9	40.0	8.1	39.1	3.2	57.1	73.9	16.8	150	0	
Vert.	15930.0	PK	45.0	39.3	10.3	40.7	-9.5	44.4	73.9	29.5	100	0	
Vert.	21240.0	PK	58.3	40.4	6.8	46.5	-9.5	49.5	73.9	24.4	155	16	
Vert.	5350.0	AV	40.3	32.2	15.7	38.9	3.2	52.5	53.9	1.4	173	328	VBW:4.3 kHz
Vert.	8496.0	AV	42.3	37.4	7.4	40.7	3.2	49.6	53.9	4.3	395	291	VBW:4.3 kHz
Vert.	10620.0	AV	35.4	40.0	8.1	39.1	3.2	47.6	53.9	6.3	150	0	VBW:4.3 kHz
Vert.	15930.0	AV	36.1	39.3	10.3	40.7	-9.5	35.5	53.9	18.4	100	0	VBW:4.3 kHz
Vert.	21240.0	AV	55.3	40.4	6.8	46.5	-9.5	46.5	53.9	7.4	155	16	VBW:4.3 kHz

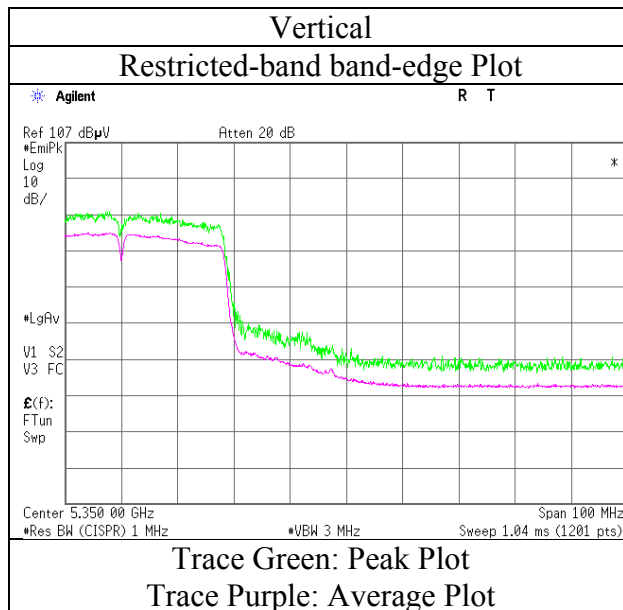
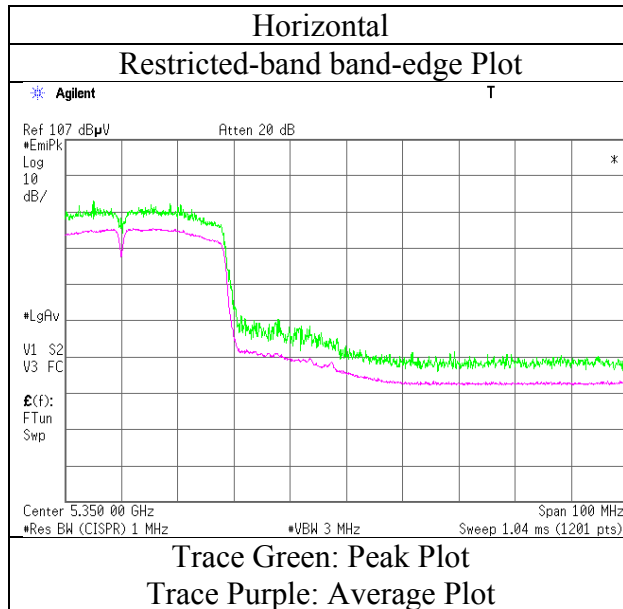
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 5310 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11170944S-C-R1  
Date March 10, 2016 March 12, 2016 March 26, 2016 March 30, 2016 March 30, 2016  
Temperature / 25 deg. C / 24 deg. C / 25 deg. C / 26 deg. C / 25 deg. C /  
Humidity 35 % RH 28 % RH 31 % RH 31 % RH 37 % RH  
Engineer Hiroyuki Shinichi Wataru Kojima Shinichi Yosuke  
Morikawa Takano Takano Ishikawa  
(1-2.8 GHz) (6.4-13 GHz) (13-18 GHz) (18-26.5 MHz) (26.5-40 GHz)  
Mode Tx 11n-40 5510 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.0	PK	48.3	32.2	15.8	38.8	3.2	60.7	73.9	13.2	172	136	
Hori.	8816.0	PK	47.2	37.7	7.5	40.4	3.2	55.2	73.9	18.7	118	45	
Hori.	11020.0	PK	45.0	40.3	8.2	39.1	3.2	57.6	73.9	16.3	150	0	
Hori.	16530.0	PK	45.1	40.3	10.5	40.4	-9.5	46.0	73.9	27.9	100	0	
Hori.	22040.0	PK	57.6	40.8	6.9	46.9	-9.5	48.9	73.9	25.0	153	51	
Hori.	5460.0	AV	37.1	32.2	15.8	38.8	3.2	49.5	53.9	4.4	172	136	VBW:4.3 kHz
Hori.	8816.0	AV	39.9	37.7	7.5	40.4	3.2	47.9	53.9	6.0	118	45	VBW:4.3 kHz
Hori.	11020.0	AV	35.0	40.3	8.2	39.1	3.2	47.6	53.9	6.3	150	0	VBW:4.3 kHz
Hori.	16530.0	AV	36.6	40.3	10.5	40.4	-9.5	37.5	53.9	16.4	100	0	VBW:4.3 kHz
Hori.	22040.0	AV	54.9	40.8	6.9	46.9	-9.5	46.2	53.9	7.7	153	51	VBW:4.3 kHz
Vert.	5460.0	PK	47.5	32.2	15.8	38.8	3.2	59.9	73.9	14.0	189	251	
Vert.	8816.0	PK	46.6	37.7	7.5	40.4	3.2	54.6	73.9	19.3	302	307	
Vert.	11020.0	PK	45.6	40.3	8.2	39.1	3.2	58.2	73.9	15.7	393	241	
Vert.	16530.0	PK	45.8	40.3	10.5	40.4	-9.5	46.7	73.9	27.2	100	0	
Vert.	22040.0	PK	60.0	40.8	6.9	46.9	-9.5	51.3	73.9	22.6	154	24	
Vert.	5460.0	AV	36.3	32.2	15.8	38.8	3.2	48.7	53.9	5.2	189	251	VBW:4.3 kHz
Vert.	8816.0	AV	37.1	37.7	7.5	40.4	3.2	45.1	53.9	8.8	302	307	VBW:4.3 kHz
Vert.	11020.0	AV	35.8	40.3	8.2	39.1	3.2	48.4	53.9	5.5	393	241	VBW:4.3 kHz
Vert.	16530.0	AV	36.7	40.3	10.5	40.4	-9.5	37.6	53.9	16.3	100	0	VBW:4.3 kHz
Vert.	22040.0	AV	57.2	40.8	6.9	46.9	-9.5	48.5	53.9	5.4	154	24	VBW:4.3 kHz

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

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

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.0	PK	53.0	32.2	15.8	38.8	3.2	65.4	-29.8	-27.0	2.8	172.0	136.0	
Vert.	5470.0	PK	52.8	32.2	15.8	38.8	3.2	65.2	-30.0	-27.0	3.0	189.0	251.0	

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

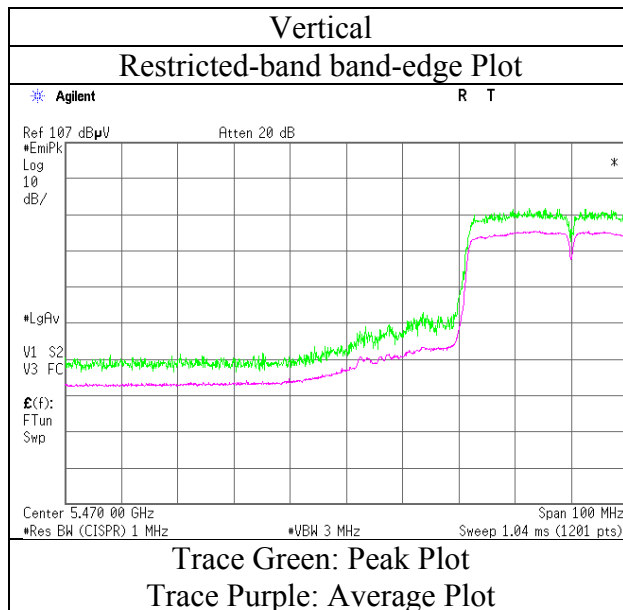
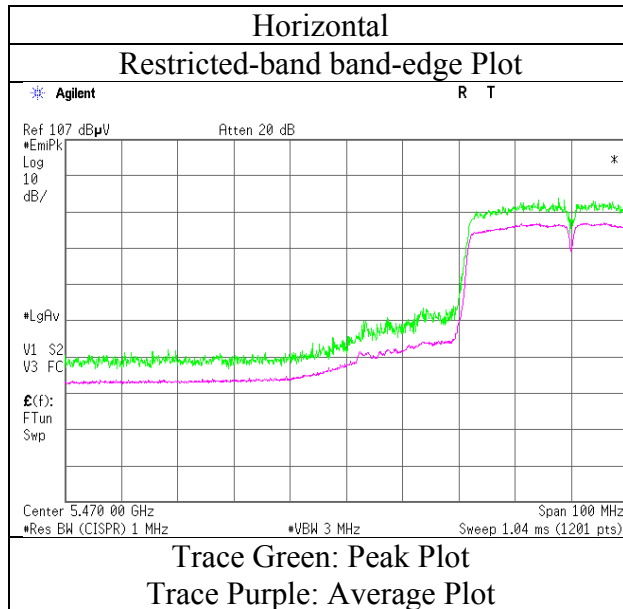
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] } ^ 2 ) / 30 ) \* 10 ^ 3

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

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$   
13 GHz - 40 GHz :  $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 5510 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place                   Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No.                   11170944S-C-R1  
Date                         March 10, 2016   March 12, 2016   March 26, 2016   March 30, 2016   March 30, 2016  
Temperature /             25 deg. C /       24 deg. C /       25 deg. C /       26 deg. C /       25 deg. C /  
Humidity                  35 % RH           28 % RH           31 % RH           31 % RH           37 % RH  
Engineer                  Hiroyuki           Shinichi           Wataru Kojima   Shinichi           Yosuke  
                                  Morikawa           Takano             Takano             Ishikawa  
                                  (1-2.8 GHz)       (6.4-13 GHz)      (13-18 GHz)      (18-26.5 MHz)   (26.5-40 GHz)  
Mode                        Tx 11n-40 5550 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	8880.0	PK	46.8	37.7	7.5	40.4	3.2	54.8	73.9	19.1	141	43	
Hori.	11100.0	PK	45.3	40.2	8.3	39.0	3.2	58.0	73.9	15.9	150	0	
Hori.	16650.0	PK	46.2	40.5	10.5	40.2	-9.5	47.5	73.9	26.4	100	0	
Hori.	22200.0	PK	57.6	40.8	6.9	47.2	-9.5	48.6	73.9	25.3	153	51	
Hori.	8880.0	AV	38.1	37.7	7.5	40.4	3.2	46.1	53.9	7.8	141	43	VBW:4.3 kHz
Hori.	11100.0	AV	35.5	40.2	8.3	39.0	3.2	48.2	53.9	5.7	150	0	VBW:4.3 kHz
Hori.	16650.0	AV	36.6	40.5	10.5	40.2	-9.5	37.9	53.9	16.0	100	0	VBW:4.3 kHz
Hori.	22200.0	AV	55.2	40.8	6.9	47.2	-9.5	46.2	53.9	7.7	153	51	VBW:4.3 kHz
Vert.	8880.0	PK	46.3	37.7	7.5	40.4	3.2	54.3	73.9	19.6	358	305	
Vert.	11100.0	PK	46.9	40.2	8.3	39.0	3.2	59.6	73.9	14.3	364	239	
Vert.	16650.0	PK	45.7	40.5	10.5	40.2	-9.5	47.0	73.9	26.9	100	0	
Vert.	22200.0	PK	60.8	40.8	6.9	47.2	-9.5	51.8	73.9	22.1	154	26	
Vert.	8880.0	AV	36.7	37.7	7.5	40.4	3.2	44.7	53.9	9.2	358	305	VBW:4.3 kHz
Vert.	11100.0	AV	36.6	40.2	8.3	39.0	3.2	49.3	53.9	4.6	364	239	VBW:4.3 kHz
Vert.	16650.0	AV	36.2	40.5	10.5	40.2	-9.5	37.5	53.9	16.4	100	0	VBW:4.3 kHz
Vert.	22200.0	AV	57.4	40.8	6.9	47.2	-9.5	48.4	53.9	5.5	154	26	VBW:4.3 kHz

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

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

Distance factor : 1 GHz - 13 GHz :  $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$

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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11170944S-C-R1  
Date March 10, 2016 March 12, 2016 March 26, 2016 March 30, 2016 March 30, 2016  
Temperature / 25 deg. C / 24 deg. C / 25 deg. C / 26 deg. C / 25 deg. C /  
Humidity 35 % RH 28 % RH 31 % RH 31 % RH 37 % RH  
Engineer Hiroyuki Shinichi Wataru Kojima Shinichi Yosuke  
Morikawa Takano Takano Ishikawa  
Mode (1-2.8 GHz) (6.4-13 GHz) (13-18 GHz) (18-26.5 MHz) (26.5-40 GHz)  
Tx 11n-40 5670 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	9072.0	PK	46.8	37.9	7.6	40.2	3.2	55.3	73.9	18.6	170	47	
Hori.	11340.0	PK	47.5	40.1	8.4	38.9	3.2	60.3	73.9	13.6	157	304	
Hori.	17010.0	PK	45.2	41.3	10.7	39.6	-9.5	48.1	73.9	25.8	100	0	
Hori.	22680.0	PK	56.7	40.9	7.0	47.8	-9.5	47.3	73.9	26.6	153	45	
Hori.	9072.0	AV	38.1	37.9	7.6	40.2	3.2	46.6	53.9	7.3	170	47	VBW:4.3 kHz
Hori.	11340.0	AV	37.8	40.1	8.4	38.9	3.2	50.6	53.9	3.3	157	304	VBW:4.3 kHz
Hori.	17010.0	AV	36.1	41.3	10.7	39.6	-9.5	39.0	53.9	14.9	100	0	VBW:4.3 kHz
Hori.	22680.0	AV	54.3	40.9	7.0	47.8	-9.5	44.9	53.9	9.0	153	45	VBW:4.3 kHz
Vert.	9072.0	PK	44.8	37.9	7.6	40.2	3.2	53.3	73.9	20.6	290	359	
Vert.	11340.0	PK	47.1	40.1	8.4	38.9	3.2	59.9	73.9	14.0	360	236	
Vert.	17010.0	PK	44.7	41.3	10.7	39.6	-9.5	47.6	73.9	26.3	100	0	
Vert.	22680.0	PK	58.9	40.9	7.0	47.8	-9.5	49.5	73.9	24.4	152	12	
Vert.	9072.0	AV	35.8	37.9	7.6	40.2	3.2	44.3	53.9	9.6	290	359	VBW:4.3 kHz
Vert.	11340.0	AV	37.9	40.1	8.4	38.9	3.2	50.7	53.9	3.2	360	236	VBW:4.3 kHz
Vert.	17010.0	AV	35.9	41.3	10.7	39.6	-9.5	38.8	53.9	15.1	100	0	VBW:4.3 kHz
Vert.	22680.0	AV	56.5	40.9	7.0	47.8	-9.5	47.1	53.9	6.8	152	12	VBW:4.3 kHz

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

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

Distance factor : 1 GHz - 13 GHz : 20log(4.35 m / 3.0 m) = 3.2 dB  
13 GHz - 40 GHz : 20log(1.0 m / 3.0 m) = -9.5 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.0	PK	45.8	32.6	15.8	38.8	3.2	58.6	-36.6	-27.0	9.6	171	356	
Vert.	5725.0	PK	45.7	32.6	15.8	38.8	3.2	58.5	-36.7	-27.0	9.7	189	22	

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

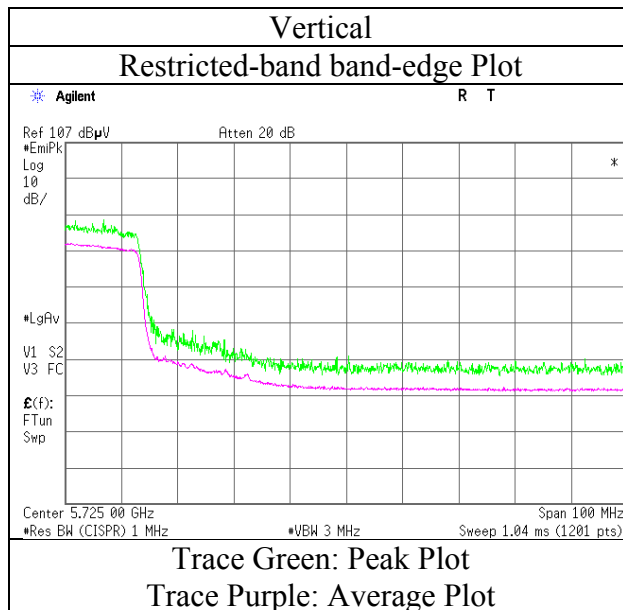
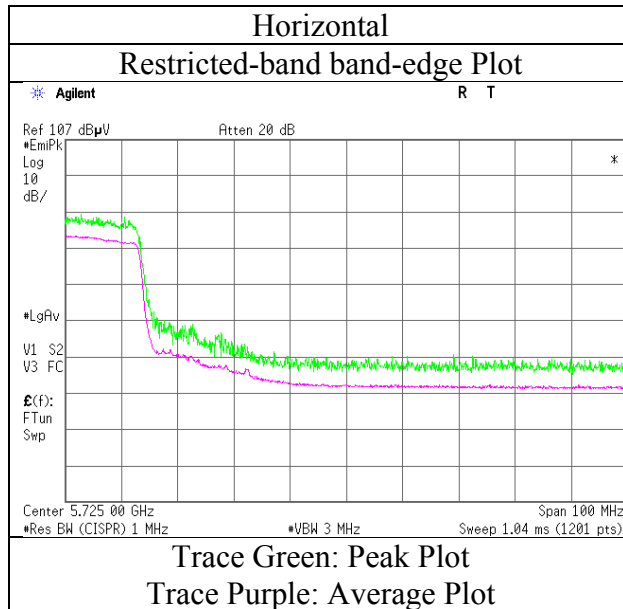
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30 ) \*10^3)

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

Distance factor : 1 GHz - 13 GHz : 20log(4.35 m / 3.0 m) = 3.2 dB  
13 GHz - 40 GHz : 20log(1.0 m / 3.0 m) = -9.5 dB

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 5670 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401



## Radiated Spurious Emission

Test place Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11170944S-C-R1  
Date March 10, 2016 March 12, 2016 March 26, 2016 March 30, 2016 March 30, 2016  
Temperature / 25 deg. C / 24 deg. C / 25 deg. C / 26 deg. C / 25 deg. C /  
Humidity 35 % RH 28 % RH 31 % RH 31 % RH 37 % RH  
Engineer Hiroyuki Shinichi Wataru Kojima Shinichi Yosuke  
Morikawa Takano Takano Ishikawa  
(1-2.8 GHz) (6.4-13 GHz) (13-18 GHz) (18-26.5 MHz) (26.5-40 GHz)  
Mode Tx 11n-40 5755 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	9208.0	PK	46.0	38.1	7.6	40.0	3.2	54.9	73.9	19.0	165	45	
Hori.	11510.0	PK	47.0	40.0	8.5	38.8	3.2	59.9	73.9	14.0	159	303	
Hori.	17265.0	PK	45.1	42.1	10.7	39.3	-9.5	49.1	73.9	24.8	100	0	
Hori.	23020.0	PK	53.2	41.0	7.1	48.0	-9.5	43.8	73.9	30.1	153	308	
Hori.	9208.0	AV	37.7	38.1	7.6	40.0	3.2	46.6	53.9	7.3	165	45	VBW:4.3 kHz
Hori.	11510.0	AV	37.6	40.0	8.5	38.8	3.2	50.5	53.9	3.4	159	303	VBW:4.3 kHz
Hori.	17265.0	AV	36.1	42.1	10.7	39.3	-9.5	40.1	53.9	13.8	100	0	VBW:4.3 kHz
Hori.	23020.0	AV	49.7	41.0	7.1	48.0	-9.5	40.3	53.9	13.6	153	308	VBW:4.3 kHz
Vert.	9208.0	PK	45.7	38.1	7.6	40.0	3.2	54.6	73.9	19.3	302	359	
Vert.	11510.0	PK	48.6	40.0	8.5	38.8	3.2	61.5	73.9	12.4	336	239	
Vert.	17265.0	PK	45.3	42.1	10.7	39.3	-9.5	49.3	73.9	24.6	100	0	
Vert.	23020.0	PK	56.9	41.0	7.1	48.0	-9.5	47.5	73.9	26.4	153	357	
Vert.	9208.0	AV	35.3	38.1	7.6	40.0	3.2	44.2	53.9	9.7	302	359	VBW:4.3 kHz
Vert.	11510.0	AV	38.2	40.0	8.5	38.8	3.2	51.1	53.9	2.8	336	239	VBW:4.3 kHz
Vert.	17265.0	AV	36.3	42.1	10.7	39.3	-9.5	40.3	53.9	13.6	100	0	VBW:4.3 kHz
Vert.	23020.0	AV	53.6	41.0	7.1	48.0	-9.5	44.2	53.9	9.7	153	357	VBW:4.3 kHz

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

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

Distance factor : 1 GHz - 13 GHz : 20log (4.35 m / 3.0 m) = 3.2 dB  
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5715.0	PK	52.4	32.6	15.8	38.8	3.2	65.2	-30.0	-27.0	3.0	170	355	
Hori.	5725.0	PK	54.7	32.6	15.8	38.8	3.2	67.5	-27.7	-17.0	10.7	170	355	
Vert.	5715.0	PK	52.2	32.6	15.8	38.8	3.2	65.0	-30.2	-27.0	3.2	152	168	
Vert.	5725.0	PK	57.1	32.6	15.8	38.8	3.2	69.9	-25.3	-17.0	8.3	152	168	

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

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

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

Distance factor : 1 GHz - 13 GHz : 20log (4.35 m / 3.0 m) = 3.2 dB  
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

**UL Japan, Inc.**

**Shonan EMC Lab.**

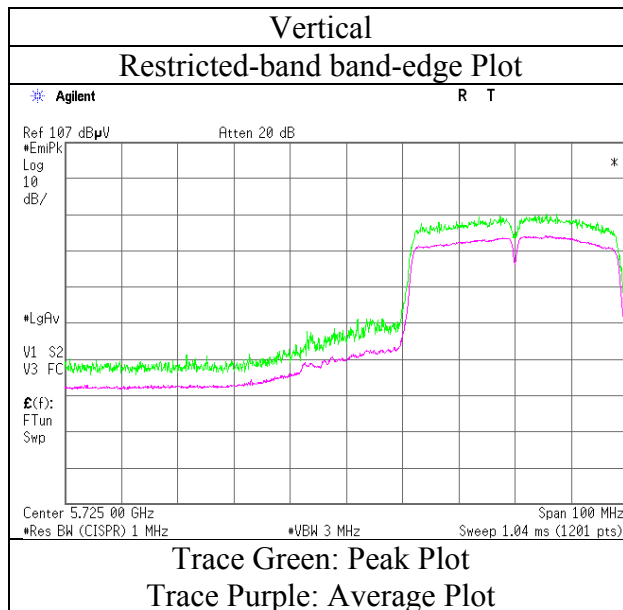
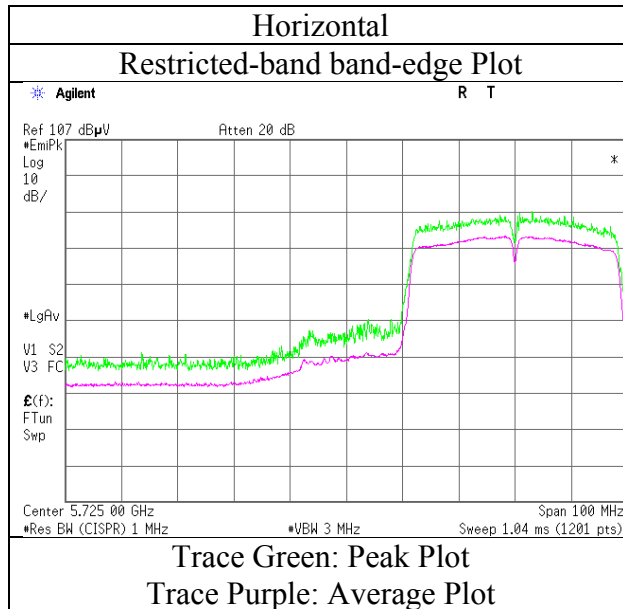
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 5755 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place Shonan EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 11170944S-C-R1  
Date March 10, 2016 March 12, 2016 March 26, 2016 March 30, 2016 March 30, 2016  
Temperature / 25 deg. C / 24 deg. C / 25 deg. C / 26 deg. C / 25 deg. C /  
Humidity 35 % RH 28 % RH 31 % RH 31 % RH 37 % RH  
Engineer Hiroyuki Shinichi Wataru Kojima Shinichi Yosuke  
Morikawa Takano Takano Ishikawa  
(1-2.8 GHz) (6.4-13 GHz) (13-18 GHz) (18-26.5 MHz) (26.5-40 GHz)  
Mode Tx 11n-40 5795 MHz

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	9272.0	PK	46.3	38.2	7.7	40.0	3.2	55.4	73.9	18.5	191	52	
Hori.	11590.0	PK	48.8	39.9	8.5	38.9	3.2	61.5	73.9	12.4	142	304	
Hori.	17385.0	PK	44.7	42.5	10.7	39.2	-9.5	49.2	73.9	24.7	100	0	
Hori.	23180.0	PK	53.7	41.0	7.1	48.1	-9.5	44.2	73.9	29.7	155	39	
Hori.	9272.0	AV	37.1	38.2	7.7	40.0	3.2	46.2	53.9	7.7	191	52	VBW:4.3 kHz
Hori.	11590.0	AV	38.5	39.9	8.5	38.9	3.2	51.2	53.9	2.7	142	304	VBW:4.3 kHz
Hori.	17385.0	AV	36.3	42.5	10.7	39.2	-9.5	40.8	53.9	13.1	100	0	VBW:4.3 kHz
Hori.	23180.0	AV	49.6	41.0	7.1	48.1	-9.5	40.1	53.9	13.8	155	39	VBW:4.3 kHz
Vert.	9272.0	PK	44.6	38.2	7.7	40.0	3.2	53.7	73.9	20.2	309	359	
Vert.	11590.0	PK	48.8	39.9	8.5	38.9	3.2	61.5	73.9	12.4	367	118	
Vert.	17385.0	PK	44.4	42.5	10.7	39.2	-9.5	48.9	73.9	25.0	100	0	
Vert.	23180.0	PK	57.4	41.0	7.1	48.1	-9.5	47.9	73.9	26.0	154	359	
Vert.	9272.0	AV	35.2	38.2	7.7	40.0	3.2	44.3	53.9	9.6	309	359	VBW:4.3 kHz
Vert.	11590.0	AV	38.9	39.9	8.5	38.9	3.2	51.6	53.9	2.3	367	118	VBW:4.3 kHz
Vert.	17385.0	AV	36.1	42.5	10.7	39.2	-9.5	40.6	53.9	13.3	100	0	VBW:4.3 kHz
Vert.	23180.0	AV	54.1	41.0	7.1	48.1	-9.5	44.6	53.9	9.3	154	359	VBW:4.3 kHz

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

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

Distance factor : 1 GHz - 13 GHz : 20log(4.35 m / 3.0 m) = 3.2 dB  
13 GHz - 40 GHz : 20log(1.0 m / 3.0 m) = -9.5 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.0	PK	46.2	32.9	15.9	38.8	3.2	59.4	-35.8	-17.0	18.8	165	151	
Hori.	5860.0	PK	46.1	32.9	15.9	38.8	3.2	59.3	-35.9	-27.0	8.9	165	151	
Vert.	5850.0	PK	44.8	32.9	15.9	38.8	3.2	58.0	-37.2	-17.0	20.2	171	295	
Vert.	5860.0	PK	44.4	32.9	15.9	38.8	3.2	57.6	-37.6	-27.0	10.6	171	295	

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

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

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

Distance factor : 1 GHz - 13 GHz : 20log(4.35 m / 3.0 m) = 3.2 dB  
13 GHz - 40 GHz : 20log(1.0 m / 3.0 m) = -9.5 dB

**UL Japan, Inc.**

**Shonan EMC Lab.**

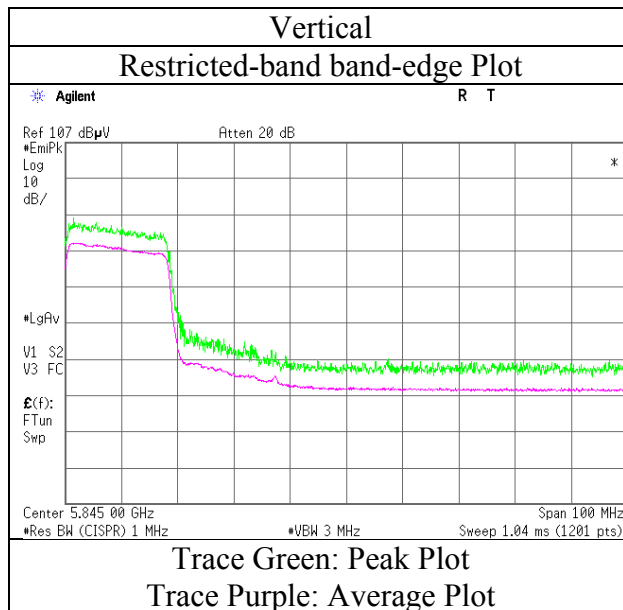
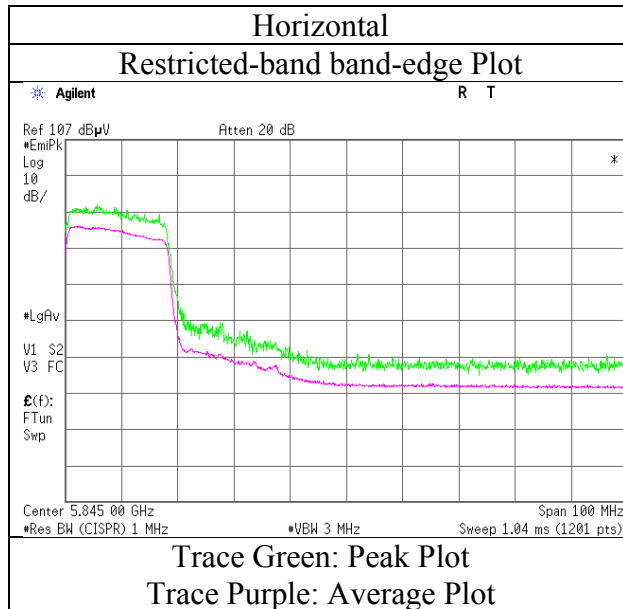
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11170944S-C-R1
Date	March 10, 2016
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 5795 MHz



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

**UL Japan, Inc.**

**Shonan EMC Lab.**

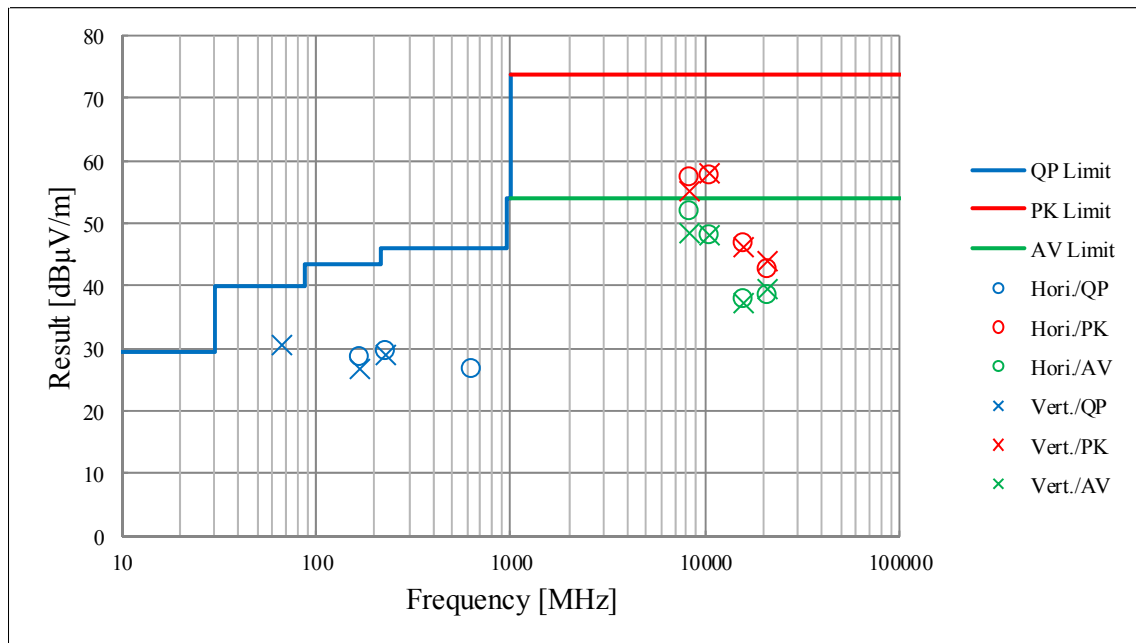
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber					Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11170944S-C-R1					
Date	March 10, 2016	March 12, 2016	March 26, 2016	March 30, 2016	March 30, 2016	March 7, 2016
Temperature / Humidity	25 deg. C / 35 % RH	24 deg. C / 28 % RH	25 deg. C / 31 % RH	26 deg. C / 31 % RH	25 deg. C / 37 % RH	25 deg. C / 45 % RH
Engineer	Hiroyuki Morikawa	Shinichi Takano	Wataru Kojima	Shinichi Takano	Yosuke Ishikawa	Hiroyuki Morikawa
Mode	(1-2.8 GHz) (6.4-13 GHz)		(13-18 GHz)	(18-26.5 MHz)	(26.5-40 GHz)	(30-1000 MHz)



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

## **APPENDIX 2: Test instruments**

### **Test equipment**

<b>Control No.</b>	<b>Instrument</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Serial No</b>	<b>Test Item</b>	<b>Calibration Date * Interval(month)</b>
SAF-01	Pre Amplifier	SONOMA	310N	290211	RE	2016/02/19 * 12
KAT6-04	Attenuator	INMET	18N-6dB	-	RE	2015/12/18 * 12
SAT3-09	Attenuator	JFW	50HF-003N	-	RE	2015/08/31 * 12
SBA-01	Biconical Antenna	Schwarzbeck	BBA9106	91032664	RE	2015/10/11 * 12
SCC-A1/A3/A5/A7/A8/A13/SRSE-01	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-269(R F Selector)	RE	2015/04/17 * 12
SCC-A2/A4/A6/A7/A8/A13/SRSE-01	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-269(R F Selector)	RE	2015/04/17 * 12
SLA-01	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0888	RE	2015/10/11 * 12
SOS-01	Humidity Indicator	A&D	AD-5681	4062555	RE	2015/10/22 * 12
STR-01	Test Receiver	Rohde & Schwarz	ESU40	100093	RE	2015/11/06 * 12
SJM-16	Measure	ASKUL	-	-	RE	-
SAEC-01(NSA)	Semi-Anechoic Chamber	TDK	SAEC-01(NSA)	1	RE	2015/07/13 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE, CE,RFI,MF)	-	RE	-
STS-01	Digital Hitester	Hioki	3805-50	080997812	RE	2015/11/18 * 12
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2015/05/27 * 12
SCC-G04	Coaxial Cable	Junkosha	J12J102207-00	JUN-12-14-018	RE	2015/06/08 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2015/05/19 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2015/08/11 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2015/10/22 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	RE	2015/09/16 * 12
SJM-15	Measure	ASKUL	-	-	RE	-
SAEC-03(SVSWR)	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	RE	2015/08/28 * 12
STS-03	Digital Hitester	Hioki	3805-50	080997823	RE	2015/11/18 * 12
SAT10-05	Attenuator(above1GHz)	Agilent	8493C-010	74864	RE	2015/11/04 * 12
SFL-03	Highpass Filter	MICRO-TRONICS	HPM50112	028	RE	2015/11/16 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE	2016/03/23 * 12
SHA-05	Horn Antenna	ETS LINDGREN	3160-09	LM4210	RE	2015/03/17 * 12
SAF-09	Pre Amplifier	TOYO Corporation	HAP18-26W	00000018	RE	2015/09/07 * 12
SCC-G20	Coaxial Cable	Junkosha	J12J102518-00	APR-15-15-003	RE	2015/04/30 * 12
SHA-06	Horn Antenna	ETS LINDGREN	3160-10	LM3459	RE	2015/03/17 * 12
SAF-10	Pre Amplifier	TOYO Corporation	HAP26-40W	00000010	RE	2015/03/23 * 12
SCC-G19	Coaxial Cable	Suhner	SUCOFLEX 102A	1188/2A	RE	2016/03/08 * 12
SCC-G33	Coaxial Cable	Junkosha	MWX241-01000 KMSKMS	-	RE	2015/04/09 * 12

**The expiration date of the calibration is the end of the expired month.**

**All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.**

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

**Test Item: RE: Radiated Emission**

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401