



# RADIO TEST REPORT

**Test Report No. : 11922904M-A-R2**

**Applicant** : PIONEER CORPORATION  
**Type of Equipment** : MULTIMEDIA NAVIGATION RECEIVER  
**Model No.** : AVIC-W8400NEX  
**FCC ID** : AJDK103  
**Test regulation** : FCC Part 15 Subpart C: 2017  
(\*Bluetooth part)  
**Test items** : Radiated emission tests  
**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 11922904M-A-R1. 11922904M-A-R1 is replaced with this report.

**Date of test:** August 27 – 29, 2017

**Representative test operator:**

Kazuhiro Ando  
Engineer  
Consumer Technology Division

**Approved by :**

Tomoyuki Yamashita  
Engineer  
Consumer Technology Division



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

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## REVISION HISTORY

**Original Test Report No.: 11922904M-A**

Revision	Test report No.	Date	Page revised	Contents
- (Original)	11922904M-A	October 6, 2017	-	-
1	11922904M-A-R1	October 13, 2017	P.5	Modification of the frequency of operation
2	11922904M-A-R2	December 4, 2017	P.4	Modification of the Clock frequency
2	11922904M-A-R2	December 4, 2017	P.5	Update of the Radio specification

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## **SECTION 1: Customer information**

Company Name : PIONEER CORPORATION  
Address : 25-1, Yamada, Kawagoe-shi, Saitama, 350-8555, Japan  
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Contact Person : Hiroshi Fuse

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

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

Type of Equipment : MULTIMEDIA NAVIGATION RECEIVER  
Model No. : AVIC-W8400NEX  
Serial No. : Refer to Section 4, Clause 4.2  
Rating : DC 14.4 V  
Receipt Date of Sample : August 23, 2017  
Country of Mass-production : Thailand  
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**

#### **General Specification**

Model: AVIC-W8400NEX (referred to as the EUT in this report) is a MULTIMEDIA NAVIGATION RECEIVER.

Clock frequency(ies) in the system : Bluetooth Wi-Fi module 37.4 MHz  
LPO clock for Bluetooth Wi-Fi module 32.768 kHz  
DC-DCCONVERTER 1000 kHz/ 700.5 kHz, 2.29 MHz, 2.17 MHz,  
767.25 kHz/ 699.05 kHz, 767.25 kHz/ 699.05 kHz, 436.907 kHz/  
383.625 kHz, 436.907 kHz/ 383.625 kHz  
FM/AM TUNER 9.216 MHz (VCO: 5.9904 GHz/ 6.2208 GHz)  
TMC TUNER 9.216 MHz (VCO: 5.9904 GHz/ 6.2208 GHz)  
MAIN PROCESSER 24 MHz, 32.768 kHz, 11.2896 MHz  
SYSTEM MICRO COMPUTER 3.93216 MHz  
DVD DRIVER 27 MHz, 121.5 MHz, 36.864 MHz/ 33.8688 MHz  
LCD BACK LIGHT 436.907 kHz/ 383.625 kHz  
ELECTRONIC VOLUME 18.432 MHz FPGA 14.7456 MHz  
ECHO CANCELLER 12.288 MHz  
HDMI RECEIVER 27 MHz  
DISPLAY CONTROLLER 32 MHz  
VIDEO RECORDER 32 MHz  
MICRO COMPUTER 10 MHz  
WWR UNIT 24 MHz  
GPS 26 MHz

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**Radio Specification**

Radio Type : Transceiver  
Frequency of Operation : 2.4 GHz: 2402 MHz -2480 MHz (Bluetooth BDR/EDR)  
2412 MHz -2462 MHz (IEEE 802.11b/g/n)  
W58: 5745MHz - 5825 MHz (IEEE 802.11a/n)  
5755 MHz - 5795 MHz (IEEE 802.11n/ac)  
5775 MHz (IEEE 802.11ac)  
Modulation : DSSS (IEEE 802.11b), OFDM (IEEE 802.11g/n/a/ac)  
FHSS (Bluetooth BDR/EDR)  
Power Supply (inner) : DC 3.3 V/1.8 V  
Antenna type : Monopole Antenna  
Antenna Gain : 2.4 GHz: -8.0 dBi (Bluetooth BDR/EDR)  
-4.7 dBi (Wireless LAN)  
5 GHz: -3.0 dBi  
Operating Temperature : -10 deg. C to +60 deg. C

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

### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart C  
FCC Part 15 final revised on September 20, 2017 and effective October 20, 2017

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators  
Section 15.207 Conducted limits  
Section 15.247 Operation within the bands 902-928MHz,  
2400-2483.5MHz, and 5725-5850MHz

\* The revision on September 20, 2017, 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 6. Standard test methods IC: RSS-Gen 8.8	FCC: Section 15.207 IC: RSS-Gen 8.8	-	N/A *1)	-
Carrier Frequency Separation	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1) IC: RSS-247 5.1 (b)		N/A *2)	Conducted
20dB Bandwidth	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1) IC: RSS-247 5.1 (a)		N/A *2)	Conducted
Number of Hopping Frequency	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1)(iii) IC: RSS-247 5.1 (d)	-	N/A *2)	Conducted
Dwell time	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1)(iii) IC: RSS-247 5.1 (d)		N/A *2)	Conducted
Maximum Peak Output Power	FCC: FCC Public Notice DA 00-705 IC: RSS-Gen 6.12	FCC: Section15.247(a)(b)(1) IC: RSS-247 5.4 (b)		N/A *2)	Conducted
Spurious Emission & Band Edge Compliance	FCC: FCC Public Notice DA 00-705 IC: RSS-Gen 6.13	FCC: Section15.247(d) IC: RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10	3.5 dB 458.996 MHz, QP, Hori.	Complied	Conducted/ Radiated (above 30 MHz) *3)

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

\*1) The test is not applicable since the EUT does not have AC power ports.

\*2) For other than the Radiated spurious emission tests, refer to test report No 11922902S-A-R2.

\*3) Radiated test was selected over 30 MHz based on section 15.247(d).

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

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

This EUT provides stable voltage (DC 3.3 V / 1.8 V) constantly to the wireless transmitter regardless of input voltage. Instead of a new battery, DC power supply was used for the test. That does not affect the test result, Therefore this EUT complies with the requirement.

#### **FCC Part 15.203 Antenna requirement**

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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### 3.3 Addition to standard

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  $k=2$ .

Item	Frequency range	Uncertainty (+/-)
Radiated emission (Measurement distance: 3 m)	30 MHz - 200 MHz	4.5 dB
	200 MHz - 1 GHz	5.8 dB
	1 GHz - 6 GHz	5.1 dB
	6 GHz - 18 GHz	5.4 dB
Radiated emission (Measurement distance: 1 m)	18 GHz - 26.5 GHz	5.4 dB

#### Radiated emission test

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

### 3.5 Test Location

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JAB Accreditation No. : RTL02610

Test site	ISED Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Open site	4659A-1	6.0 x 5.5 x 2.5	20 x 40	10 m
No.2 Open site	4659A-2	4.4 x 4.4 x 2.15	18 x 20	10 m
No.5 Open site	4659A-5	8.6 x 7.1 x 2.4	18 x 23	10 m
No.1 Shielded room	4659A-1	5.4 x 4.5 x 2.3	-	-
No.2 Shielded room	4659A-2	3.6 x 2.7 x 2.3	-	-
No.3 Shielded room	-	5.4 x 3.6 x 2.3	-	-
No.4 Shielded Room	-	6.1 x 6.1 x 3.1	-	-
No.5 Shielded Room	4659A-5	4.2 x 3.1 x 2.5	-	-
No.3 Fully Anechoic Chamber	-	7.0 x 3.5 x 3.5	-	-
No.6 Semi-anechoic Chamber	4659A-6	8.5 x 5.5 x 5.2	-	3 m
No.10 Semi-anechoic Chamber	4659A-10	18.4 x 9.9 x 7.7	-	10 m
No.11 Semi-anechoic Chamber	4659A-7	9.0 x 6.5 x 5.2	-	3 m
No.1 Measurement room	-	5.0 x 3.7 x 2.6	-	-
No.2 Measurement room	-	4.3 x 4.4 x 2.7	-	-
No.3 Measurement room	-	4.3 x 4.4 x 2.7	-	-

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

Refer to APPENDIX.

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

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

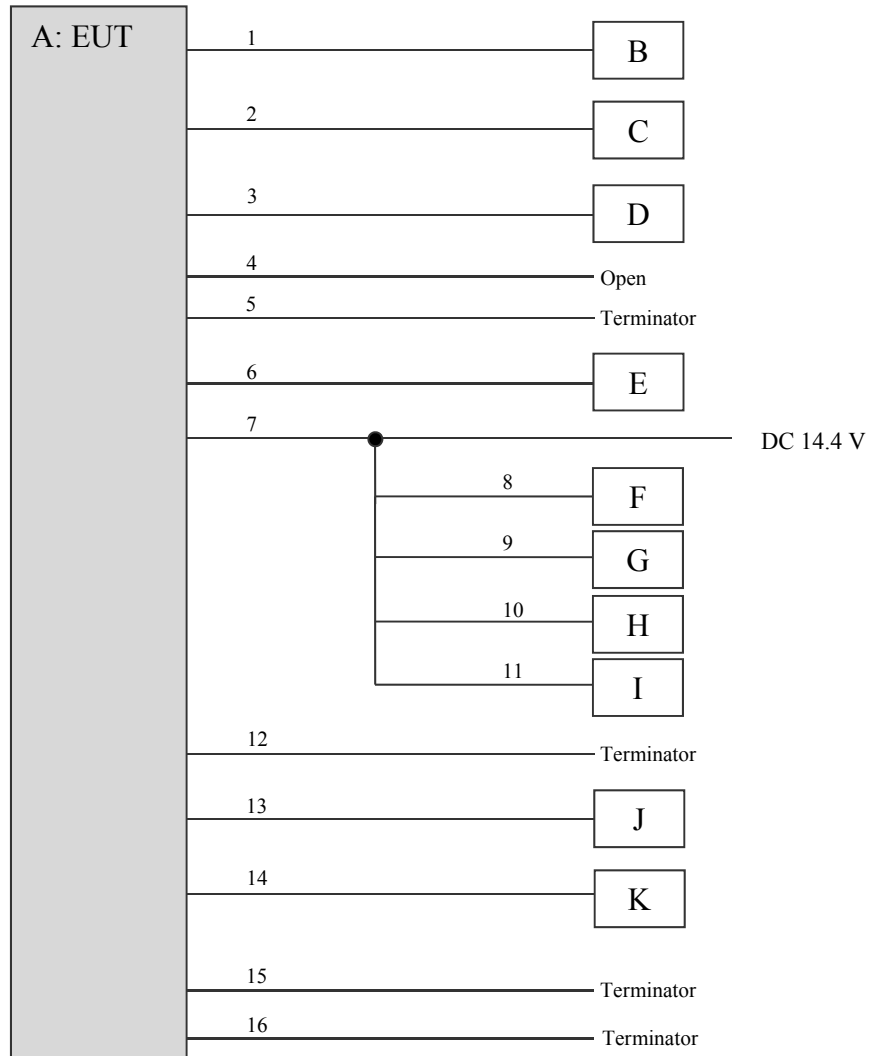
Bluetooth (BT): Transmitting (Tx), Payload: PRBS9

Details of Operating Mode(s)

<b>Test Item</b>	<b>Mode</b>	<b>Tested frequency</b>
Spurious Emission (Radiated)	Tx (Hopping Off) DH5, 3DH5	2402 MHz 2441 MHz 2480 MHz
<p>*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload length</p> <p>*2DH mode (2Mb/s EDR: pi/4DQPSK) was excluded for other tests than power measurement by using 3DH mode (3 Mb/s EDR: 8DPSK) as a representative.</p> <p>* It is considered that the non-tested packet type (e.g. inquiry) can be omitted as it is complied with above all test items based on Bluetooth Core specification.</p> <p>*EUT has the power settings by the software as follows; Power settings: Fixed Software: SoC: Ver0.041100 System uCom: Ver7.07</p> <p>*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.</p>		



## 4.2 Configuration and peripherals



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

**Description of EUT and Support equipment**

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	MULTIMEDIA NAVIGATION RECEIVER	AVIC-W8400NEX	QFTM000025UC	PIONEER	EUT
B	GPS Antenna	CXE5736	-	QFN	-
C	USB Memory	RUF2-HSCLTVA5	P0000015377	BUFFALO	-
D	USB Memory	RUF2-HSCLTVA5	P0000015378	BUFFALO	-
E	Mic	-	-	-	-
F	Speaker	KFC-RS101	-	KENWOOD	-
G	Speaker	KFC-RS101	-	KENWOOD	-
H	Speaker	KFC-RS101	-	KENWOOD	-
I	Speaker	KFC-RS101	-	KENWOOD	-
J	Smartphone	SO-01C	-	Sony Ericsson	-
K	Vehicle Tuner	SXV200	-	SiriusXM	-

**List of cables used**

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	GPS Antenna	3.5	Unshielded	Unshielded	-
2	USB	1.5	Shielded	Shielded	-
3	USB	1.5	Shielded	Shielded	-
4	Steering Wheel Control	1.0	Unshielded	Unshielded	-
5	R. Audio Out	1.3	Unshielded	Unshielded	-
6	Mic	3.0	Unshielded	Unshielded	-
7	Wire Harness Set (DC)	0.4 + 1.5	Unshielded	Unshielded	-
8	Speaker	0.2 + 1.0	Unshielded	Unshielded	-
9	Speaker	0.2 + 1.0	Unshielded	Unshielded	-
10	Speaker	0.2 + 1.0	Unshielded	Unshielded	-
11	Speaker	0.2 + 1.0	Unshielded	Unshielded	-
12	iDATA	1.6	Unshielded	Unshielded	-
13	HDMI	2.0	Shielded	Shielded	-
14	Vehicle Tuner	0.65	Shielded	Shielded	-
15	Wire Harness Set	0.2 + 1.5	Unshielded	Unshielded	-
16	FM Antenna	2.0	Shielded	Shielded	-

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## **SECTION 5: Radiated Spurious Emission**

### **Test Procedure**

[For below 1 GHz]

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 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.

[For 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.

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

Frequency	30 MHz to 1 GHz	Above 1 GHz
Antenna Type	Hybrid	Horn

In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

### **20 dBc was applied to the frequency over the limit of FCC 15.209 / Table 4 of RSS-Gen 8.9 (IC) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (IC).**

Frequency	Below 1 GHz	Above 1 GHz		20 dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV	PK
IF Bandwidth	BW 120 kHz	RBW: 1 MHz VBW: 3 MHz	RBW: 1 MHz VBW: 10 Hz *1)	RBW: 100 kHz VBW: 300 kHz
Test Distance	3 m	4.38 m*2) (1 GHz – 10 GHz), 1 m*3) (10 GHz – 26 GHz)		4.38 m*2)

\*1) Although DA 00-705 accepts VBW = 10 Hz for AV measurements, it was confirmed that superfluous smoothing was not performed.

\*2) Distance Factor:  $20 \times \log(4.38 \text{ m}/3.0 \text{ m}) = 3.3 \text{ dB}$

\*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 angle of 0 deg. to 30 deg. based on the product specification 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 - 26 GHz  
**Test data** : APPENDIX  
**Test result** : Pass

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**APPENDIX 1: Test data**

**Radiated Spurious Emission**

Report No. 11922904M-A  
Test place Kashima EMC Lab.  
Semi Anechoic Chamber No.10 No.10 No.11  
Date August 29, 2017 August 28, 2017 August 27, 2017  
Temperature / Humidity 25 deg. C / 49 % RH 24 deg. C / 51 % RH 23 deg. C / 52 % RH  
Engineer Kazuhiro Ando Kazuhiro Ando Kazuhiro Ando  
(30 MHz -1000 MHz) (1 GHz -10 GHz) (10 GHz -26 GHz)  
Mode Tx, Hopping Off, DH5 2402 MHz

(\* 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.	82.862	QP	48.50	8.50	5.00	26.70	0.00	35.30	40.00	4.7	248	270	
Hori.	153.448	QP	42.00	13.40	5.90	26.50	0.00	34.80	43.50	8.7	198	88	
Hori.	171.862	QP	46.10	12.80	6.10	26.40	0.00	38.60	43.50	4.9	172	70	
Hori.	296.998	QP	40.00	13.30	7.50	26.00	0.00	34.80	46.00	11.2	115	290	
Hori.	458.997	QP	41.70	17.10	8.70	27.20	0.00	40.30	46.00	5.7	100	343	
Hori.	593.996	QP	40.90	19.50	9.40	27.60	0.00	42.20	46.00	3.8	175	157	
Hori.	1920.170	PK	49.10	25.70	13.30	42.20	3.30	49.20	73.90	24.7	128	205	
Hori.	2390.000	PK	46.50	27.60	13.60	42.10	3.30	48.90	73.90	25.0	100	215	
Hori.	3168.000	PK	50.70	29.00	5.20	42.10	3.30	46.10	73.90	27.8	144	185	
Hori.	4804.000	PK	45.90	31.20	5.50	41.90	3.30	44.00	73.90	29.9	150	0	Floor Noise
Hori.	7206.000	PK	44.70	36.30	7.00	40.90	3.30	50.40	73.90	23.5	150	0	Floor Noise
Hori.	1920.170	AV	38.00	25.70	13.30	42.20	3.30	38.10	53.90	15.8	128	205	
Hori.	2390.000	AV	33.60	27.60	13.60	42.10	3.30	36.00	53.90	17.9	100	215	
Hori.	3168.000	AV	42.50	29.00	5.20	42.10	3.30	37.90	53.90	16.0	144	185	
Hori.	4804.000	AV	32.40	31.20	5.50	41.90	3.30	30.50	53.90	23.4	150	0	Floor Noise
Hori.	7206.000	AV	31.30	36.30	7.00	40.90	3.30	37.00	53.90	16.9	150	0	Floor Noise
Vert.	84.396	QP	44.40	8.20	5.10	26.70	0.00	31.00	40.00	9.0	100	87	
Vert.	171.862	QP	43.60	12.80	6.10	26.40	0.00	36.10	43.50	7.4	100	106	
Vert.	458.997	QP	39.80	17.10	8.70	27.20	0.00	38.40	46.00	7.6	100	175	
Vert.	512.997	QP	36.10	18.00	9.00	27.40	0.00	35.70	46.00	10.3	120	29	
Vert.	593.996	QP	39.80	19.50	9.40	27.60	0.00	41.10	46.00	4.9	100	180	
Vert.	2390.000	PK	46.70	27.60	13.60	42.10	3.30	49.10	73.90	24.8	230	218	
Vert.	4804.000	PK	45.70	31.20	5.50	41.90	3.30	43.80	73.90	30.1	150	0	Floor Noise
Vert.	7206.000	PK	45.00	36.30	7.00	40.90	3.30	50.70	73.90	23.2	150	0	Floor Noise
Vert.	2390.000	AV	33.60	27.60	13.60	42.10	3.30	36.00	53.90	17.9	230	218	
Vert.	4804.000	AV	32.40	31.20	5.50	41.90	3.30	30.50	53.90	23.4	150	0	Floor Noise
Vert.	7206.000	AV	31.30	36.30	7.00	40.90	3.30	37.00	53.90	16.9	150	0	Floor Noise

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

Distance factor : 1 GHz - 10 GHz : 20log (4.38 m / 3.0 m) = 3.3 dB

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

\* These results have sufficient margin without taking account Dwell time factor.

**20 dBc Data Sheet (RBW 100 kHz, VBW 300 kHz)**

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]	Remark
Hori.	2402.000	PK	86.50	27.50	13.60	42.10	3.30	88.80	-	-	Carrier
Hori.	2400.000	PK	38.40	27.50	13.60	42.10	3.30	40.70	68.80	28.1	
Vert.	2402.000	PK	86.40	27.50	13.60	42.10	3.30	88.70	-	-	Carrier
Vert.	2400.000	PK	38.30	27.50	13.60	42.10	3.30	40.60	68.70	28.1	

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

Distance factor : 1 GHz - 10 GHz : 20log (4.38 m / 3.0 m) = 3.3 dB

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

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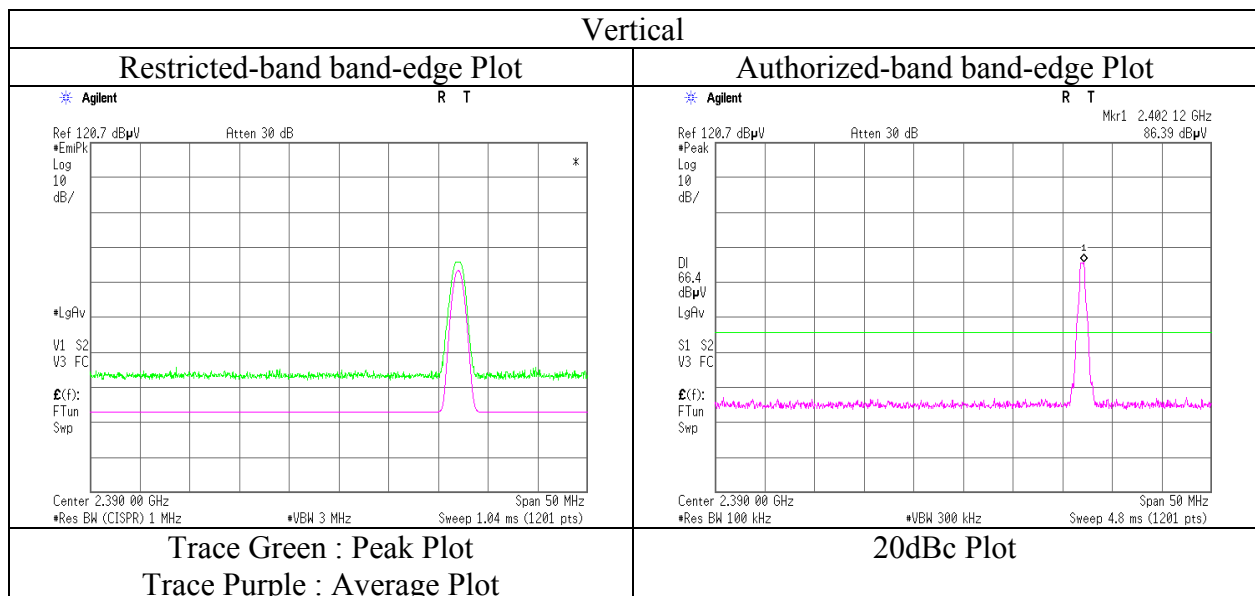
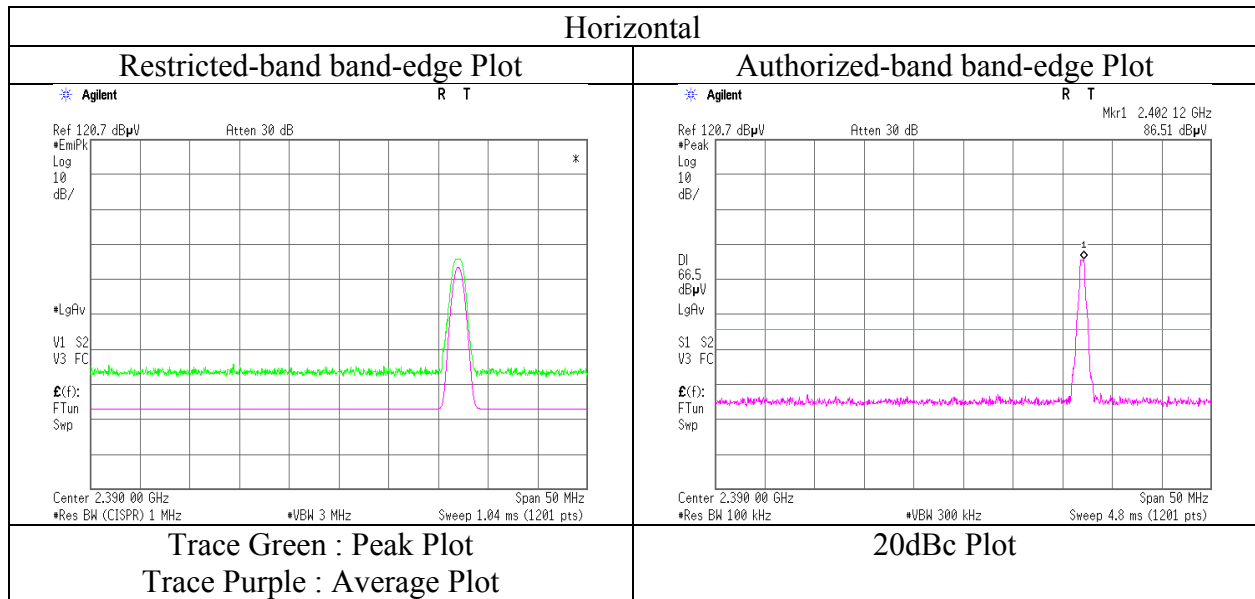
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**Radiated Spurious Emission**  
**(Reference Plot for band-edge)**

Report No. 11922904M-A  
Test place Kashima EMC Lab.  
Semi Anechoic Chamber No.10  
Date August 28, 2017  
Temperature / Humidity 24 deg. C / 51 % RH  
Engineer Kazuhiro Ando  
(1 GHz -10 GHz)  
Mode Tx, Hopping Off, DH5 2402 MHz



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

## Radiated Spurious Emission

Report No.	11922904M-A		
Test place	Kashima EMC Lab.		
Semi Anechoic Chamber	No.10	No.10	No.11
Date	August 29, 2017	August 28, 2017	August 27, 2017
Temperature / Humidity	25 deg. C / 49 % RH	24 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(30 MHz -1000 MHz)	(1 GHz -10 GHz)	(10 GHz -26 GHz)
Mode	Tx, Hopping Off, DH5 2441 MHz		

(\* 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.	82.861	QP	48.70	8.50	5.00	26.70	0.00	35.50	40.00	4.5	241	270	
Hori.	153.449	QP	41.20	13.40	5.90	26.50	0.00	34.00	43.50	9.5	252	82	
Hori.	171.863	QP	44.70	12.80	6.10	26.40	0.00	37.20	43.50	6.3	174	75	
Hori.	242.998	QP	39.00	11.50	6.90	26.00	0.00	31.40	46.00	14.6	100	261	
Hori.	458.997	QP	41.40	17.10	8.70	27.20	0.00	40.00	46.00	6.0	100	342	
Hori.	593.996	QP	40.30	19.50	9.40	27.60	0.00	41.60	46.00	4.4	100	151	
Hori.	1920.170	PK	49.40	25.70	13.30	42.20	3.30	49.50	73.90	24.4	126	208	
Hori.	3168.000	PK	50.20	29.00	5.20	42.10	3.30	45.60	73.90	28.3	141	186	
Hori.	4882.000	PK	45.30	31.30	5.60	41.90	3.30	43.60	73.90	30.3	150	0	Floor Noise
Hori.	7323.000	PK	45.00	36.40	7.10	40.90	3.30	50.90	73.90	23.0	150	0	Floor Noise
Hori.	1920.170	AV	38.20	25.70	13.30	42.20	3.30	38.30	53.90	15.6	126	208	
Hori.	3168.000	AV	42.00	29.00	5.20	42.10	3.30	37.40	53.90	16.5	141	186	
Hori.	4882.000	AV	32.40	31.30	5.60	41.90	3.30	30.70	53.90	23.2	150	0	Floor Noise
Hori.	7323.000	AV	31.60	36.40	7.10	40.90	3.30	37.50	53.90	16.4	150	0	Floor Noise
Vert.	82.862	QP	42.70	8.50	5.00	26.70	0.00	29.50	40.00	10.5	100	0	
Vert.	171.863	QP	41.50	12.80	6.10	26.40	0.00	34.00	43.50	9.5	100	96	
Vert.	458.997	QP	36.30	17.10	8.70	27.20	0.00	34.90	46.00	11.1	100	183	
Vert.	512.996	QP	34.20	18.00	9.00	27.40	0.00	33.80	46.00	12.2	100	190	
Vert.	593.997	QP	39.70	19.50	9.40	27.60	0.00	41.00	46.00	5.0	100	177	
Vert.	4882.000	PK	45.40	31.30	5.60	41.90	3.30	43.70	73.90	30.2	150	0	Floor Noise
Vert.	7323.000	PK	44.60	36.40	7.10	40.90	3.30	50.50	73.90	23.4	150	0	Floor Noise
Vert.	4882.000	AV	32.30	31.30	5.60	41.90	3.30	30.60	53.90	23.3	150	0	Floor Noise
Vert.	7323.000	AV	31.50	36.40	7.10	40.90	3.30	37.40	53.90	16.5	150	0	Floor Noise

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

Distance factor : 1 GHz - 10 GHz :  $20\log(4.38\text{ m} / 3.0\text{ m}) = 3.3\text{ dB}$

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

\* These results have sufficient margin without taking account Dwell time factor.

## Radiated Spurious Emission

Report No.	11922904M-A		
Test place	Kashima EMC Lab.		
Semi Anechoic Chamber	No.10	No.10	No.11
Date	August 29, 2017	August 28, 2017	August 27, 2017
Temperature / Humidity	25 deg. C / 49 % RH	24 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(30 MHz -1000 MHz)	(1 GHz -10 GHz)	(10 GHz -26 GHz)
Mode	Tx, Hopping Off, DH5 2480 MHz		

(\* 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.	82.863	QP	48.50	8.50	5.00	26.70	0.00	35.30	40.00	4.7	261	267	
Hori.	153.449	QP	41.50	13.40	5.90	26.50	0.00	34.30	43.50	9.2	196	82	
Hori.	171.862	QP	44.70	12.80	6.10	26.40	0.00	37.20	43.50	6.3	176	74	
Hori.	431.997	QP	37.40	16.60	8.50	27.00	0.00	35.50	46.00	10.5	100	291	
Hori.	458.996	QP	43.90	17.10	8.70	27.20	0.00	42.50	46.00	3.5	100	345	
Hori.	465.231	QP	37.90	17.20	8.70	27.20	0.00	36.60	46.00	9.4	100	0	
Hori.	593.996	QP	40.60	19.50	9.40	27.60	0.00	41.90	46.00	4.1	100	339	
Hori.	1920.170	PK	49.50	25.70	13.30	42.20	3.30	49.60	73.90	24.3	129	206	
Hori.	2483.500	PK	47.50	27.40	13.70	42.10	3.30	49.80	73.90	24.1	100	209	
Hori.	3168.000	PK	50.40	29.00	5.20	42.10	3.30	45.80	73.90	28.1	144	183	
Hori.	4960.000	PK	46.60	31.30	5.60	41.90	3.30	44.90	73.90	29.0	150	0	Floor Noise
Hori.	7440.000	PK	45.30	36.70	7.10	40.90	3.30	51.50	73.90	22.4	150	0	Floor Noise
Hori.	1920.170	AV	38.00	25.70	13.30	42.20	3.30	38.10	53.90	15.8	129	206	
Hori.	2483.500	AV	33.70	27.40	13.70	42.10	3.30	36.00	53.90	17.9	100	209	
Hori.	3168.000	AV	42.70	29.00	5.20	42.10	3.30	38.10	53.90	15.8	144	183	
Hori.	4960.000	AV	32.50	31.30	5.60	41.90	3.30	30.80	53.90	23.1	150	0	Floor Noise
Hori.	7440.000	AV	32.00	36.70	7.10	40.90	3.30	38.20	53.90	15.7	150	0	Floor Noise
Vert.	84.396	QP	43.20	8.20	5.10	26.70	0.00	29.80	40.00	10.2	100	89	
Vert.	171.862	QP	43.50	12.80	6.10	26.40	0.00	36.00	43.50	7.5	100	102	
Vert.	431.997	QP	34.40	16.60	8.50	27.00	0.00	32.50	46.00	13.5	100	292	
Vert.	458.997	QP	37.50	17.10	8.70	27.20	0.00	36.10	46.00	9.9	100	186	
Vert.	593.995	QP	40.40	19.50	9.40	27.60	0.00	41.70	46.00	4.3	100	175	
Vert.	2483.500	PK	47.40	27.40	13.70	42.10	3.30	49.70	73.90	24.2	202	221	
Vert.	4960.000	PK	46.20	31.30	5.60	41.90	3.30	44.50	73.90	29.4	150	0	Floor Noise
Vert.	7440.000	PK	45.20	36.70	7.10	40.90	3.30	51.40	73.90	22.5	150	0	Floor Noise
Vert.	2483.500	AV	33.70	27.40	13.70	42.10	3.30	36.00	53.90	17.9	202	221	
Vert.	4960.000	AV	32.50	31.30	5.60	41.90	3.30	30.80	53.90	23.1	150	0	Floor Noise
Vert.	7440.000	AV	32.10	36.70	7.10	40.90	3.30	38.30	53.90	15.6	150	0	Floor Noise

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

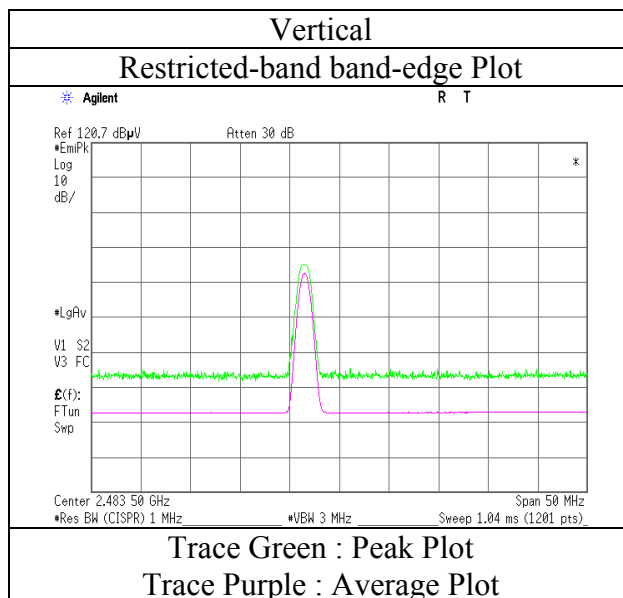
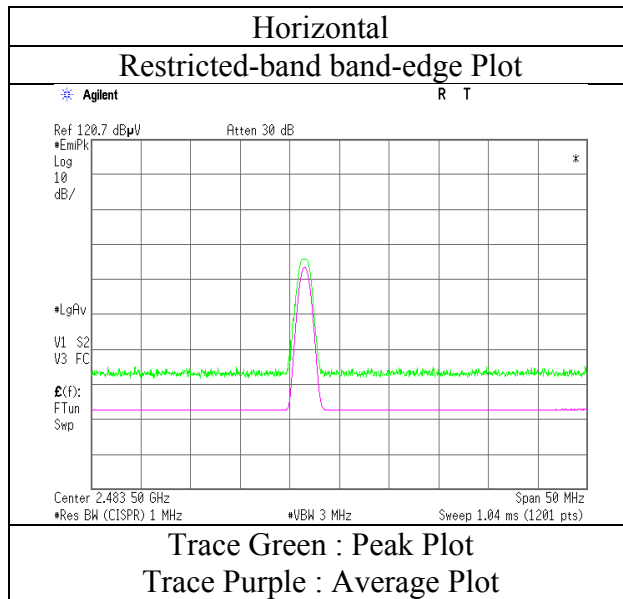
Distance factor : 1 GHz - 10 GHz :  $20\log(4.38\text{ m} / 3.0\text{ m}) = 3.3\text{ dB}$

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

\* These results have sufficient margin without taking account Dwell time factor.

**Radiated Spurious Emission**  
**(Reference Plot for band-edge)**

Report No.	11922904M-A
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	August 28, 2017
Temperature / Humidity	24 deg. C / 51 % RH
Engineer	Kazuhiro Ando
	(1 GHz -10 GHz)
Mode	Tx, Hopping Off, DH5 2480 MHz



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



## Radiated Spurious Emission

Report No.	11922904M-A		
Test place	Kashima EMC Lab.		
Semi Anechoic Chamber	No.10	No.10	No.11
Date	August 29, 2017	August 28, 2017	August 27, 2017
Temperature / Humidity	25 deg. C / 49 % RH	24 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(30 MHz -1000 MHz)	(1 GHz -10 GHz)	(10 GHz -26 GHz)
Mode	Tx, Hopping Off, 3DH5 2402 MHz		

(\* 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.	85.931	QP	48.50	8.00	5.10	26.70	0.00	34.90	40.00	5.1	243	289	
Hori.	153.449	QP	40.70	13.40	5.90	26.50	0.00	33.50	43.50	10.0	188	84	
Hori.	171.863	QP	44.90	12.80	6.10	26.40	0.00	37.40	43.50	6.1	188	75	
Hori.	431.997	QP	38.30	16.60	8.50	27.00	0.00	36.40	46.00	9.6	100	293	
Hori.	458.997	QP	43.50	17.10	8.70	27.20	0.00	42.10	46.00	3.9	100	344	
Hori.	465.230	QP	37.30	17.20	8.70	27.20	0.00	36.00	46.00	10.0	100	355	
Hori.	593.996	QP	39.40	19.50	9.40	27.60	0.00	40.70	46.00	5.3	100	147	
Hori.	1920.170	PK	49.50	25.70	13.30	42.20	3.30	49.60	73.90	24.3	118	210	
Hori.	2390.000	PK	46.90	27.60	13.60	42.10	3.30	49.30	73.90	24.6	100	217	
Hori.	3168.000	PK	50.70	29.00	5.20	42.10	3.30	46.10	73.90	27.8	148	182	
Hori.	4804.000	PK	45.80	31.20	5.50	41.90	3.30	43.90	73.90	30.0	150	0	Floor Noise
Hori.	7206.000	PK	44.60	36.30	7.00	40.90	3.30	50.30	73.90	23.6	150	0	Floor Noise
Hori.	1920.170	AV	38.20	25.70	13.30	42.20	3.30	38.30	53.90	15.6	118	210	
Hori.	2390.000	AV	33.60	27.60	13.60	42.10	3.30	36.00	53.90	17.9	100	217	
Hori.	3168.000	AV	42.80	29.00	5.20	42.10	3.30	38.20	53.90	15.7	148	182	
Hori.	4804.000	AV	32.40	31.20	5.50	41.90	3.30	30.50	53.90	23.4	150	0	Floor Noise
Hori.	7206.000	AV	31.20	36.30	7.00	40.90	3.30	36.90	53.90	17.0	150	0	Floor Noise
Vert.	82.862	QP	42.30	8.50	5.00	26.70	0.00	29.10	40.00	10.9	100	0	
Vert.	170.328	QP	41.50	13.00	6.10	26.40	0.00	34.20	43.50	9.3	100	102	
Vert.	458.997	QP	37.90	17.10	8.70	27.20	0.00	36.50	46.00	9.5	100	181	
Vert.	512.997	QP	33.70	18.00	9.00	27.40	0.00	33.30	46.00	12.7	100	325	
Vert.	593.995	QP	39.30	19.50	9.40	27.60	0.00	40.60	46.00	5.4	100	178	
Vert.	2390.000	PK	47.20	27.60	13.60	42.10	3.30	49.60	73.90	24.3	206	211	
Vert.	4804.000	PK	45.80	31.20	5.50	41.90	3.30	43.90	73.90	30.0	150	0	Floor Noise
Vert.	7206.000	PK	44.70	36.30	7.00	40.90	3.30	50.40	73.90	23.5	150	0	Floor Noise
Vert.	2390.000	AV	33.60	27.60	13.60	42.10	3.30	36.00	53.90	17.9	206	211	
Vert.	4804.000	AV	32.40	31.20	5.50	41.90	3.30	30.50	53.90	23.4	150	0	Floor Noise
Vert.	7206.000	AV	31.20	36.30	7.00	40.90	3.30	36.90	53.90	17.0	150	0	Floor Noise

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

Distance factor : 1 GHz - 10 GHz : 20log (4.38 m / 3.0 m) = 3.3 dB

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

\* These results have sufficient margin without taking account Dwell time factor.

### 20 dBc Data Sheet (RBW 100 kHz, VBW 300 kHz)

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]	Remark
Hori.	2402.000	PK	85.10	27.50	13.60	42.10	3.30	87.40	-	-	Carrier
Hori.	2400.000	PK	38.40	27.50	13.60	42.10	3.30	40.70	67.40	26.7	
Vert.	2402.000	PK	85.30	27.50	13.60	42.10	3.30	87.60	-	-	Carrier
Vert.	2400.000	PK	38.30	27.50	13.60	42.10	3.30	40.60	67.60	27.0	

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

Distance factor : 1 GHz - 10 GHz : 20log (4.38 m / 3.0 m) = 3.3 dB

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

**UL Japan, Inc.**

**Kashima EMC Lab.**

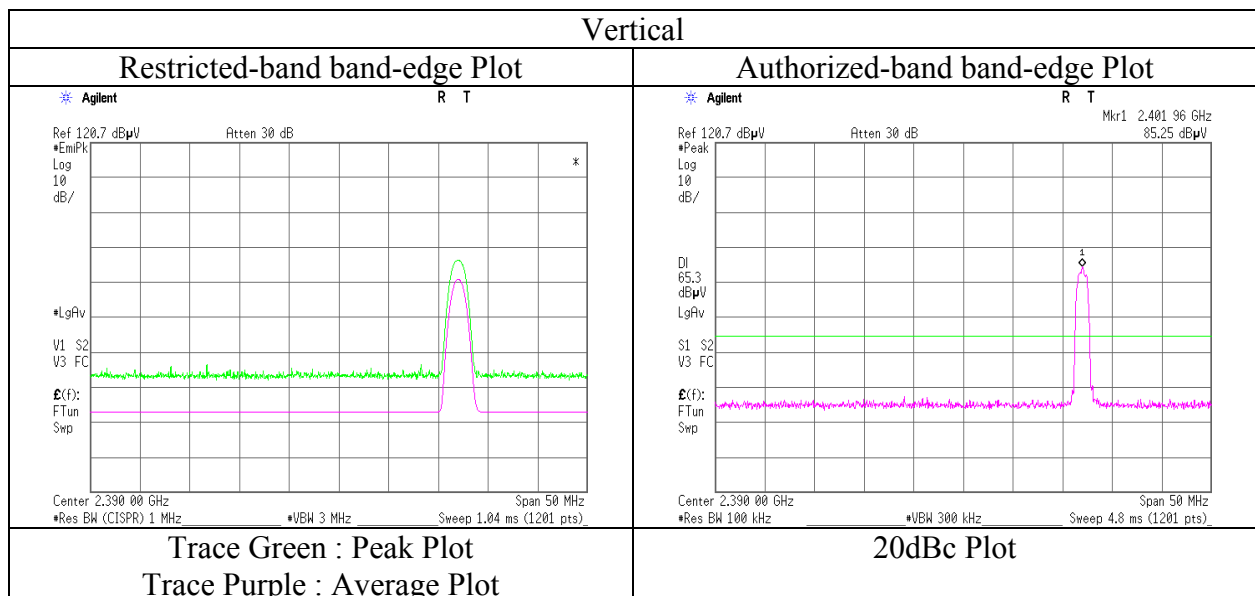
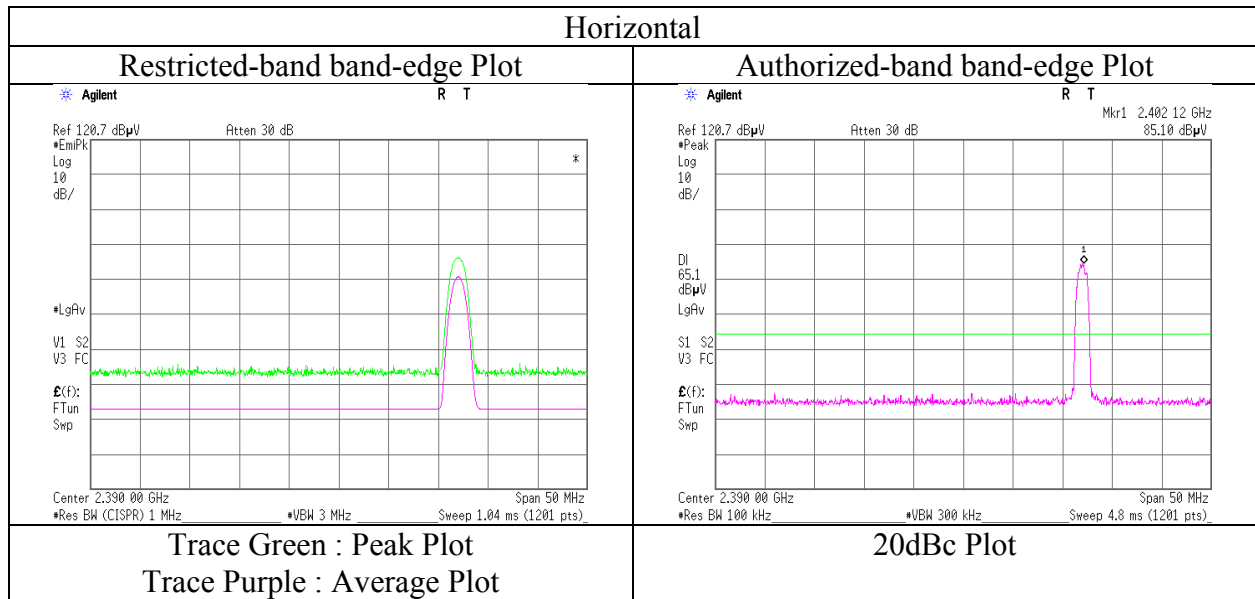
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

Facsimile : +81 478 82 3373

**Radiated Spurious Emission**  
**(Reference Plot for band-edge)**

Report No. 11922904M-A  
Test place Kashima EMC Lab.  
Semi Anechoic Chamber No.10  
Date August 28, 2017  
Temperature / Humidity 24 deg. C / 51 % RH  
Engineer Kazuhiro Ando  
(1 GHz -10 GHz)  
Mode Tx, Hopping Off, 3DH5 2402 MHz



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

## Radiated Spurious Emission

Report No.	11922904M-A		
Test place	Kashima EMC Lab.		
Semi Anechoic Chamber	No.10	No.10	No.11
Date	August 29, 2017	August 28, 2017	August 27, 2017
Temperature / Humidity	25 deg. C / 49 % RH	24 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(30 MHz -1000 MHz)	(1 GHz -10 GHz)	(10 GHz -26 GHz)
Mode	Tx, Hopping Off, 3DH5 2441 MHz		

(\* 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.	82.862	QP	48.20	8.50	5.00	26.70	0.00	35.00	40.00	5.0	247	271	
Hori.	153.448	QP	41.00	13.40	5.90	26.50	0.00	33.80	43.50	9.7	202	87	
Hori.	171.863	QP	45.10	12.80	6.10	26.40	0.00	37.60	43.50	5.9	172	64	
Hori.	431.997	QP	38.50	16.60	8.50	27.00	0.00	36.60	46.00	9.4	100	293	
Hori.	458.997	QP	42.80	17.10	8.70	27.20	0.00	41.40	46.00	4.6	100	347	
Hori.	593.996	QP	39.50	19.50	9.40	27.60	0.00	40.80	46.00	5.2	165	153	
Hori.	1920.170	PK	49.30	25.70	13.30	42.20	3.30	49.40	73.90	24.5	131	208	
Hori.	3168.000	PK	50.70	29.00	5.20	42.10	3.30	46.10	73.90	27.8	145	187	
Hori.	4882.000	PK	45.40	31.30	5.60	41.90	3.30	43.70	73.90	30.2	150	0	Floor Noise
Hori.	7323.000	PK	45.00	36.40	7.10	40.90	3.30	50.90	73.90	23.0	150	0	Floor Noise
Hori.	1920.170	AV	38.00	25.70	13.30	42.20	3.30	38.10	53.90	15.8	131	208	
Hori.	3168.000	AV	42.50	29.00	5.20	42.10	3.30	37.90	53.90	16.0	145	187	
Hori.	4882.000	AV	32.30	31.30	5.60	41.90	3.30	30.60	53.90	23.3	150	0	Floor Noise
Hori.	7323.000	AV	31.50	36.40	7.10	40.90	3.30	37.40	53.90	16.5	150	0	Floor Noise
Vert.	82.862	QP	42.30	8.50	5.00	26.70	0.00	29.10	40.00	10.9	100	26	
Vert.	171.862	QP	42.50	12.80	6.10	26.40	0.00	35.00	43.50	8.5	100	105	
Vert.	431.997	QP	36.20	16.60	8.50	27.00	0.00	34.30	46.00	11.7	144	315	
Vert.	458.997	QP	36.10	17.10	8.70	27.20	0.00	34.70	46.00	11.3	100	182	
Vert.	593.996	QP	39.30	19.50	9.40	27.60	0.00	40.60	46.00	5.4	100	178	
Vert.	4882.000	PK	45.70	31.30	5.60	41.90	3.30	44.00	73.90	29.9	150	0	Floor Noise
Vert.	7323.000	PK	44.50	36.40	7.10	40.90	3.30	50.40	73.90	23.5	150	0	Floor Noise
Vert.	4882.000	AV	32.30	31.30	5.60	41.90	3.30	30.60	53.90	23.3	150	0	Floor Noise
Vert.	7323.000	AV	31.50	36.40	7.10	40.90	3.30	37.40	53.90	16.5	150	0	Floor Noise

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

Distance factor : 1 GHz - 10 GHz :  $20\log(4.38\text{ m} / 3.0\text{ m}) = 3.3\text{ dB}$

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

\* These results have sufficient margin without taking account Dwell time factor.

## Radiated Spurious Emission

Report No.	11922904M-A		
Test place	Kashima EMC Lab.		
Semi Anechoic Chamber	No.10	No.10	No.11
Date	August 29, 2017	August 28, 2017	August 27, 2017
Temperature / Humidity	25 deg. C / 49 % RH	24 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(30 MHz -1000 MHz)	(1 GHz -10 GHz)	(10 GHz -26 GHz)
Mode	Tx, Hopping Off, 3DH5 2480 MHz		

(\* 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.	85.931	QP	48.30	8.00	5.10	26.70	0.00	34.70	40.00	5.3	227	275	
Hori.	153.448	QP	41.40	13.40	5.90	26.50	0.00	34.20	43.50	9.3	215	77	
Hori.	171.862	QP	44.90	12.80	6.10	26.40	0.00	37.40	43.50	6.1	160	72	
Hori.	431.997	QP	38.70	16.60	8.50	27.00	0.00	36.80	46.00	9.2	100	283	
Hori.	458.997	QP	42.50	17.10	8.70	27.20	0.00	41.10	46.00	4.9	100	167	
Hori.	593.995	QP	39.70	19.50	9.40	27.60	0.00	41.00	46.00	5.0	156	153	
Hori.	1920.170	PK	50.20	25.70	13.30	42.20	3.30	50.30	73.90	23.6	126	208	
Hori.	2483.500	PK	47.00	27.40	13.70	42.10	3.30	49.30	73.90	24.6	100	208	
Hori.	3168.000	PK	50.50	29.00	5.20	42.10	3.30	45.90	73.90	28.0	145	186	
Hori.	4960.000	PK	46.30	31.30	5.60	41.90	3.30	44.60	73.90	29.3	150	0	Floor Noise
Hori.	7440.000	PK	45.50	36.70	7.10	40.90	3.30	51.70	73.90	22.2	150	0	Floor Noise
Hori.	1920.170	AV	38.00	25.70	13.30	42.20	3.30	38.10	53.90	15.8	126	208	
Hori.	2483.500	AV	33.60	27.40	13.70	42.10	3.30	35.90	53.90	18.0	100	208	
Hori.	3168.000	AV	42.90	29.00	5.20	42.10	3.30	38.30	53.90	15.6	145	186	
Hori.	4960.000	AV	32.40	31.30	5.60	41.90	3.30	30.70	53.90	23.2	150	0	Floor Noise
Hori.	7440.000	AV	32.00	36.70	7.10	40.90	3.30	38.20	53.90	15.7	150	0	Floor Noise
Vert.	82.862	QP	42.40	8.50	5.00	26.70	0.00	29.20	40.00	10.8	100	5	
Vert.	171.862	QP	42.90	12.80	6.10	26.40	0.00	35.40	43.50	8.1	100	87	
Vert.	458.996	QP	37.70	17.10	8.70	27.20	0.00	36.30	46.00	9.7	100	182	
Vert.	512.996	QP	33.90	18.00	9.00	27.40	0.00	33.50	46.00	12.5	100	198	
Vert.	593.995	QP	39.50	19.50	9.40	27.60	0.00	40.80	46.00	5.2	100	179	
Vert.	2483.500	PK	47.30	27.40	13.70	42.10	3.30	49.60	73.90	24.3	230	228	
Vert.	4960.000	PK	46.10	31.30	5.60	41.90	3.30	44.40	73.90	29.5	150	0	Floor Noise
Vert.	7440.000	PK	45.70	36.70	7.10	40.90	3.30	51.90	73.90	22.0	150	0	Floor Noise
Vert.	2483.500	AV	33.50	27.40	13.70	42.10	3.30	35.80	53.90	18.1	230	228	
Vert.	4960.000	AV	32.50	31.30	5.60	41.90	3.30	30.80	53.90	23.1	150	0	Floor Noise
Vert.	7440.000	AV	32.00	36.70	7.10	40.90	3.30	38.20	53.90	15.7	150	0	Floor Noise

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

Distance factor : 1 GHz - 10 GHz :  $20\log(4.38\text{ m} / 3.0\text{ m}) = 3.3\text{ dB}$

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

\* These results have sufficient margin without taking account Dwell time factor.

**UL Japan, Inc.**

**Kashima EMC Lab.**

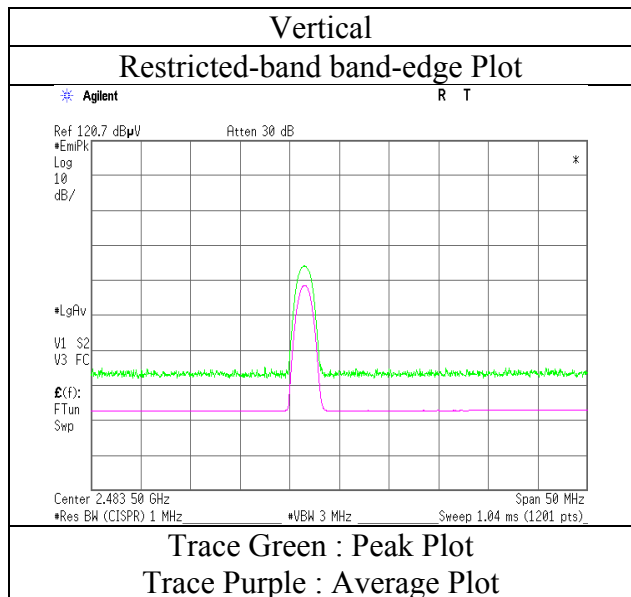
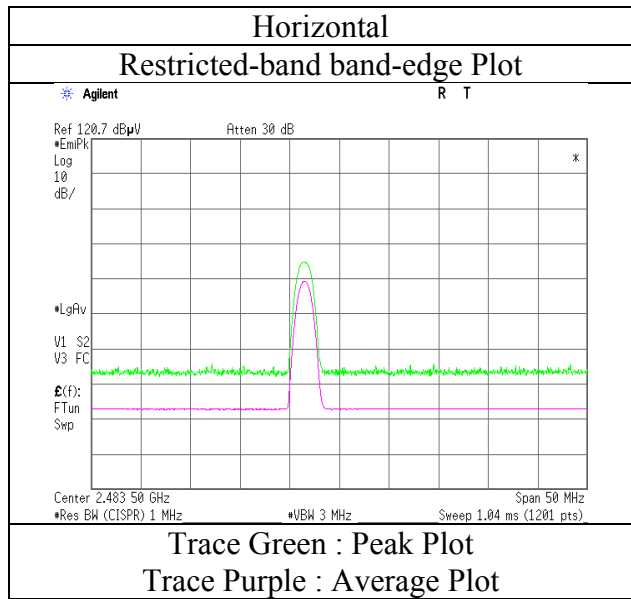
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

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**Radiated Spurious Emission**  
**(Reference Plot for band-edge)**

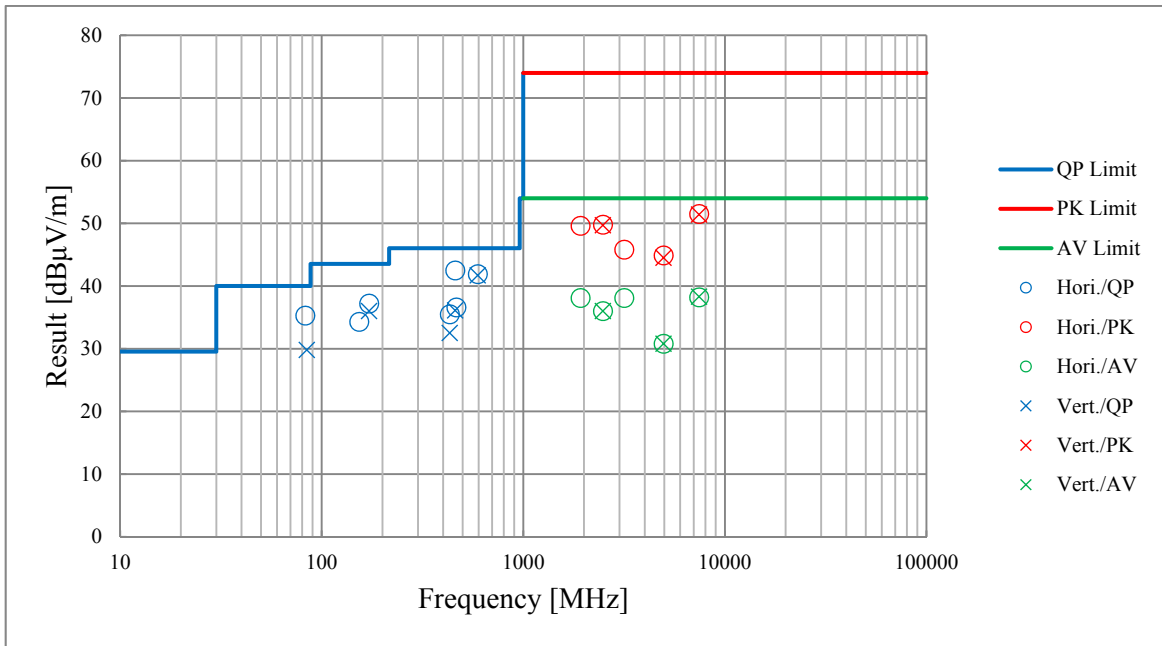
Report No. 11922904M-A  
Test place Kashima EMC Lab.  
Semi Anechoic Chamber No.10  
Date August 28, 2017  
Temperature / Humidity 24 deg. C / 51 % RH  
Engineer Kazuhiro Ando  
(1 GHz -10 GHz)  
Mode Tx, Hopping Off, 3DH5 2480 MHz



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

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

Report No.	11922904M-A		
Test place	Kashima EMC Lab.		
Semi Anechoic Chamber	No.10	No.10	No.11
Date	August 29, 2017	August 28, 2017	August 27, 2017
Temperature / Humidity	25 deg. C / 49 % RH	24 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(30 MHz -1000 MHz)	(1 GHz -10 GHz)	(10 GHz -26 GHz)
Mode	Tx, Hopping Off, DH5 2480 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>
CTR-09	Test Receiver	Agilent	N9038A	MY53290016 Version A.14.03	RE	2017/06/27 * 12
CBL-08	LOGBICON	Schwarzbeck	VULB 9168	343	RE	2017/04/10 * 12
CAT3-04	3dB Fixed Atten.	TAMAGAWA	UFA-01	none	RE	2016/09/26 * 12
CCC-S10-R (2/4/CATS- 11/5/6/7/8/1 1/12)	Coaxial Cable	Fujikura,Fujikura,Agilent,Fujikura,Fujikura,Fujikura,Fujikura,Fujikura	5D-2W,5D-2W,8494A,5D-2W,5D-2W,5D-2W,5D-2W,5D-2W	MY41110200(Step Att)	RE	2017/08/25 * 12
CAF-08	Pre-Amplifier	Hewlett Packard	8447D	2944A09041	RE	2017/08/25 * 12
CSCL-13	Ruler	Tajima	L19-55	none	RE	-
COS-10	Temperature & Humidity Indicator	HIOKI	3641/9680-50	090999895/090905406	RE	2017/05/16 * 12
CTS-14	Digital Multimeter	FLUKE	115	994460954	RE	2016/10/04 * 12
COTS-CEM I-02	EMI Software	TSJ	TEPTO-DV(RE, CE,MF,PE)	Ver, RE: 2.5.0131, CE: 2.5.0131, ME: 2.5.0129, PE: 2.5.0129	RE	-
CSA-07	Spectrum Analyzer	Agilent	E4448A	MY52490024 Version A.11.21	RE	2017/05/31 * 12
CHA-20	Broad Band Horn	Schwarzbeck	BBHA 9120D	9120D-1270	RE	2017/06/15 * 12
CHA-07	Double Ridged Horn	ETS-Lindgren	3160-09	00166043	RE	2017/06/27 * 12
CAF-19	Pre-Amplifier	TOYO	HAP18-26W	00000035	RE	2017/06/28 * 12
CAF-18	Pre-Amplifier	TOYO	TPA0118-36	A-1001	RE	2016/11/07 * 12
CAT10-16	10dB Fixed Atten.	Weinschel	54A-10	56246	RE	2017/05/19 * 12
CHF-03	HPF	Micro-Tronics	HPM50111-02	008	RE	2017/05/19 * 12
CCC-G09	Micro Wave Cable	Junkosha	MWX221	1407S222	RE	2016/11/25 * 12
CCC-G10	Micro Wave Cable	Junkosha	MWX221	J12J102343-00	RE	2016/11/25 * 12
CCC-W09	Micro Wave Cable	SUHNER	SUCOFLEX104	MY588/4	RE	2017/07/18 * 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 test**

**UL Japan, Inc.**

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