



RADIO TEST REPORT

Test Report No. : 11922904M-C-R2

Applicant : PIONEER CORPORATION
Type of Equipment : MULTIMEDIA NAVIGATION RECEIVER
Model No. : AVIC-W8400NEX
FCC ID : AJDK103
Test regulation : FCC Part 15 Subpart E: 2017
(*Wireless LAN part)
Test items : Radiated emission tests
Test Result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 11922904M-C-R1. 11922904M-C-R1 is replaced with this report.

Date of test: September 6 – 10, 2017

Representative test operator:

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

UL Japan, Inc.
Kashima EMC Lab.

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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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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

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

SECTION 3: Test specification, procedures & results

3.1 Test Specification

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

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

* 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	FCC: 15.407 (b) (6) / 15.207	-	N/A *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)	-	N/A *2)	Conducted
	IC: -	IC: -			
Maximum Conducted Output Power	FCC: KDB Publication Number 789033	FCC: 15.407 (a) (1) (2) (3)	-	N/A *2)	Conducted
	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)	-	N/A *2)	Conducted
	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	5.8 dB 404.998 MHz, QP, Hori.	Complied	Conducted (< 30 MHz) / Radiated (> 30 MHz) *3)
	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)	-	N/A *2)	Conducted
	IC: -	IC: RSS-247 6.2.4.1			

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-C-R2.

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

* DFS test is not applicable since the EUT does not operate in the 5.25 GHz -5.35 GHz and 5.47 GHz -5.725 GHz bands.

* 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 (Measurement distance: 0.5 m)	26.5 GHz - 40 GHz	5.4 dB

Radiated emission test

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

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.6 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)

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. and also was judged the necessity of 802.11ac mode by the pre-test.

Mode	Power setting	Remarks*
IEEE 802.11a (11a)	11	6 Mbps, PN9
IEEE 802.11n 20 MHz BW (11n-20)	11	MCS 2, SGI:OFF, PN9
IEEE 802.11n 40 MHz BW (11n-40)	10	MCS 0, SGI:OFF, PN9
IEEE 802.11ac 40 MHz BW (11ac-40)	9	MCS 5, SGI:OFF, PN9
IEEE 802.11ac 80 MHz BW (11ac-80)	8	MCS 3, SGI:OFF, PN9
*Power of the EUT was set by the software as follows; Software: SoC: Ver0.041100 System uCom: Ver7.07 *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)

Test Item	Operating Mode	Tested Frequency			
		Lower Band	Middle Band	Additional Band	Upper Band
Radiated Spurious Emission (Below 1 GHz)	11a Tx *1)	-	-	-	5785 MHz
Radiated Spurious Emission (Above 1 GHz)	11a Tx	-	-	-	5745 MHz
	11n-20 Tx	-	-	-	5785 MHz
	11n-40 Tx	-	-	-	5825 MHz
	11ac-40 Tx	-	-	-	5755 MHz
	11ac-80 Tx	-	-	-	5795 MHz
*1) The test was performed with the antenna that had higher power as a representative.					

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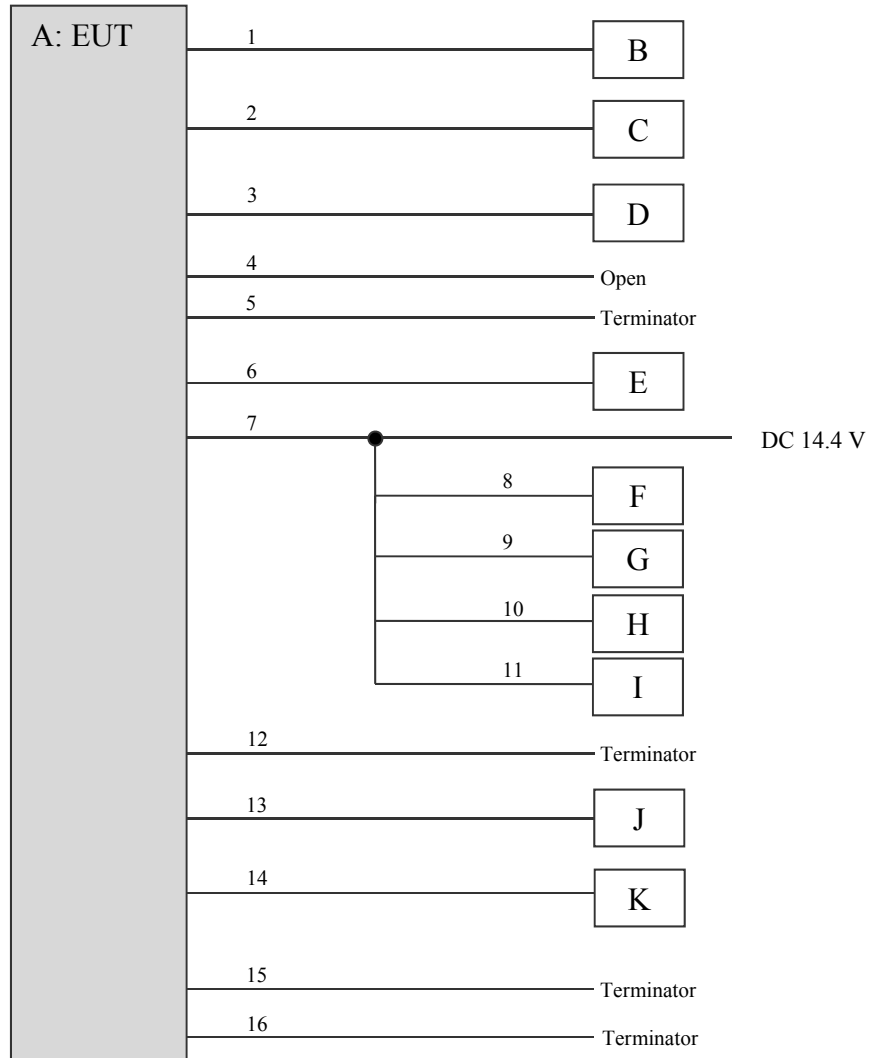
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4.2 Configuration and peripherals



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	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 and Band Edge Compliance

Test Procedure

< Below 1GHz >

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.

< Above 1GHz >

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

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

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

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

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

The test was made with the detector (RBW/VBW) in the following table.

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

< Below 1GHz >

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

< Above 1GHz >

Inside of restricted bands (Section 15.205):

Apply to limit in the Section 15.209 (a).

Outside of the restricted bands:

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

For W58 Bandedge

-27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge in the section 15.407(b)(4)(i).

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 1 GHz	Above 1 GHz
Antenna Type	Hybrid	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 or 10Hz (*T = transmission duration) Detector: Volt Averaging
Test Distance	3 m	3.88 m*2) (1 GHz – 10GHz), 1 m*3) (10 GHz – 26.5 GHz), 0.5 m*4) (26.5 GHz – 40 GHz)	

*1) The test method was also referred to KDB 789033 D02 General U-NII Test Procedures New Rules v01r04 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E".

*2) Distance Factor: $20 \times \log(3.88 \text{ m}/3.0 \text{ m}) = 2.2\text{dB}$

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

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

- 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.

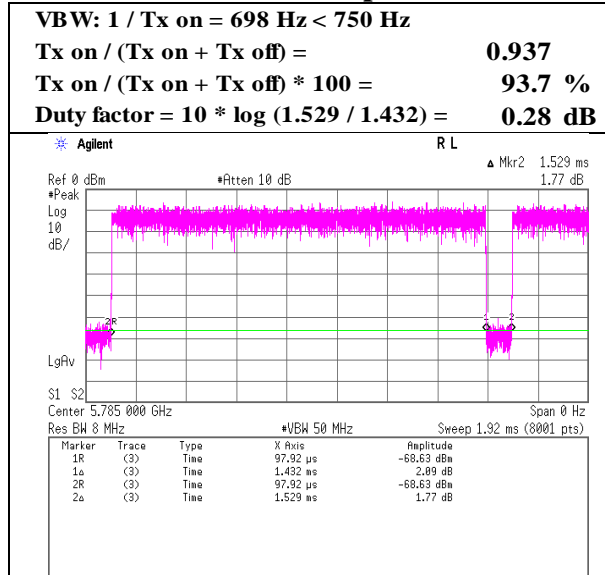
The test results and limit are rounded off to one decimal place, so some differences might be observed.

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

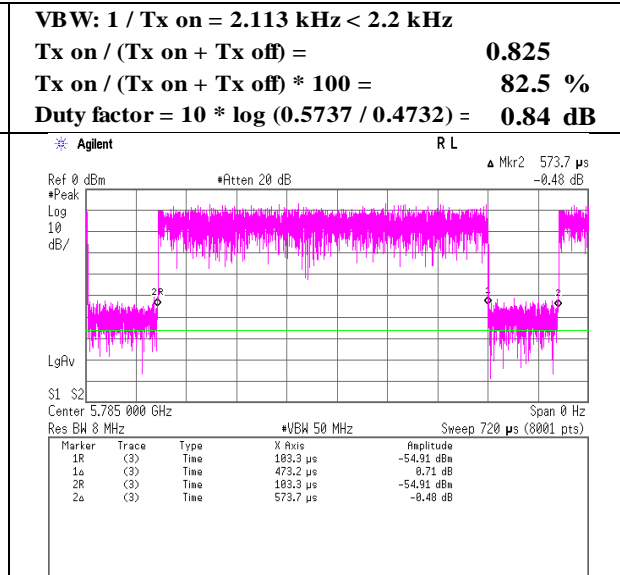
APPENDIX 1: Test data

Burst rate confirmation

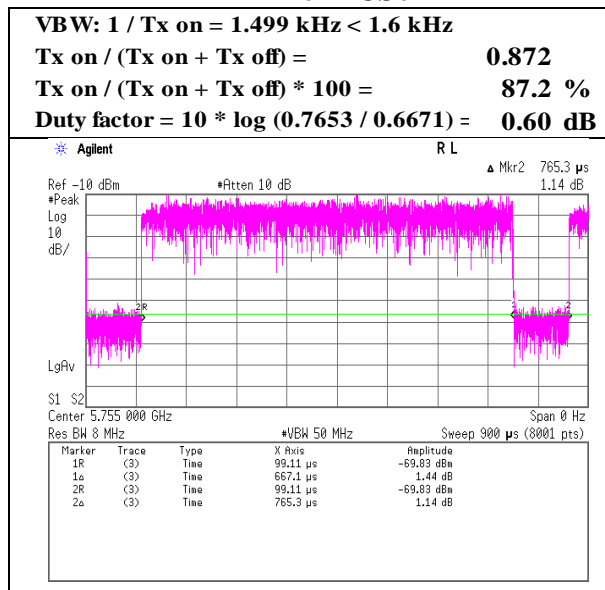
11a 6Mbps



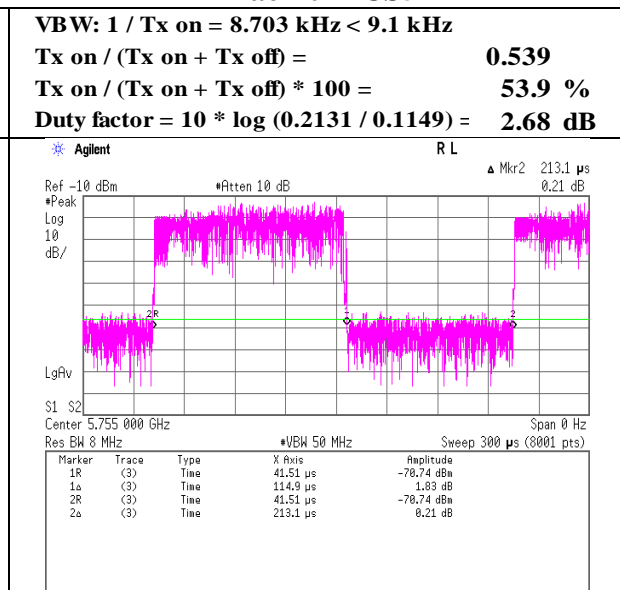
11n-20 MCS2



11n-40 MCS0

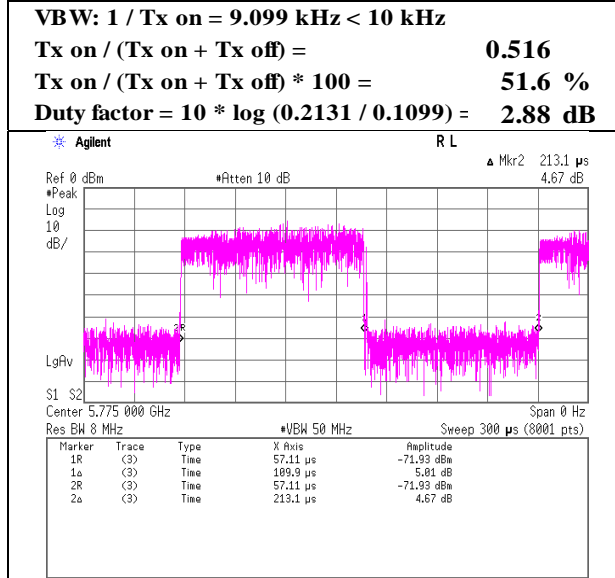


11ac-40 MCS5



Burst rate confirmation

11ac-80 MCS3



Radiated Spurious Emission

Report No. 11922904M-C
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.11 No.11 No.11
Date September 7, 2017 September 8, 2017 September 9, 2017
Temperature / Humidity 23deg. C / 52 % RH 23deg. C / 51 % RH 23deg. C / 56 % RH
Engineer Kazuhiro Ando Kazuhiro Ando Kazuhiro Ando
(1 GHz - 6.4 GHz) (6.4 GHz - 18 GHz) (18 GHz - 40 GHz)
Mode Tx 11a 5745 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.	1920.125	PK	50.30	25.70	13.30	42.20	2.20	49.30	73.90	24.6	150	205	
Hori.	11490.000	PK	43.90	39.90	8.40	38.60	-9.50	44.10	73.90	29.8	150	150	
Hori.	17235.000	PK	44.60	41.00	10.40	39.40	-9.50	47.10	73.90	26.8	150	0	Floor noise
Hori.	1920.125	AV	40.60	25.70	13.30	42.20	2.20	39.60	53.90	14.3	150	205	VBW:10Hz
Hori.	11490.000	AV	33.40	39.90	8.40	38.60	-9.50	33.60	53.90	20.3	150	150	VBW:750Hz
Hori.	17235.000	AV	33.50	41.00	10.40	39.40	-9.50	36.00	53.90	17.9	150	0	Floor noise
Vert.	1920.125	PK	49.10	25.70	13.30	42.20	2.20	48.10	73.90	25.8	150	200	
Vert.	11490.000	PK	43.20	39.90	8.40	38.60	-9.50	43.40	73.90	30.5	146	126	
Vert.	17235.000	PK	45.10	41.00	10.40	39.40	-9.50	47.60	73.90	26.3	150	0	Floor noise
Vert.	1920.125	AV	38.60	25.70	13.30	42.20	2.20	37.60	53.90	16.3	150	200	VBW:10Hz
Vert.	11490.000	AV	33.00	39.90	8.40	38.60	-9.50	33.20	53.90	20.7	146	126	VBW:750Hz
Vert.	17235.000	AV	33.30	41.00	10.40	39.40	-9.50	35.80	53.90	18.1	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 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.	5650.000	PK	47.10	31.70	15.70	41.80	2.20	54.90	-40.30	-27.00	13.3	185	275	
Hori.	5700.000	PK	49.60	31.90	15.70	41.80	2.20	57.60	-37.60	10.00	47.6	185	275	
Hori.	5720.000	PK	59.10	32.00	15.70	41.80	2.20	67.20	-28.00	15.60	43.6	185	275	
Hori.	5725.000	PK	59.20	32.00	15.70	41.80	2.20	67.30	-27.90	27.00	54.9	185	275	
Vert.	5650.000	PK	46.10	31.70	15.70	41.80	2.20	53.90	-41.30	-27.00	14.3	150	300	
Vert.	5700.000	PK	46.60	31.90	15.70	41.80	2.20	54.60	-40.60	10.00	50.6	150	300	
Vert.	5720.000	PK	54.10	32.00	15.70	41.80	2.20	62.20	-33.00	15.60	48.6	150	300	
Vert.	5725.000	PK	55.10	32.00	15.70	41.80	2.20	63.20	-32.00	27.00	59.0	150	300	

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

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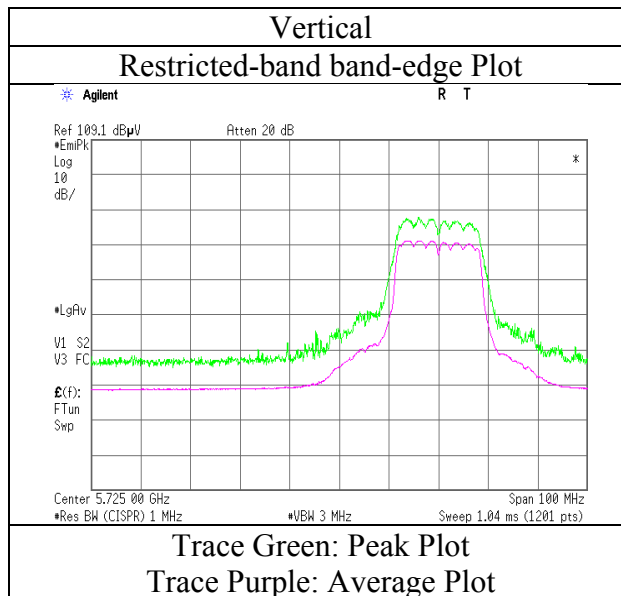
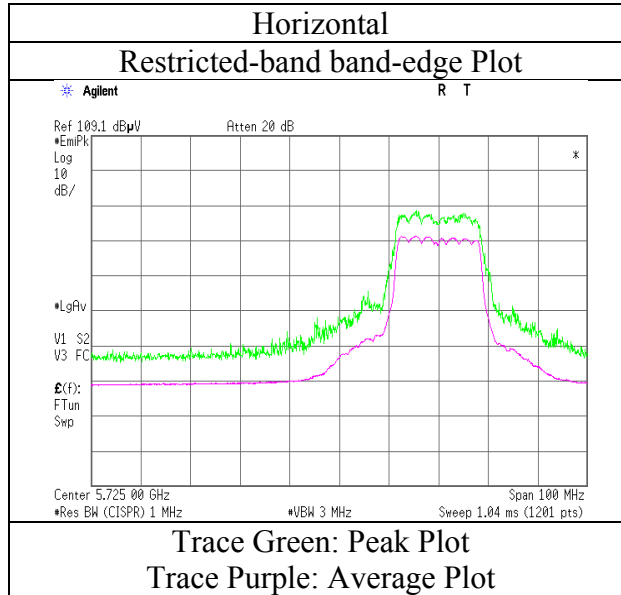
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Radiated Spurious Emission

Report No.	11922904M-C
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	September 7, 2017
Temperature / Humidity	23deg. C / 52 % RH
Engineer	Kazuhiro Ando
	(1 GHz - 6.4 GHz)
Mode	Tx 11a 5745 MHz



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

Radiated Spurious Emission

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 6, 2017	September 7, 2017	September 8, 2017	September 9, 2017
Temperature / Humidity	22deg. C / 52 % RH	23deg. C / 52 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
Mode	(30 MHz - 1000 MHz) Tx 11a 5785 MHz	(1 GHz - 6.4 GHz)	(6.4 GHz - 18 GHz)	(18 GHz - 40 GHz)

(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.	83.627	QP	51.60	8.30	4.50	32.20	0.00	32.20	40.00	7.8	230	195	
Hori.	95.138	QP	54.80	8.20	4.60	32.20	0.00	35.40	43.50	8.1	230	185	
Hori.	107.416	QP	51.20	10.00	4.70	32.20	0.00	33.70	43.50	9.8	155	95	
Hori.	404.998	QP	49.90	15.70	6.60	32.00	0.00	40.20	46.00	5.8	100	150	
Hori.	458.997	QP	45.40	17.30	6.90	32.00	0.00	37.60	46.00	8.4	100	335	
Hori.	593.996	QP	44.70	19.80	7.40	32.10	0.00	39.80	46.00	6.2	170	340	
Hori.	1920.125	PK	48.30	25.70	13.30	42.20	2.20	47.30	73.90	26.6	150	205	
Hori.	11570.000	PK	43.00	39.70	8.40	38.60	-9.50	43.00	73.90	30.9	153	148	
Hori.	17355.000	PK	44.50	42.00	10.60	39.30	-9.50	48.30	73.90	25.6	150	0	Floor noise
Hori.	1920.125	AV	39.50	25.70	13.30	42.20	2.20	38.50	53.90	15.4	150	205	VBW:10Hz
Hori.	11570.000	AV	33.30	39.70	8.40	38.60	-9.50	33.30	53.90	20.6	153	148	VBW:750Hz
Hori.	17355.000	AV	33.80	42.00	10.60	39.30	-9.50	37.60	53.90	16.3	150	0	Floor noise
Vert.	107.414	QP	47.70	10.00	4.70	32.20	0.00	30.20	43.50	13.3	100	105	
Vert.	146.544	QP	48.10	13.40	5.00	32.20	0.00	34.30	43.50	9.2	100	80	
Vert.	458.997	QP	43.70	17.30	6.90	32.00	0.00	35.90	46.00	10.1	120	175	
Vert.	593.996	QP	43.40	19.80	7.40	32.10	0.00	38.50	46.00	7.5	190	165	
Vert.	1920.125	PK	48.20	25.70	13.30	42.20	2.20	47.20	73.90	26.7	150	200	
Vert.	11570.000	PK	42.70	39.70	8.40	38.60	-9.50	42.70	73.90	31.2	160	145	
Vert.	17355.000	PK	44.80	42.00	10.60	39.30	-9.50	48.60	73.90	25.3	150	0	Floor noise
Vert.	1920.125	AV	37.80	25.70	13.30	42.20	2.20	36.80	53.90	17.1	150	200	VBW:10Hz
Vert.	11570.000	AV	33.00	39.70	8.40	38.60	-9.50	33.00	53.90	20.9	160	145	VBW:750Hz
Vert.	17355.000	AV	33.90	42.00	10.60	39.30	-9.50	37.70	53.90	16.2	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB

10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB

26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

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Kashima EMC Lab.

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Facsimile : +81 478 82 3373

Radiated Spurious Emission

Report No. 11922904M-C
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.11 No.11 No.11
Date September 7, 2017 September 8, 2017 September 9, 2017
Temperature / Humidity 23deg. C / 52 % RH 23deg. C / 51 % RH 23deg. C / 56 % RH
Engineer Kazuhiro Ando Kazuhiro Ando Kazuhiro Ando
(1 GHz - 6.4 GHz) (6.4 GHz - 18 GHz) (18 GHz - 40 GHz)
Mode Tx 11a 5825 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.	1920.125	PK	48.60	25.70	13.30	42.20	2.20	47.60	73.90	26.3	150	205	
Hori.	11650.000	PK	43.90	39.30	8.40	38.60	-9.50	43.50	73.90	30.4	165	120	
Hori.	17475.000	PK	44.60	43.20	10.60	39.20	-9.50	49.70	73.90	24.2	150	0	Floor noise
Hori.	1920.125	AV	39.70	25.70	13.30	42.20	2.20	38.70	53.90	15.2	150	205	VBW:10Hz
Hori.	11650.000	AV	34.20	39.30	8.40	38.60	-9.50	33.80	53.90	20.1	165	120	VBW:750Hz
Hori.	17475.000	AV	34.10	43.20	10.60	39.20	-9.50	39.20	53.90	14.7	150	0	Floor noise
Vert.	1920.125	PK	47.80	25.70	13.30	42.20	2.20	46.80	73.90	27.1	150	200	
Vert.	11650.000	PK	43.70	39.30	8.40	38.60	-9.50	43.30	73.90	30.6	150	130	
Vert.	17475.000	PK	44.80	43.20	10.60	39.20	-9.50	49.90	73.90	24.0	150	0	Floor noise
Vert.	1920.125	AV	37.50	25.70	13.30	42.20	2.20	36.50	53.90	17.4	150	200	VBW:10Hz
Vert.	11650.000	AV	33.30	39.30	8.40	38.60	-9.50	32.90	53.90	21.0	150	130	VBW:750Hz
Vert.	17475.000	AV	33.90	43.20	10.60	39.20	-9.50	39.00	53.90	14.9	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 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.	5850.000	PK	49.40	32.40	15.80	41.70	2.20	58.10	-37.10	27.00	64.1	180	270	
Hori.	5855.000	PK	48.40	32.40	15.80	41.70	2.20	57.10	-38.10	15.60	53.7	180	270	
Hori.	5875.000	PK	48.00	32.40	15.80	41.70	2.20	56.70	-38.50	10.00	48.5	180	270	
Hori.	5925.000	PK	48.00	32.40	15.80	41.70	2.20	56.70	-38.50	-27.00	11.5	180	270	
Vert.	5850.000	PK	46.70	32.40	15.80	41.70	2.20	55.40	-39.80	27.00	66.8	150	295	
Vert.	5855.000	PK	46.50	32.40	15.80	41.70	2.20	55.20	-40.00	15.60	55.6	150	295	
Vert.	5875.000	PK	46.50	32.40	15.80	41.70	2.20	55.20	-40.00	10.00	50.0	150	295	
Vert.	5925.000	PK	46.10	32.40	15.80	41.70	2.20	54.80	-40.40	-27.00	13.4	150	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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

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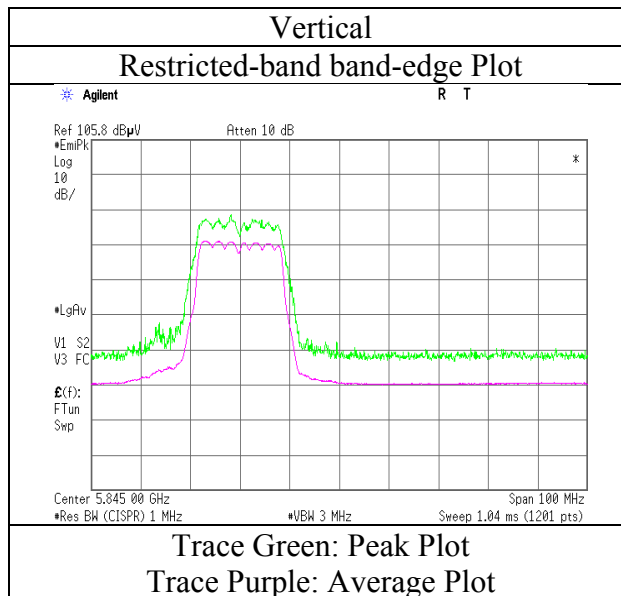
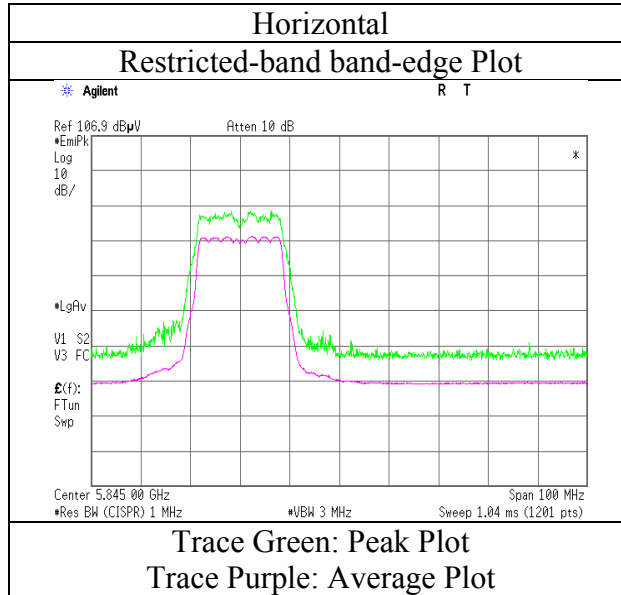
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Facsimile : +81 478 82 3373

Radiated Spurious Emission

Report No.	11922904M-C
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	September 7, 2017
Temperature / Humidity	23deg. C / 52 % RH
Engineer	Kazuhiro Ando
	(1 GHz - 6.4 GHz)
Mode	Tx 11a 5825 MHz



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

Radiated Spurious Emission

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 7, 2017	September 8, 2017	September 9, 2017	September 10, 2017
Temperature / Humidity	23deg. C / 52 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH	22deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(1 GHz - 6.4 GHz)	(6.4 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 5745 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.	1920.125	PK	49.30	25.70	13.30	42.20	2.20	48.30	73.90	25.6	150	200	
Hori.	11490.000	PK	43.20	39.90	8.40	38.60	-9.50	43.40	73.90	30.5	150	150	
Hori.	17235.000	PK	45.40	41.00	10.40	39.40	-9.50	47.90	73.90	26.0	150	0	Floor noise
Hori.	1920.125	AV	41.10	25.70	13.30	42.20	2.20	40.10	53.90	13.8	150	200	VBW:10Hz
Hori.	11490.000	AV	34.73	39.90	8.40	38.60	-9.50	34.93	53.90	18.9	150	150	VBW:2.2kHz
Hori.	17235.000	AV	35.10	41.00	10.40	39.40	-9.50	37.60	53.90	16.3	150	0	Floor noise
Vert.	1920.125	PK	47.90	25.70	13.30	42.20	2.20	46.90	73.90	27.0	150	205	
Vert.	11490.000	PK	42.30	39.90	8.40	38.60	-9.50	42.50	73.90	31.4	147	126	
Vert.	17235.000	PK	44.90	41.00	10.40	39.40	-9.50	47.40	73.90	26.5	150	0	Floor noise
Vert.	1920.125	AV	38.50	25.70	13.30	42.20	2.20	37.50	53.90	16.4	150	205	VBW:10Hz
Vert.	11490.000	AV	34.10	39.90	8.40	38.60	-9.50	34.30	53.90	19.6	147	126	VBW:2.2kHz
Vert.	17235.000	AV	35.00	41.00	10.40	39.40	-9.50	37.50	53.90	16.4	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 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.	5650.000	PK	45.80	31.70	15.70	41.80	2.20	53.60	-41.60	-27.00	14.6	185	275	
Hori.	5700.000	PK	46.80	31.90	15.70	41.80	2.20	54.80	-40.40	10.00	50.4	185	275	
Hori.	5720.000	PK	51.40	32.00	15.70	41.80	2.20	59.50	-35.70	15.60	51.3	185	275	
Hori.	5725.000	PK	52.00	32.00	15.70	41.80	2.20	60.10	-35.10	27.00	62.1	185	275	
Vert.	5650.000	PK	46.00	31.70	15.70	41.80	2.20	53.80	-41.40	-27.00	14.4	150	295	
Vert.	5700.000	PK	46.80	31.90	15.70	41.80	2.20	54.80	-40.40	10.00	50.4	150	295	
Vert.	5720.000	PK	47.00	32.00	15.70	41.80	2.20	55.10	-40.10	15.60	55.7	150	295	
Vert.	5725.000	PK	50.60	32.00	15.70	41.80	2.20	58.70	-36.50	27.00	63.5	150	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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

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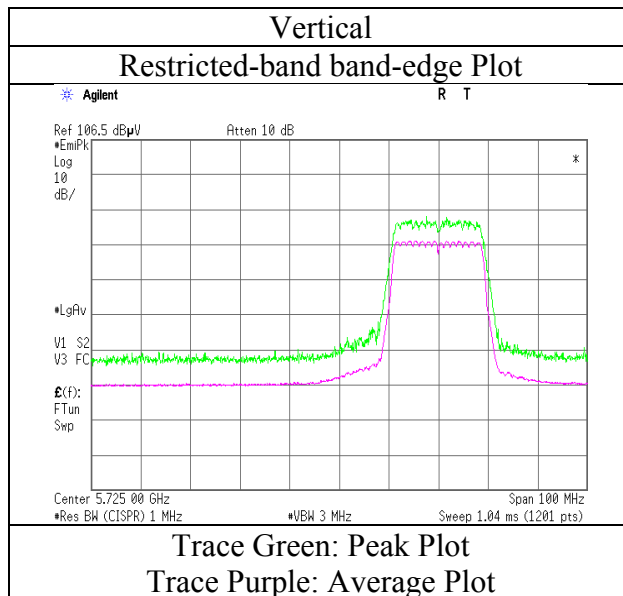
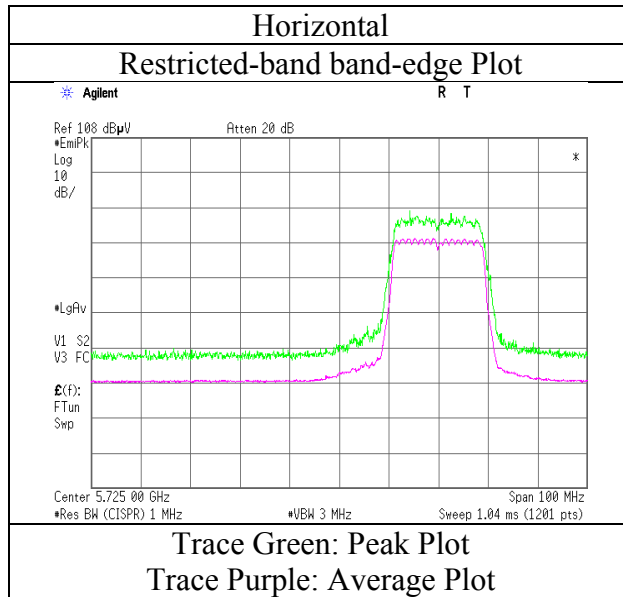
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Radiated Spurious Emission

Report No.	11922904M-C
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	September 7, 2017
Temperature / Humidity	23deg. C / 52 % RH
Engineer	Kazuhiro Ando
	(1 GHz - 6.4 GHz)
Mode	Tx 11n-20 5745 MHz



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

Radiated Spurious Emission

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 7, 2017	September 8, 2017	September 9, 2017	September 10, 2017
Temperature / Humidity	23deg. C / 52 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH	22deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(1 GHz - 6.4 GHz)	(6.4 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 5785 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.	1920.125	PK	49.10	25.70	13.30	42.20	2.20	48.10	73.90	25.8	150	205	
Hori.	11570.000	PK	44.00	39.70	8.40	38.60	-9.50	44.00	73.90	29.9	155	149	
Hori.	17355.000	PK	44.70	42.00	10.60	39.30	-9.50	48.50	73.90	25.4	150	0	Floor noise
Hori.	1920.125	AV	41.10	25.70	13.30	42.20	2.20	40.10	53.90	13.8	150	205	VBW:10Hz
Hori.	11570.000	AV	34.40	39.70	8.40	38.60	-9.50	34.40	53.90	19.5	155	149	VBW:2.2kHz
Hori.	17355.000	AV	34.90	42.00	10.60	39.30	-9.50	38.70	53.90	15.2	150	0	Floor noise
Vert.	1920.125	PK	48.70	25.70	13.30	42.20	2.20	47.70	73.90	26.2	150	210	
Vert.	11570.000	PK	43.60	39.70	8.40	38.60	-9.50	43.60	73.90	30.3	155	170	
Vert.	17355.000	PK	44.00	42.00	10.60	39.30	-9.50	47.80	73.90	26.1	150	0	Floor noise
Vert.	1920.125	AV	38.70	25.70	13.30	42.20	2.20	37.70	53.90	16.2	150	210	VBW:10Hz
Vert.	11570.000	AV	34.20	39.70	8.40	38.60	-9.50	34.20	53.90	19.7	155	170	VBW:2.2kHz
Vert.	17355.000	AV	34.60	42.00	10.60	39.30	-9.50	38.40	53.90	15.5	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : $20\log(3.88\text{ m} / 3.0\text{ m}) = 2.2\text{ dB}$

10 GHz - 26 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

26 GHz - 40 GHz : $20\log(0.5\text{ m} / 3.0\text{ m}) = -15.6\text{ dB}$

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Radiated Spurious Emission

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 7, 2017	September 8, 2017	September 9, 2017	September 10, 2017
Temperature / Humidity	23deg. C / 52 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH	22deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(1 GHz - 6.4 GHz)	(6.4 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 5825 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.	1920.125	PK	48.90	25.70	13.30	42.20	2.20	47.90	73.90	26.0	150	200	
Hori.	11650.000	PK	43.40	39.30	8.40	38.60	-9.50	43.00	73.90	30.9	165	120	
Hori.	17475.000	PK	44.40	43.20	10.60	39.20	-9.50	49.50	73.90	24.4	150	0	Floor noise
Hori.	1920.125	AV	41.20	25.70	13.30	42.20	2.20	40.20	53.90	13.7	150	200	VBW:10Hz
Hori.	11650.000	AV	35.00	39.30	8.40	38.60	-9.50	34.60	53.90	19.3	165	120	VBW:2.2kHz
Hori.	17475.000	AV	34.90	43.20	10.60	39.20	-9.50	40.00	53.90	13.9	150	0	Floor noise
Vert.	1920.125	PK	47.70	25.70	13.30	42.20	2.20	46.70	73.90	27.2	150	210	
Vert.	11650.000	PK	43.40	39.30	8.40	38.60	-9.50	43.00	73.90	30.9	150	130	
Vert.	17475.000	PK	45.10	43.20	10.60	39.20	-9.50	50.20	73.90	23.7	150	0	Floor noise
Vert.	1920.125	AV	38.30	25.70	13.30	42.20	2.20	37.30	53.90	16.6	150	210	VBW:10Hz
Vert.	11650.000	AV	34.60	39.30	8.40	38.60	-9.50	34.20	53.90	19.7	150	130	VBW:2.2kHz
Vert.	17475.000	AV	34.60	43.20	10.60	39.20	-9.50	39.70	53.90	14.2	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 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.	5850.000	PK	46.90	32.40	15.80	41.70	2.20	55.60	-39.60	27.00	66.6	180	290	
Hori.	5855.000	PK	46.60	32.40	15.80	41.70	2.20	55.30	-39.90	15.60	55.5	180	290	
Hori.	5875.000	PK	46.40	32.40	15.80	41.70	2.20	55.10	-40.10	10.00	50.1	180	290	
Hori.	5925.000	PK	46.10	32.40	15.80	41.70	2.20	54.80	-40.40	-27.00	13.4	180	290	
Vert.	5850.000	PK	46.60	32.40	15.80	41.70	2.20	55.30	-39.90	27.00	66.9	175	285	
Vert.	5855.000	PK	46.10	32.40	15.80	41.70	2.20	54.80	-40.40	15.60	56.0	175	285	
Vert.	5875.000	PK	46.00	32.40	15.80	41.70	2.20	54.70	-40.50	10.00	50.5	175	285	
Vert.	5925.000	PK	46.00	32.40	15.80	41.70	2.20	54.70	-40.50	-27.00	13.5	175	285	

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

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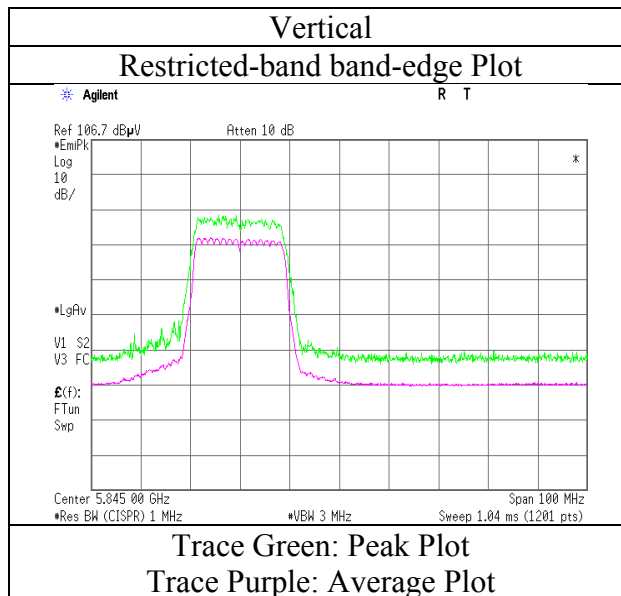
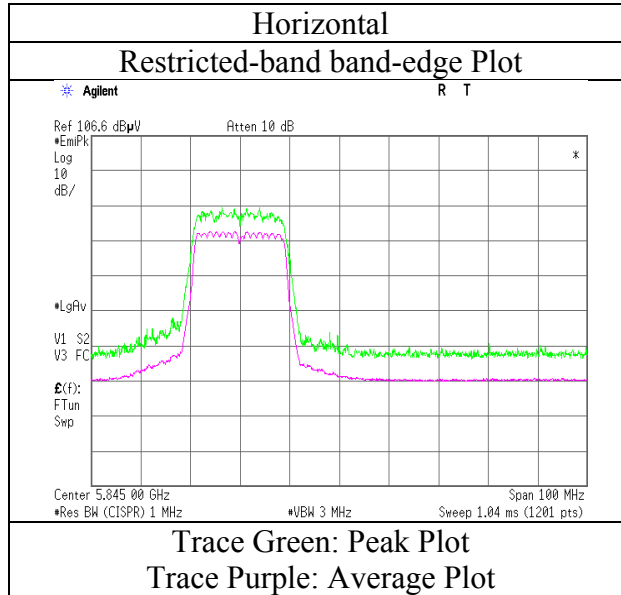
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Radiated Spurious Emission

Report No.	11922904M-C
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	September 7, 2017
Temperature / Humidity	23deg. C / 52 % RH
Engineer	Kazuhiro Ando
	(1 GHz - 6.4 GHz)
Mode	Tx 11n-20 5825 MHz



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

Radiated Spurious Emission

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 8, 2017	September 8, 2017	September 9, 2017	September 10, 2017
Temperature / Humidity	23deg. C / 51 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH	22deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(1 GHz - 6.4 GHz)	(6.4 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 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.	1920.125	PK	48.80	25.70	13.30	42.20	2.20	47.80	73.90	26.1	150	200	
Hori.	11510.000	PK	43.00	39.90	8.40	38.60	-9.50	43.20	73.90	30.7	150	120	
Hori.	17265.000	PK	45.30	41.20	10.50	39.40	-9.50	48.10	73.90	25.8	150	0	Floor noise
Hori.	1920.125	AV	40.80	25.70	13.30	42.20	2.20	39.80	53.90	14.1	150	200	VBW:10Hz
Hori.	11510.000	AV	33.60	39.90	8.40	38.60	-9.50	33.80	53.90	20.1	150	120	VBW:1.6kHz
Hori.	17265.000	AV	35.00	41.20	10.50	39.40	-9.50	37.80	53.90	16.1	150	0	Floor noise
Vert.	1920.125	PK	48.00	25.70	13.30	42.20	2.20	47.00	73.90	26.9	150	205	
Vert.	11510.000	PK	43.50	39.90	8.40	38.60	-9.50	43.70	73.90	30.2	160	145	
Vert.	17265.000	PK	44.90	41.20	10.50	39.40	-9.50	47.70	73.90	26.2	150	0	Floor noise
Vert.	1920.125	AV	38.30	25.70	13.30	42.20	2.20	37.30	53.90	16.6	150	205	VBW:10Hz
Vert.	11510.000	AV	34.00	39.90	8.40	38.60	-9.50	34.20	53.90	19.7	160	145	VBW:1.6kHz
Vert.	17265.000	AV	35.10	41.20	10.50	39.40	-9.50	37.90	53.90	16.0	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 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.	5650.000	PK	45.20	31.70	15.70	41.80	2.20	53.00	-42.20	-27.00	15.2	185	275	
Hori.	5700.000	PK	47.00	31.90	15.70	41.80	2.20	55.00	-40.20	10.00	50.2	185	275	
Hori.	5720.000	PK	53.10	32.00	15.70	41.80	2.20	61.20	-34.00	15.60	49.6	185	275	
Hori.	5725.000	PK	53.70	32.00	15.70	41.80	2.20	61.80	-33.40	27.00	60.4	185	275	
Vert.	5650.000	PK	45.60	31.70	15.70	41.80	2.20	53.40	-41.80	-27.00	14.8	150	300	
Vert.	5700.000	PK	46.10	31.90	15.70	41.80	2.20	54.10	-41.10	10.00	51.1	150	300	
Vert.	5720.000	PK	52.20	32.00	15.70	41.80	2.20	60.30	-34.90	15.60	50.5	150	300	
Vert.	5725.000	PK	53.90	32.00	15.70	41.80	2.20	62.00	-33.20	27.00	60.2	150	300	

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

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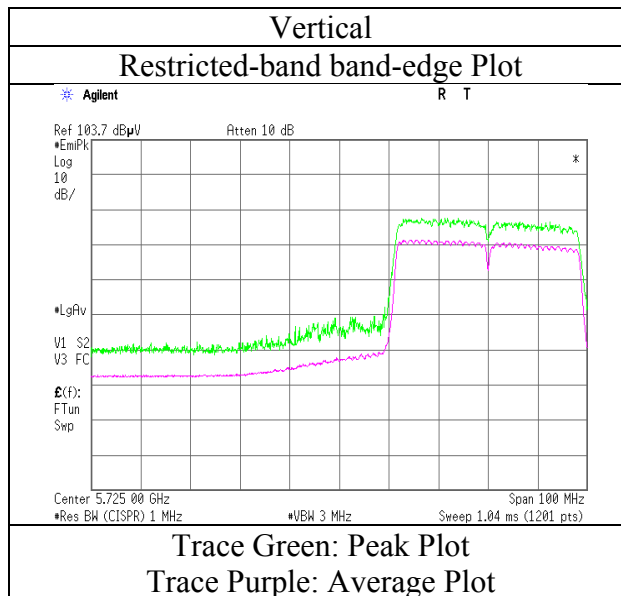
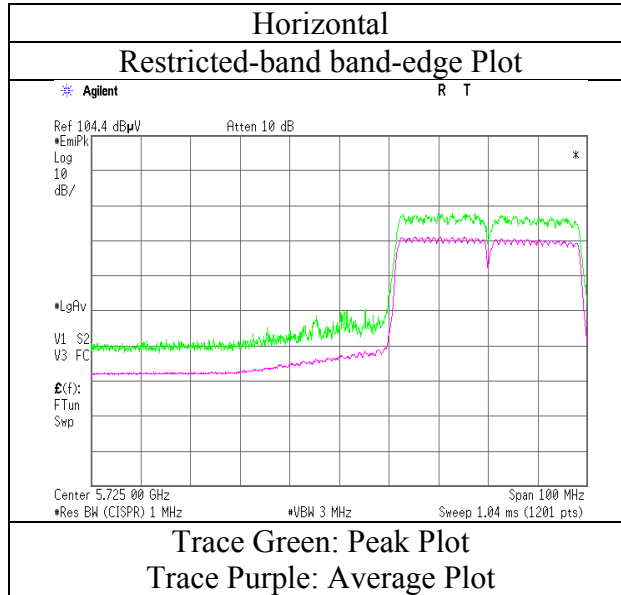
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

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Radiated Spurious Emission

Report No.	11922904M-C
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	September 8, 2017
Temperature / Humidity	23deg. C / 51 % RH
Engineer	Kazuhiro Ando
	(1 GHz - 6.4 GHz)
Mode	Tx 11n-40 5755 MHz



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

Radiated Spurious Emission

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 8, 2017	September 8, 2017	September 9, 2017	September 10, 2017
Temperature / Humidity	23deg. C / 51 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH	22deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(1 GHz - 6.4 GHz)	(6.4 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 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.	1920.125	PK	49.50	25.70	13.30	42.20	2.20	48.50	73.90	25.4	150	200	
Hori.	11590.000	PK	43.40	39.70	8.40	38.60	-9.50	43.40	73.90	30.5	155	150	
Hori.	17385.000	PK	44.60	42.40	10.60	39.30	-9.50	48.80	73.90	25.1	150	0	Floor noise
Hori.	1920.125	AV	40.60	25.70	13.30	42.20	2.20	39.60	53.90	14.3	150	200	VBW:10Hz
Hori.	11590.000	AV	33.80	39.70	8.40	38.60	-9.50	33.80	53.90	20.1	155	150	VBW:1.6kHz
Hori.	17385.000	AV	34.70	42.40	10.60	39.30	-9.50	38.90	53.90	15.0	150	0	Floor noise
Vert.	1920.125	PK	47.70	25.70	13.30	42.20	2.20	46.70	73.90	27.2	160	195	
Vert.	11590.000	PK	43.00	39.70	8.40	38.60	-9.50	43.00	73.90	30.9	150	145	
Vert.	17385.000	PK	44.50	42.40	10.60	39.30	-9.50	48.70	73.90	25.2	150	0	Floor noise
Vert.	1920.125	AV	38.30	25.70	13.30	42.20	2.20	37.30	53.90	16.6	160	195	VBW:10Hz
Vert.	11590.000	AV	34.00	39.70	8.40	38.60	-9.50	34.00	53.90	19.9	150	145	VBW:1.6kHz
Vert.	17385.000	AV	35.00	42.40	10.60	39.30	-9.50	39.20	53.90	14.7	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 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.	5850.000	PK	46.70	32.40	15.80	41.70	2.20	55.40	-39.80	27.00	66.8	170	295	
Hori.	5855.000	PK	46.20	32.40	15.80	41.70	2.20	54.90	-40.30	15.60	55.9	170	295	
Hori.	5875.000	PK	46.00	32.40	15.80	41.70	2.20	54.70	-40.50	10.00	50.5	170	295	
Hori.	5925.000	PK	45.80	32.40	15.80	41.70	2.20	54.50	-40.70	-27.00	13.7	170	295	
Vert.	5850.000	PK	47.00	32.40	15.80	41.70	2.20	55.70	-39.50	27.00	66.5	160	95	
Vert.	5855.000	PK	46.60	32.40	15.80	41.70	2.20	55.30	-39.90	15.60	55.5	160	95	
Vert.	5875.000	PK	46.60	32.40	15.80	41.70	2.20	55.30	-39.90	10.00	49.9	160	95	
Vert.	5925.000	PK	46.10	32.40	15.80	41.70	2.20	54.80	-40.40	-27.00	13.4	160	95	

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

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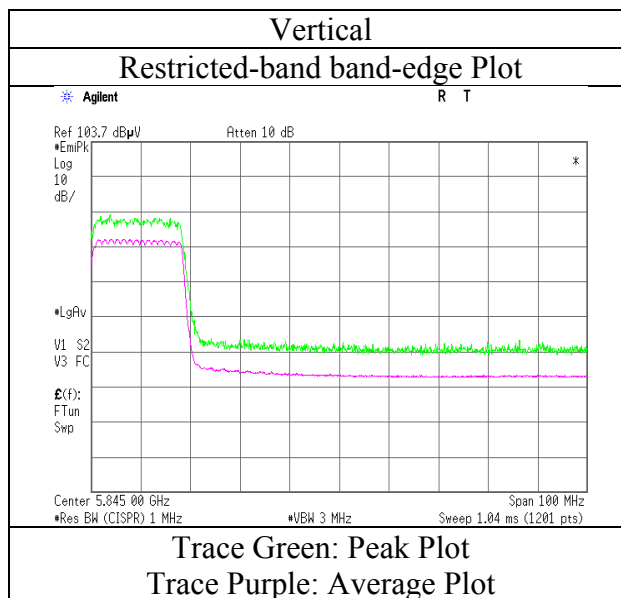
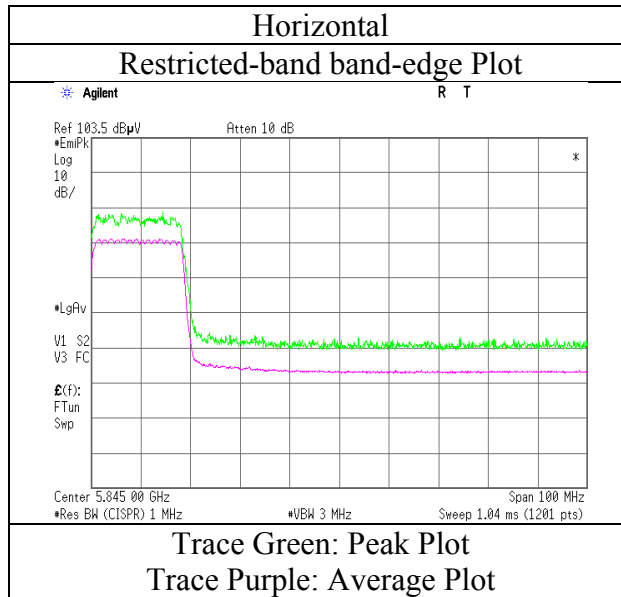
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Facsimile : +81 478 82 3373

Radiated Spurious Emission

Report No.	11922904M-C
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	September 8, 2017
Temperature / Humidity	23deg. C / 51 % RH
Engineer	Kazuhiro Ando
	(1 GHz - 6.4 GHz)
Mode	Tx 11n-40 5795 MHz



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

Radiated Spurious Emission

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 8, 2017	September 8, 2017	September 9, 2017	September 10, 2017
Temperature / Humidity	23deg. C / 51 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH	22deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(1 GHz - 6.4 GHz)	(6.4 GHz - 10 GHz)	(10 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-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.	1920.125	PK	49.20	25.70	13.30	42.20	2.20	48.20	73.90	25.7	158	200	
Hori.	11510.000	PK	43.20	39.90	8.40	38.60	-9.50	43.40	73.90	30.5	150	150	
Hori.	17265.000	PK	44.70	41.20	10.50	39.40	-9.50	47.50	73.90	26.4	150	0	Floor noise
Hori.	1920.125	AV	43.20	25.70	13.30	42.20	2.20	42.20	53.90	11.7	158	200	VBW:10Hz
Hori.	11510.000	AV	35.40	39.90	8.40	38.60	-9.50	35.60	53.90	18.3	150	150	VBW:9.1kHz
Hori.	17265.000	AV	36.70	41.20	10.50	39.40	-9.50	39.50	53.90	14.4	150	0	Floor noise
Vert.	1920.125	PK	49.30	25.70	13.30	42.20	2.20	48.30	73.90	25.6	143	191	
Vert.	11510.000	PK	43.20	39.90	8.40	38.60	-9.50	43.40	73.90	30.5	165	145	
Vert.	17265.000	PK	45.70	41.20	10.50	39.40	-9.50	48.50	73.90	25.4	150	0	Floor noise
Vert.	1920.125	AV	40.80	25.70	13.30	42.20	2.20	39.80	53.90	14.1	143	191	VBW:10Hz
Vert.	11510.000	AV	35.50	39.90	8.40	38.60	-9.50	35.70	53.90	18.2	165	145	VBW:9.1kHz
Vert.	17265.000	AV	36.20	41.20	10.50	39.40	-9.50	39.00	53.90	14.9	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 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.	5650.000	PK	46.80	31.70	15.70	41.80	2.20	54.60	-40.60	-27.00	13.6	207	273	
Hori.	5700.000	PK	46.50	31.90	15.70	41.80	2.20	54.50	-40.70	10.00	50.7	207	273	
Hori.	5720.000	PK	49.00	32.00	15.70	41.80	2.20	57.10	-38.10	15.60	53.7	207	273	
Hori.	5725.000	PK	49.00	32.00	15.70	41.80	2.20	57.10	-38.10	27.00	65.1	207	273	
Vert.	5650.000	PK	46.70	31.70	15.70	41.80	2.20	54.50	-40.70	-27.00	13.7	145	304	
Vert.	5700.000	PK	46.50	31.90	15.70	41.80	2.20	54.50	-40.70	10.00	50.7	145	304	
Vert.	5720.000	PK	47.80	32.00	15.70	41.80	2.20	55.90	-39.30	15.60	54.9	145	304	
Vert.	5725.000	PK	48.60	32.00	15.70	41.80	2.20	56.70	-38.50	27.00	65.5	145	304	

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

UL Japan, Inc.

Kashima EMC Lab.

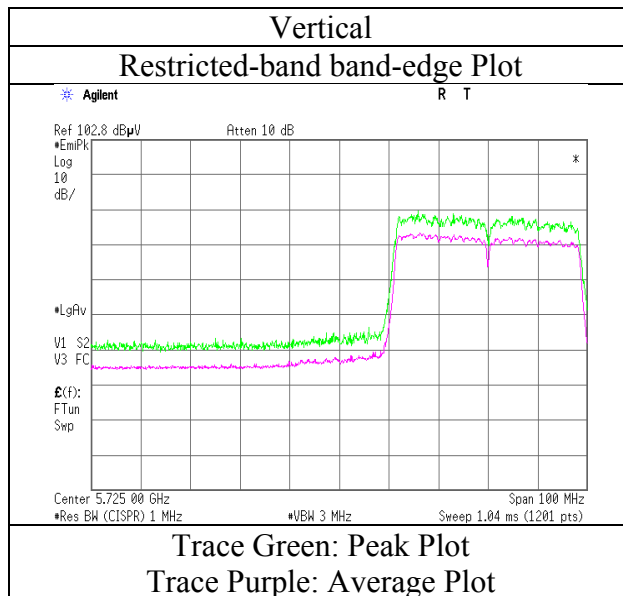
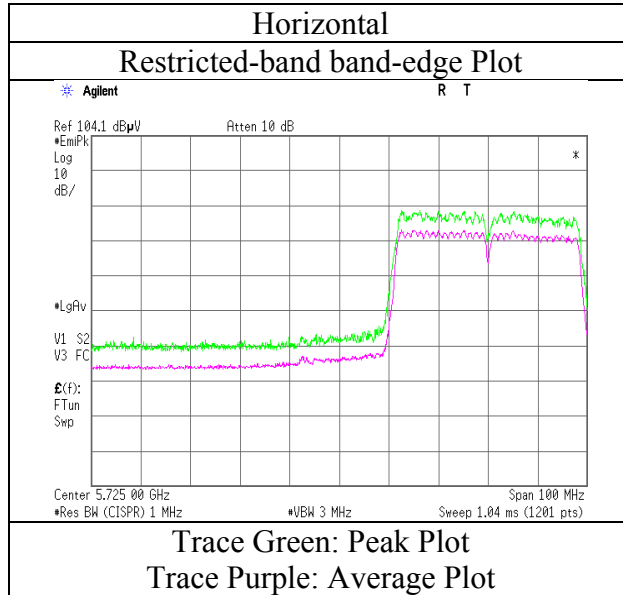
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

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Radiated Spurious Emission

Report No.	11922904M-C
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	September 8, 2017
Temperature / Humidity	23deg. C / 51 % RH
Engineer	Kazuhiro Ando
	(1 GHz - 6.4 GHz)
Mode	Tx 11ac-40 5755 MHz



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

Radiated Spurious Emission

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 8, 2017	September 8, 2017	September 9, 2017	September 10, 2017
Temperature / Humidity	23deg. C / 51 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH	22deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
Mode	(1 GHz - 6.4 GHz) Tx 11ac-40 5795 MHz	(6.4 GHz - 10 GHz)	(10 GHz - 26 GHz)	(26 GHz - 40 GHz)

(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.	1920.125	PK	50.10	25.70	13.30	42.20	2.20	49.10	73.90	24.8	164	200	
Hori.	11590.000	PK	43.80	39.70	8.40	38.60	-9.50	43.80	73.90	30.1	155	150	
Hori.	17385.000	PK	44.80	42.40	10.60	39.30	-9.50	49.00	73.90	24.9	150	0	Floor noise
Hori.	1920.125	AV	43.80	25.70	13.30	42.20	2.20	42.80	53.90	11.1	164	200	VBW:10Hz
Hori.	11590.000	AV	35.20	39.70	8.40	38.60	-9.50	35.20	53.90	18.7	155	150	VBW:9.1kHz
Hori.	17385.000	AV	35.90	42.40	10.60	39.30	-9.50	40.10	53.90	13.8	150	0	Floor noise
Vert.	1920.125	PK	48.50	25.70	13.30	42.20	2.20	47.50	73.90	26.4	159	191	
Vert.	11590.000	PK	43.30	39.70	8.40	38.60	-9.50	43.30	73.90	30.6	150	127	
Vert.	17385.000	PK	44.90	42.40	10.60	39.30	-9.50	49.10	73.90	24.8	150	0	Floor noise
Vert.	1920.125	AV	40.80	25.70	13.30	42.20	2.20	39.80	53.90	14.1	159	191	VBW:10Hz
Vert.	11590.000	AV	35.20	39.70	8.40	38.60	-9.50	35.20	53.90	18.7	150	127	VBW:9.1kHz
Vert.	17385.000	AV	36.20	42.40	10.60	39.30	-9.50	40.40	53.90	13.5	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 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.	5850.000	PK	46.30	32.40	15.80	41.70	2.20	55.00	-40.20	27.00	67.2	172	294	
Hori.	5855.000	PK	46.30	32.40	15.80	41.70	2.20	55.00	-40.20	15.60	55.8	172	294	
Hori.	5875.000	PK	46.50	32.40	15.80	41.70	2.20	55.20	-40.00	10.00	50.0	172	294	
Hori.	5925.000	PK	46.50	32.40	15.80	41.70	2.20	55.20	-40.00	-27.00	13.0	172	294	
Vert.	5850.000	PK	46.80	32.40	15.80	41.70	2.20	55.50	-39.70	27.00	66.7	160	93	
Vert.	5855.000	PK	46.60	32.40	15.80	41.70	2.20	55.30	-39.90	15.60	55.5	160	93	
Vert.	5875.000	PK	46.70	32.40	15.80	41.70	2.20	55.40	-39.80	10.00	49.8	160	93	
Vert.	5925.000	PK	46.00	32.40	15.80	41.70	2.20	54.70	-40.50	-27.00	13.5	160	93	

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

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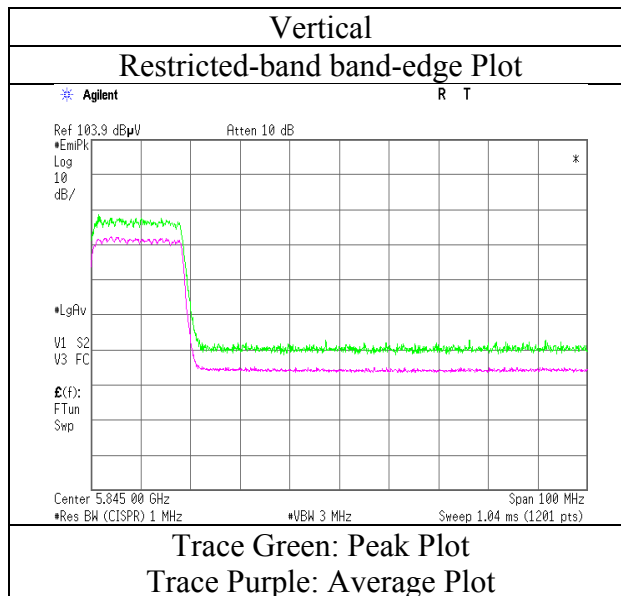
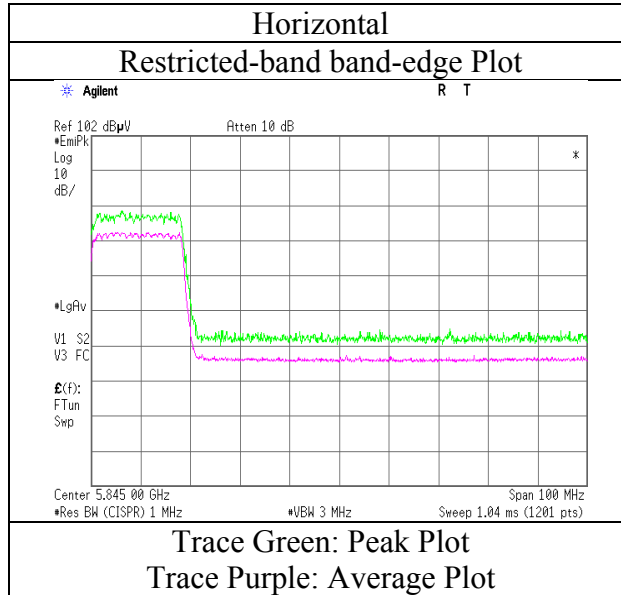
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Radiated Spurious Emission

Report No.	11922904M-C
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	September 8, 2017
Temperature / Humidity	23deg. C / 51 % RH
Engineer	Kazuhiro Ando
	(1 GHz - 6.4 GHz)
Mode	Tx 11ac-40 5795 MHz



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

Radiated Spurious Emission

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 8, 2017	September 8, 2017	September 9, 2017	September 10, 2017
Temperature / Humidity	23deg. C / 51 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH	22deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
	(1 GHz - 6.4 GHz)	(6.4 GHz - 10 GHz)	(10 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-80 5775 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.	1920.125	PK	50.00	25.70	13.30	42.20	2.20	49.00	73.90	24.9	160	200	
Hori.	11550.000	PK	43.00	39.80	8.40	38.60	-9.50	43.10	73.90	30.8	155	148	
Hori.	17325.000	PK	44.90	41.70	10.50	39.30	-9.50	48.30	73.90	25.6	150	0	Floor noise
Hori.	1920.125	AV	43.80	25.70	13.30	42.20	2.20	42.80	53.90	11.1	160	200	VBW:10Hz
Hori.	11550.000	AV	35.10	39.80	8.40	38.60	-9.50	35.20	53.90	18.7	155	148	VBW:10kHz
Hori.	17325.000	AV	36.20	41.70	10.50	39.30	-9.50	39.60	53.90	14.3	150	0	Floor noise
Vert.	1920.125	PK	49.30	25.70	13.30	42.20	2.20	48.30	73.90	25.6	154	196	
Vert.	11550.000	PK	42.80	39.80	8.40	38.60	-9.50	42.90	73.90	31.0	155	128	
Vert.	17325.000	PK	44.40	41.70	10.50	39.30	-9.50	47.80	73.90	26.1	150	0	Floor noise
Vert.	1920.125	AV	41.60	25.70	13.30	42.20	2.20	40.60	53.90	13.3	154	196	VBW:10Hz
Vert.	11550.000	AV	34.70	39.80	8.40	38.60	-9.50	34.80	53.90	19.1	155	128	VBW:10kHz
Vert.	17325.000	AV	36.20	41.70	10.50	39.30	-9.50	39.60	53.90	14.3	150	0	Floor noise

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 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.	5650.000	PK	46.00	31.70	15.70	41.80	2.20	53.80	-41.40	-27.00	14.4	219	279	
Hori.	5700.000	PK	45.90	31.90	15.70	41.80	2.20	53.90	-41.30	10.00	51.3	219	279	
Hori.	5720.000	PK	47.30	32.00	15.70	41.80	2.20	55.40	-39.80	15.60	55.4	219	279	
Hori.	5725.000	PK	47.00	32.00	15.70	41.80	2.20	55.10	-40.10	27.00	67.1	219	279	
Hori.	5850.000	PK	46.50	32.40	15.80	41.70	2.20	55.20	-40.00	27.00	67.0	219	279	
Hori.	5855.000	PK	46.70	32.40	15.80	41.70	2.20	55.40	-39.80	15.60	55.4	219	279	
Hori.	5875.000	PK	46.10	32.40	15.80	41.70	2.20	54.80	-40.40	10.00	50.4	219	279	
Hori.	5925.000	PK	46.20	32.40	15.80	41.70	2.20	54.90	-40.30	-27.00	13.3	219	279	
Vert.	5650.000	PK	45.60	31.70	15.70	41.80	2.20	53.40	-41.80	-27.00	14.8	155	93	
Vert.	5700.000	PK	46.30	31.90	15.70	41.80	2.20	54.30	-40.90	10.00	50.9	155	93	
Vert.	5720.000	PK	47.00	32.00	15.70	41.80	2.20	55.10	-40.10	15.60	55.7	155	93	
Vert.	5725.000	PK	46.50	32.00	15.70	41.80	2.20	54.60	-40.60	27.00	67.6	155	93	
Vert.	5850.000	PK	46.30	32.40	15.80	41.70	2.20	55.00	-40.20	27.00	67.2	155	93	
Vert.	5855.000	PK	46.80	32.40	15.80	41.70	2.20	55.50	-39.70	15.60	55.3	155	93	
Vert.	5875.000	PK	46.80	32.40	15.80	41.70	2.20	55.50	-39.70	10.00	49.7	155	93	
Vert.	5925.000	PK	46.30	32.40	15.80	41.70	2.20	55.00	-40.20	-27.00	13.2	155	93	

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).

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 10 GHz : 20log (3.88 m / 3.0 m) = 2.2 dB
10 GHz - 26 GHz : 20log (1.0 m / 3.0 m) = -9.5 dB
26 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.6 dB

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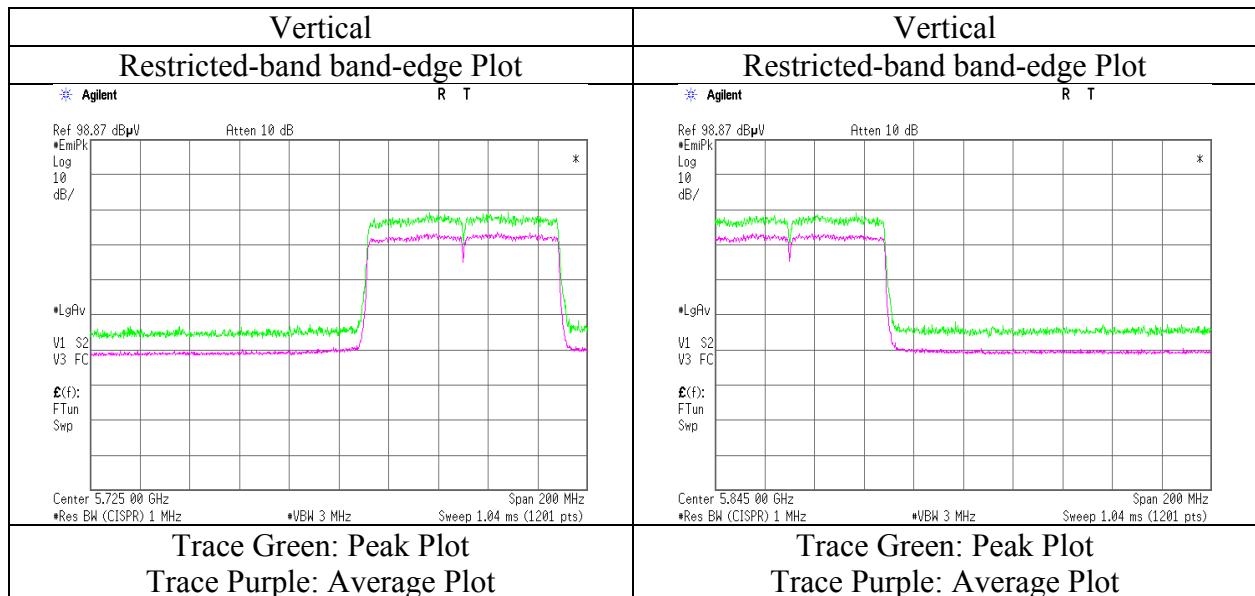
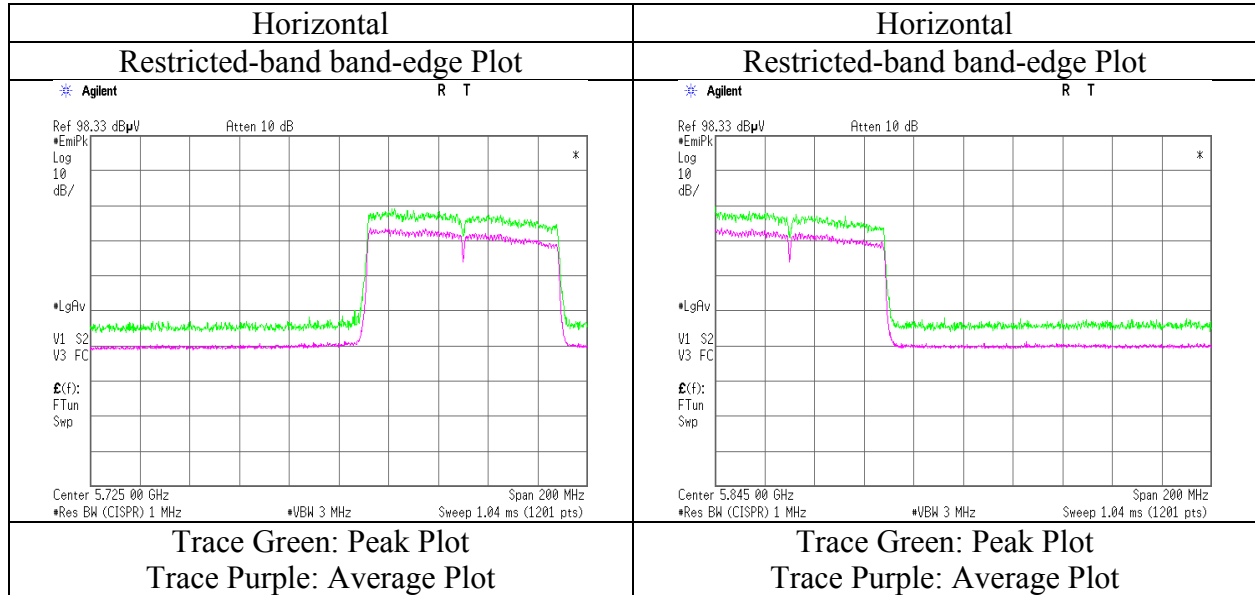
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

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Radiated Spurious Emission

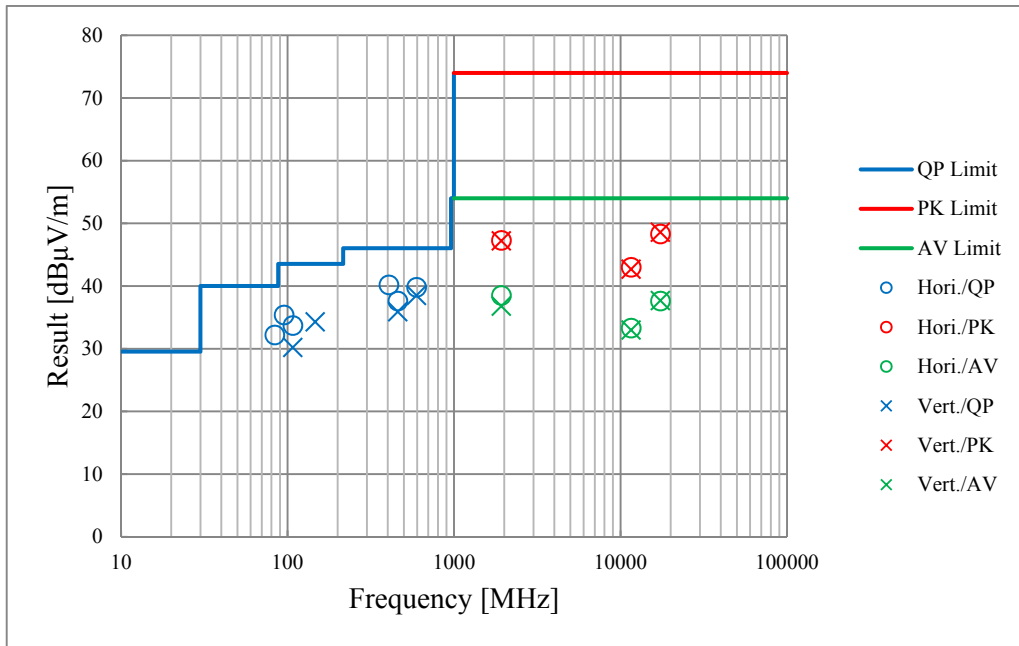
Report No. 11922904M-C
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.11
Date September 8, 2017
Temperature / Humidity 23deg. C / 51 % RH
Engineer Kazuhiro Ando
(1 GHz - 6.4 GHz)
Mode Tx 11ac-80 5775 MHz



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

Radiated Spurious Emission
(Plot data, Worst case)

Report No.	11922904M-C			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	September 6, 2017	September 7, 2017	September 8, 2017	September 9, 2017
Temperature / Humidity	22deg. C / 52 % RH	23deg. C / 52 % RH	23deg. C / 51 % RH	23deg. C / 56 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando
Mode	(30 MHz - 1000 MHz) Tx 11a 5785 MHz	(1 GHz - 6.4 GHz)	(6.4 GHz - 18 GHz)	(18 GHz - 40 GHz)



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

APPENDIX 2: Test instruments

Test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
CTR-06	Test Receiver	Rohde & Schwarz	ESCI	100107 Rev 4.32	RE	2016/09/26 * 12
CCC-S11-R (1/4/5/CAT S12-13/6/7/8/10)	Coaxial Cable	Fujikura,Suhner,Suhner,Agilent,Suhner,-,Suhner	5D-2W,SF106,SF104,8496B+8494B,SF106,-,SF106	MY42143380,US00431042(Step Att)	RE	2016/11/10 * 12
CAT3-07	3dB Fixed Atten.	TAMAGAWA	UFA-01	none	RE	2017/04/27 * 12
CBL-09	LOGBICON	Schwarzbeck	VULB 9168	508	RE	2017/04/10 * 12
CAF-16	Pre-Amplifier	Sonoma Instrument	310N	325015	RE	2017/05/19 * 12
CSCL-16	Ruler	Tajima	G3 gold	none	RE	-
COS-11	Temperature, Humidity & Atmospheric Logger	T&D	TR-73U	F8060468	RE	2017/05/16 * 12
CTS-13	Digital Multimeter	FLUKE	FLK-83-V	14610320	RE	2017/09/11 * 12
COTS-CEMI-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	-
CTR-01	Test Receiver	Rohde & Schwarz	ESU40	100426 Version 4.73 SP1	RE	2017/04/27 * 12
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-05	HPF	Micro-Tronics	HPM50112-02	006	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-W02	Micro Wave Cable	SUHNER	SUCOFLEX102	MY3773/2	RE	2017/05/19 * 12
CCC-W09	Micro Wave Cable	SUHNER	SUCOFLEX104	MY588/4	RE	2017/07/18 * 12
CCC-W10	Micro Wave Cable	Suhner	SUCOFLEX102	MY010/2A	RE	2017/07/18 * 12
KHA-06	Horn Antenna	ETS LINDGREN	3116	00046543	RE	2017/03/16 * 12
KAF-06	Pre Amplifier	TSJ	MLA-1840B02-35	-	RE	2017/02/17 * 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.

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