



# **RADIO TEST REPORT**

**Test Report No. : 14027963S-I**

**Applicant** : JVCKENWOOD Corporation  
**Type of EUT** : Monitor with Receiver  
**Model Number of EUT** : DMX958XR  
**FCC ID** : IOMJ5268  
**Test regulation** : FCC Part 15 Subpart E: 2021  
\*WLAN (5 GHz band) part  
**Test item** : Radiated Spurious Emission tests  
**Test Result** : Complied (Refer to SECTION 3)

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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 limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by the A2LA accreditation body.
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. The all test items in this test report are conducted by UL Japan, Inc. Kashima EMC Lab.
8. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan, Inc. has been accredited.
9. The information provided from the customer for this report is identified in Section 1.

**Date of test:** October 4 to 27, 2021

**Representative test engineer:**

Kazuhiro Ando  
Engineer

**Approved by:**

Kenichi Suda  
Manager



CERTIFICATE 1266.01

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

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**Kashima EMC Lab.**

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## **REVISION HISTORY**

**Original Test Report No.: 14027963S-I**

Revision	Test report No.	Date	Page revised	Contents
- (Original)	14027963S-I	November 25, 2021	-	-

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## Reference: Abbreviations (Including words undescribed in this report)

A2LA	The American Association for Laboratory Accreditation	LIMS	Laboratory Information Management System
AC	Alternating Current	MCS	Modulation and Coding Scheme
AFH	Adaptive Frequency Hopping	MRA	Mutual Recognition Arrangement
AM	Amplitude Modulation	N/A	Not Applicable
Amp, AMP	Amplifier	NIST	National Institute of Standards and Technology
ANSI	American National Standards Institute	NS	No signal detect.
Ant, ANT	Antenna	NSA	Normalized Site Attenuation
AP	Access Point	OBW	Occupied BandWidth
ASK	Amplitude Shift Keying	OFDM	Orthogonal Frequency Division Multiplexing
Atten., ATT	Attenuator	P/M	Power meter
AV	Average	PCB	Printed Circuit Board
BPSK	Binary Phase-Shift Keying	PER	Packet Error Rate
BR	Bluetooth Basic Rate	PHY	Physical Layer
BT	Bluetooth	PK	Peak
BT LE	Bluetooth Low Energy	PN	Pseudo random Noise
BW	BandWidth	PRBS	Pseudo-Random Bit Sequence
Cal Int	Calibration Interval	PSD	Power Spectral Density
CCK	Complementary Code Keying	QAM	Quadrature Amplitude Modulation
Ch., CH	Channel	QP	Quasi-Peak
CISPR	Comite International Special des Perturbations Radioelectriques	QPSK	Quadrature Phase Shift Keying
CW	Continuous Wave	RBW	Resolution BandWidth
DBPSK	Differential BPSK	RDS	Radio Data System
DC	Direct Current	RE	Radio Equipment
D-factor	Distance factor	RF	Radio Frequency
DFS	Dynamic Frequency Selection	RMS	Root Mean Square
DQPSK	Differential QPSK	RNSS	Radio Navigation Satellite Service
DSSS	Direct Sequence Spread Spectrum	RSS	Radio Standards Specifications
DUT	Device Under Test	Rx	Receiving
EDR	Enhanced Data Rate	SA, S/A	Spectrum Analyzer
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power	SG	Signal Generator
EMC	ElectroMagnetic Compatibility	SVSWR	Site-Voltage Standing Wave Ratio
EMI	ElectroMagnetic Interference	TR, T/R	Test Receiver
EN	European Norm	Tx	Transmitting
ERP, e.r.p.	Effective Radiated Power	VBW	Video BandWidth
ETSI	European Telecommunications Standards Institute	Vert.	Vertical
EU	European Union	WLAN	Wireless LAN
EUT	Equipment Under Test		
Fac.	Factor		
FCC	Federal Communications Commission		
FHSS	Frequency Hopping Spread Spectrum		
FM	Frequency Modulation		
Freq.	Frequency		
FSK	Frequency Shift Keying		
GFSK	Gaussian Frequency-Shift Keying		
GNSS	Global Navigation Satellite System		
GPS	Global Positioning System		
Hori.	Horizontal		
ICES	Interference-Causing Equipment Standard		
IEC	International Electrotechnical Commission		
IEEE	Institute of Electrical and Electronics Engineers		
IF	Intermediate Frequency		
ILAC	International Laboratory Accreditation Conference		
ISED	Innovation, Science and Economic Development Canada		
ISO	International Organization for Standardization		
JAB	Japan Accreditation Board		
LAN	Local Area Network		

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## **SECTION 1: Customer information**

Company Name : JVCKENWOOD Corporation  
Address : 2967-3, Ishikawa-machi, Hachioji, Tokyo 192-8525 Japan  
Telephone Number : +81-42-646-5525  
Contact Person : Seigo Tsutsumi

The information provided from the customer is as follows;

- Applicant, Type of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer information
- SECTION 2: Equipment under test (EUT) other than the Receipt Date
- SECTION 4: Operation of EUT during testing

\* The laboratory is exempted from liability of any test results affected from the above information in SECTION 2 and 4.

## **SECTION 2: Equipment under test (EUT)**

### **2.1 Identification of EUT**

Type : Monitor with Receiver  
Model Number : DMX958XR  
Serial Number : Refer to SECTION 4.2  
Condition : Production model  
Receipt Date : October 4, 2021  
Modification : No Modification by the test lab

### **2.2 Product Description**

Model: DMX958XR (referred to as the EUT in this report) is a Monitor with Receiver.

There are three variant models DMX908S, DMX9708S, KW-M875BW

These models are identical except for presence of Panel, Dashboard Camera control terminal, HD Radio, HD Camera Ready, Display and these difference do not affect the radio.

## General Specification

Rating : DC 12 V

## Radio Specification

Type of radio	Bluetooth (BR/EDR)	IEEE802.11b	IEEE802.11g	IEEE802.11a	IEEE802.11n (20 MHz BW)	IEEE802.11n (40 MHz BW)	IEEE802.11ac
Frequency of operation	2402 MHz - 2480 MHz	2412 MHz - 2462 MHz	2412 MHz - 2462 MHz	5745 MHz - 5805 MHz	2412 MHz - 2462 MHz 5745 MHz - 5805 MHz	5755 MHz - 5795 MHz	5745 MHz-5805 MHz (20 MHz BW) 5755 MHz-5795 MHz (40 MHz BW) 5775 MHz (80 MHz BW)
Type of modulation	FHSS	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK)			OFDM (256QAM, 16QAM, QPSK, BPSK)
Channel spacing	1 MHz	5 MHz		20 MHz	2.4 GHz band 5 MHz 5 GHz band 20 MHz	40 MHz	20 MHz (20 MHz BW) 40 MHz (40 MHz BW) 80 MHz (80 MHz BW)

Antenna type	Internal Antenna (Chip Antenna)
Antenna Gain	Antenna 0 (ANT-0) : -7.7 dBi (2.4 GHz Wireless LAN only), -4.7 dBi (5 GHz) Antenna 1 (ANT-1) : -9.9 dBi (2.4 GHz Bluetooth only), -4.6 dBi (5 GHz)
Power Supply (radio art input)	DC 3.6 V/ 3.3 V/1.8 V
Clock frequency (Maximum)	37.4 MHz
Clock frequency in the system (Maximum)	6.2208 GHz

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

### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart E  
FCC Part 15 final revised on May 3, 2021 and effective July 2, 2021

Title : FCC 47 CFR Part 15 Radio Frequency Device Subpart E  
Unlicensed National Information Infrastructure Devices  
Section 15.407 General technical requirements

\* Also the EUT complies with FCC Part 15 Subpart B.

### **3.2 Procedures and results**

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Spurious Emission Restricted Band Edge	FCC: ANSI C63.10-2013 KDB Publication Number 789033	FCC: 15.407 (b), 15.205 and 15.209	3.2 dB 840.000 MHz, QP, Hori.	Complied# a)	Radiated (> 30 MHz) *1)
	ISED: -	ISED: RSS-247 6.2.1.2 6.2.2.2 6.2.3.2 6.2.4.2			

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

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

a) Refer to APPENDIX 1 (data of Radiated Spurious Emission)

Symbols:

Complied The data of this test item has enough margin, more than the measurement uncertainty.

Complied# The data of this test item meets the limits unless the measurement uncertainty is taken into consideration.

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

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

The EUT provides stable voltage 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 the 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.

### **3.3 Addition to standard**

No addition, exclusion nor deviation has been made from the standard.

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### 3.4 Uncertainty

There is no applicable rule of uncertainty in this applied standard. Therefore, the following results are derived depending on whether or not laboratory uncertainty is applied.

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

#### Radiated emission

Measurement distance	Frequency range	Required Uncertainty (+/-)	Uncertainty (+/-)
3 m	9 kHz to 30 MHz	Not Defined	2.9 dB
	30 MHz to 200 MHz	6.3 dB	6.1 dB
	200 MHz to 1000 MHz		6.2 dB
	1 GHz to 6 GHz	5.2 dB	5.0 dB
	6 GHz to 18 GHz	5.5 dB	5.4 dB
	18 GHz to 40 GHz	Not Defined	5.5 dB
1 m	1 GHz to 18 GHz	Not Defined	5.4 dB
	18 GHz to 40 GHz		5.6 dB
0.5 m	26.5 GHz to 40 GHz	Not Defined	5.9 dB

### 3.5 Test Location

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A2LA Certificate Number: 1266.01 / FCC Test Firm Registration Number: 910230

ISED Lab Company Number: 4659A / CAB identifier: JP0006

Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Open site	6.0 x 5.5 x 2.5	20 x 40	10 m
No.5 Open site	8.6 x 7.1 x 2.4	18 x 23	10 m
No.1 Shielded room	5.4 x 4.5 x 2.3	-	-
No.5 Shielded Room	4.2 x 3.1 x 2.5	-	-
No.9 Shielded Room	6.1 x 3.6 x 2.8	-	-
No.6 Semi-anechoic Chamber	8.5 x 5.5 x 5.2	-	3 m
No.10 Semi-anechoic Chamber	18.4 x 9.9 x 7.7	-	10 m
No.11 Semi-anechoic Chamber	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	4.5 x 5.3 x 2.7	-	-

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

Refer to APPENDIX.

## **SECTION 4: Operation of EUT during testing**

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

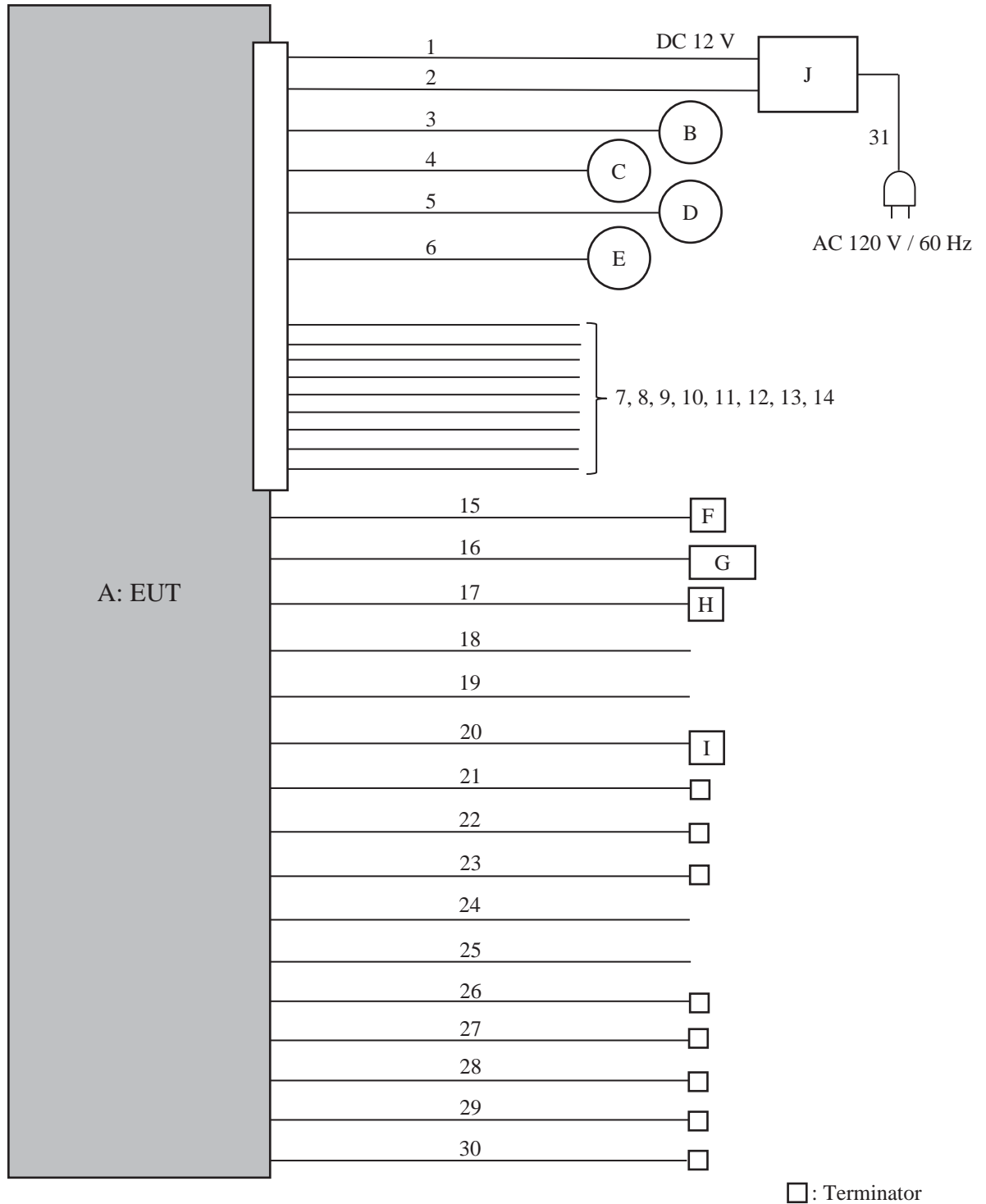
Test operating mode was determined as follows according to “Section 1 of 6 802.11 a/b/g/n testing - Managing Complex Regulatory Approvals -” of TCB Council Workshop October 2009 and also was judged the necessity of 802.11ac mode by the pre-test.

<b>Mode</b>	<b>Worst Data mode*</b>
Transmitting (Tx), IEEE 802.11ac MIMO 20 MHz BW (11ac-20)	MCS 6 (2 Streams), PN9
Transmitting (Tx), IEEE 802.11n MIMO 40 MHz BW (11n-40)	MCS 8 (2 Streams), PN9
Transmitting (Tx), IEEE 802.11ac MIMO 80 MHz BW (11ac-80)	MCS 0 (2 Streams), PN9
*The worst antenna (ANT-1) and condition was determined based on the test result of Maximum Conducted Output Power.	
*Power of the EUT was set by the software as follows; Power settings: Fixed Software: SoC: 0.0.0805.4600 Syscom: 1.0.0479.3100 Panel: 1.0.0209.3700 (Date: 2021.10.4, Storage location: EUT memory) *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

\*The details of Operation mode(s)

<b>Test Item</b>	<b>Operating Mode</b>	<b>Tested Antenna *2)</b>	<b>Tested Frequency</b>
Radiated Spurious Emission (Above 1 GHz)	Tx 11ac-20 (MIMO)	ANT-0+ ANT-1	5745 MHz 5785 MHz 5805 MHz
	Tx 11n-40 (MIMO)	ANT-0+ ANT-1	5755 MHz 5795 MHz
	Tx 11ac-80 (MIMO)	ANT-0+ ANT-1	5775 MHz
Radiated Spurious Emission (Above 1 GHz)	Tx 11ac-20 (MIMO) with 3DH5 Hopping	ANT-0+ ANT-1	5745 MHz 5805 MHz
	Tx 11n-40 (MIMO) with 3DH5 Hopping	ANT-0+ ANT-1	5755 MHz 5795 MHz
	Tx 11ac-80 (MIMO) with 3DH5 Hopping	ANT-0+ ANT-1	5775 MHz
Radiated Spurious Emission (Below 1 GHz) *1)	Tx 11ac-20 (MIMO)	ANT-0+ ANT-1	5745 MHz
	Tx 11ac-20 (MIMO) with 3DH5 Hopping		
*1) The mode was tested as a representative, because it had the highest power at antenna terminal test.			
*2) The test was performed with the antenna that had higher power as a representative.			

## 4.2 Configuration and peripherals



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

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#### Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Monitor with Receiver	DMX958XR	PK-X0013	JVCKENWOOD Corporation	EUT
B	Speaker	KFC-RS101	-	JVCKENWOOD	-
C	Speaker	KFC-RS101	-	JVCKENWOOD	-
D	Speaker	KFC-RS101	-	JVCKENWOOD	-
E	Speaker	KFC-RS101	-	JVCKENWOOD	-
F	USB Memory	-	-	Apacer	-
G	iPhone 5	MD297J/A	C39KWKE6DTWD	Apple Inc.	-
H	GPS ANTENNA	GPA-GS204	-	JVCKENWOOD	-
I	Microphone	GD-VHM4214C	-	JVCKENWOOD	-
J	DC Power Supply	GSV3000	1708192899	DIAMOND ANTENNA	-

#### List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC (ACC, B+)	0.15 + 1.6	Unshielded	Unshielded	-
2	DC (GND, PRK SW)	0.15 + 1.6	Unshielded	Unshielded	-
3	Speaker (Front-L) +/-	0.15 + 1.0 +	Unshielded	Unshielded	-
4	Speaker (Front-R) +/-	0.15 + 1.0 +	Unshielded	Unshielded	-
5	Speaker (Rear-L) +/-	0.15 + 1.0 +	Unshielded	Unshielded	-
6	Speaker (Rear-R) +/-	0.15 + 1.0 +	Unshielded	Unshielded	-
7	P-Cont	0.15 + 1.0	Unshielded	Unshielded	-
8	Ant.Cont	0.15 + 1.0	Unshielded	Unshielded	-
9	S.Pluse	0.15 + 1.0	Unshielded	Unshielded	-
10	UPDATE	0.15 + 1.0	Unshielded	Unshielded	-
11	ILLUMI	0.15 + 1.0	Unshielded	Unshielded	-
12	L.Mute	0.15 + 1.0	Unshielded	Unshielded	-
13	Reverse	0.15 + 1.0	Unshielded	Unshielded	-
14	CAM I/O	0.15 + 1.0	Unshielded	Unshielded	-
15	USB	1.0	Shielded	Shielded	-
16	HDMI + Lightning Adapter	1.5 + 0.1	Shielded	Shielded	-
17	GPS Ant	3.5	Shielded	Shielded	-
18	Audio in	2.0	Shielded	Shielded	-
19	SXM I/F	1.0	Shielded	Shielded	-
20	Mic	3.0	Shielded	Shielded	-
21	Rear Preout	1.2	Shielded	Shielded	-
22	Front Preout	1.2	Shielded	Shielded	-
23	Subwoofer Preout	1.0	Shielded	Shielded	-
24	AV IN(Audio)	1.0	Shielded	Shielded	-
25	3-CAM	1.0	Shielded	Shielded	-
26	VIDEO OUT	1.0	Shielded	Shielded	-
27	R-CAM	1.0	Shielded	Shielded	-
28	V-IN	1.0	Shielded	Shielded	-
29	F-CAM	1.0	Shielded	Shielded	-
30	FM/AM ANT	0.15 + 1.0	Shielded	Shielded	-
31	AC	1.7	Unshielded	Unshielded	-

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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 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.

Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.

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;**

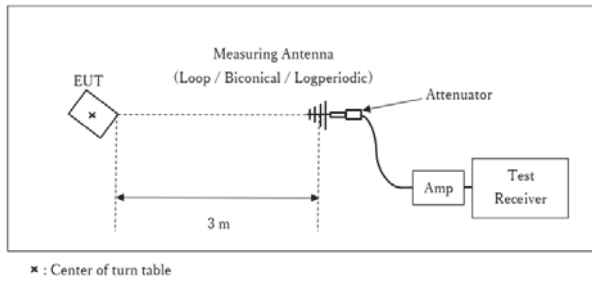
Frequency	Below 1 GHz	Above 1 GHz
Antenna Type	Hybrid	Horn

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 MHz (T: Burst length, refer to Appendix) Detector: Peak Trace mode: Max hold

\*1) The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E".

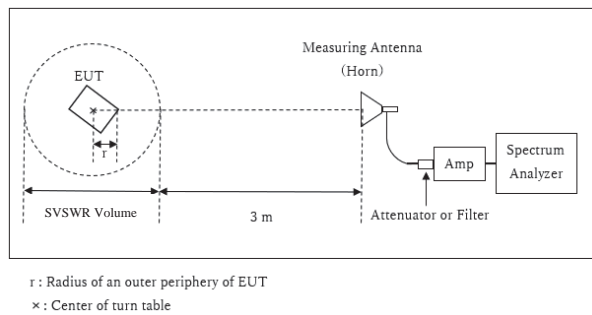
**Figure 1: Test Setup**

Below 1 GHz



Test Distance: 3 m

1 GHz - 10 GHz



Distance Factor:  $20 \times \log (4.40 \text{ m} / 3 \text{ m}) = 3.33 \text{ dB}$

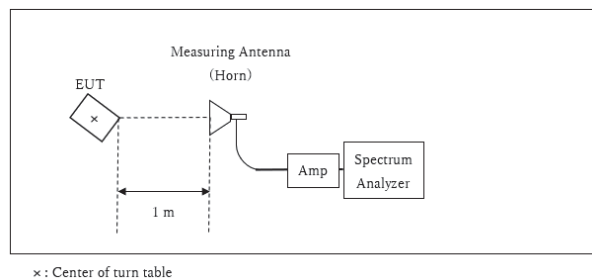
\*Test Distance:  $(3 + \text{SVSWR Volume} / 2) - r = 4.4 \text{ m}$

SVSWR Volume: 3 m

(SVSWR Volume has been calibrated based on CISPR 16-1-4.)

$r = 0.1 \text{ m}$

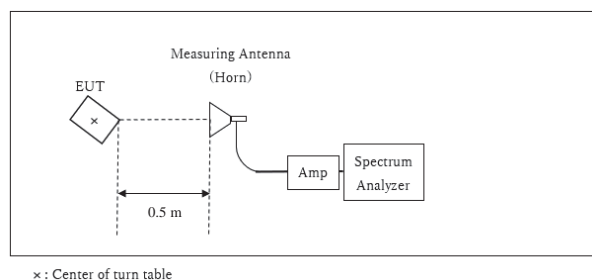
10 GHz - 26.5 GHz



Distance Factor:  $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

\*Test Distance: 1 m

26.5 GHz - 40 GHz



Distance Factor:  $20 \times \log (0.5 \text{ m} / 3.0 \text{ m}) = -15.56 \text{ dB}$

\*Test Distance: 0.5 m

- The carrier level and noise levels were confirmed at each position of 0 deg. and 30 deg. of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Antenna polarization	Carrier	Spurious (30 MHz - 1 GHz)	Spurious (1 GHz - 6.4 GHz)	Spurious (6.4 GHz - 10 GHz)	Spurious (10 GHz - 18 GHz)	Spurious (18 GHz - 26.5 GHz)	Spurious (26.5 GHz - 40 GHz)
Horizontal	0 deg.	0 deg.	30 deg.	30 deg.	0 deg.	0 deg.	0 deg.
Vertical	0 deg.	0 deg.	30 deg.	30 deg.	0 deg.	0 deg.	0 deg.

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

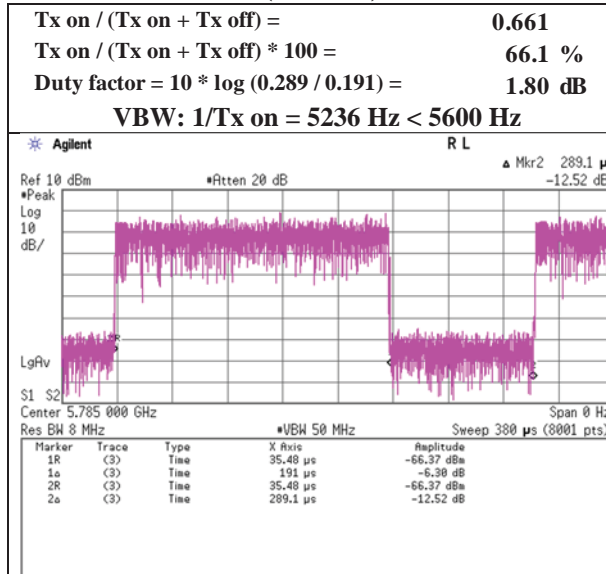
**Measurement range** : 30 MHz - 40 GHz  
**Test data** : APPENDIX  
**Test result** : Pass

## APPENDIX 1: Test data

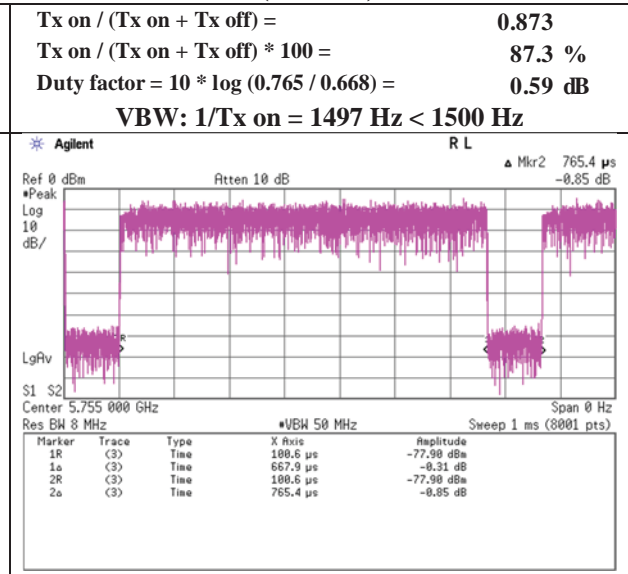
### Burst rate confirmation

Report No. 14027963S-I  
Test place Shonan EMC Lab. No.5 Shielded Room  
Date October 4, 2021  
Temperature / Humidity 23 deg. C / 55 % RH  
Engineer Takahiro Kawakami  
Mode Tx

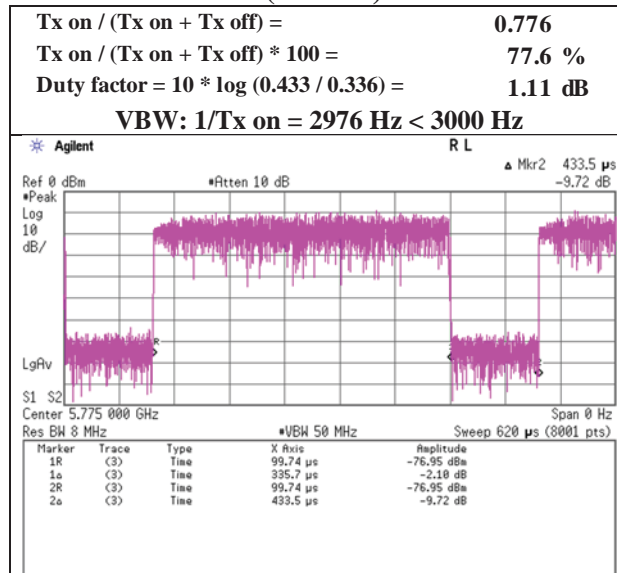
#### 11ac-20 (MIMO) MCS 6



#### 11n-40 (MIMO) MCS 8



#### 11ac-80 (MIMO) MCS 0



## Radiated Spurious Emission

Report No.	14027963S-I				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.11	No.10	No.10	No.11	No.10
Date	October 22, 2021	October 25, 2021	October 25, 2021	October 22, 2021	October 8, 2021
Temperature / Humidity	19 deg. C / 50 % RH	19 deg. C / 50 % RH	19 deg. C / 50 % RH	23 deg. C / 46 % RH	23 deg. C / 52 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Kazuhiro Ando
	(30 MHz -1000 MHz)	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5745 MHz				

### (below 1 GHz and above 1 GHz 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.	186.880	QP	47.70	10.82	6.94	32.09	0.00	33.37	43.5	10.1	193	286	
Hori.	300.020	QP	52.60	13.50	7.55	32.01	0.00	41.64	46.0	4.3	115	231	
Hori.	600.000	QP	43.00	20.03	8.80	32.03	0.00	39.80	46.0	6.2	163	248	
Hori.	777.740	QP	42.90	22.34	9.38	31.92	0.00	42.70	46.0	3.3	114	13	
Hori.	840.000	QP	42.00	22.86	9.57	31.71	0.00	42.72	46.0	3.2	114	4	
Hori.	933.000	QP	39.80	24.12	9.86	31.15	0.00	42.63	46.0	3.3	110	5	
Hori.	1260.000	PK	52.40	25.04	12.39	43.45	3.33	49.71	73.9	24.1	216	295	
Hori.	3852.440	PK	51.50	31.84	14.31	44.27	3.33	56.71	73.9	17.1	153	143	
Hori.	6531.111	PK	52.10	35.82	6.32	44.90	3.33	52.67	73.9	21.2	150	233	
Hori.	11490.000	PK	47.80	38.88	7.92	42.79	-9.54	42.27	73.9	31.6	161	219	
Hori.	1260.000	AV	40.60	25.04	12.39	43.45	3.33	37.91	53.9	15.9	216	295	VBW: 10 Hz
Hori.	3852.440	AV	41.75	31.84	14.31	44.27	3.33	46.96	53.9	6.9	153	143	VBW: 10 Hz
Hori.	6531.111	AV	39.60	35.82	6.32	44.90	3.33	40.17	53.9	13.7	150	233	VBW: 10 Hz
Hori.	11490.000	AV	39.50	38.88	7.92	42.79	-9.54	33.97	53.9	19.9	161	219	VBW: 5.6 kHz
Vert.	300.000	QP	46.00	13.50	7.55	32.01	0.00	35.04	46.0	10.9	164	211	
Vert.	600.000	QP	42.30	20.03	8.80	32.03	0.00	39.10	46.0	6.9	220	325	
Vert.	777.455	QP	40.00	22.34	9.38	31.92	0.00	39.80	46.0	6.2	160	214	
Vert.	933.000	QP	36.00	24.12	9.86	31.15	0.00	38.83	46.0	7.1	117	186	
Vert.	1260.000	PK	57.00	25.04	12.39	43.45	3.33	54.31	73.9	19.5	133	0	
Vert.	3852.146	PK	52.20	31.84	14.31	44.27	3.33	57.41	73.9	16.4	159	216	
Vert.	6531.073	PK	54.00	35.82	6.32	44.90	3.33	54.57	73.9	19.3	265	160	
Vert.	11490.000	PK	48.80	38.88	7.92	42.79	-9.54	43.27	73.9	30.6	160	243	
Vert.	1260.000	AV	44.60	25.04	12.39	43.45	3.33	41.91	53.9	11.9	133	0	VBW: 10 Hz
Vert.	3852.146	AV	41.70	31.84	14.31	44.27	3.33	46.91	53.9	6.9	159	216	VBW: 10 Hz
Vert.	6531.073	AV	42.40	35.82	6.32	44.90	3.33	42.97	53.9	10.9	265	160	VBW: 10 Hz
Vert.	11490.000	AV	38.30	38.88	7.92	42.79	-9.54	32.77	53.9	21.1	160	243	VBW: 5.6 kHz

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

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

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

10 GHz - 26.5 GHz: 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz: 20log (0.5 m / 3.0 m) = -15.56 dB

### (Calculation) (above 1 GHz 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	51.20	33.69	15.30	45.45	3.33	58.07	-37.15	-27.0	10.1	151	221	
Hori.	5700.000	PK	51.70	33.87	15.33	45.42	3.33	58.81	-36.41	10.0	46.4	151	221	
Hori.	5720.000	PK	52.30	33.89	15.34	45.41	3.33	59.45	-35.77	15.6	51.3	151	221	
Hori.	5725.000	PK	52.00	33.90	15.34	45.41	3.33	59.16	-36.06	27.0	63.0	151	221	
Hori.	17235.000	PK	50.00	41.26	9.81	44.94	-9.54	46.59	-48.63	-27.0	21.6	100	0	
Vert.	5650.000	PK	51.40	33.69	15.30	45.45	3.33	58.27	-36.95	-27.0	9.9	158	151	
Vert.	5700.000	PK	52.30	33.87	15.33	45.42	3.33	59.41	-35.81	10.0	45.8	158	151	
Vert.	5720.000	PK	52.70	33.89	15.34	45.41	3.33	59.85	-35.37	15.6	50.9	158	151	
Vert.	5725.000	PK	53.50	33.90	15.34	45.41	3.33	60.66	-34.56	27.0	61.5	158	151	
Vert.	17235.000	PK	49.50	41.26	9.81	44.94	-9.54	46.09	-49.13	-27.0	22.1	100	0	

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

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

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

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

10 GHz - 26.5 GHz: 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz: 20log (0.5 m / 3.0 m) = -15.56 dB

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**Kashima EMC Lab.**

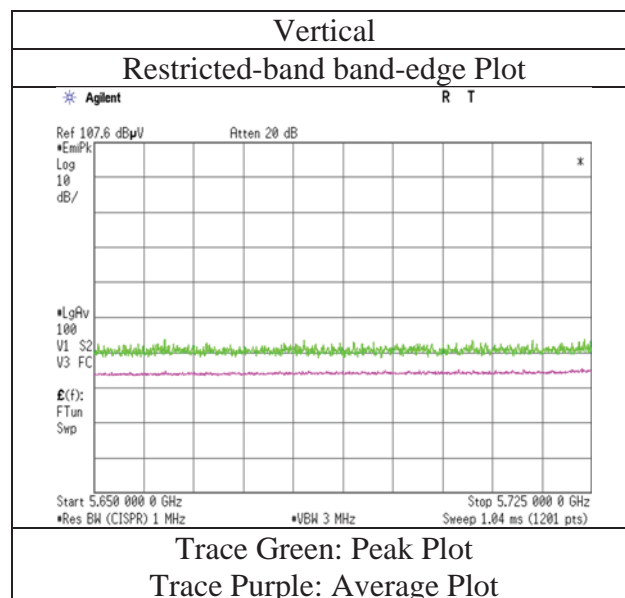
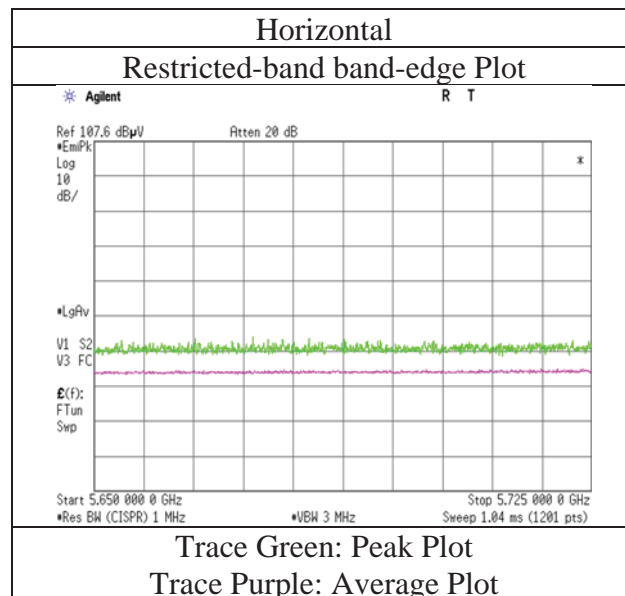
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## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 25, 2021
Temperature / Humidity	19 deg. C / 50 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11ac-20 MIMO 5745 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

## Radiated Spurious Emission

Report No.	14027963S-I			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.10	No.10	No.11	No.10
Date	October 25, 2021	October 25, 2021	October 22, 2021	October 8, 2021
Temperature / Humidity	19 deg. C / 50 % RH	19 deg. C / 50 % RH	23 deg. C / 46 % RH	23 deg. C / 52 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Kazuhiro Ando
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5785 MHz			

### (above 1 GHz 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.	1260.000	PK	52.70	25.04	12.39	43.45	3.33	50.01	73.9	23.8	195	177	
Hori.	3851.971	PK	52.30	31.84	14.31	44.27	3.33	57.51	73.9	16.3	152	145	
Hori.	6531.064	PK	52.60	35.82	6.32	44.90	3.33	53.17	73.9	20.7	148	236	
Hori.	11570.000	PK	48.70	38.87	7.93	43.00	-9.54	42.96	73.9	30.9	169	218	
Hori.	1260.000	AV	40.70	25.04	12.39	43.45	3.33	38.01	53.9	15.8	195	177	VBW: 10 Hz
Hori.	3851.971	AV	42.00	31.84	14.31	44.27	3.33	47.21	53.9	6.6	152	145	VBW: 10 Hz
Hori.	6531.064	AV	40.70	35.82	6.32	44.90	3.33	41.27	53.9	12.6	148	236	VBW: 10 Hz
Hori.	11570.000	AV	39.60	38.87	7.93	43.00	-9.54	33.86	53.9	20.0	169	218	VBW: 5.6 kHz
Vert.	1260.000	PK	56.40	25.04	12.39	43.45	3.33	53.71	73.9	20.1	136	0	
Vert.	3852.046	PK	51.90	31.84	14.31	44.27	3.33	57.11	73.9	16.7	163	214	
Vert.	6531.056	PK	53.80	35.82	6.32	44.90	3.33	54.37	73.9	19.5	277	168	
Vert.	11570.000	PK	48.10	38.87	7.93	43.00	-9.54	42.36	73.9	31.5	161	240	
Vert.	1260.000	AV	44.60	25.04	12.39	43.45	3.33	41.91	53.9	11.9	136	0	VBW: 10 Hz
Vert.	3852.046	AV	41.80	31.84	14.31	44.27	3.33	47.01	53.9	6.8	163	214	VBW: 10 Hz
Vert.	6531.056	AV	43.00	35.82	6.32	44.90	3.33	43.57	53.9	10.3	277	168	VBW: 10 Hz
Vert.	11570.000	AV	38.40	38.87	7.93	43.00	-9.54	32.66	53.9	21.2	161	240	VBW: 5.6 kHz

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

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

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

10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result(EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	17355.000	PK	50.50	41.59	9.86	44.87	-9.54	47.54	-47.68	-27.0	20.6	100	0	
Vert.	17355.000	PK	50.20	41.59	9.86	44.87	-9.54	47.24	-47.98	-27.0	20.9	100	0	

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

Result(EIRP[dBm])=10\*LOG ( ( ( 10 ^ ( 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 20 dB).

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

10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

## Radiated Spurious Emission

Report No.	14027963S-I			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.10	No.10	No.11	No.10
Date	October 25, 2021	October 25, 2021	October 22, 2021	October 8, 2021
Temperature / Humidity	19 deg. C / 50 % RH	19 deg. C / 50 % RH	23 deg. C / 46 % RH	23 deg. C / 52 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Kazuhiro Ando
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5805 MHz			

### (above 1 GHz 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.	1260.000	PK	52.40	25.04	12.39	43.45	3.33	49.71	73.9	24.1	186	180	
Hori.	3851.971	PK	51.50	31.84	14.31	44.27	3.33	56.71	73.9	17.1	152	145	
Hori.	6531.064	PK	52.60	35.82	6.32	44.90	3.33	53.17	73.9	20.7	148	236	
Hori.	11610.000	PK	48.30	38.84	7.94	43.12	-9.54	42.42	73.9	31.4	163	215	
Hori.	1260.000	AV	40.90	25.04	12.39	43.45	3.33	38.21	53.9	15.6	186	180	VBW: 10 Hz
Hori.	3851.971	AV	42.10	31.84	14.31	44.27	3.33	47.31	53.9	6.5	152	145	VBW: 10 Hz
Hori.	6531.064	AV	40.70	35.82	6.32	44.90	3.33	41.27	53.9	12.6	148	236	VBW: 10 Hz
Hori.	11610.000	AV	39.40	38.84	7.94	43.12	-9.54	33.52	53.9	20.3	163	215	VBW: 5.6 kHz
Vert.	1260.000	PK	56.50	25.04	12.39	43.45	3.33	53.81	73.9	20.0	129	0	
Vert.	3851.825	PK	52.60	31.84	14.31	44.27	3.33	57.81	73.9	16.0	251	172	
Vert.	6531.056	PK	53.80	35.82	6.32	44.90	3.33	54.37	73.9	19.5	277	168	
Vert.	11610.000	PK	48.20	38.84	7.94	43.12	-9.54	42.32	73.9	31.5	154	240	
Vert.	1260.000	AV	44.40	25.04	12.39	43.45	3.33	41.71	53.9	12.1	129	0	VBW: 10 Hz
Vert.	3851.825	AV	44.60	31.84	14.31	44.27	3.33	49.81	53.9	4.0	251	172	VBW: 10 Hz
Vert.	6531.056	AV	43.00	35.82	6.32	44.90	3.33	43.57	53.9	10.3	277	168	VBW: 10 Hz
Vert.	11610.000	AV	39.20	38.84	7.94	43.12	-9.54	33.32	53.9	20.5	154	240	VBW: 5.6 kHz

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

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

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

10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

### (Calculation) (above 1 GHz 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	50.40	34.37	15.39	45.36	3.33	58.13	-37.09	27.0	64.0	152	223	
Hori.	5855.000	PK	50.90	34.41	15.39	45.36	3.33	58.67	-36.55	15.6	52.1	152	223	
Hori.	5875.000	PK	50.70	34.59	15.41	45.34	3.33	58.69	-36.53	10.0	46.5	152	223	
Hori.	5925.000	PK	50.90	34.90	15.43	45.30	3.33	59.26	-35.96	-27.0	8.9	152	233	
Hori.	17415.000	PK	50.30	41.66	9.90	44.82	-9.54	47.50	-47.72	-27.0	20.7	100	0	
Vert.	5850.000	PK	50.70	34.37	15.39	45.36	3.33	58.43	-36.79	27.0	63.7	155	154	
Vert.	5855.000	PK	50.87	34.41	15.39	45.36	3.33	58.64	-36.58	15.6	52.1	155	154	
Vert.	5875.000	PK	50.40	34.59	15.41	45.34	3.33	58.39	-36.83	10.0	46.8	155	154	
Vert.	5925.000	PK	48.60	34.90	15.43	45.30	3.33	56.96	-38.26	-27.0	11.2	155	154	
Vert.	17415.000	PK	50.50	41.66	9.90	44.82	-9.54	47.70	-47.52	-27.0	20.5	100	0	

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

Result(EIRP[dBm])=10\*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 20 dB).

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

10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

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**Kashima EMC Lab.**

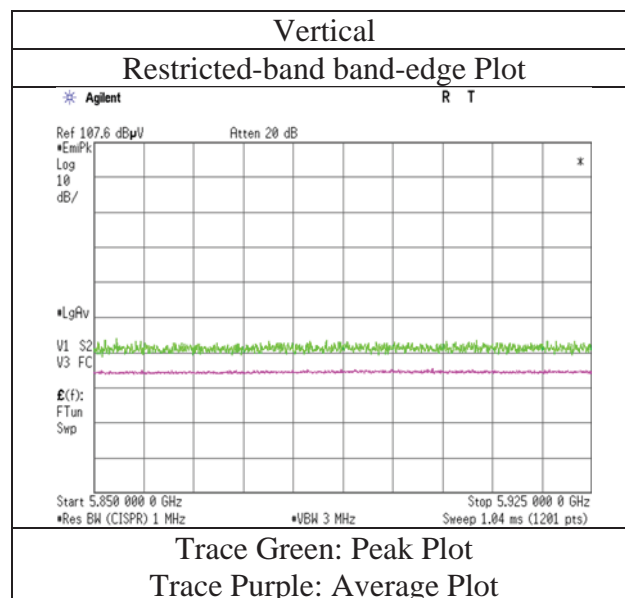
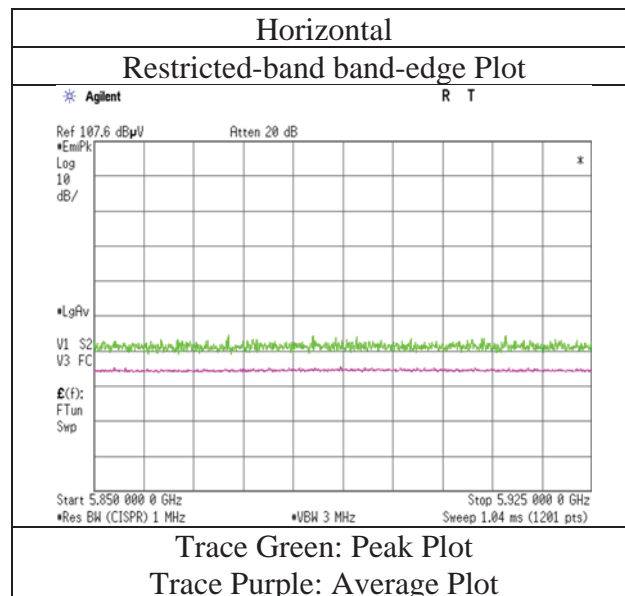
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## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 25, 2021
Temperature / Humidity	19 deg. C / 50 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11ac-20 MIMO 5805 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

## Radiated Spurious Emission

Report No.	14027963S-I			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.10	No.10	No.11	No.10
Date	October 26, 2021	October 25, 2021	October 22, 2021	October 8, 2021
Temperature / Humidity	20 deg. C / 54 % RH	19 deg. C / 50 % RH	23 deg. C / 46 % RH	23 deg. C / 52 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Kazuhiro Ando
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11n-40 MIMO 5755 MHz			

### (above 1 GHz 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.	1260.000	PK	52.90	25.04	12.39	43.45	3.33	50.21	73.9	23.6	121	149	
Hori.	3855.350	PK	52.10	31.85	14.31	44.28	3.33	57.31	73.9	16.5	360	223	
Hori.	6531.085	PK	53.40	35.82	6.32	44.90	3.33	53.97	73.9	19.9	131	242	
Hori.	11510.000	PK	48.50	38.88	7.93	42.84	-9.54	42.93	73.9	30.9	166	218	
Hori.	1260.000	AV	40.60	25.04	12.39	43.45	3.33	37.91	53.9	15.9	121	149	VBW: 10 Hz
Hori.	3855.350	AV	42.30	31.85	14.31	44.28	3.33	47.51	53.9	6.3	360	223	VBW: 10 Hz
Hori.	6531.085	AV	40.90	35.82	6.32	44.90	3.33	41.47	53.9	12.4	131	242	VBW: 10 Hz
Hori.	11510.000	AV	38.80	38.88	7.93	42.84	-9.54	33.23	53.9	20.6	166	218	VBW: 1.5 kHz
Vert.	1260.000	PK	56.40	25.04	12.39	43.45	3.33	53.71	73.9	20.1	131	0	
Vert.	3855.386	PK	53.40	31.85	14.31	44.28	3.33	58.61	73.9	15.2	279	200	
Vert.	6531.050	PK	54.40	35.82	6.32	44.90	3.33	54.97	73.9	18.9	292	163	
Vert.	11510.000	PK	47.50	38.88	7.93	42.84	-9.54	41.93	73.9	31.9	154	243	
Vert.	1260.000	AV	44.20	25.04	12.39	43.45	3.33	41.51	53.9	12.3	131	0	VBW: 10 Hz
Vert.	3855.386	AV	44.40	31.85	14.31	44.28	3.33	49.61	53.9	4.2	279	200	VBW: 10 Hz
Vert.	6531.050	AV	43.20	35.82	6.32	44.90	3.33	43.77	53.9	10.1	292	163	VBW: 10 Hz
Vert.	11510.000	AV	37.80	38.88	7.93	42.84	-9.54	32.23	53.9	21.6	154	243	VBW: 1.5 kHz

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

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

Distance factor : 1 GHz - 10 GHz :  $20\log(4.4 \text{ m} / 3.0 \text{ m}) = 3.33 \text{ dB}$

10 GHz - 26.5 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

26.5 GHz - 40 GHz :  $20\log(0.5 \text{ m} / 3.0 \text{ m}) = -15.56 \text{ dB}$

### (Calculation) (above 1 GHz 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	50.80	33.69	15.30	45.45	3.33	57.67	-37.55	-27.0	10.5	147	210	
Hori.	5700.000	PK	51.60	33.87	15.33	45.42	3.33	58.71	-36.51	10.0	46.5	147	210	
Hori.	5720.000	PK	53.20	33.89	15.34	45.41	3.33	60.35	-34.87	15.6	50.4	147	210	
Hori.	5725.000	PK	53.70	33.90	15.34	45.41	3.33	60.86	-34.36	27.0	61.3	147	210	
Hori.	17265.000	PK	49.30	41.34	9.81	44.93	-9.54	45.98	-49.24	-27.0	22.2	100	0	
Vert.	5650.000	PK	52.50	33.69	15.30	45.45	3.33	59.37	-35.85	-27.0	8.8	154	149	
Vert.	5700.000	PK	52.60	33.87	15.33	45.42	3.33	59.71	-35.51	10.0	45.5	154	149	
Vert.	5720.000	PK	54.10	33.89	15.34	45.41	3.33	61.25	-33.97	15.6	49.5	154	149	
Vert.	5725.000	PK	55.20	33.90	15.34	45.41	3.33	62.36	-32.86	27.0	59.8	154	149	
Vert.	17265.000	PK	49.30	41.34	9.81	44.93	-9.54	45.98	-49.24	-27.0	22.2	100	0	

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

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

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

Distance factor : 1 GHz - 10 GHz :  $20\log(4.4 \text{ m} / 3.0 \text{ m}) = 3.33 \text{ dB}$

10 GHz - 26.5 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

26.5 GHz - 40 GHz :  $20\log(0.5 \text{ m} / 3.0 \text{ m}) = -15.56 \text{ dB}$

**UL Japan, Inc.**

**Kashima EMC Lab.**

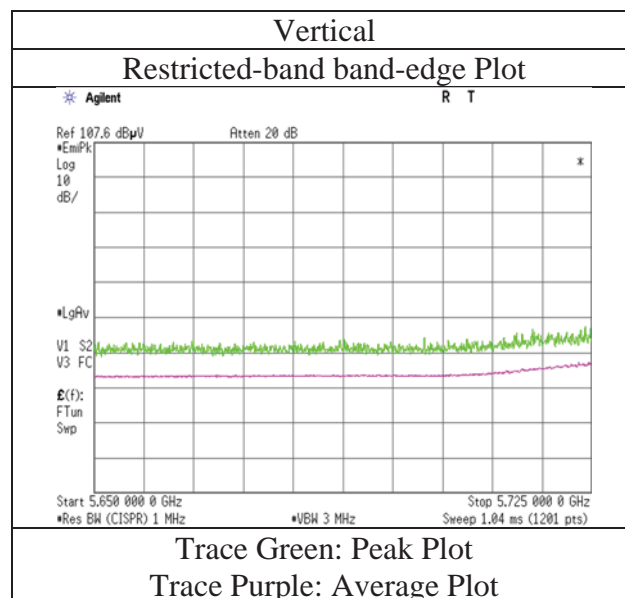
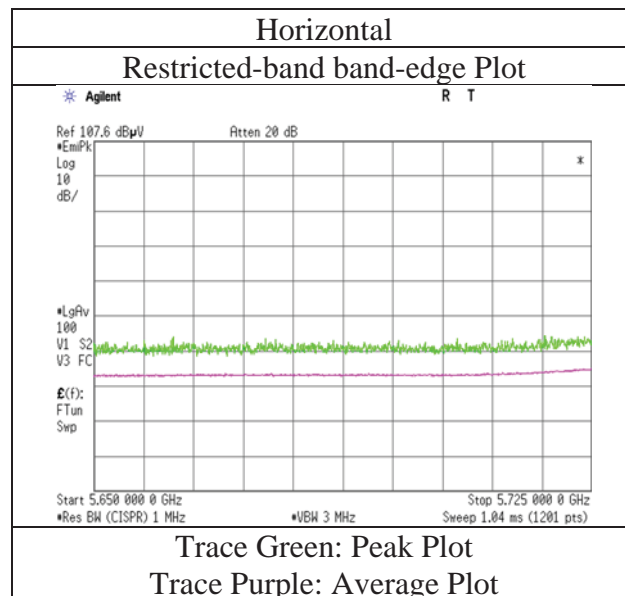
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

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## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 26, 2021
Temperature / Humidity	20 deg. C / 54 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11n-40 MIMO 5755 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

## Radiated Spurious Emission

Report No.	14027963S-I			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.10	No.10	No.11	No.10
Date	October 26, 2021	October 25, 2021	October 22, 2021	October 8, 2021
Temperature / Humidity	20 deg. C / 54 % RH	19 deg. C / 50 % RH	23 deg. C / 46 % RH	23 deg. C / 52 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Kazuhiro Ando
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11n-40 MIMO 5795 MHz			

### (above 1 GHz 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.	1260.000	PK	53.40	25.04	12.39	43.45	3.33	50.71	73.9	23.1	125	151	
Hori.	3855.395	PK	52.70	31.85	14.31	44.28	3.33	57.91	73.9	15.9	315	231	
Hori.	6531.085	PK	52.50	35.82	6.32	44.90	3.33	53.07	73.9	20.8	137	238	
Hori.	11590.000	PK	48.90	38.84	7.93	43.07	-9.54	43.06	73.9	30.8	171	218	
Hori.	1260.000	AV	40.50	25.04	12.39	43.45	3.33	37.81	53.9	16.0	125	151	VBW: 10 Hz
Hori.	3855.395	AV	42.90	31.85	14.31	44.28	3.33	48.11	53.9	5.7	315	231	VBW: 10 Hz
Hori.	6531.085	AV	40.50	35.82	6.32	44.90	3.33	41.07	53.9	12.8	137	238	VBW: 10 Hz
Hori.	11590.000	AV	39.10	38.84	7.93	43.07	-9.54	33.26	53.9	20.6	171	218	VBW: 1.5 kHz
Vert.	1260.000	PK	56.80	25.04	12.39	43.45	3.33	54.11	73.9	19.7	134	0	
Vert.	3855.336	PK	53.80	31.85	14.31	44.28	3.33	59.01	73.9	14.8	279	208	
Vert.	6531.042	PK	53.50	35.82	6.32	44.90	3.33	54.07	73.9	19.8	307	166	
Vert.	11590.000	PK	48.30	38.84	7.93	43.07	-9.54	42.46	73.9	31.4	154	243	
Vert.	1260.000	AV	44.10	25.04	12.39	43.45	3.33	41.41	53.9	12.4	134	0	VBW: 10 Hz
Vert.	3855.336	AV	43.00	31.85	14.31	44.28	3.33	48.21	53.9	5.6	279	208	VBW: 10 Hz
Vert.	6531.042	AV	43.20	35.82	6.32	44.90	3.33	43.77	53.9	10.1	307	166	VBW: 10 Hz
Vert.	11590.000	AV	38.20	38.84	7.93	43.07	-9.54	32.36	53.9	21.5	154	243	VBW: 1.5 kHz

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

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

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

10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

### (Calculation) (above 1 GHz 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	50.60	34.37	15.39	45.36	3.33	58.33	-36.89	27.0	63.8	150	209	
Hori.	5855.000	PK	50.10	34.41	15.39	45.36	3.33	57.87	-37.35	15.6	52.9	150	209	
Hori.	5875.000	PK	50.10	34.59	15.41	45.34	3.33	58.09	-37.13	10.0	47.1	150	209	
Hori.	5925.000	PK	50.00	34.90	15.43	45.30	3.33	58.36	-36.86	-27.0	9.8	150	209	
Hori.	17385.000	PK	50.20	41.62	9.88	44.85	-9.54	47.31	-47.91	-27.0	20.9	100	0	
Vert.	5850.000	PK	50.80	34.37	15.39	45.36	3.33	58.53	-36.69	27.0	63.6	146	149	
Vert.	5855.000	PK	50.70	34.41	15.39	45.36	3.33	58.47	-36.75	15.6	52.3	146	149	
Vert.	5875.000	PK	50.50	34.59	15.41	45.34	3.33	58.49	-36.73	10.0	46.7	146	149	
Vert.	5925.000	PK	48.60	34.90	15.43	45.30	3.33	56.96	-38.26	-27.0	11.2	146	149	
Vert.	17385.000	PK	49.70	41.62	9.88	44.85	-9.54	46.81	-48.41	-27.0	21.4	100	0	

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

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

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

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

10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

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**Kashima EMC Lab.**

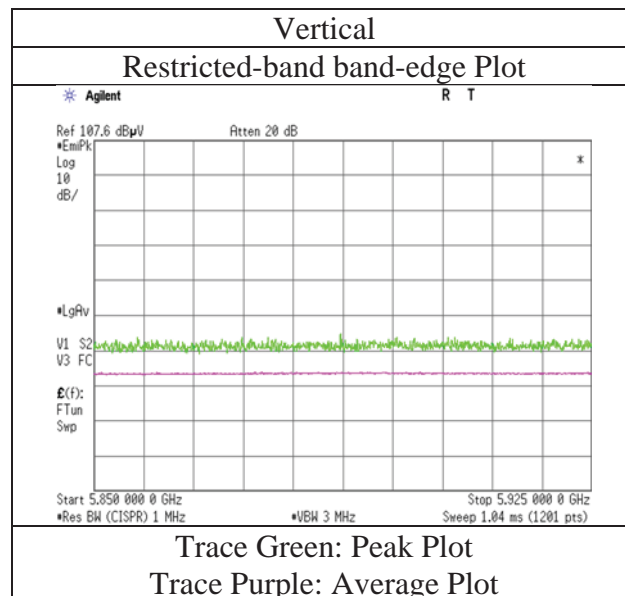
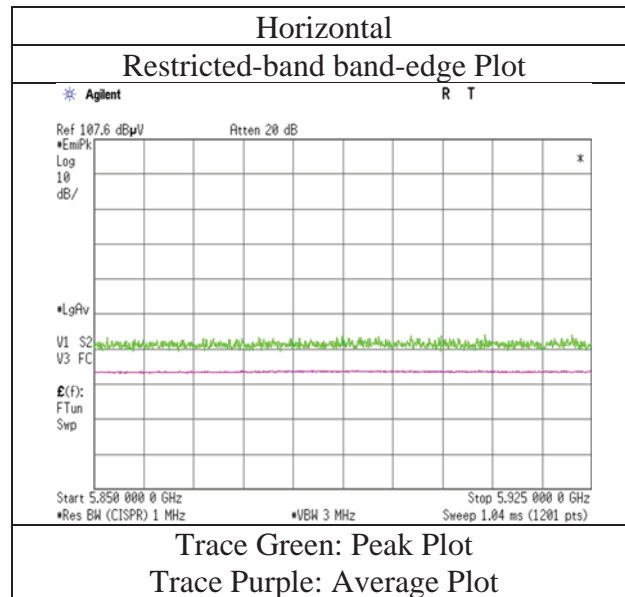
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## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 26, 2021
Temperature / Humidity	20 deg. C / 54 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11n-40 MIMO 5795 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

## Radiated Spurious Emission

Report No.	14027963S-I			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.10	No.10	No.11	No.10
Date	October 26, 2021	October 25, 2021	October 22, 2021	October 8, 2021
Temperature / Humidity	20 deg. C / 54 % RH	19 deg. C / 50 % RH	23 deg. C / 46 % RH	23 deg. C / 52 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Kazuhiro Ando
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-80 MIMO 5775 MHz			

### (above 1 GHz 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.	1260.000	PK	53.80	25.04	12.39	43.45	3.33	51.11	73.9	22.7	125	151	
Hori.	3854.485	PK	52.70	31.85	14.31	44.27	3.33	57.92	73.9	15.9	317	231	
Hori.	6531.055	PK	52.30	35.82	6.32	44.90	3.33	52.87	73.9	21.0	205	286	
Hori.	11550.000	PK	49.20	38.90	7.91	42.94	-9.54	43.53	73.9	30.3	169	218	
Hori.	1260.000	AV	41.60	25.04	12.39	43.45	3.33	38.91	53.9	14.9	125	151	VBW: 10 Hz
Hori.	3854.485	AV	43.60	31.85	14.31	44.27	3.33	48.82	53.9	5.0	317	231	VBW: 10 Hz
Hori.	6531.055	AV	40.30	35.82	6.32	44.90	3.33	40.87	53.9	13.0	205	286	VBW: 10 Hz
Hori.	11550.000	AV	39.70	38.90	7.91	42.94	-9.54	34.03	53.9	19.8	169	218	VBW: 3 kHz
Vert.	1260.000	PK	56.90	25.04	12.39	43.45	3.33	54.21	73.9	19.6	134	0	
Vert.	3854.636	PK	54.10	31.85	14.31	44.27	3.33	59.32	73.9	14.5	279	208	
Vert.	6531.064	PK	53.90	35.82	6.32	44.90	3.33	54.47	73.9	19.4	305	164	
Vert.	11550.000	PK	49.30	38.90	7.91	42.94	-9.54	43.63	73.9	30.2	154	243	
Vert.	1260.000	AV	44.60	25.04	12.39	43.45	3.33	41.91	53.9	11.9	134	0	VBW: 10 Hz
Vert.	3854.636	AV	44.40	31.85	14.31	44.27	3.33	49.62	53.9	4.2	279	208	VBW: 10 Hz
Vert.	6531.064	AV	43.20	35.82	6.32	44.90	3.33	43.77	53.9	10.1	305	164	VBW: 10 Hz
Vert.	11550.000	AV	38.50	38.90	7.91	42.94	-9.54	32.83	53.9	21.0	154	243	VBW: 3 kHz

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

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

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

Distance factor : 1 GHz - 10 GHz : 20log (4.4 m / 3.0 m) = 3.33 dB  
10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB  
26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

### (Calculation) (above 1 GHz 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	51.80	33.69	15.30	45.45	3.33	58.67	-36.55	-27.0	9.5	150	210	
Hori.	5700.000	PK	52.10	33.87	15.33	45.42	3.33	59.21	-36.01	10.0	46.0	150	210	
Hori.	5720.000	PK	52.30	33.89	15.34	45.41	3.33	59.45	-35.77	15.6	51.3	150	210	
Hori.	5725.000	PK	52.60	33.90	15.34	45.41	3.33	59.76	-35.46	27.0	62.4	150	210	
Hori.	5850.000	PK	50.80	34.37	15.39	45.36	3.33	58.53	-36.69	27.0	63.6	150	210	
Hori.	5855.000	PK	50.50	34.41	15.39	45.36	3.33	58.27	-36.95	15.6	52.5	150	210	
Hori.	5875.000	PK	50.30	34.59	15.41	45.34	3.33	58.29	-36.93	10.0	46.9	150	210	
Hori.	5925.000	PK	50.30	34.90	15.43	45.30	3.33	58.66	-36.56	-27.0	9.5	150	210	
Hori.	17325.000	PK	49.90	41.51	9.85	44.88	-9.54	46.84	-48.38	-27.0	21.3	100	0	
Vert.	5650.000	PK	52.00	33.69	15.30	45.45	3.33	58.87	-36.35	-27.0	9.3	150	150	
Vert.	5700.000	PK	52.90	33.87	15.33	45.42	3.33	60.01	-35.21	10.0	45.2	150	150	
Vert.	5720.000	PK	52.30	33.89	15.34	45.41	3.33	59.45	-35.77	15.6	51.3	150	150	
Vert.	5725.000	PK	53.00	33.90	15.34	45.41	3.33	60.16	-35.06	27.0	62.0	150	150	
Vert.	5850.000	PK	51.00	34.37	15.39	45.36	3.33	58.73	-36.49	27.0	63.4	150	150	
Vert.	5855.000	PK	51.20	34.41	15.39	45.36	3.33	58.97	-36.25	15.6	46.2	150	150	
Vert.	5875.000	PK	50.70	34.59	15.41	45.34	3.33	58.69	-36.53	10.0	52.1	150	150	
Vert.	5925.000	PK	49.20	34.90	15.43	45.30	3.33	57.56	-37.66	-27.0	10.6	150	150	
Vert.	17325.000	PK	47.60	41.51	9.85	44.88	-9.54	44.54	-50.68	-27.0	23.6	100	0	

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

Result(EIRP[dBm])=10\*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 20 dB).

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

Distance factor : 1 GHz - 10 GHz : 20log (4.4 m / 3.0 m) = 3.33 dB  
10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB  
26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

**UL Japan, Inc.**

**Kashima EMC Lab.**

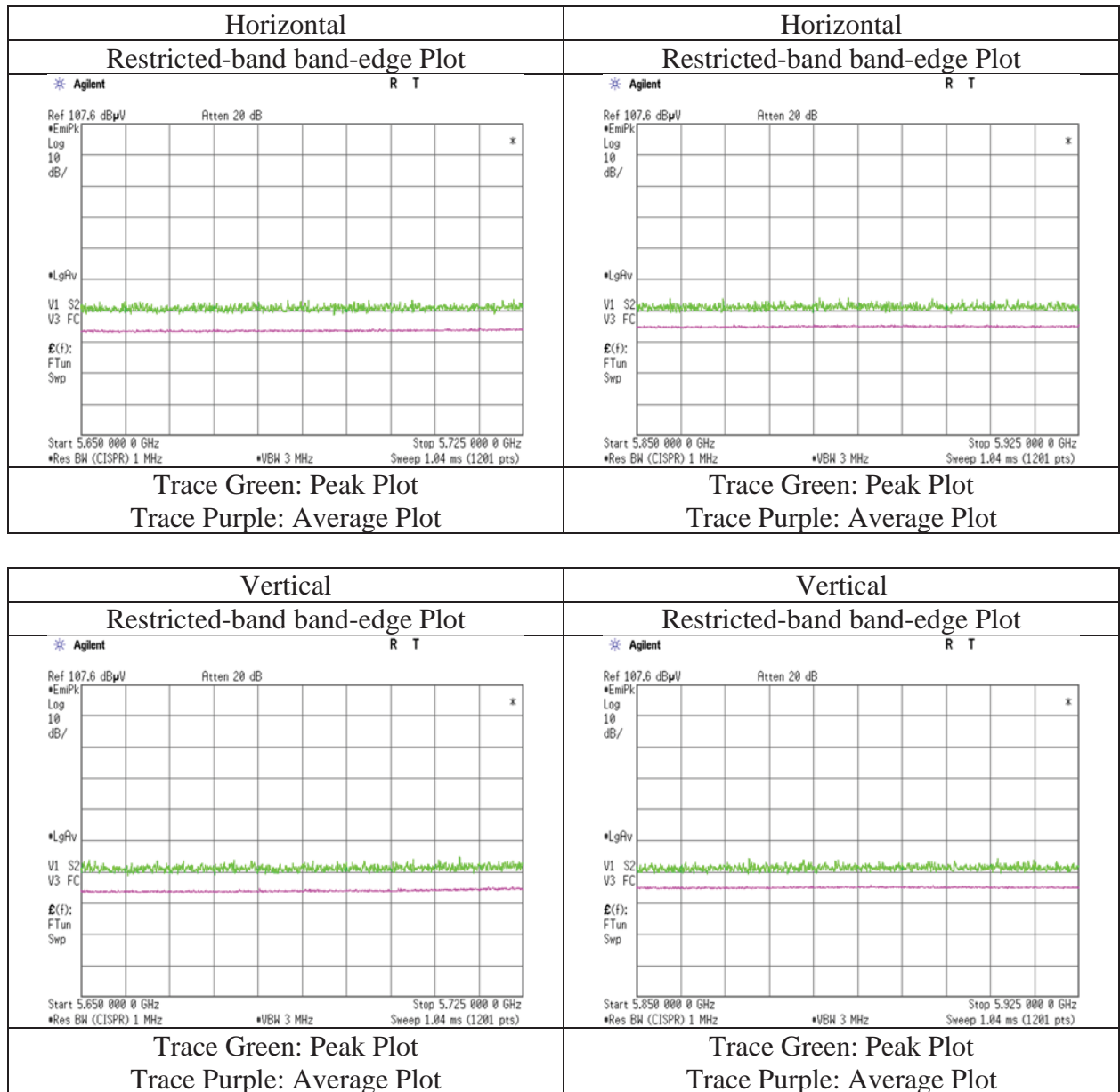
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

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## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 26, 2021
Temperature / Humidity	20 deg. C / 54 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11ac-80 MIMO 5775 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

**UL Japan, Inc.**

**Kashima EMC Lab.**

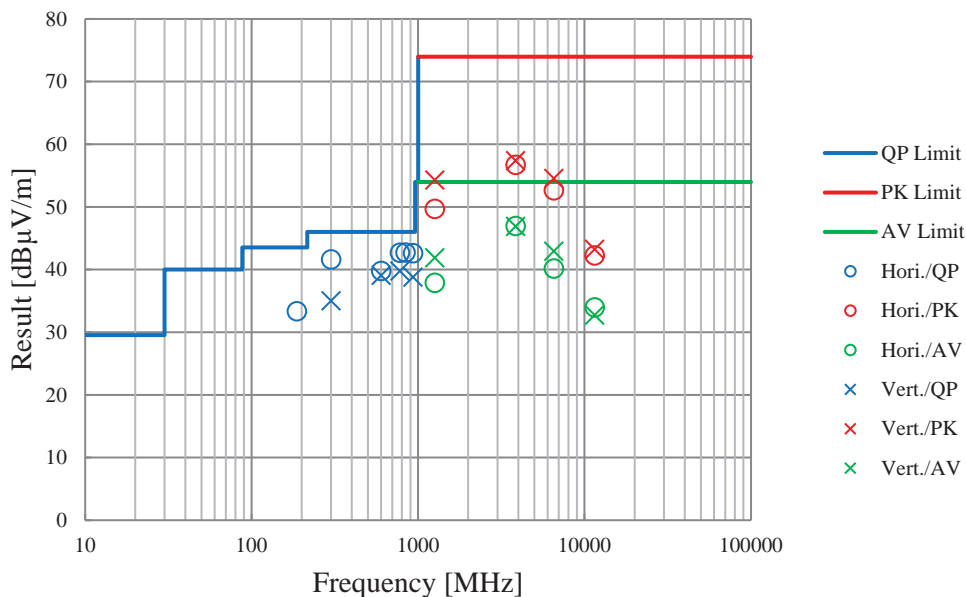
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

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

Report No.	14027963S-I				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.11	No.10	No.10	No.11	No.10
Date	October 22, 2021	October 25, 2021	October 25, 2021	October 22, 2021	October 8, 2021
Temperature / Humidity	19 deg. C / 50 % RH	19 deg. C / 50 % RH	19 deg. C / 50 % RH	23 deg. C / 46 % RH	23 deg. C / 52 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Kazuhiro Ando
	(30 MHz -1000 MHz)	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5745 MHz				



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

## Radiated Spurious Emission

Report No.	14027963S-I				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.11	No.10	No.10	No.10	No.10
Date	October 22, 2021	October 25, 2021	October 25, 2021	October 26, 2021	October 26, 2021
Temperature / Humidity	19 deg. C / 50 % RH	19 deg. C / 50 % RH	19 deg. C / 50 % RH	20 deg. C / 54 % RH	20 deg. C / 54 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe
	(30 MHz -1000 MHz)	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5745 MHz with BT Hopping On 3DH5				

### (below 1 GHz and above 1 GHz 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.	204.905	QP	47.90	9.83	7.04	32.08	0.00	32.69	43.5	10.8	168	305	
Hori.	300.000	QP	53.20	13.50	7.55	32.01	0.00	42.24	46.0	3.7	111	54	
Hori.	600.000	QP	44.00	20.03	8.80	32.03	0.00	40.80	46.0	5.2	176	323	
Hori.	777.575	QP	40.70	22.34	9.38	31.92	0.00	40.50	46.0	5.5	125	12	
Hori.	840.000	QP	42.00	22.86	9.57	31.71	0.00	42.72	46.0	3.2	119	8	
Hori.	933.000	QP	39.80	24.12	9.86	31.15	0.00	42.63	46.0	3.3	120	14	
Hori.	1260.000	PK	52.70	25.04	12.39	43.45	3.33	50.01	73.9	23.8	147	155	
Hori.	2799.000	PK	50.50	28.90	13.66	43.81	3.33	52.58	73.9	21.3	150	342	
Hori.	3852.440	PK	51.60	31.84	14.31	44.27	3.33	56.81	73.9	17.0	150	146	
Hori.	6531.065	PK	52.30	35.82	6.32	44.90	3.33	52.87	73.9	21.0	115	241	
Hori.	11490.000	PK	48.00	38.88	7.92	42.79	-9.54	42.47	73.9	31.4	153	161	
Hori.	1260.000	AV	40.70	25.04	12.39	43.45	3.33	38.01	53.9	15.8	147	155	VBW: 10 Hz
Hori.	2799.000	AV	38.40	28.90	13.66	43.81	3.33	40.48	53.9	13.4	150	342	VBW: 10 Hz
Hori.	3852.440	AV	41.70	31.84	14.31	44.27	3.33	46.91	53.9	6.9	150	146	VBW: 10 Hz
Hori.	6531.065	AV	40.20	35.82	6.32	44.90	3.33	40.77	53.9	13.1	115	241	VBW: 10 Hz
Hori.	11490.000	AV	38.40	38.88	7.92	42.79	-9.54	32.87	53.9	21.0	153	161	VBW: 5.6 kHz
Vert.	300.000	QP	45.50	13.50	7.55	32.01	0.00	34.54	46.0	11.4	168	232	
Vert.	600.000	QP	44.30	20.03	8.80	32.03	0.00	41.10	46.0	4.9	193	331	
Vert.	765.447	QP	36.40	22.22	9.34	31.95	0.00	36.01	46.0	9.9	147	101	
Vert.	933.000	QP	37.50	24.12	9.86	31.15	0.00	40.33	46.0	5.6	136	344	
Vert.	1260.000	PK	57.00	25.04	12.39	43.45	3.33	54.31	73.9	19.5	130	0	
Vert.	2799.000	PK	53.30	28.90	13.66	43.81	3.33	55.38	73.9	18.5	210	199	
Vert.	3852.757	PK	51.70	31.84	14.31	44.27	3.33	56.91	73.9	16.9	191	216	
Vert.	6531.088	PK	52.80	35.82	6.32	44.90	3.33	53.37	73.9	20.5	100	185	
Vert.	11490.000	PK	48.50	38.88	7.92	42.79	-9.54	42.97	73.9	30.9	154	175	
Vert.	1260.000	AV	44.50	25.04	12.39	43.45	3.33	41.81	53.9	12.0	130	0	VBW: 10 Hz
Vert.	2799.000	AV	38.70	28.90	13.66	43.81	3.33	40.78	53.9	13.1	210	199	VBW: 10 Hz
Vert.	3852.757	AV	41.70	31.84	14.31	44.27	3.33	46.91	53.9	6.9	191	216	VBW: 10 Hz
Vert.	6531.088	AV	40.30	35.82	6.32	44.90	3.33	40.87	53.9	13.0	100	185	VBW: 10 Hz
Vert.	11490.000	AV	38.10	38.88	7.92	42.79	-9.54	32.57	53.9	21.3	154	175	VBW: 5.6 kHz

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

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

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

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

10 GHz - 26.5 GHz: 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz: 20log (0.5 m / 3.0 m) = -15.56 dB

### (Calculation) (above 1 GHz 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	51.90	33.69	15.30	45.45	3.33	58.77	-36.45	-27.0	9.4	160	226	
Hori.	5700.000	PK	51.00	33.87	15.33	45.42	3.33	58.11	-37.11	10.0	47.1	160	226	
Hori.	5720.000	PK	51.90	33.89	15.34	45.41	3.33	59.05	-36.17	15.6	51.7	160	226	
Hori.	5725.000	PK	53.30	33.90	15.34	45.41	3.33	60.46	-34.76	27.0	61.7	160	226	
Hori.	17235.000	PK	50.60	41.26	9.81	44.94	-9.54	47.19	-48.03	-27.0	21.0	100	0	
Vert.	5650.000	PK	51.80	33.69	15.98	45.45	3.33	59.35	-35.87	-27.0	8.8	160	152	
Vert.	5700.000	PK	52.20	33.87	15.98	45.42	3.33	59.96	-35.26	10.0	45.2	160	152	
Vert.	5720.000	PK	52.60	33.89	16.01	45.41	3.33	60.42	-34.80	15.6	50.4	160	152	
Vert.	5725.000	PK	54.40	33.90	16.01	45.41	3.33	62.23	-32.99	27.0	59.9	160	152	
Vert.	17235.000	PK	50.10	41.26	9.81	44.94	-9.54	46.69	-48.53	-27.0	21.5	100	0	

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

Result(EIRP[dBm])=10\*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 20 dB).

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

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

10 GHz - 26.5 GHz: 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz: 20log (0.5 m / 3.0 m) = -15.56 dB

UL Japan, Inc.

Kashima EMC Lab.

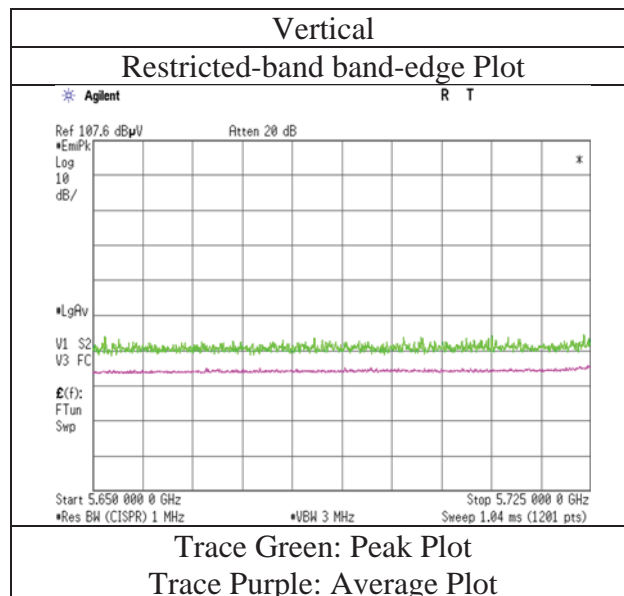
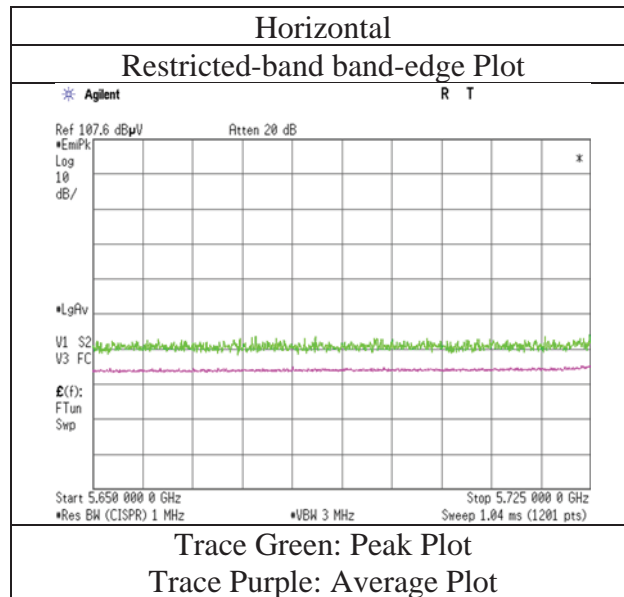
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

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## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 25, 2021
Temperature / Humidity	19 deg. C / 50 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11ac-20 MIMO 5745 MHz with BT Hopping On 3DH5



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

## Radiated Spurious Emission

Report No. 14027963S-I  
Test place Kashima EMC Lab.  
Semi Anechoic Chamber No.10  
Date October 25, 2021  
Temperature / Humidity 19 deg. C / 50 % RH  
Engineer Hiromitsu Tanabe  
(1 GHz -6.4 GHz)  
Mode Tx 11ac-20 MIMO 5805 MHz with BT Hopping On 3DH5

### (Calculation) (above 1 GHz 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	50.60	34.37	15.39	45.36	3.33	58.33	-36.89	27.0	63.8	143	224	
Hori.	5855.000	PK	51.40	34.41	15.39	45.36	3.33	59.17	-36.05	15.6	51.6	143	224	
Hori.	5875.000	PK	51.50	34.59	15.41	45.34	3.33	59.49	-35.73	10.0	45.7	143	224	
Hori.	5925.000	PK	51.90	34.90	15.43	45.30	3.33	60.26	-34.96	-27.0	<b>7.9</b>	143	224	
Vert.	5850.000	PK	50.80	34.37	15.39	45.36	3.33	58.53	-36.69	27.0	63.6	151	257	
Vert.	5855.000	PK	51.00	34.41	15.39	45.36	3.33	58.77	-36.45	15.6	52.0	151	257	
Vert.	5875.000	PK	50.30	34.59	15.41	45.34	3.33	58.29	-36.93	10.0	46.9	151	257	
Vert.	5925.000	PK	51.30	34.90	15.43	45.30	3.33	59.66	-35.56	-27.0	8.5	151	257	

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 20 dB).

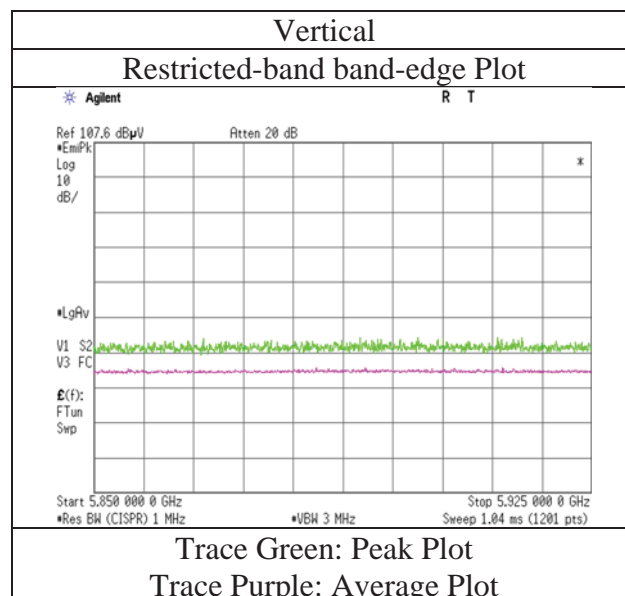
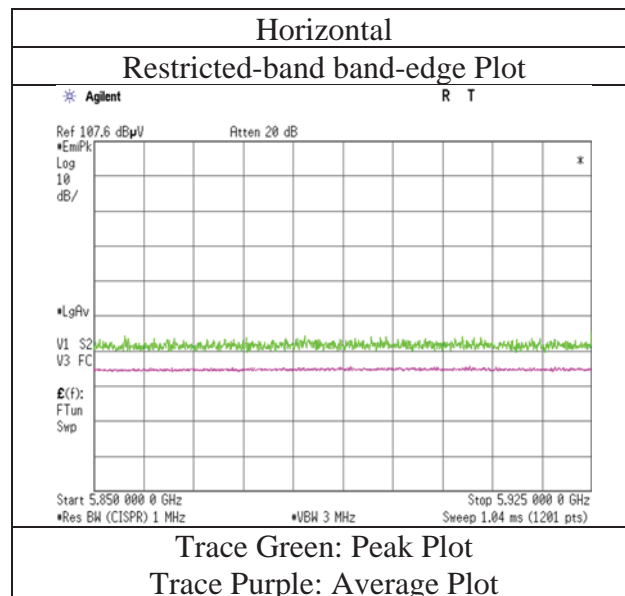
Distance factor : 1 GHz - 10 GHz : 20log (4.4 m / 3.0 m) = 3.33 dB

10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 27, 2021
Temperature / Humidity	20 deg. C / 51 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11ac-20 MIMO 5805 MHz with BT Hopping On 3DH5



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

## Radiated Spurious Emission

Report No. 14027963S-I  
Test place Kashima EMC Lab.  
Semi Anechoic Chamber No.10  
Date October 27, 2021  
Temperature / Humidity 20 deg. C / 51 % RH  
Engineer Hiromitsu Tanabe  
(1 GHz -6.4 GHz)  
Mode Tx 11n-40 MIMO 5755 MHz with BT Hopping On 3DH5

### (Calculation) (above 1 GHz 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	51.20	33.69	15.30	45.45	3.33	58.07	-37.15	-27.0	10.1	144	226	
Hori.	5700.000	PK	52.00	33.87	15.33	45.42	3.33	59.11	-36.11	10.0	46.1	144	226	
Hori.	5720.000	PK	52.90	33.89	15.34	45.41	3.33	60.05	-35.17	15.6	50.7	144	226	
Hori.	5725.000	PK	52.70	33.90	15.34	45.41	3.33	59.86	-35.36	27.0	62.3	144	226	
Vert.	5650.000	PK	52.10	33.69	15.30	45.45	3.33	58.97	-36.25	-27.0	<b>9.2</b>	146	149	
Vert.	5700.000	PK	52.00	33.87	15.33	45.42	3.33	59.11	-36.11	10.0	46.1	146	149	
Vert.	5720.000	PK	55.20	33.89	15.34	45.41	3.33	62.35	-32.87	15.6	48.4	146	149	
Vert.	5725.000	PK	54.50	33.90	15.34	45.41	3.33	61.66	-33.56	27.0	60.5	146	149	

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 20 dB).

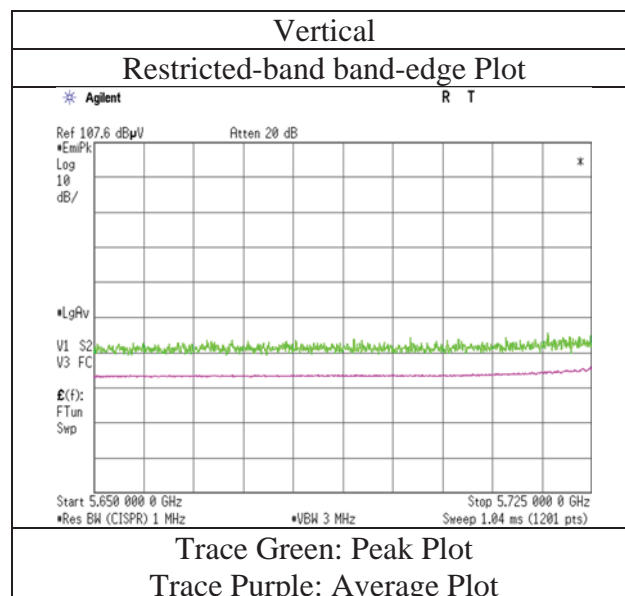
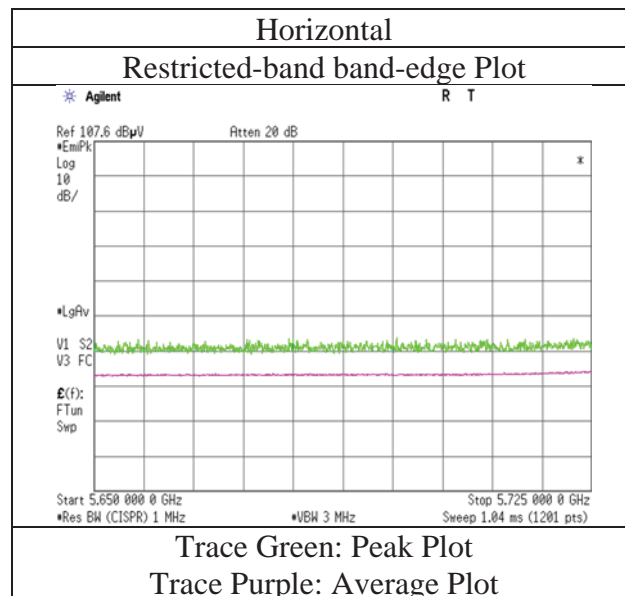
Distance factor : 1 GHz - 10 GHz : 20log (4.4 m / 3.0 m) = 3.33 dB

10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 27, 2021
Temperature / Humidity	20 deg. C / 51 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11n-40 MIMO 5755 MHz with BT Hopping On 3DH5



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

## Radiated Spurious Emission

Report No. 14027963S-I  
Test place Kashima EMC Lab.  
Semi Anechoic Chamber No.10  
Date October 27, 2021  
Temperature / Humidity 20 deg. C / 51 % RH  
Engineer Hiromitsu Tanabe  
(1 GHz -6.4 GHz)  
Mode Tx 11n-40 MIMO 5795 MHz with BT Hopping On 3DH5

### (Calculation) (above 1 GHz 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	52.10	34.37	15.39	45.36	3.33	59.83	-35.39	27.0	62.3	150	229	
Hori.	5855.000	PK	51.00	34.41	15.39	45.36	3.33	58.77	-36.45	15.6	52.0	150	229	
Hori.	5875.000	PK	51.70	34.59	15.41	45.34	3.33	59.69	-35.53	10.0	45.5	150	229	
Hori.	5925.000	PK	51.80	34.90	15.43	45.30	3.33	60.16	-35.06	-27.0	<b>8.0</b>	150	229	
Vert.	5850.000	PK	50.90	34.37	15.39	45.36	3.33	58.63	-36.59	27.0	63.5	152	242	
Vert.	5855.000	PK	51.00	34.41	15.39	45.36	3.33	58.77	-36.45	15.6	52.0	152	242	
Vert.	5875.000	PK	50.90	34.59	15.41	45.34	3.33	58.89	-36.33	10.0	46.3	152	242	
Vert.	5925.000	PK	51.10	34.90	15.43	45.30	3.33	59.46	-35.76	-27.0	8.7	152	242	

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 20 dB).

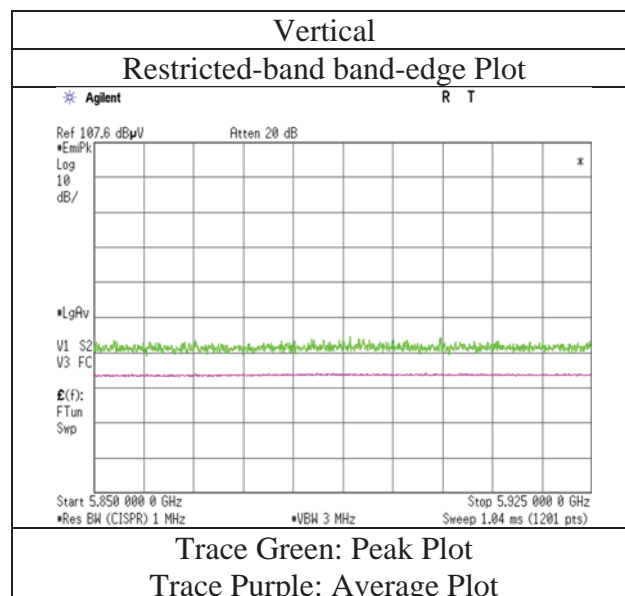
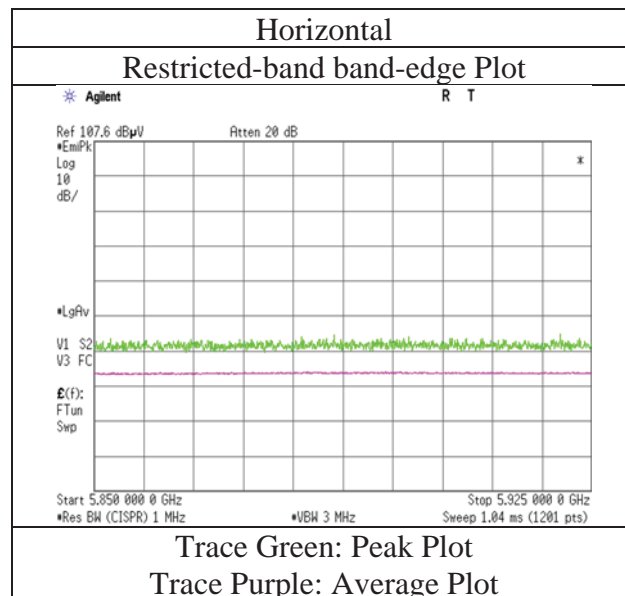
Distance factor : 1 GHz - 10 GHz : 20log (4.4 m / 3.0 m) = 3.33 dB

10 GHz - 26.5 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

26.5 GHz - 40 GHz : 20log (0.5 m / 3.0 m) = -15.56 dB

## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 27, 2021
Temperature / Humidity	20 deg. C / 51 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11n-40 MIMO 5795 MHz with BT Hopping On 3DH5



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

## Radiated Spurious Emission

Report No. 14027963S-I  
Test place Kashima EMC Lab.  
Semi Anechoic Chamber No.10  
Date October 27, 2021  
Temperature / Humidity 20 deg. C / 51 % RH  
Engineer Hiromitsu Tanabe  
(1 GHz -6.4 GHz)  
Mode Tx 11ac-80 MIMO 5775 MHz with BT Hopping On 3DH5

### (Calculation) (above 1 GHz 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	51.80	33.69	15.30	45.45	3.33	58.67	-36.55	-27.0	9.5	143	227	
Hori.	5700.000	PK	51.70	33.87	15.33	45.42	3.33	58.81	-36.41	10.0	46.4	143	227	
Hori.	5720.000	PK	52.40	33.89	15.34	45.41	3.33	59.55	-35.67	15.6	51.2	143	227	
Hori.	5725.000	PK	52.20	33.90	15.34	45.41	3.33	59.36	-35.86	27.0	62.8	143	227	
Hori.	5850.000	PK	51.10	34.37	15.39	45.36	3.33	58.83	-36.39	27.0	63.3	143	227	
Hori.	5855.000	PK	51.90	34.41	15.39	45.36	3.33	59.67	-35.55	15.6	51.1	143	227	
Hori.	5875.000	PK	50.90	34.59	15.41	45.34	3.33	58.89	-36.33	10.0	46.3	143	227	
Hori.	5925.000	PK	51.70	34.90	15.43	45.30	3.33	60.06	-35.16	-27.0	<b>8.1</b>	143	227	
Vert.	5650.000	PK	52.10	33.69	15.30	45.45	3.33	58.97	-36.25	-27.0	9.2	150	241	
Vert.	5700.000	PK	52.40	33.87	15.33	45.42	3.33	59.51	-35.71	10.0	45.7	150	241	
Vert.	5720.000	PK	52.60	33.89	15.34	45.41	3.33	59.75	-35.47	15.6	51.0	150	241	
Vert.	5725.000	PK	52.90	33.90	15.34	45.41	3.33	60.06	-35.16	27.0	62.1	150	241	
Vert.	5850.000	PK	50.60	34.37	15.39	45.36	3.33	58.33	-36.89	27.0	63.8	150	241	
Vert.	5855.000	PK	51.60	34.41	15.39	45.36	3.33	59.37	-35.85	15.6	51.4	150	241	
Vert.	5875.000	PK	51.50	34.59	15.41	45.34	3.33	59.49	-35.73	10.0	45.7	150	241	
Vert.	5925.000	PK	51.40	34.90	15.43	45.30	3.33	59.76	-35.46	-27.0	8.4	150	241	

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

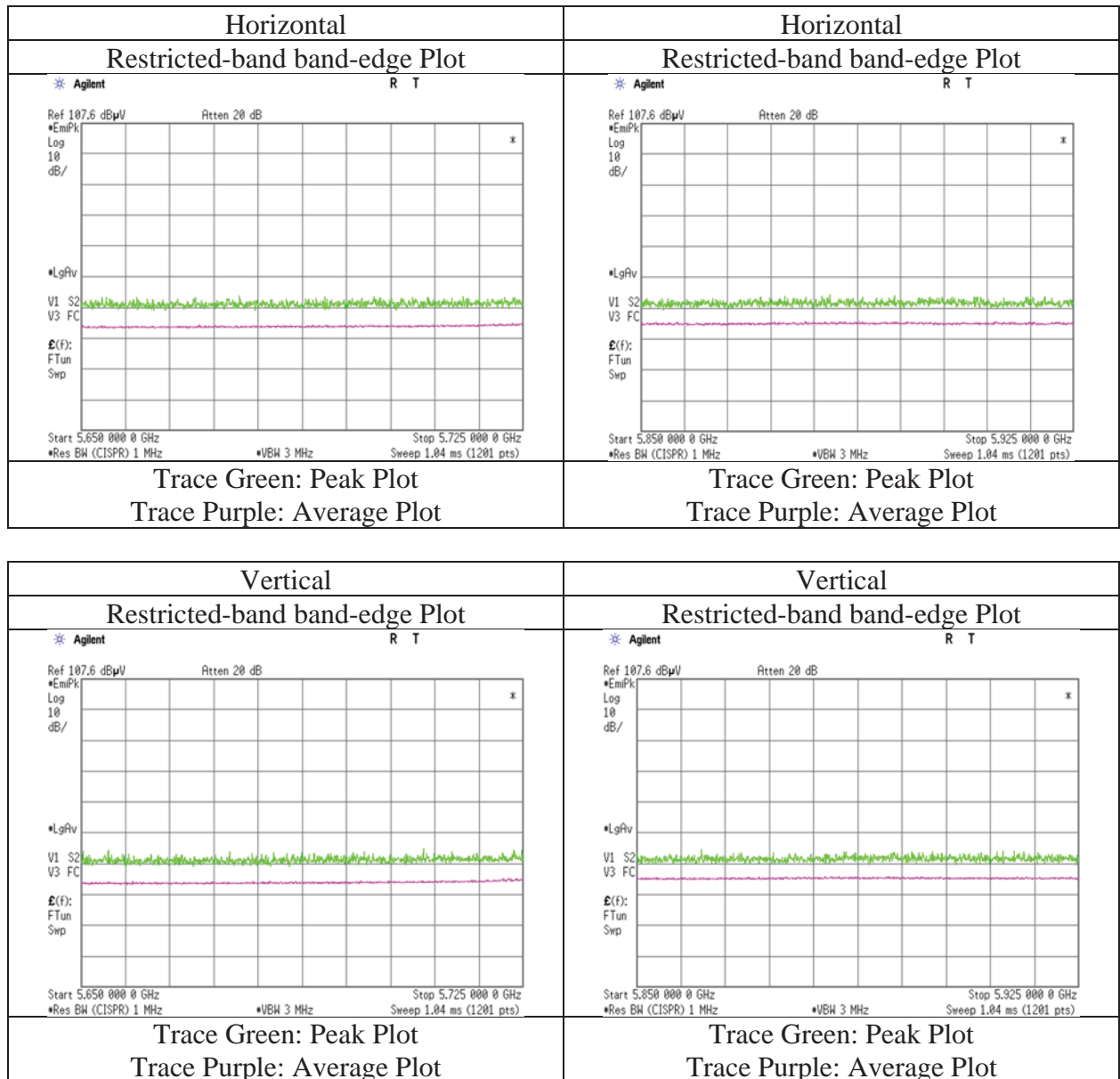
Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30 ) \*10^3)

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

Distance factor : 1 GHz - 10 GHz : 20log (4.4 m/ 3.0 m) = 3.33 dB  
10 GHz - 26.5 GHz : 20log (1.0 m/ 3.0 m) = -9.54 dB  
26.5 GHz - 40 GHz : 20log (0.5 m/ 3.0 m) = -15.56 dB

## Radiated Spurious Emission

Report No.	14027963S-I
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	October 27, 2021
Temperature / Humidity	20 deg. C / 51 % RH
Engineer	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)
Mode	Tx 11ac-80 MIMO 5775 MHz with BT Hopping On 3DH5



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

**UL Japan, Inc.**

**Kashima EMC Lab.**

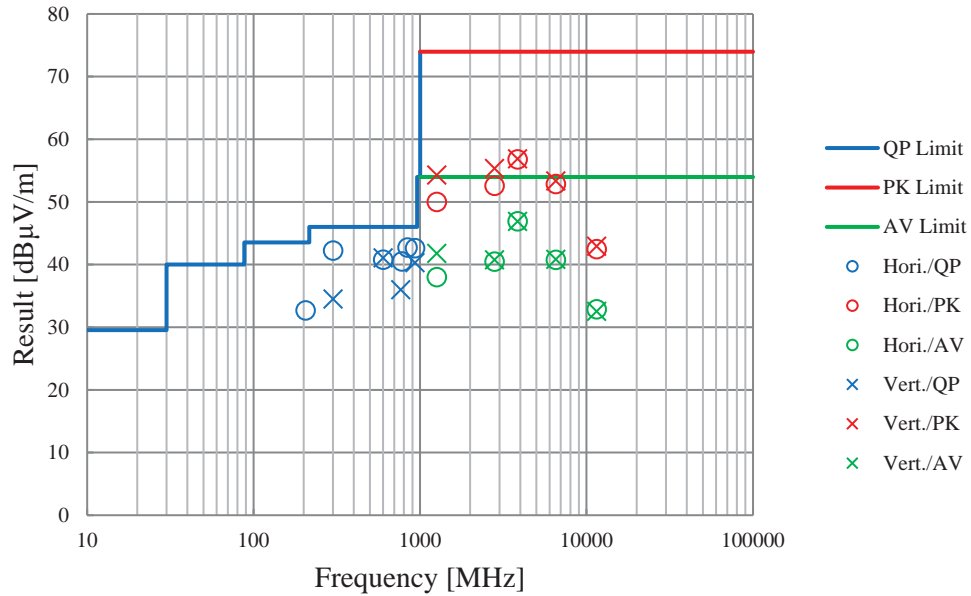
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## Radiated Spurious Emission (Plot data, Worst case)

Report No.	14027963S-I				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.11	No.10	No.10	No.10	No.10
Date	October 22, 2021	October 25, 2021	October 25, 2021	October 26, 2021	October 26, 2021
Temperature / Humidity	19 deg. C / 50 % RH	19 deg. C / 50 % RH	19 deg. C / 50 % RH	20 deg. C / 54 % RH	20 deg. C / 54 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe
	(30 MHz -1000 MHz)	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5745 MHz with BT Hopping On 3DH5				



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

## APPENDIX 2: Test instruments

### Test equipment

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE(GHz)	TSA-01	143642	Spectrum Analyzer	Keysight Technologies Inc	N9030A	MY53310670 Version A.13.12	2021/05/24	12
RE(GHz)	CHA-07	143438	Double Ridged Horn	ETS-Lindgren (Cedar Park, Texas)	3160-09	00166043	2021/06/05	12
RE(GHz)	CAF-19	142937	Pre-Amplifier	TOYO	HAP18-26W	00000035	2021/06/23	12
RE(GHz)	CCC-W09	143113	Micro Wave Cable	Suhner	SUCOFLEX104	MY588/4	2021/08/03	12
RE(GHz)	CHA-28	146356	Horn Antenna	ETS-Lindgren	3116	46543	2021/02/09	12
RE(GHz)	KAF-06	144880	Pre Amplifier	TSJ (Techno Science Japan)	MLA-1840B02-35	-	2021/04/08	12
RE(GHz)	CCC-G13	PRE0181657	Microwave Cable	Huber+Suhner	SF102/SKmm/1000mm	801389/2	-	-
RE(GHz)	CCC-W10	142992	Micro Wave Cable	Suhner	SUCOFLEX102	MY010/2A	2021/08/03	12
RE	CCC-S11-R	143169	11Site RE 3m System	None	none(No.11 RE)	none	2020/11/10	12
RE	CBL-09	143122	LOGBICON	Schwarzbeck Mess-Elektronik OHG	VULB 9168	508	2021/04/19	12
RE	CAT5-04	178807	5dB Fixed Atten.	Pasternack Enterprises	PE7047-5	none	2021/04/21	12
RE	CAF-16	142936	Pre-Amplifier	SONOMA INSTRUMENT	310N	325015	2021/05/27	12
RE	CTR-01	144193	Test Receiver	Rohde & Schwarz	ESU40	100426	2021/04/23	12
RE(GHz)	CSA-07	143643	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY52490024	2021/06/08	12
RE(GHz)	CHA-25	143456	Double Ridged Wave Guide	ETS-Lindgren (Cedar Park, Texas)	3115	00204573	2021/02/06	12
RE(GHz)	CAF-22	142940	Pre-Amplifier	Micro Wave Factory	MPR-1G26.5-35	161399	2021/06/11	12
RE(GHz)	CCC-G14	192241	Microwave Cable	Huber+Suhner	SF104/PC35m/PC35m/1000mm	805411/4	2021/01/19	12
RE(GHz)	CCC-G17	192244	Microwave Cable	Huber+Suhner	SF104/11N/11PC35/8000MM	808996/4	2021/01/19	12
RE(GHz)	CAT10-17	143023	10dB Fixed Atten.	Weinschel - API Technologies Corp	54A-10	56251	2021/05/14	12
RE(GHz)	CHF-05	143443	HPF	MICRO-TRONICS	HPM50112-02	006	2021/05/14	12
RE	CSCL-12	143653	Ruler	TAJIMA	L19-55	none	-	-
RE	COS-10	143542	Temperature & Humidity Indicator	HIOKI E.E. CORPORATION	3641/9680-50	090999895/090905406	2021/06/24	12
RE	CBM-10	143133	Barometer	Sunoh	SBR-151	001439	2018/11/26	36
RE	CTS-14	144216	Digital Multimeter	Fluke Corporation	115	994460954	2021/10/20	12
RE	COTS-CE MI-03	178804	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE, CE,ME,PE)	Ver 3.1.0484	-	-

\*Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

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

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

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

Test item:

RE: Radiated Emission

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