



RADIO TEST REPORT

Test Report No. 13408125M-C-R1

Applicant : **Panasonic Corporation**
Type of EUT : **Car Navigation**
Model Number of EUT : **AT2104**
FCC ID : **ACJ932AT2104**
Test regulation : **FCC Part 15 Subpart E:2020**
***WLAN (5 GHz band) part**
Test items : **Radiated emission test**
Test Result : **Complied (Refer to SECTION 3.2)**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the 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 any 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 has been accredited.
9. The information provided from the customer for this report is identified in SECTION 1.
10. This report is a revised version of 13408125M-C. 13408125M-C is replaced with this report.

Date of test: July 27 to November 13, 2020

Representative test engineer: 
Kazuhiro Ando
Engineer
Consumer Technology Division

Approved by: 
Kenichi Suda
Manager
Consumer Technology Division



CERTIFICATE 1266.01

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

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REVISION HISTORY

Original Test Report No.: 13408125M-C

Revision	Test report No.	Date	Page revised	Contents																																																																						
- (Original)	13408125M-C	September 30, 2020	-	-																																																																						
1	13408125M-C-R1	November 17, 2020	P.1	Correction of “Date of test”: from July 27 to August 25, 2020 to July 27 to November 13, 2020																																																																						
1	13408125M-C-R1	November 17, 2020	P.6	Correction of “Radio Specification”: from <table><tr><td>IEEE802.11ac (80 MHz band)</td><td></td><td>IEEE802.11ac (80 MHz band)</td></tr><tr><td>5210 MHz, 5755 MHz</td><td>=></td><td>5210 MHz, 5775 MHz</td></tr></table> to	IEEE802.11ac (80 MHz band)		IEEE802.11ac (80 MHz band)	5210 MHz, 5755 MHz	=>	5210 MHz, 5775 MHz																																																																
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1	13408125M-C-R1	November 17, 2020	P.11	Addition “Operating Mode” at Radiated Spurious Emission (Below 1 GHz) 11ac-20 Tx MIMO with 11g 2437MHz and BT Hopping on DH5 (Above 1 GHz): 11ac-20 Tx MIMO with 11g 2437MHz and BT Hopping on DH5 11ac-80 Tx MIMO with 11g 2437MHz and BT Hopping on DH5																																																																						
1	13408125M-C-R1	November 17, 2020	P.11	Addition Comment: *2) and *3)																																																																						
1	13408125M-C-R1	November 17, 2020	P.69 to 70, P.122 to 123	Addition Data of Radiated Spurious Emission.																																																																						
1	13408125M-C-R1	November 17, 2020	P.125	Addition Test equipment: CCC-S11-R, CAF-16, CTR-01																																																																						
1	13408125M-C-R1	November 17, 2020	P.125	Correction of Test equipment of CCC-G13: LIMS ID from PRE0181658 to 171928 Last Calibration Date from “-“ to 2020/7/5 Col Int from “-“ to 12																																																																						

Reference: Abbreviations (Including words undescribed in this report)

A2LA	The American Association for Laboratory Accreditation	MCS	Modulation and Coding Scheme
AC	Alternating Current	MRA	Mutual Recognition Arrangement
AFH	Adaptive Frequency Hopping	N/A	Not Applicable
AM	Amplitude Modulation	NIST	National Institute of Standards and Technology
Amp, AMP	Amplifier	NS	No signal detect.
ANSI	American National Standards Institute	NSA	Normalized Site Attenuation
Ant, ANT	Antenna	NVLAP	National Voluntary Laboratory Accreditation Program
AP	Access Point	OBW	Occupied Band Width
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	Quadri-Phase Shift Keying
CW	Continuous Wave	RBW	Resolution Band Width
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	RSS	Radio Standards Specifications
DSSS	Direct Sequence Spread Spectrum	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	Test Receiver
EN	European Norm	Tx	Transmitting
ERP, e.r.p.	Effective Radiated Power	VBW	Video BandWidth
EU	European Union	Vert.	Vertical
EUT	Equipment Under Test	WLAN	Wireless LAN
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		
LIMS	Laboratory Information Management System		

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SECTION 1: Customer information

Company Name	:	Panasonic Corporation
Address	:	4261 Ikonobe-cho, Tsuzuki-ku, Yokohama-shi, Kanagawa, 224-8520 Japan
Telephone Number	:	+81-50-3758-9201
Contact Person	:	Ichiro Hirose

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	:	Car Navigation
Model Number	:	AT2104
Serial Number	:	Refer to SECTION 4.2
Rating	:	DC 13.2 V
Receipt Date	:	June 30, 2020
Country of Mass-production	:	Japan, Mexico, Czech Republic
Condition	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	:	No Modification by the test lab.

2.2 Product Description

Model: AT2104 (referred to as the EUT in this report) is a Car Navigation.

There are 2 type for AT2104; Hi type(14 inch Display) and Lo type(8 inch Display). The same RF Part and antenna are installed in these models, however antenna gain and antenna arrangement are different.

General specification

The maximum clock frequencies used in the EUT: 125 MHz

Radio Specification

	IEEE802.11b	IEEE802.11g		IEEE802.11n (20 MHz band)	IEEE802.11n (40 MHz band)
Frequency of operation	2412 MHz - 2462 MHz	2412 MHz - 2462 MHz		2412 MHz – 2462 MHz, 5180 MHz – 5240 MHz, 5745 MHz – 5825 MHz	5190 MHz, 5230 MHz, 5755 MHz, 5795 MHz
Channel spacing	5 MHz			2.4 GHz band: 5 MHz 5 GHz band: 20 MHz	40 MHz
Modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)		OFDM (64QAM, 16QAM, QPSK, BPSK)	
	IEEE802.11a	IEEE802.11ac (20 MHz band)		IEEE802.11ac (40 MHz band)	IEEE802.11ac (80 MHz band)
Frequency of operation	5180 MHz – 5240 MHz, 5745 MHz – 5825 MHz	5180 MHz – 5240 MHz, 5745 MHz – 5825 MHz		5190 MHz, 5230 MHz, 5755 MHz, 5795 MHz	5210 MHz, 5775 MHz
Channel spacing	20 MHz			40 MHz	80 MHz
Modulation	OFDM (64QAM, 16QAM, QPSK, BPSK)	OFDM (256QAM,16QAM,QPSK,BPSK)			
	Bluetooth (BR/EDR)		Bluetooth Low Energy		
Frequency of operation	2402 MHz - 2480 MHz		2402 MHz - 2480 MHz		
Channel spacing	1 MHz		2 MHz		
Modulation	FHSS, GFSK, π /4DQPSK, 8DPSK		FHSS, GFSK		
Antenna type	Inverted F type antenna				
Antenna Gain	Hi type (14 inch Display)	RF0	2.4 GHz WLAN	-0.83 dBi	
			U-NII-1	2.17 dBi	
			U-NII-3	2.37 dBi	
		RF1	BT, BT LE	-0.13 dBi	
			U-NII-1	2.59 dBi	
			U-NII-3	2.64 dBi	
	Lo type (8 inch Display)	RF0	2.4 GHz WLAN	2.25 dBi	
			U-NII-1	1.41 dBi	
			U-NII-3	0.99 dBi	
		RF1	BT, BT LE	-0.22 dBi	
U-NII-1	1.08 dBi				
		U-NII-3	2.14 dBi		
Antenna Connector type	U.FL connector				
Operating Temperature	-30 deg. C to + 65 deg. C				

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart E
 FCC Part 15 final revised on June 26, 2020 and effective July 27, 2020
 * The revision does not affect the test result conducted before its effective date.

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

* 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	Hi type 3.6 dB 838.143 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	Lo type 5.7 dB 5150.000 MHz, AV, Hori.		
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 RF Part 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.

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 $k=2$.

Conducted emission

Frequency range	Required Uncertainty (+/-)	Uncertainty (+/-)
0.15 MHz to 30 MHz	3.4 dB	3.3 dB

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 26.5 GHz		5.6 dB
0.5 m	26.5 GHz to 40 GHz	Not Defined	5.9 dB

Antenna Terminal test

Test Item	Required Uncertainty (+/-)	Uncertainty (+/-)
26 dB Emission Bandwidth / 6 dB Emission Bandwidth / 99 % Occupied Bandwidth	Not Defined	1.6 %
Maximum Conducted Output Power / Average Output Power (SPM-06)	0.75 dB	0.73 dB
Burst Rate	Not Defined	0.256 %
Maximum Power Spectral Density	4 dB	2.2 dB
Conducted Spurious Emission (9 kHz to 30 MHz)	4 dB	2.2 dB

3.5 Test Location

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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.

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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.

Mode	Remarks*
IEEE 802.11ac MIMO 20 MHz BW (11ac-20 MIMO)	MCS 8 (RF0 + RF1), PN9
IEEE 802.11ac MIMO 40 MHz BW (11ac-40 MIMO)	MCS 7 (RF0 + RF1), PN9
IEEE 802.11ac MIMO 80 MHz BW (11ac-80 MIMO)	MCS 7 (RF0 + RF1), PN9
*The worst antenna (RF1) 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 : 5 dBm Software : Labtool Version: 2.0.0.71 (Date: 2020.05.29, 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)

Test Item	Operating Mode	Tested Antenna	Tested Frequency	
			U-NII-1 Band	U-NII-3 Band
Radiated Spurious Emission (Below 1 GHz)	11ac-20 Tx MIMO *1)	RF0 + RF1	-	5745 MHz
	11ac-20 Tx MIMO with 11g 2437 MHz *1)	RF0 + RF1	-	5745 MHz
	11ac-20 Tx MIMO with BT Hopping on DH5 *1)	RF0 + RF1	-	5745 MHz
	11ac-20 Tx MIMO with 11g 2437MHz and BT Hopping on DH5 *2)	RF0 + RF1	-	5745 MHz
Radiated Spurious Emission (Above 1 GHz)	11ac-20 Tx MIMO	RF0 + RF1	5180 MHz 5220 MHz 5240 MHz	5745 MHz 5785 MHz 5825 MHz
	11ac-40 Tx MIMO	RF0 + RF1	5190 MHz 5230 MHz	5755 MHz 5795 MHz
	11ac-80 Tx MIMO	RF0 + RF1	5210 MHz	5775 MHz
	11ac-20 Tx MIMO with 11g 2437 MHz	RF0 + RF1	5180 MHz 5220 MHz 5240 MHz	5745 MHz 5785 MHz 5825 MHz
	11ac-40 Tx MIMO with 11g 2437 MHz	RF0 + RF1	5190 MHz 5230 MHz	5755 MHz 5795 MHz
	11ac-80 Tx MIMO with 11g 2437 MHz	RF0 + RF1	5210 MHz	5775 MHz
	11ac-20 Tx MIMO with BT Hopping on DH5	RF0 + RF1	5180 MHz 5220 MHz 5240 MHz	5745 MHz 5785 MHz 5825 MHz
	11ac-40 Tx MIMO with BT Hopping on DH5	RF0 + RF1	5190 MHz 5230 MHz	5755 MHz 5795 MHz
	11ac-80 Tx MIMO with BT Hopping on DH5	RF0 + RF1	5210 MHz	5775 MHz
	11ac-20 Tx MIMO with 11g 2437MHz and BT Hopping on DH5 *2)	RF0 + RF1	-	5745 MHz
	11ac-80 Tx MIMO with 11g 2437MHz and BT Hopping on DH5 *3)	RF0 + RF1	5210 MHz	-
*1) The test was performed with the antenna that had higher power as a representative.				
*2) The worst mode of two simultaneous transmission mode was measured as a representative for Hi type (14 inch Display), because the spurious characteristics of three simultaneous transmission was not deteriorated compared to two simultaneous transmission.				
*3) The worst mode of two simultaneous transmission mode was measured as a representative for Lo type (8 inch Display), because the spurious characteristics of three simultaneous transmissions was not deteriorated compared to two simultaneous transmission.				

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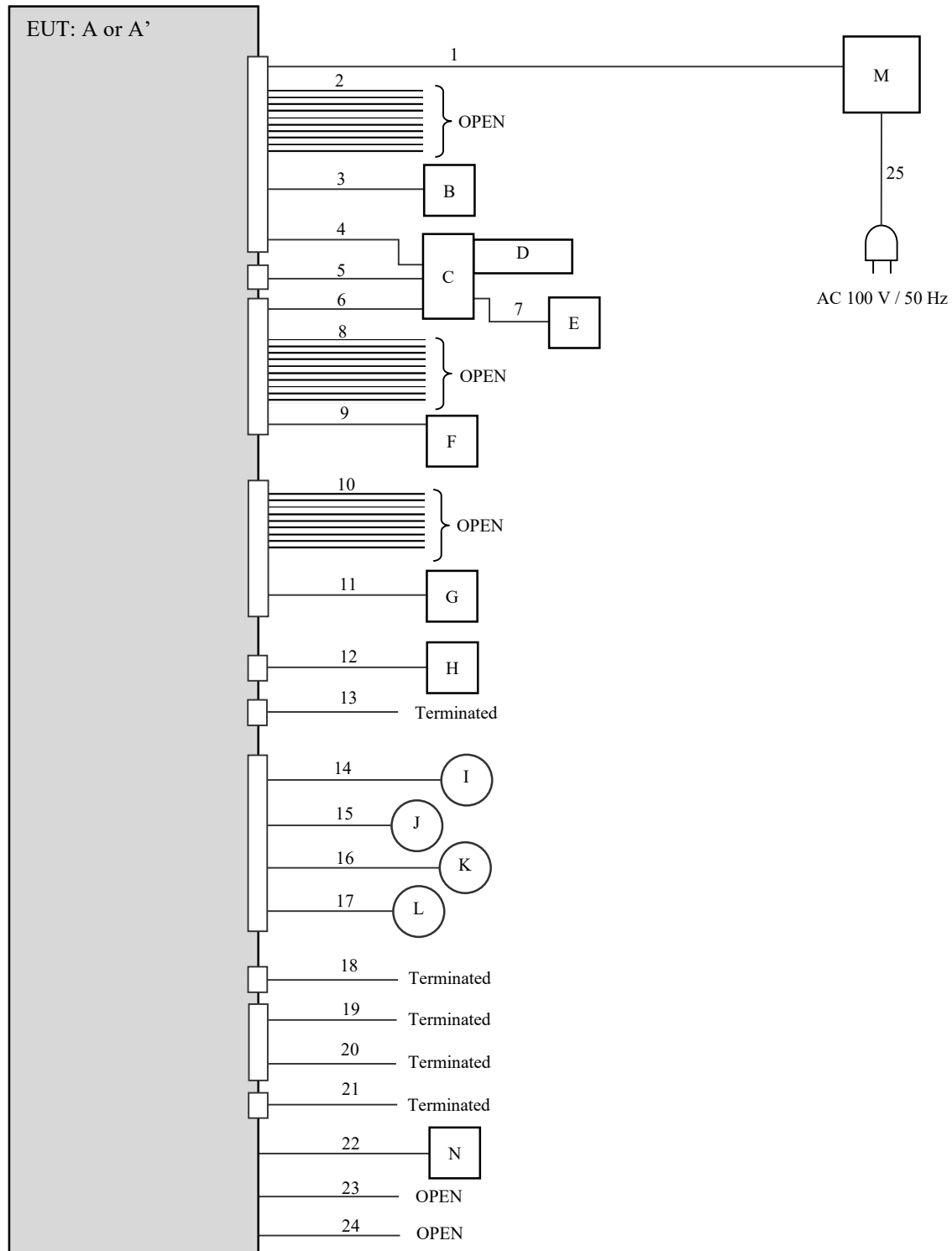
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4.2 Configuration and peripherals



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

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Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Car Navigation	AT2104	500025	Panasonic Corporation	EUT, Hi type
A'	Car Navigation	AT2104	500109	Panasonic Corporation	EUT, Lo type
B	Steering Switch	ST-SW-IF	0011	Panasonic Corporation	-
C	IF-Box	DEP32-10078	034	Panasonic Corporation	-
D	USB Memory	D33B29	-	Silicon Power	-
E	Smart Phone	ZTE B2016	cffdc231	ZTE	-
F	MIC	SDA3510A	0DC062841	Panasonic Corporation	-
G	MIC	SDA3510A	0DC062517	Panasonic Corporation	-
H	Rear Camera	GP-KDM301RC	06SD00026	Panasonic Corporation	-
I	Speaker	KFC-RS101	-	JVC KENWOOD	-
J	Speaker	KFC-RS101	-	JVC KENWOOD	-
K	Speaker	KFC-RS101	-	JVC KENWOOD	-
L	Speaker	KFC-RS101	-	JVC KENWOOD	-
M	Power Supply(DC)	GSV3000	1708192899	DIAMOND ANTENNA	-
N	JIG	J5DBG	WR14-4333	-	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	3.0	Unshielded	Unshielded	-
2	Signal	3.0	Unshielded	Unshielded	-
3	Steering Switch	3.0 + 0.1	Unshielded	Unshielded	-
4	DC	3.0	Unshielded	Unshielded	-
5	IF-Box	2.5	Shielded	Shielded	-
6	Signal	3.0	Unshielded	Unshielded	-
7	USB	1.0	Shielded	Shielded	-
8	Signal	3.0	Unshielded	Unshielded	-
9	MIC	3.0 + 0.4	Unshielded	Unshielded	-
10	Signal	3.0	Unshielded	Unshielded	-
11	MIC	3.0 + 0.4	Unshielded	Unshielded	-
12	Rear Camera	3.0 + 0.2	Unshielded	Unshielded	-
13	GPS	0.1 + 2.5	Shielded	Shielded	-
14	Speaker	3.0 + 1.0	Unshielded	Unshielded	-
15	Speaker	3.0 + 1.0	Unshielded	Unshielded	-
16	Speaker	3.0 + 1.0	Unshielded	Unshielded	-
17	Speaker	3.0 + 1.0	Unshielded	Unshielded	-
18	DCM	3.0	Shielded	Shielded	-
19	FM	0.1 + 1.0	Shielded	Shielded	-
20	FM	0.1 + 1.5	Shielded	Shielded	-
21	Sirius XM	1.0	Shielded	Shielded	-
22	Signal	0.1	Unshielded	Unshielded	*1)
23	UART	0.2	Unshielded	Unshielded	*1)
24	Signal	0.15	Unshielded	Unshielded	*1)
25	AC	1.7	Unshielded	Unshielded	-

*1) This cable is for testing and is not included with products.

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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 beam width 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;

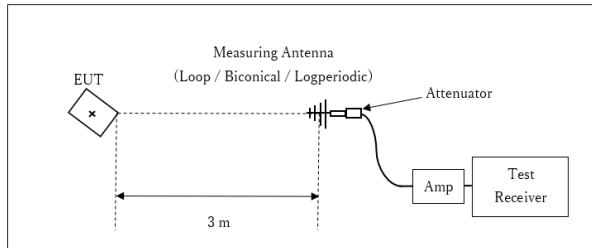
Frequency	Below 1 GHz	Above 1 GHz
Antenna Type	Hybrid	Horn

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

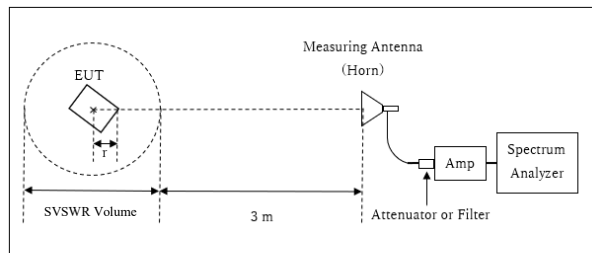
Below 1 GHz



x : Center of turn table

Test Distance: 3 m

1 GHz - 10 GHz



r : Radius of an outer periphery of EUT

x : Center of turn table

Hi type

Distance Factor: $20 \times \log (3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

* Test Distance: $(3 + \text{SVSWR Volume} / 2) - r = 3.8 \text{ m}$

Lo type

Distance Factor: $20 \times \log (3.87 \text{ m} / 3.0 \text{ m}) = 2.21 \text{ dB}$

* Test Distance: $(3 + \text{SVSWR Volume} / 2) - r = 3.87 \text{ m}$

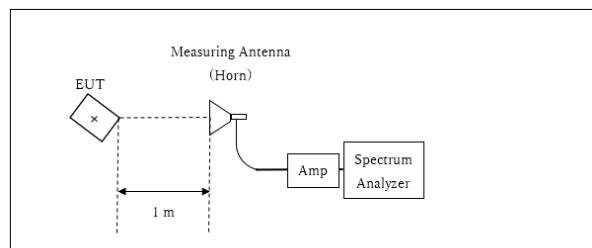
SVSWR Volume : 2.0 m

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

r = 0.2 m (Hi type)

r = 0.13 m (Lo type)

10 GHz - 26.5 GHz

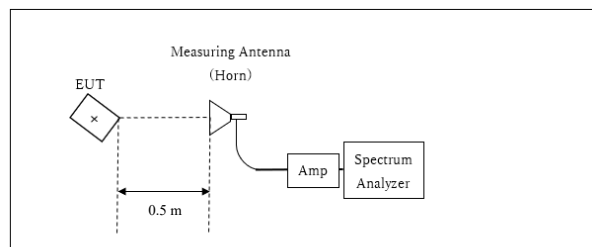


x : Center of turn table

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



x : Center of turn table

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.

Worst case:

< Hi type (14 inch Display) >

Antenna polarization	Carrier (Band edge)	Spurious				
		Below 1 GHz	Above 1 GHz			
			1 GHz - 6.4 GHz	6.4 GHz - 10 GHz	10 GHz - 18 GHz	18 GHz - 40 GHz
Horizontal	0 deg.	0 deg.	0 deg.	30 deg.	30 deg.	30 deg.
Vertical	0 deg.	0 deg.	0 deg.	30 deg.	30 deg.	30 deg.

< Lo type (8 inch Display) >

Antenna polarization	Carrier (Band edge)	Spurious				
		Below 1 GHz	Above 1 GHz			
			1 GHz - 6.4 GHz	6.4 GHz - 10 GHz	10 GHz - 18 GHz	18 GHz - 40 GHz
Horizontal	30 deg.	0 deg.	30 deg.	30 deg.	30 deg.	30 deg.
Vertical	30 deg.	0 deg.	30 deg.	30 deg.	30 deg.	30 deg.

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

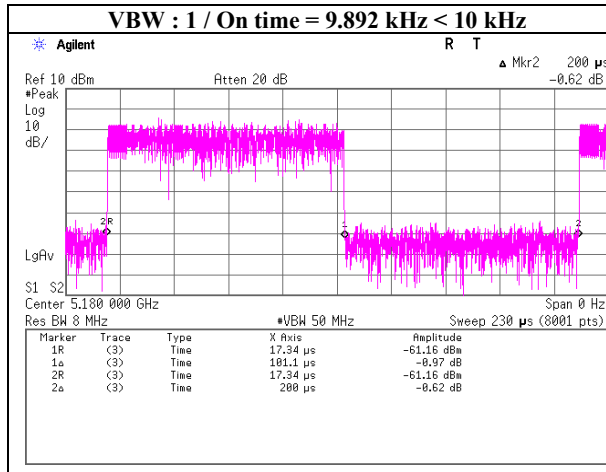
Measurement range : 30 MHz - 40 GHz
Test data : APPENDIX
Test result : Pass

APPENDIX 1: Test data

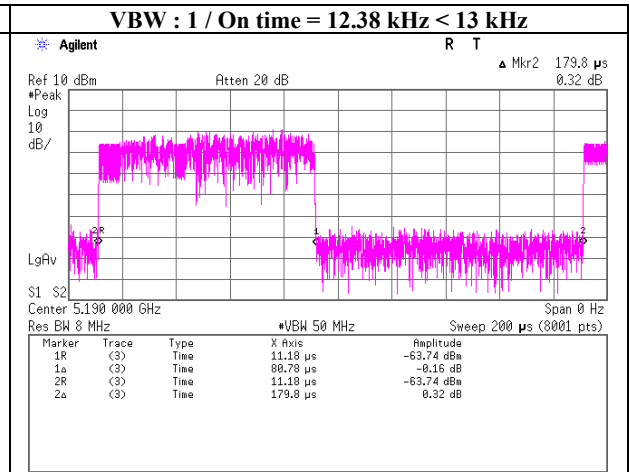
Burst rate confirmation

Report No.	13408125M-C-R1
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 27, 2020
Temperature / Humidity	27 deg. C / 57 % RH
Engineer	Shiro Kobayashi
Mode	Tx

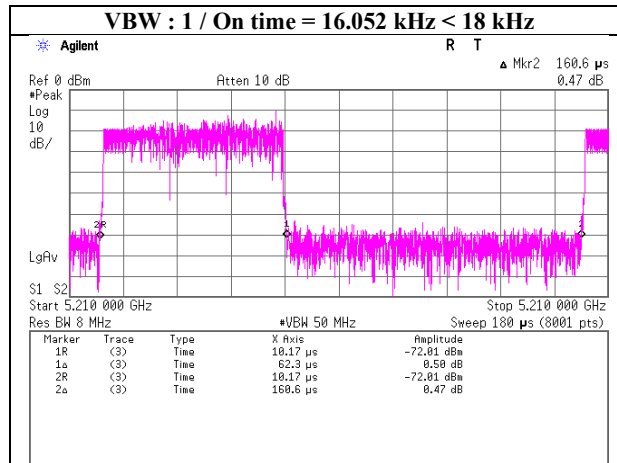
11ac-20 MCS 8



11ac-40 MCS 7



11ac-80 MCS 7



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Radiated Spurious Emission

Report No.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	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 5180 MHz			
EUT	Hi type			

(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.	2093.000	PK	51.16	29.06	13.10	43.86	2.05	51.51	73.9	22.3	226	183	
Hori.	5150.000	PK	51.13	32.51	15.00	45.38	2.05	55.31	73.9	18.5	100	292	
Hori.	15540.000	PK	51.70	38.26	9.25	45.56	-9.54	44.11	73.9	29.7	150	0	
Hori.	2093.000	AV	42.78	29.06	13.10	43.86	2.05	43.13	53.9	10.7	226	183	VBW:10 Hz
Hori.	5150.000	AV	42.64	32.51	15.00	45.38	2.05	46.82	53.9	7.0	100	292	VBW:10 kHz
Hori.	15540.000	AV	41.60	38.26	9.25	45.56	-9.54	34.01	53.9	19.8	150	0	VBW:10 kHz
Vert.	2093.000	PK	50.67	29.06	13.10	43.86	2.05	51.02	73.9	22.8	177	152	
Vert.	5150.000	PK	50.97	32.51	15.00	45.38	2.05	55.15	73.9	18.7	113	0	
Vert.	15540.000	PK	49.70	38.26	9.25	45.56	-9.54	42.11	73.9	31.7	150	0	
Vert.	2093.000	AV	41.92	29.06	13.10	43.86	2.05	42.27	53.9	11.6	177	152	VBW:10 Hz
Vert.	5150.000	AV	42.25	32.51	15.00	45.38	2.05	46.43	53.9	7.4	113	0	VBW:10 kHz
Vert.	15540.000	AV	41.20	38.26	9.25	45.56	-9.54	33.61	53.9	20.2	150	0	VBW:10 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 (3.8 m / 3.0 m) = 2.05 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.	10360.000	PK	47.60	38.49	7.53	42.25	-9.54	41.83	-53.39	-27.0	26.3	150	0	
Vert.	10360.000	PK	47.50	38.49	7.53	42.25	-9.54	41.73	-53.49	-27.0	26.4	150	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 (3.8 m / 3.0 m) = 2.05 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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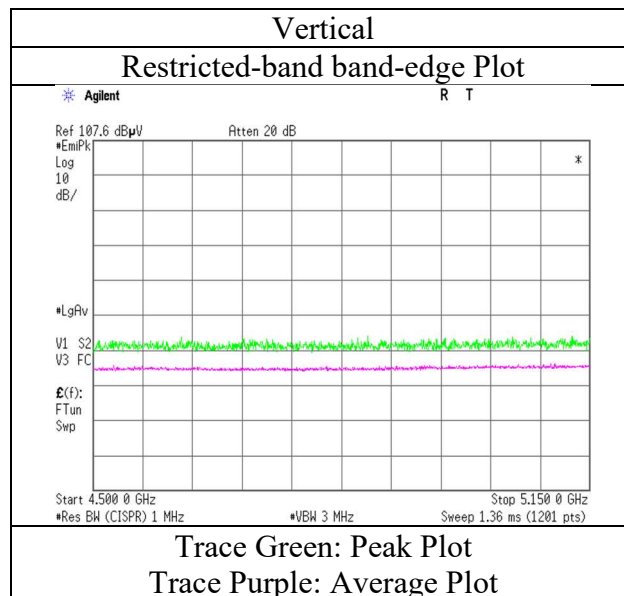
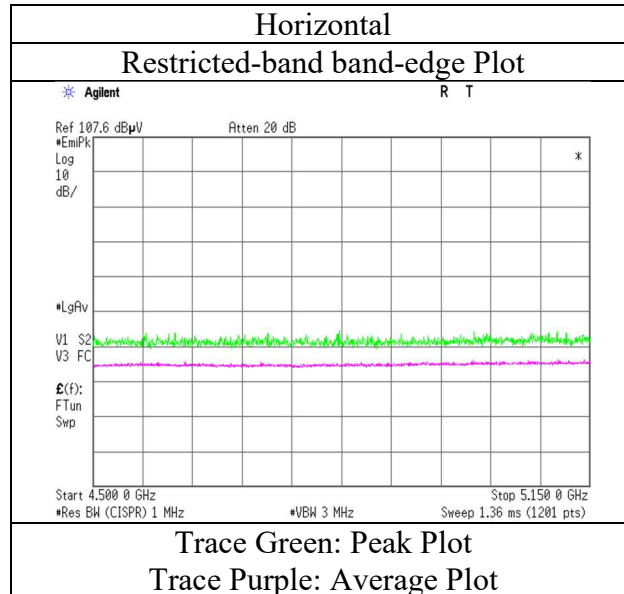
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Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-20 MIMO 5180 MHz
EUT	Hi type



* 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.

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Radiated Spurious Emission

Report No.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	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 5220 MHz			
EUT	Hi type			

(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.	2092.850	PK	51.08	29.06	13.10	43.86	2.05	51.43	73.9	22.4	226	184	
Hori.	15660.000	PK	51.10	38.53	9.27	45.13	-9.54	44.23	73.9	29.6	150	0	
Hori.	2092.850	AV	41.93	29.06	13.10	43.86	2.05	42.28	53.9	11.6	226	184	VBW:10 Hz
Hori.	15660.000	AV	41.40	38.53	9.27	45.13	-9.54	34.53	53.9	19.3	150	0	VBW:10 kHz
Vert.	2092.850	PK	51.42	29.06	13.10	43.86	2.05	51.77	73.9	22.1	182	154	
Vert.	15660.000	PK	50.80	38.53	9.27	45.13	-9.54	43.93	73.9	29.9	150	0	
Vert.	2092.850	AV	42.10	29.06	13.10	43.86	2.05	42.45	53.9	11.4	182	154	VBW:10 Hz
Vert.	15660.000	AV	41.50	38.53	9.27	45.13	-9.54	34.63	53.9	19.2	150	0	VBW:10 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 (3.8 m / 3.0 m) = 2.05 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.	10440.000	PK	46.70	38.62	7.56	42.16	-9.54	41.18	-54.04	-27.0	27.0	150	0	
Vert.	10440.000	PK	46.20	38.62	7.56	42.16	-9.54	40.68	-54.54	-27.0	27.5	150	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 (3.8 m / 3.0 m) = 2.05 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	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 5240 MHz			
EUT	Hi type			

(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.	2092.650	PK	51.12	29.07	13.10	43.86	2.05	51.48	73.9	22.4	227	183	
Hori.	5350.000	PK	48.88	32.96	15.11	45.45	2.05	53.55	73.9	20.3	128	289	
Hori.	15720.000	PK	50.20	38.65	9.31	44.98	-9.54	43.64	73.9	30.2	150	0	
Hori.	2092.650	AV	42.33	29.07	13.10	43.86	2.05	42.69	53.9	11.2	227	183	VBW:10 Hz
Hori.	5350.000	AV	42.20	32.96	15.11	45.45	2.05	46.87	53.9	7.0	128	289	VBW:10 kHz
Hori.	15720.000	AV	40.80	38.65	9.31	44.98	-9.54	34.24	53.9	19.6	150	0	VBW:10 kHz
Vert.	2092.650	PK	50.94	29.07	13.10	43.86	2.05	51.30	73.9	22.6	183	153	
Vert.	5350.000	PK	49.46	32.96	15.11	45.45	2.05	54.13	73.9	19.7	121	0	
Vert.	15720.000	PK	50.10	38.65	9.31	44.98	-9.54	43.54	73.9	30.3	150	0	
Vert.	2092.650	AV	42.12	29.07	13.10	43.86	2.05	42.48	53.9	11.4	183	153	VBW:10 Hz
Vert.	5350.000	AV	41.76	32.96	15.11	45.45	2.05	46.43	53.9	7.4	121	0	VBW:10 kHz
Vert.	15720.000	AV	40.70	38.65	9.31	44.98	-9.54	34.14	53.9	19.7	150	0	VBW:10 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 : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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.	10480.000	PK	46.90	38.68	7.59	42.12	-9.54	41.51	-53.71	-27.0	26.7	150	0	
Vert.	10480.000	PK	47.30	38.68	7.59	42.12	-9.54	41.91	-53.31	-27.0	26.3	150	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 : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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.

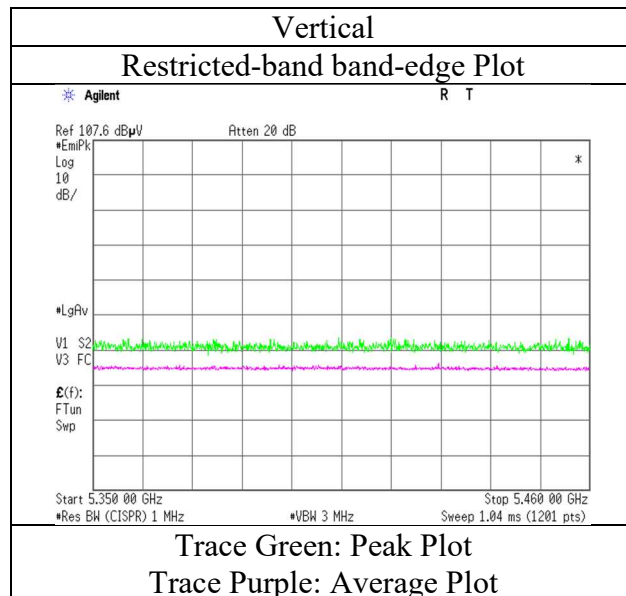
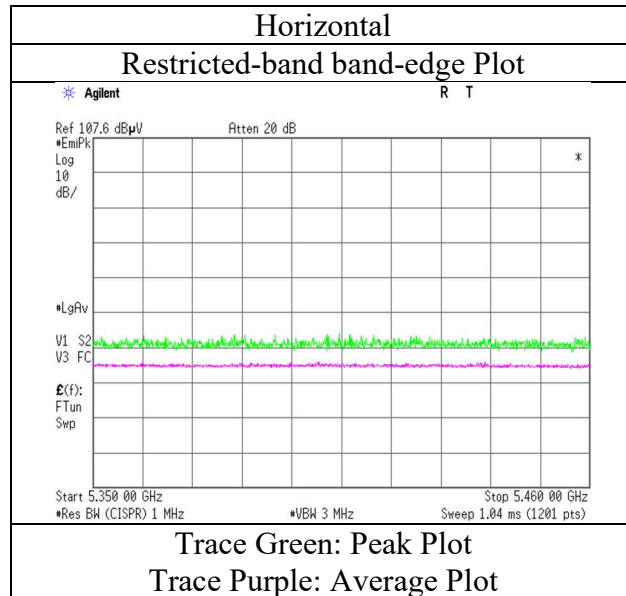
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

Facsimile : +81 478 82 3373

Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-20 MIMO 5240 MHz
EUT	Hi type



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

Telephone : +81 478 88 6500

Facsimile : +81 478 82 3373

Radiated Spurious Emission

Report No.	13408125M-C-R1				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.6	No.6	No.6	No.6	No.6
Date	August 6, 2020	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 55 % RH	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	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				
EUT	Hi type				

(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.	232.607	QP	48.90	10.79	7.63	32.35	0.00	34.97	46.0	11.0	143	298	
Hori.	387.623	QP	42.60	15.43	8.56	32.27	0.00	34.32	46.0	11.6	100	17	
Hori.	477.143	QP	43.20	17.53	9.02	32.24	0.00	37.51	46.0	8.4	100	14	
Hori.	593.387	QP	42.50	19.68	9.52	32.23	0.00	39.47	46.0	6.5	185	246	
Hori.	772.268	QP	40.70	22.20	10.25	32.02	0.00	41.13	46.0	4.8	118	221	
Hori.	837.558	QP	40.70	22.79	10.51	31.80	0.00	42.20	46.0	3.8	110	218	
Hori.	2092.650	PK	51.32	29.07	13.10	43.86	2.05	51.68	73.9	22.2	227	183	
Hori.	11490.000	PK	48.20	38.66	7.84	42.79	-9.54	42.37	73.9	31.5	150	0	
Hori.	2092.650	AV	42.24	29.07	13.10	43.86	2.05	42.60	53.9	11.3	227	183	VBW:10 Hz
Hori.	11490.000	AV	38.80	38.66	7.84	42.79	-9.54	32.97	53.9	20.9	150	0	VBW:10 kHz
Vert.	593.520	QP	44.20	19.69	9.52	32.23	0.00	41.18	46.0	4.8	123	339	
Vert.	772.278	QP	38.60	22.20	10.25	32.02	0.00	39.03	46.0	6.9	100	168	
Vert.	838.123	QP	36.70	22.79	10.51	31.80	0.00	38.20	46.0	7.8	100	298	
Vert.	2092.650	PK	51.86	29.07	13.10	43.86	2.05	52.22	73.9	21.6	183	153	
Vert.	11490.000	PK	48.30	38.66	7.84	42.79	-9.54	42.47	73.9	31.4	150	0	
Vert.	2092.650	AV	42.13	29.07	13.10	43.86	2.05	42.49	53.9	11.4	183	153	VBW:10 Hz
Vert.	11490.000	AV	38.50	38.66	7.84	42.79	-9.54	32.67	53.9	21.2	150	0	VBW:10 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 (3.8 m / 3.0 m) = 2.05 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	51.11	33.49	15.27	45.47	2.05	56.45	-38.77	-27.0	11.7	145	331	
Hori.	5700.000	PK	51.38	33.61	15.30	45.47	2.05	56.87	-38.35	10.0	48.3	145	331	
Hori.	5720.000	PK	52.84	33.67	15.31	45.46	2.05	58.41	-36.81	15.6	52.4	145	331	
Hori.	5725.000	PK	55.54	33.68	15.31	45.46	2.05	61.12	-34.10	27.0	61.1	145	331	
Hori.	17235.000	PK	50.30	41.09	9.83	44.82	-9.54	46.86	-48.36	-27.0	21.3	150	0	
Vert.	5650.000	PK	51.48	33.49	15.27	45.47	2.05	56.82	-38.40	-27.0	11.4	130	343	
Vert.	5700.000	PK	51.77	33.61	15.30	45.47	2.05	57.26	-37.96	10.0	47.9	130	343	
Vert.	5720.000	PK	51.92	33.67	15.31	45.46	2.05	57.49	-37.73	15.6	53.3	130	343	
Vert.	5725.000	PK	53.89	33.68	15.31	45.46	2.05	59.47	-35.75	27.0	62.7	130	343	
Vert.	17235.000	PK	50.10	41.09	9.83	44.82	-9.54	46.66	-48.56	-27.0	21.5	150	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).

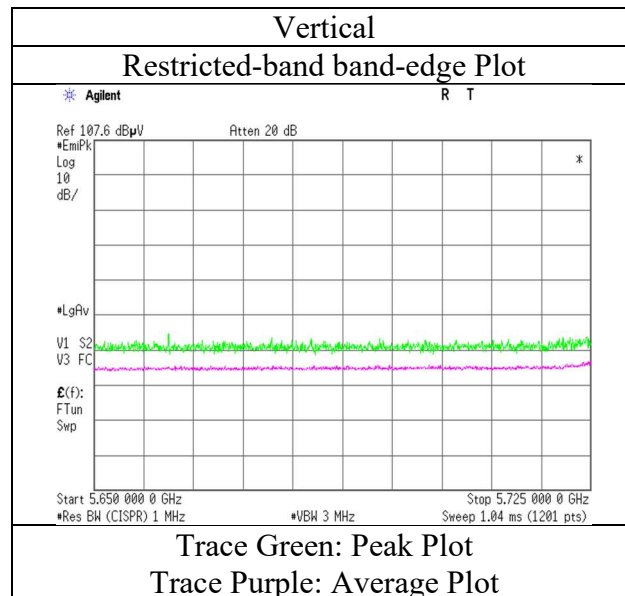
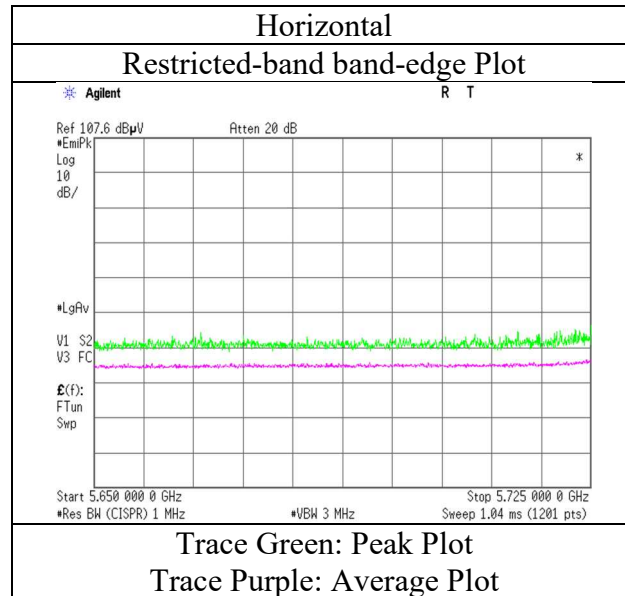
Distance factor : 1 GHz - 10 GHz : 20log (3.8 m / 3.0 m) = 2.05 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-20 MIMO 5745 MHz
EUT	Hi type



* 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	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			
EUT	Hi type			

(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.	2092.520	PK	52.06	29.07	13.10	43.86	2.05	52.42	73.9	21.4	227	182	
Hori.	11570.000	PK	48.20	38.66	7.86	42.97	-9.54	42.21	73.9	31.6	150	0	
Hori.	2092.520	AV	42.41	29.07	13.10	43.86	2.05	42.77	53.9	11.1	227	182	VBW:10 Hz
Hori.	11570.000	AV	39.20	38.66	7.86	42.97	-9.54	33.21	53.9	20.6	150	0	VBW:10 kHz
Vert.	2092.520	PK	51.59	29.07	13.10	43.86	2.05	51.95	73.9	21.9	184	153	
Vert.	11570.000	PK	48.20	38.66	7.86	42.97	-9.54	42.21	73.9	31.6	150	0	
Vert.	2092.520	AV	42.08	29.07	13.10	43.86	2.05	42.44	53.9	11.4	184	153	VBW:10 Hz
Vert.	11570.000	AV	39.10	38.66	7.86	42.97	-9.54	33.11	53.9	20.7	150	0	VBW:10 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 (3.8 m / 3.0 m) = 2.05 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	50.30	41.34	9.85	44.77	-9.54	47.18	-48.04	-27.0	21.0	150	0	
Vert.	17355.000	PK	50.90	41.34	9.85	44.77	-9.54	47.78	-47.44	-27.0	20.4	150	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 (3.8 m / 3.0 m) = 2.05 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	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 5825 MHz			
EUT	Hi type			

(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.	2092.520	PK	51.58	29.07	13.10	43.86	2.05	51.94	73.9	21.9	228	183	
Hori.	11650.000	PK	47.90	38.61	7.88	43.18	-9.54	41.67	73.9	32.2	150	0	
Hori.	2092.520	AV	42.48	29.07	13.10	43.86	2.05	42.84	53.9	11.0	228	183	VBW:10 Hz
Hori.	11650.000	AV	38.80	38.61	7.88	43.18	-9.54	32.57	53.9	21.3	150	0	VBW:10 kHz
Vert.	2092.520	PK	50.75	29.07	13.10	43.86	2.05	51.11	73.9	22.7	187	153	
Vert.	11650.000	PK	47.90	38.61	7.88	43.18	-9.54	41.67	73.9	32.2	150	0	
Vert.	2092.520	AV	42.08	29.07	13.10	43.86	2.05	42.44	53.9	11.4	187	153	VBW:10 Hz
Vert.	11650.000	AV	38.60	38.61	7.88	43.18	-9.54	32.37	53.9	21.5	150	0	VBW:10 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 (3.8 m / 3.0 m) = 2.05 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	50.95	34.21	15.37	45.39	2.05	57.19	-38.03	27.0	65.0	151	351	
Hori.	5855.000	PK	50.72	34.24	15.37	45.39	2.05	56.99	-38.23	15.6	53.8	151	351	
Hori.	5875.000	PK	50.40	34.37	15.39	45.38	2.05	56.83	-38.39	10.0	48.3	151	351	
Hori.	5925.000	PK	50.92	34.67	15.41	45.33	2.05	57.72	-37.50	-27.0	10.5	151	351	
Hori.	17475.000	PK	49.80	41.50	9.94	44.66	-9.54	47.04	-48.18	-27.0	21.1	150	0	
Vert.	5850.000	PK	50.23	34.21	15.37	45.39	2.05	56.47	-38.75	27.0	65.7	114	342	
Vert.	5855.000	PK	51.54	34.24	15.37	45.39	2.05	57.81	-37.41	15.6	53.0	114	342	
Vert.	5875.000	PK	50.62	34.37	15.39	45.38	2.05	57.05	-38.17	10.0	48.1	114	342	
Vert.	5925.000	PK	51.24	34.67	15.41	45.33	2.05	58.04	-37.18	-27.0	10.1	114	342	
Vert.	17475.000	PK	50.10	41.50	9.94	44.66	-9.54	47.34	-47.88	-27.0	20.8	150	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).

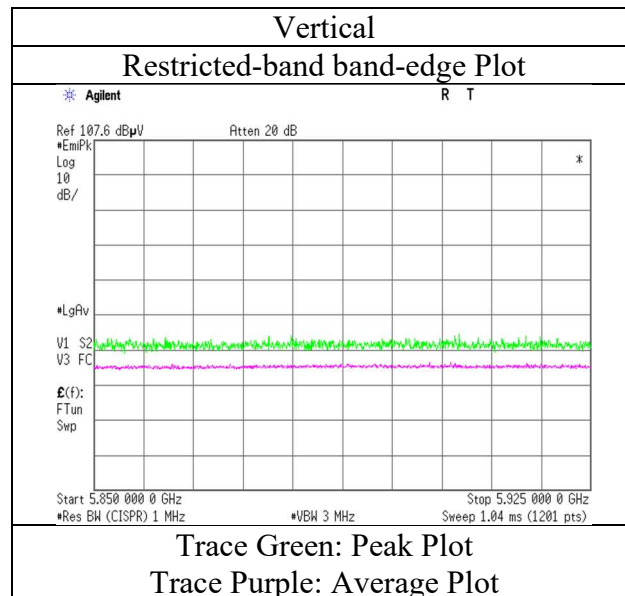
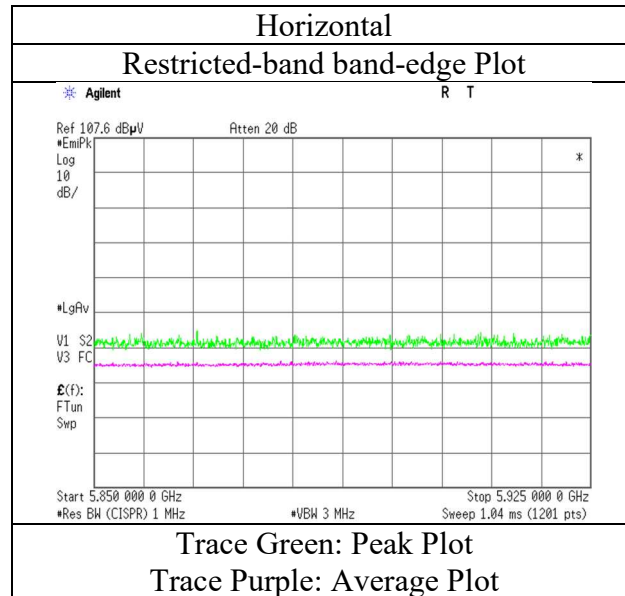
Distance factor : 1 GHz - 10 GHz : 20log (3.8 m / 3.0 m) = 2.05 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-20 MIMO 5825 MHz
EUT	Hi type



* 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	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-40 MIMO 5190 MHz			
EUT	Hi type			

(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.	2092.600	PK	51.27	29.07	13.10	43.86	2.05	51.63	73.9	22.2	232	183	
Hori.	5150.000	PK	51.31	32.51	15.00	45.38	2.05	55.49	73.9	18.4	115	335	
Hori.	15570.000	PK	50.20	38.31	9.25	45.45	-9.54	42.77	73.9	31.1	150	0	
Hori.	2092.600	AV	42.45	29.07	13.10	43.86	2.05	42.81	53.9	11.0	232	183	VBW:10 Hz
Hori.	5150.000	AV	42.58	32.51	15.00	45.38	2.05	46.76	53.9	7.1	115	335	VBW:13 kHz
Hori.	15570.000	AV	41.40	38.31	9.25	45.45	-9.54	33.97	53.9	19.9	150	0	VBW:13 kHz
Vert.	2092.600	PK	51.07	29.07	13.10	43.86	2.05	51.43	73.9	22.4	186	153	
Vert.	5150.000	PK	52.33	32.51	15.00	45.38	2.05	56.51	73.9	17.3	109	0	
Vert.	15570.000	PK	49.90	38.31	9.25	45.45	-9.54	42.47	73.9	31.4	150	0	
Vert.	2092.600	AV	42.14	29.07	13.10	43.86	2.05	42.50	53.9	11.4	186	153	VBW:10 Hz
Vert.	5150.000	AV	42.46	32.51	15.00	45.38	2.05	46.64	53.9	7.2	109	0	VBW:13 kHz
Vert.	15570.000	AV	41.80	38.31	9.25	45.45	-9.54	34.37	53.9	19.5	150	0	VBW:13 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 : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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.	10380.000	PK	47.30	38.53	7.55	42.23	-9.54	41.61	-53.61	-27.0	26.6	150	0	
Vert.	10380.000	PK	47.00	38.53	7.55	42.23	-9.54	41.31	-53.91	-27.0	26.9	150	0	

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

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

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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

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

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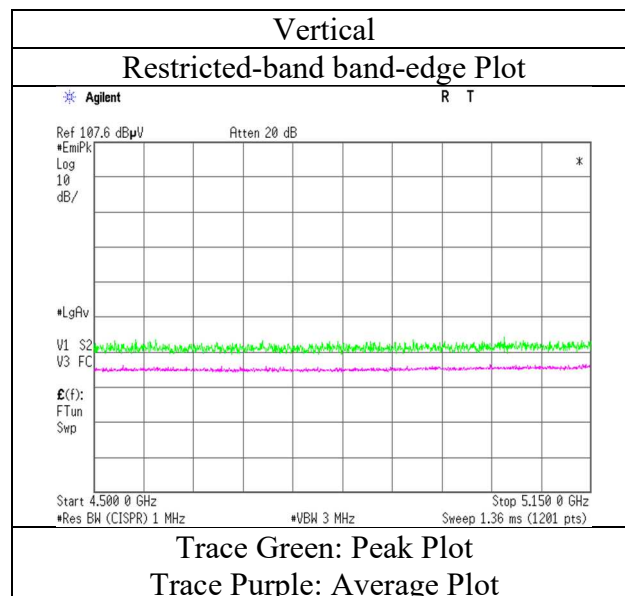
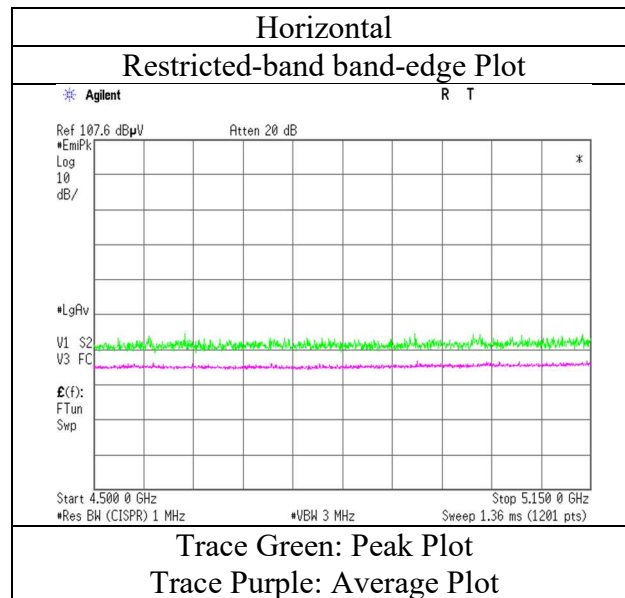
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

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Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-40 MIMO 5190 MHz
EUT	Hi type



* 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.

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Radiated Spurious Emission

Report No.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	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-40 MIMO 5230MHz			
EUT	Hi type			

(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.	2092.600	PK	51.66	29.07	13.10	43.86	2.05	52.02	73.9	21.8	230	184	
Hori.	5350.000	PK	50.32	32.96	15.11	45.45	2.05	54.99	73.9	18.9	148	335	
Hori.	15690.000	PK	49.70	38.60	9.30	45.02	-9.54	43.04	73.9	30.8	150	0	
Hori.	2092.600	AV	42.49	29.07	13.10	43.86	2.05	42.85	53.9	11.0	230	184	VBW:10 Hz
Hori.	5350.000	AV	42.05	32.96	15.11	45.45	2.05	46.72	53.9	7.1	148	335	VBW:13 kHz
Hori.	15690.000	AV	41.00	38.60	9.30	45.02	-9.54	34.34	53.9	19.5	150	0	VBW:13 kHz
Vert.	2092.600	PK	50.95	29.07	13.10	43.86	2.05	51.31	73.9	22.5	187	153	
Vert.	5350.000	PK	50.58	32.96	15.11	45.45	2.05	55.25	73.9	18.6	109	358	
Vert.	15690.000	PK	50.00	38.60	9.30	45.02	-9.54	43.34	73.9	30.5	150	0	
Vert.	2092.600	AV	42.10	29.07	13.10	43.86	2.05	42.46	53.9	11.4	187	153	VBW:10 Hz
Vert.	5350.000	AV	41.76	32.96	15.11	45.45	2.05	46.43	53.9	7.4	109	358	VBW:13 kHz
Vert.	15690.000	AV	41.10	38.60	9.30	45.02	-9.54	34.44	53.9	19.4	150	0	VBW:13 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 : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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.	10460.000	PK	47.40	38.65	7.58	42.14	-9.54	41.95	-53.27	-27.0	26.2	150	0	
Vert.	10460.000	PK	46.80	38.65	7.58	42.14	-9.54	41.35	-53.87	-27.0	26.8	150	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 : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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

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

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Kashima EMC Lab.

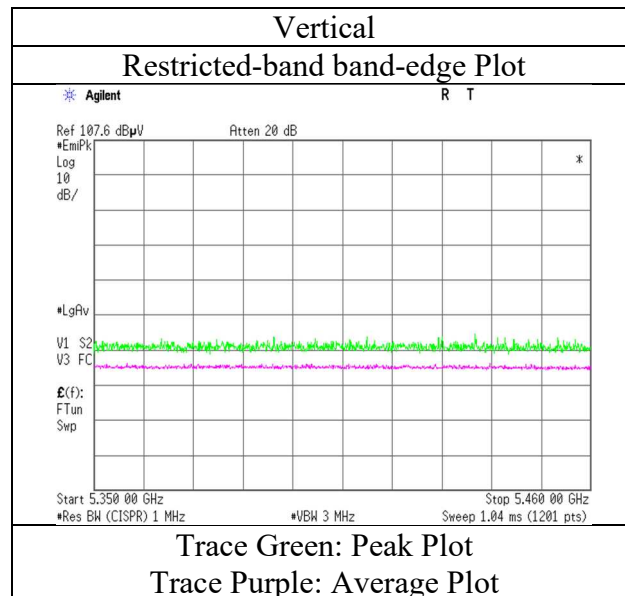
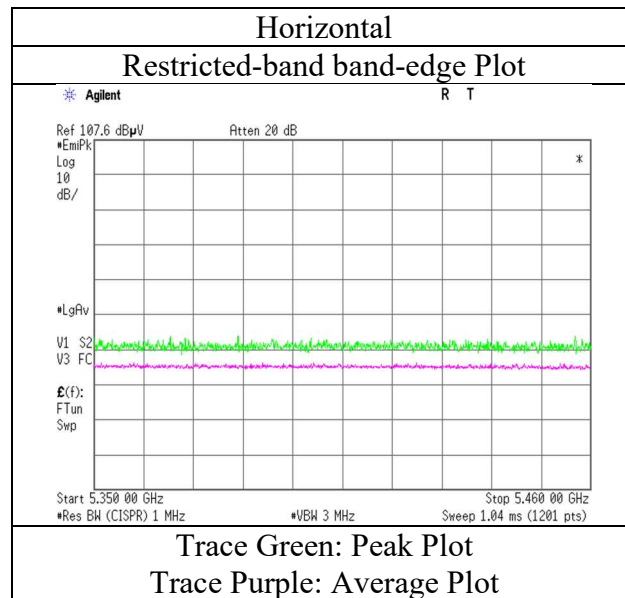
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Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-40 MIMO 5230 MHz
EUT	Hi type



* 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % 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-40 MIMO 5755MHz			
EUT	Hi type			

(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.	2092.600	PK	51.66	29.07	13.10	43.86	2.05	52.02	73.9	21.8	249	182	
Hori.	11510.000	PK	48.00	38.65	7.84	42.83	-9.54	42.12	73.9	31.7	150	0	
Hori.	2092.600	AV	41.92	29.07	13.10	43.86	2.05	42.28	53.9	11.6	249	182	VBW:10 Hz
Hori.	11510.000	AV	39.00	38.65	7.84	42.83	-9.54	33.12	53.9	20.7	150	0	VBW:13 kHz
Vert.	2092.600	PK	52.17	29.07	13.10	43.86	2.05	52.53	73.9	21.3	187	153	
Vert.	11510.000	PK	47.80	38.65	7.84	42.83	-9.54	41.92	73.9	31.9	150	0	
Vert.	2092.600	AV	42.00	29.07	13.10	43.86	2.05	42.36	53.9	11.5	187	153	VBW:10 Hz
Vert.	11510.000	AV	39.20	38.65	7.84	42.83	-9.54	33.32	53.9	20.5	150	0	VBW:13 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 (3.8 m / 3.0 m) = 2.05 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	51.94	33.49	15.27	45.47	2.05	57.28	-37.94	-27.0	10.9	144	333	
Hori.	5700.000	PK	52.47	33.61	15.30	45.47	2.05	57.96	-37.26	10.0	47.2	144	333	
Hori.	5720.000	PK	57.05	33.67	15.31	45.46	2.05	62.62	-32.60	15.6	48.2	144	333	
Hori.	5725.000	PK	57.82	33.68	15.31	45.46	2.05	63.40	-31.82	27.0	58.8	144	333	
Hori.	17265.000	PK	50.80	41.17	9.82	44.81	-9.54	47.44	-47.78	-27.0	20.7	150	0	
Vert.	5650.000	PK	51.76	33.49	15.27	45.47	2.05	57.10	-38.12	-27.0	11.1	150	345	
Vert.	5700.000	PK	52.27	33.61	15.30	45.47	2.05	57.76	-37.46	10.0	47.4	150	345	
Vert.	5720.000	PK	53.76	33.67	15.31	45.46	2.05	59.33	-35.89	15.6	51.4	150	345	
Vert.	5725.000	PK	53.89	33.68	15.31	45.46	2.05	59.47	-35.75	27.0	62.7	150	345	
Vert.	17265.000	PK	50.00	41.17	9.82	44.81	-9.54	46.64	-48.58	-27.0	21.5	150	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).

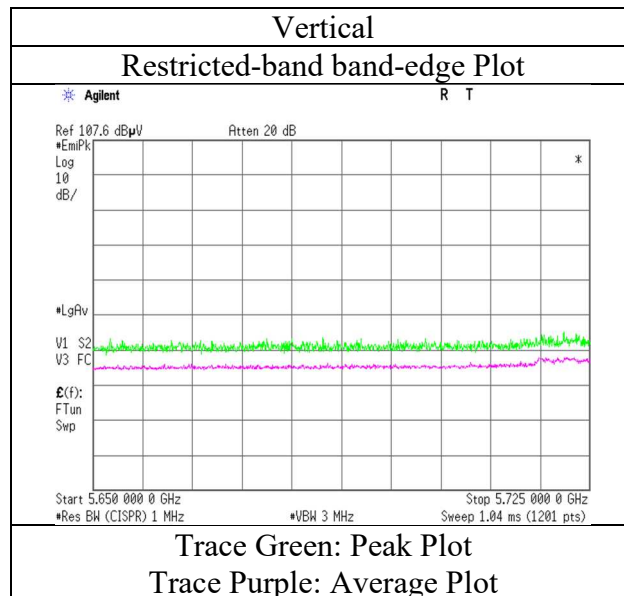
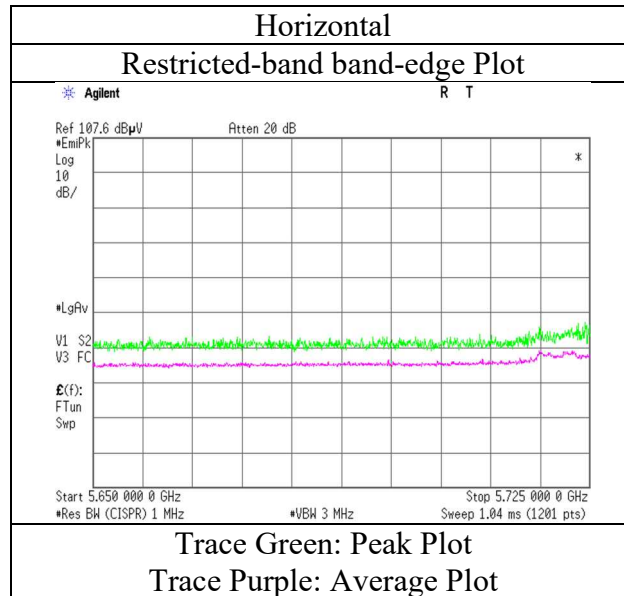
Distance factor : 1 GHz - 10 GHz : 20log (3.8 m / 3.0 m) = 2.05 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-40 MIMO 5755 MHz
EUT	Hi type



* 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % 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-40 MIMO 5795MHz			
EUT	Hi type			

(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.	2092.600	PK	51.83	29.07	13.10	43.86	2.05	52.19	73.9	21.7	257	181	
Hori.	11590.000	PK	48.50	38.66	7.85	43.03	-9.54	42.44	73.9	31.4	150	0	
Hori.	2092.600	AV	41.70	29.07	13.10	43.86	2.05	42.06	53.9	11.8	257	181	VBW:10 Hz
Hori.	11590.000	AV	39.10	38.66	7.85	43.03	-9.54	33.04	53.9	20.8	150	0	VBW:13 kHz
Vert.	2092.600	PK	51.63	29.07	13.10	43.86	2.05	51.99	73.9	21.9	185	149	
Vert.	11590.000	PK	48.70	38.66	7.85	43.03	-9.54	42.64	73.9	31.2	150	0	
Vert.	2092.600	AV	41.80	29.07	13.10	43.86	2.05	42.16	53.9	11.7	185	149	VBW:10 Hz
Vert.	11590.000	AV	39.40	38.66	7.85	43.03	-9.54	33.34	53.9	20.5	150	0	VBW:13 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 (3.8 m / 3.0 m) = 2.05 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	51.50	34.21	15.37	45.39	2.05	57.74	-37.48	27.0	64.4	192	315	
Hori.	5855.000	PK	52.33	34.24	15.37	45.39	2.05	58.60	-36.62	15.6	52.2	192	315	
Hori.	5875.000	PK	51.22	34.37	15.39	45.38	2.05	57.65	-37.57	10.0	47.5	192	315	
Hori.	5925.000	PK	51.21	34.67	15.41	45.33	2.05	58.01	-37.21	-27.0	10.2	192	315	
Hori.	17385.000	PK	50.20	41.42	9.86	44.78	-9.54	47.16	-48.06	-27.0	21.0	150	0	
Vert.	5850.000	PK	51.43	34.21	15.37	45.39	2.05	57.67	-37.55	27.0	64.5	151	343	
Vert.	5855.000	PK	51.00	34.24	15.37	45.39	2.05	57.27	-37.95	15.6	53.5	151	343	
Vert.	5875.000	PK	50.70	34.37	15.39	45.38	2.05	57.13	-38.09	10.0	48.0	151	343	
Vert.	5925.000	PK	52.31	34.67	15.41	45.33	2.05	59.11	-36.11	-27.0	9.1	151	343	
Vert.	17385.000	PK	50.40	41.42	9.86	44.78	-9.54	47.36	-47.86	-27.0	20.8	150	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 (3.8 m / 3.0 m) = 2.05 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.

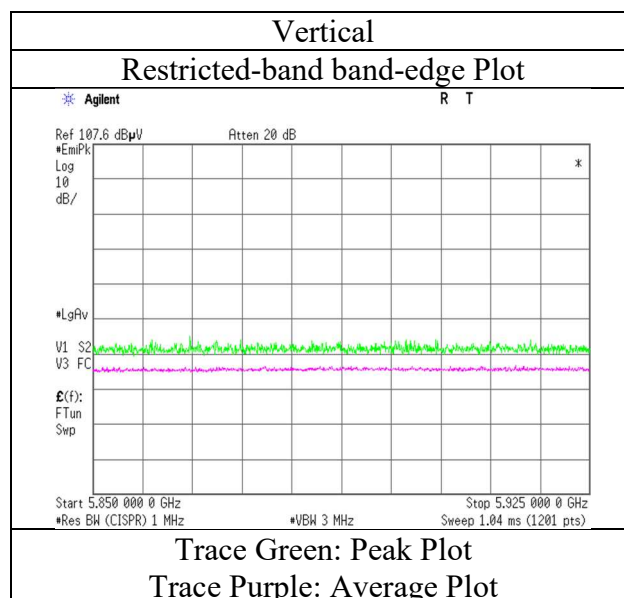
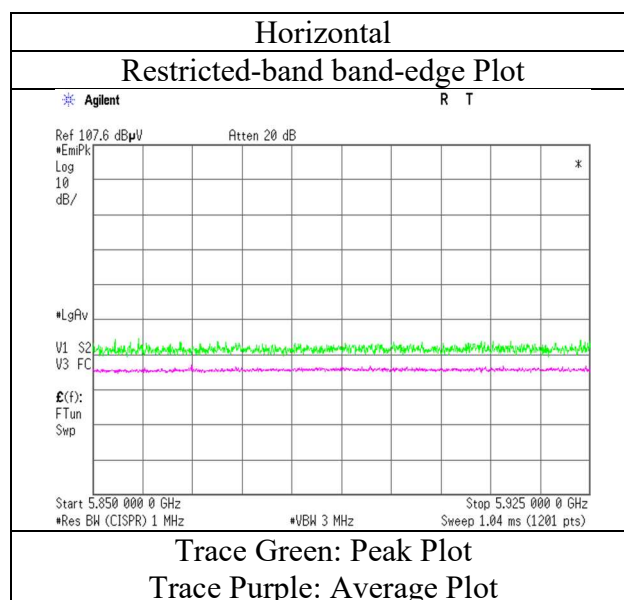
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

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Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-40 MIMO 5795 MHz
EUT	Hi type



* 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % 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 5210MHz			
EUT	Hi type			

(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.	2092.600	PK	51.97	29.07	13.10	43.86	2.05	52.33	73.9	21.5	252	183	
Hori.	5150.000	PK	51.88	32.51	15.00	45.38	2.05	56.06	73.9	17.8	147	335	
Hori.	5350.000	PK	51.04	32.96	15.11	45.45	2.05	55.71	73.9	18.1	147	335	
Hori.	15630.000	PK	50.90	38.46	9.27	45.24	-9.54	43.85	73.9	30.0	150	0	
Hori.	2092.600	AV	42.00	29.07	13.10	43.86	2.05	42.36	53.9	11.5	252	183	VBW:10 Hz
Hori.	5150.000	AV	43.00	32.51	15.00	45.38	2.05	47.18	53.9	6.7	147	335	VBW:18 kHz
Hori.	5350.000	AV	42.50	32.96	15.11	45.45	2.05	47.17	53.9	6.7	147	335	VBW:18 kHz
Hori.	15630.000	AV	42.70	38.46	9.27	45.24	-9.54	35.65	53.9	18.2	150	0	VBW:18 kHz
Vert.	2092.600	PK	51.60	29.07	13.10	43.86	2.05	51.96	73.9	21.9	189	149	
Vert.	5150.000	PK	51.78	32.51	15.00	45.38	2.05	55.96	73.9	17.9	116	359	
Vert.	5350.000	PK	50.94	32.96	15.11	45.45	2.05	55.61	73.9	18.2	116	359	
Vert.	15630.000	PK	51.40	38.46	9.27	45.24	-9.54	44.35	73.9	29.5	150	0	
Vert.	2092.600	AV	41.30	29.07	13.10	43.86	2.05	41.66	53.9	12.2	189	149	VBW:10 Hz
Vert.	5150.000	AV	43.20	32.51	15.00	45.38	2.05	47.38	53.9	6.5	116	359	VBW:18 kHz
Vert.	5350.000	AV	42.60	32.96	15.11	45.45	2.05	47.27	53.9	6.6	116	359	VBW:18 kHz
Vert.	15630.000	AV	42.30	38.46	9.27	45.24	-9.54	35.25	53.9	18.6	150	0	VBW:18 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 (3.8 m / 3.0 m) = 2.05 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.	10420.000	PK	46.70	38.59	7.55	42.19	-9.54	41.11	-54.11	-27.0	27.1	150	0	
Vert.	10420.000	PK	47.40	38.59	7.55	42.19	-9.54	41.81	-53.41	-27.0	26.4	150	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 (3.8 m / 3.0 m) = 2.05 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.

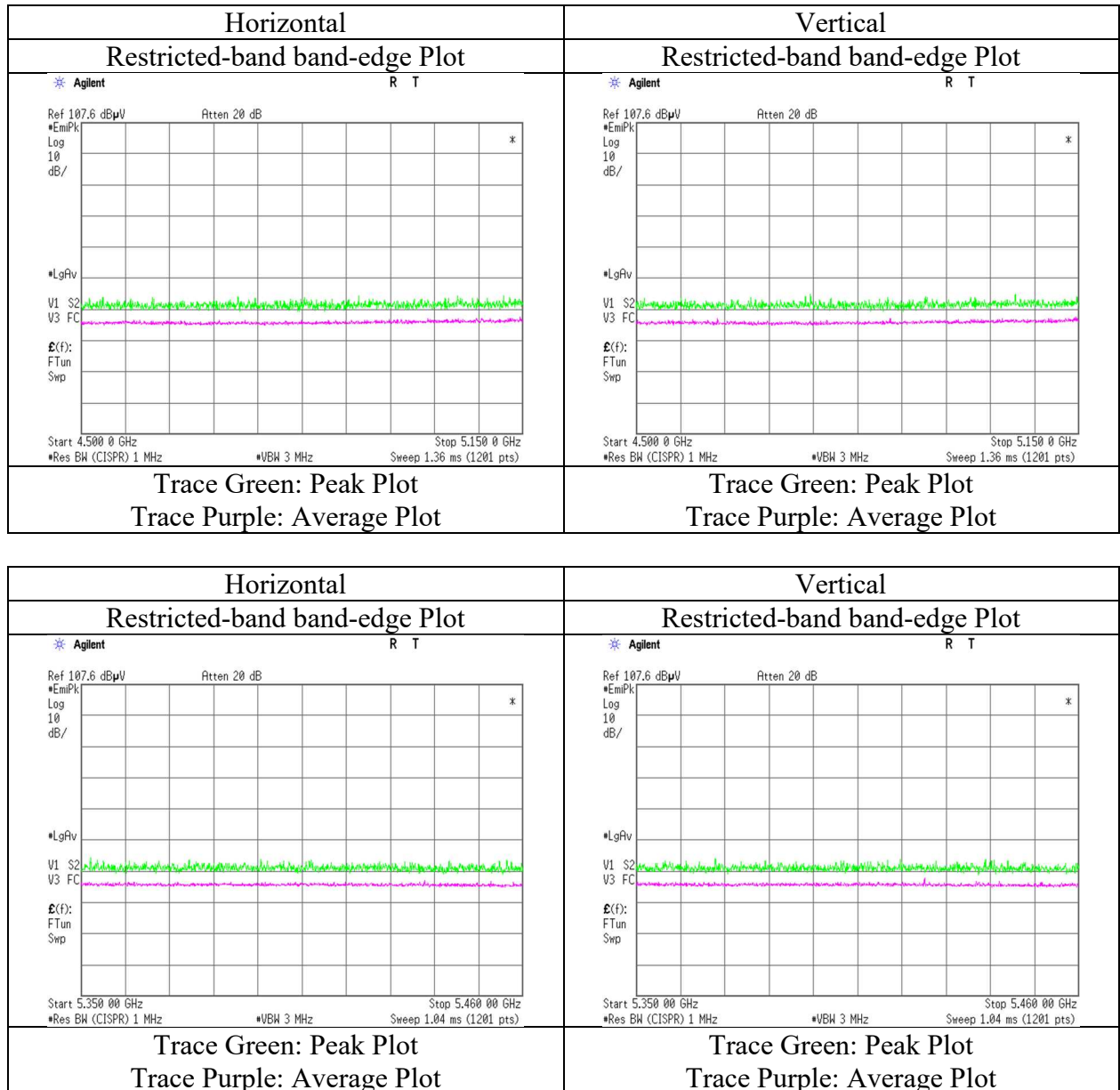
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

Facsimile : +81 478 82 3373

Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-80 MIMO 5210 MHz
EUT	Hi type



* 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.6	No.6	No.6	No.6
Date	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % 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 5775MHz			
EUT	Hi type			

(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.	2093.321	PK	51.61	29.06	13.10	43.86	2.05	51.96	73.9	21.9	255	182	
Hori.	11550.000	PK	48.50	38.66	7.85	42.91	-9.54	42.56	73.9	31.3	150	0	
Hori.	2093.321	AV	42.15	29.06	13.10	43.86	2.05	42.50	53.9	11.4	255	182	VBW:10 Hz
Hori.	11550.000	AV	39.70	38.66	7.85	42.91	-9.54	33.76	53.9	20.1	150	0	VBW:18 kHz
Vert.	2093.020	PK	51.35	29.06	13.10	43.86	2.05	51.70	73.9	22.2	181	148	
Vert.	11550.000	PK	48.40	38.66	7.85	42.91	-9.54	42.46	73.9	31.4	150	0	
Vert.	2093.020	AV	41.00	29.06	13.10	43.86	2.05	41.35	53.9	12.5	181	148	VBW:10 Hz
Vert.	11550.000	AV	39.60	38.66	7.85	42.91	-9.54	33.66	53.9	20.2	150	0	VBW:18 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 (3.8 m / 3.0 m) = 2.05 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	51.94	33.49	15.27	45.47	2.05	57.28	-37.94	-27.0	10.9	176	332	
Hori.	5700.000	PK	52.82	33.61	15.30	45.47	2.05	58.31	-36.91	10.0	46.9	176	332	
Hori.	5720.000	PK	53.28	33.67	15.31	45.46	2.05	58.85	-36.37	15.6	51.9	176	332	
Hori.	5725.000	PK	54.23	33.68	15.31	45.46	2.05	59.81	-35.41	27.0	62.4	176	332	
Hori.	5850.000	PK	50.73	34.21	15.37	45.39	2.05	56.97	-38.25	27.0	65.2	176	332	
Hori.	5855.000	PK	50.82	34.24	15.37	45.39	2.05	57.09	-38.13	15.6	53.7	176	332	
Hori.	5875.000	PK	51.03	34.37	15.39	45.38	2.05	57.46	-37.76	10.0	47.7	176	332	
Hori.	5925.000	PK	51.66	34.67	15.41	45.33	2.05	58.46	-36.76	-27.0	9.7	176	332	
Hori.	17325.000	PK	51.00	41.29	9.85	44.77	-9.54	47.83	-47.39	-27.0	20.3	150	0	
Vert.	5650.000	PK	51.91	33.49	15.27	45.47	2.05	57.25	-37.97	-27.0	10.9	151	345	
Vert.	5700.000	PK	52.07	33.61	15.30	45.47	2.05	57.56	-37.66	10.0	47.6	151	345	
Vert.	5720.000	PK	53.62	33.67	15.31	45.46	2.05	59.19	-36.03	15.6	51.6	151	345	
Vert.	5725.000	PK	53.51	33.68	15.31	45.46	2.05	59.09	-36.13	27.0	63.1	151	345	
Vert.	5850.000	PK	50.47	34.21	15.37	45.39	2.05	56.71	-38.51	27.0	65.5	151	345	
Vert.	5855.000	PK	51.05	34.24	15.37	45.39	2.05	57.32	-37.90	15.6	53.5	151	345	
Vert.	5875.000	PK	51.22	34.37	15.39	45.38	2.05	57.65	-37.57	10.0	47.5	151	345	
Vert.	5925.000	PK	51.11	34.67	15.41	45.33	2.05	57.91	-37.31	-27.0	10.3	151	345	
Vert.	17325.000	PK	50.30	41.29	9.85	44.77	-9.54	47.13	-48.09	-27.0	21.0	150	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 (3.8 m / 3.0 m) = 2.05 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.

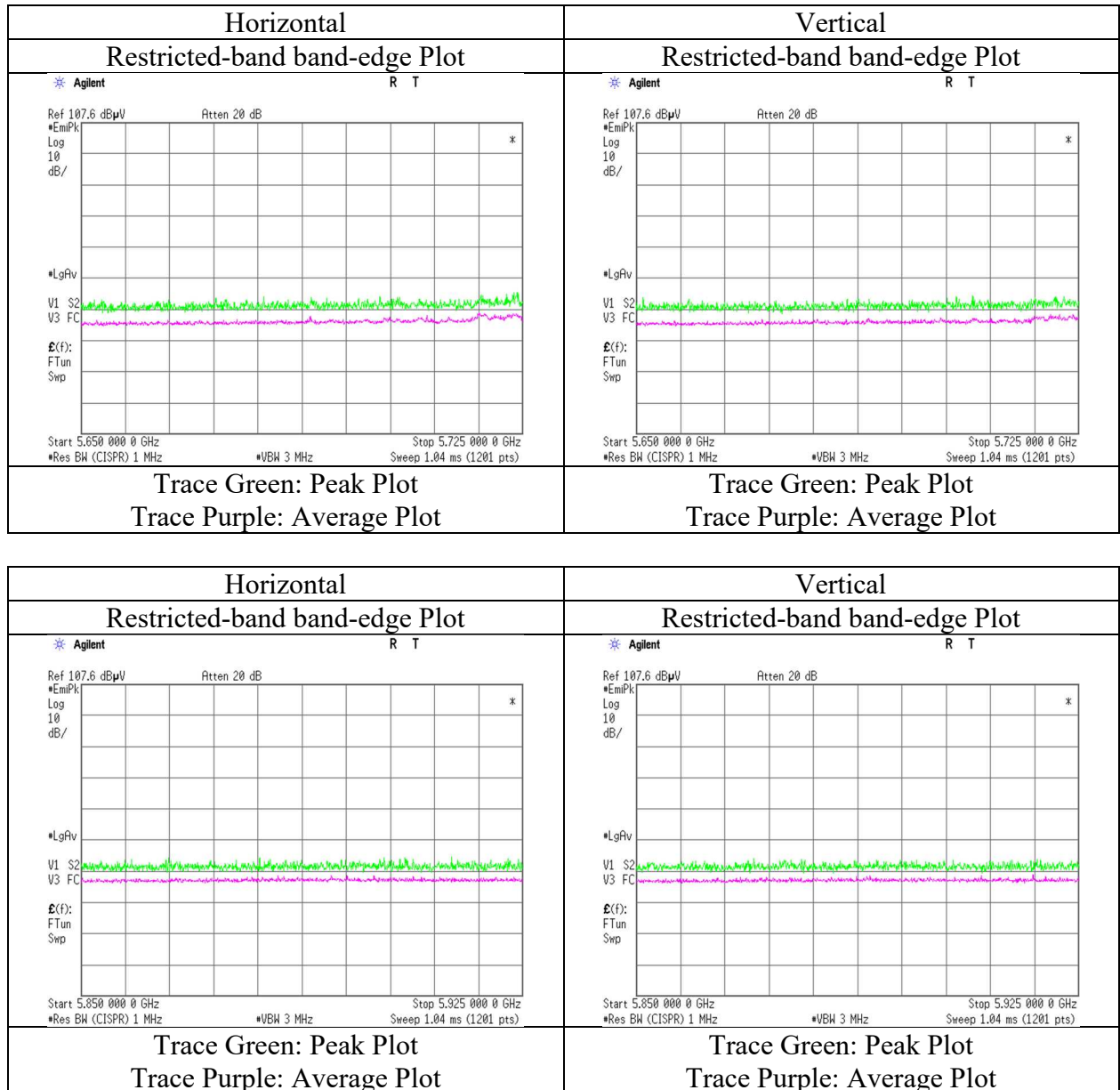
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

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Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-80 MIMO 5775 MHz
EUT	Hi type



* 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.

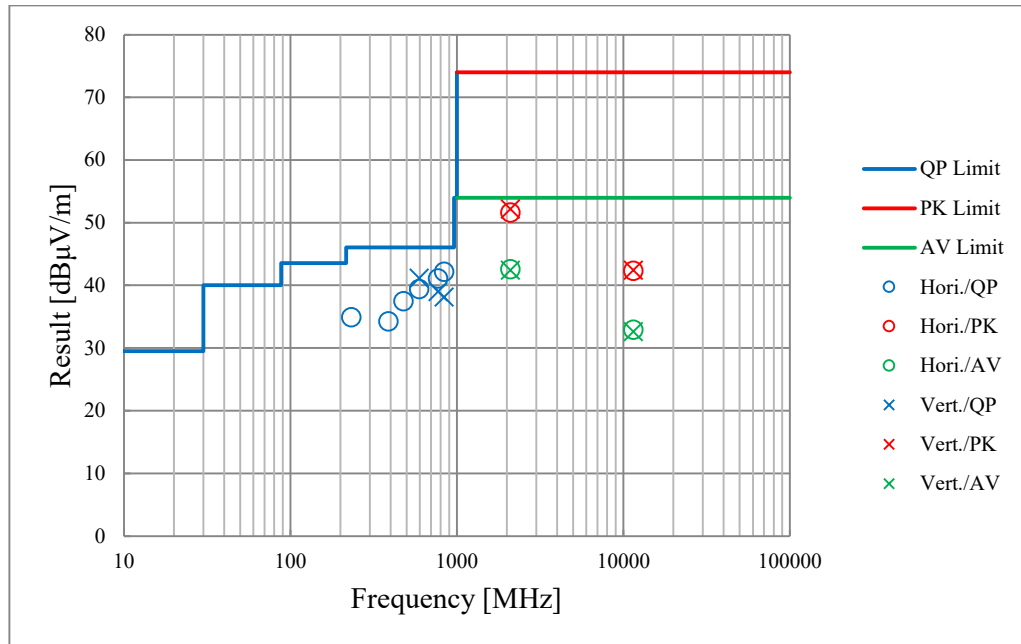
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

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Radiated Spurious Emission
(Plot data, Worst case)

Report No.	13408125M-C-R1				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.6	No.6	No.6	No.6	No.6
Date	August 6, 2020	August 3, 2020	July 29, 2020	July 29, 2020	July 31, 2020
Temperature / Humidity	22 deg. C / 55 % RH	22 deg. C / 59 % RH	22 deg. C / 57 % RH	22 deg. C / 57 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	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				
EUT	Hi type				



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

Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
	(1 GHz - 6.4 GHz)
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-20 MIMO 5180 MHz with 11g 2437 MHz
EUT	Hi type

(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.	5150.000	PK	51.67	32.51	15.00	45.38	2.05	55.85	73.9	18.0	122	336	VBW:10 kHz
Hori.	5150.000	AV	42.60	32.51	15.00	45.38	2.05	46.78	53.9	7.1	122	336	
Vert.	5150.000	PK	52.15	32.51	15.00	45.38	2.05	56.33	73.9	17.5	142	340	VBW:10 kHz
Vert.	5150.000	AV	42.21	32.51	15.00	45.38	2.05	46.39	53.9	7.5	142	340	

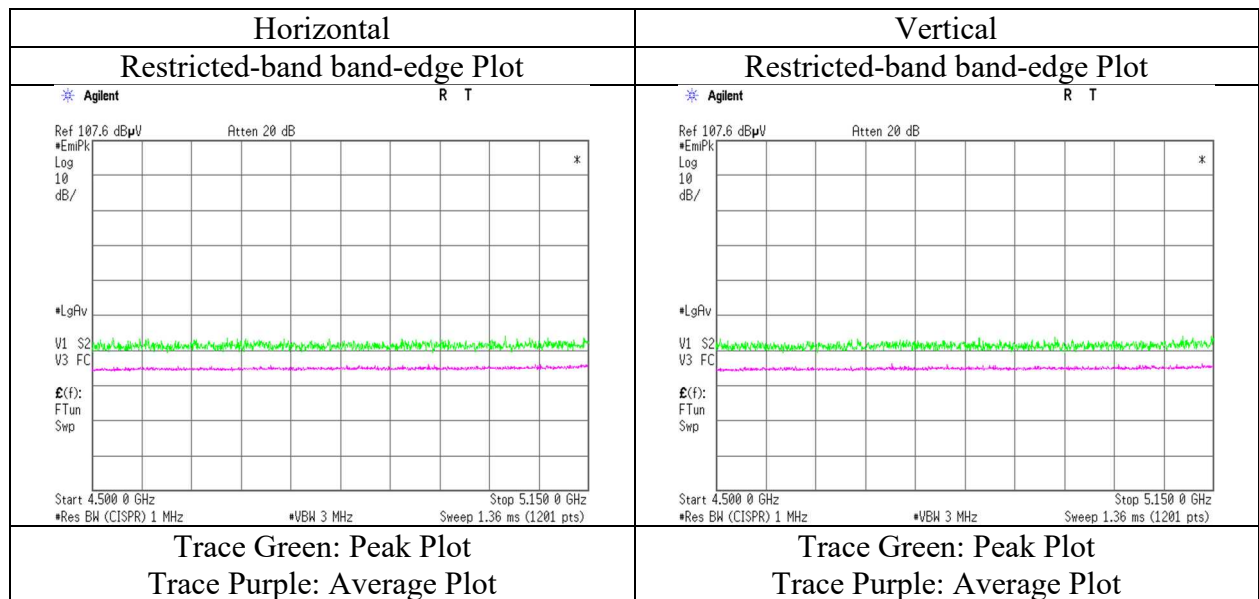
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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

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



* 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. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 3, 2020
Temperature / Humidity 22 deg. C / 59 % RH
(1 GHz - 6.4 GHz)
Engineer Hiromitsu Tanabe
Mode Tx 11ac-20 MIMO 5240 MHz with 11g 2437 MHz
EUT Hi type

(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.	5350.000	PK	51.34	32.96	15.11	45.45	2.05	56.01	73.9	17.8	144	335	VBW:10 kHz
Hori.	5350.000	AV	41.30	32.96	15.11	45.45	2.05	45.97	53.9	7.9	144	335	
Vert.	5350.000	PK	51.66	32.96	15.11	45.45	2.05	56.33	73.9	17.5	149	32	VBW:10 kHz
Vert.	5350.000	AV	41.50	32.96	15.11	45.45	2.05	46.17	53.9	7.7	149	32	

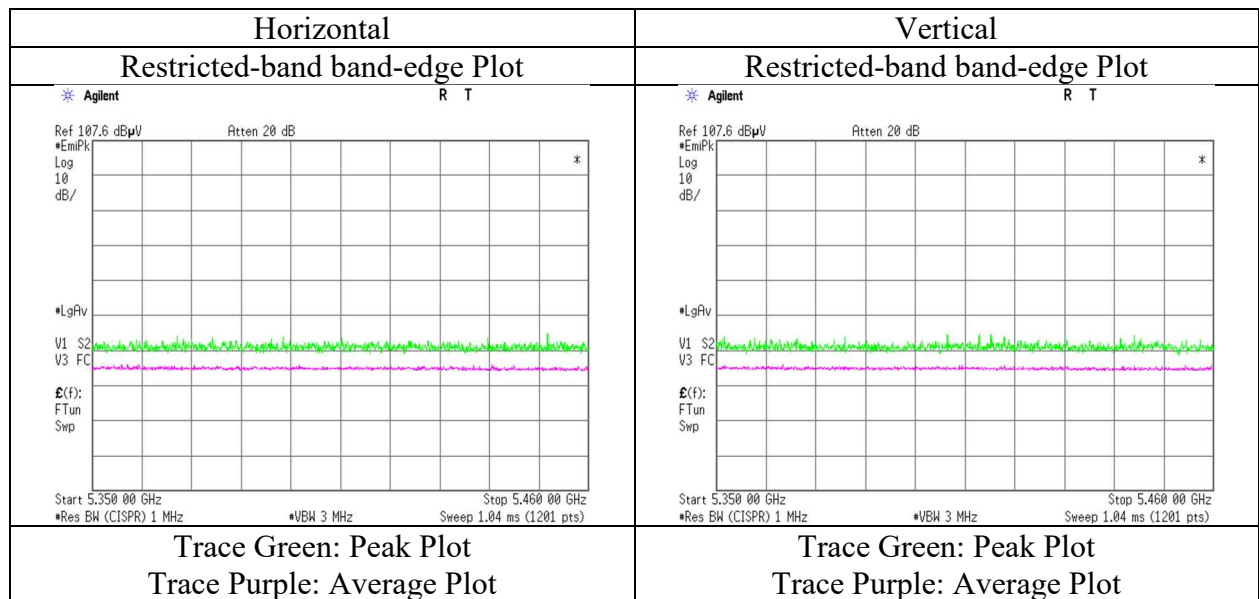
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.05\text{ dB}$

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

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



* 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.	13408125M-C-R1				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.6	No.6	No.6	No.6	No.6
Date	August 6, 2020	August 3, 2020	August 5, 2020	August 5, 2020	August 5, 2020
Temperature / Humidity	22 deg. C / 55 % RH	22 deg. C / 59 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH
Engineer	Kazuhiro Ando	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 11g 2437 MHz				
EUT	Hi type				

(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.	232.705	QP	49.30	10.80	7.64	32.35	0.00	35.39	46.0	10.6	136	295	
Hori.	387.771	QP	42.50	15.43	8.56	32.27	0.00	34.22	46.0	11.7	100	16	
Hori.	477.174	QP	43.00	17.53	9.02	32.24	0.00	37.31	46.0	8.6	100	22	
Hori.	593.465	QP	42.30	19.68	9.52	32.23	0.00	39.27	46.0	6.7	184	247	
Hori.	772.466	QP	39.50	22.20	10.25	32.02	0.00	39.93	46.0	6.0	112	208	
Hori.	838.225	QP	40.50	22.80	10.51	31.80	0.00	42.01	46.0	3.9	108	214	
Hori.	2092.500	PK	51.46	29.07	13.10	43.86	2.05	51.82	73.9	22.0	260	184	
Hori.	11490.000	PK	48.66	38.66	7.84	42.79	-9.54	42.83	73.9	31.0	150	0	
Hori.	2092.500	AV	42.19	29.07	13.10	43.86	2.05	42.55	53.9	11.3	260	184	VBW:10 Hz
Hori.	11490.000	AV	39.03	38.66	7.84	42.79	-9.54	33.20	53.9	20.7	150	0	VBW:10 kHz
Vert.	593.595	QP	43.60	19.69	9.52	32.23	0.00	40.58	46.0	5.4	118	341	
Vert.	772.565	QP	38.50	22.21	10.25	32.02	0.00	38.94	46.0	7.0	100	165	
Vert.	837.968	QP	38.40	22.79	10.51	31.80	0.00	39.90	46.0	6.1	100	299	
Vert.	2092.500	PK	51.45	29.07	13.10	43.86	2.05	51.81	73.9	22.0	151	344	
Vert.	11490.000	PK	47.61	38.66	7.84	42.79	-9.54	41.78	73.9	32.1	150	0	
Vert.	2092.500	AV	41.19	29.07	13.10	43.86	2.05	41.55	53.9	12.3	151	344	VBW:10 Hz
Vert.	11490.000	AV	39.18	38.66	7.84	42.79	-9.54	33.35	53.9	20.5	150	0	VBW:10 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 (3.8 m / 3.0 m) = 2.05 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	52.22	33.49	15.27	45.47	2.05	57.56	-37.66	-27.0	10.6	148	315	
Hori.	5700.000	PK	52.49	33.61	15.30	45.47	2.05	57.98	-37.24	10.0	47.2	148	315	
Hori.	5720.000	PK	51.83	33.67	15.31	45.46	2.05	57.40	-37.82	15.6	53.4	148	315	
Hori.	5725.000	PK	54.37	33.68	15.31	45.46	2.05	59.95	-35.27	27.0	62.2	148	315	
Hori.	17235.000	PK	49.98	41.09	9.83	44.82	-9.54	46.54	-48.68	-27.0	21.6	150	0	
Vert.	5650.000	PK	51.90	33.49	15.27	45.47	2.05	57.24	-37.98	-27.0	10.9	151	344	
Vert.	5700.000	PK	52.39	33.61	15.30	45.47	2.05	57.88	-37.34	10.0	47.3	151	344	
Vert.	5720.000	PK	52.71	33.67	15.31	45.46	2.05	58.28	-36.94	15.6	52.5	151	344	
Vert.	5725.000	PK	52.42	33.68	15.31	45.46	2.05	58.00	-37.22	27.0	64.2	151	344	
Vert.	17235.000	PK	49.39	41.09	9.83	44.82	-9.54	45.95	-49.27	-27.0	22.2	150	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 (3.8 m / 3.0 m) = 2.05 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.

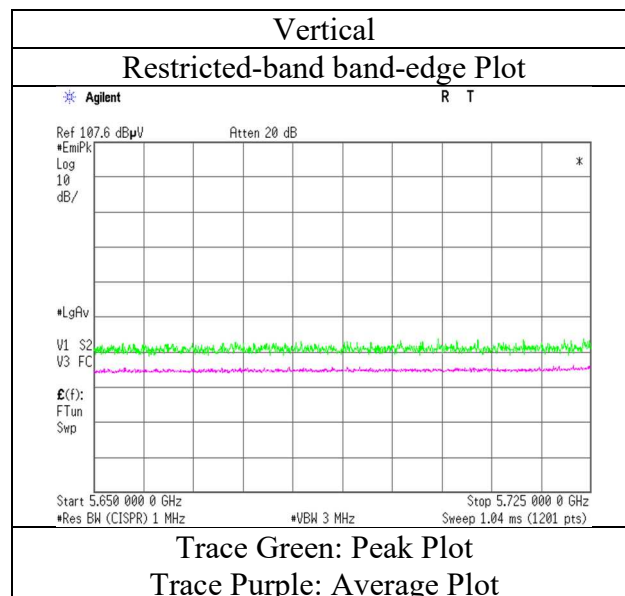
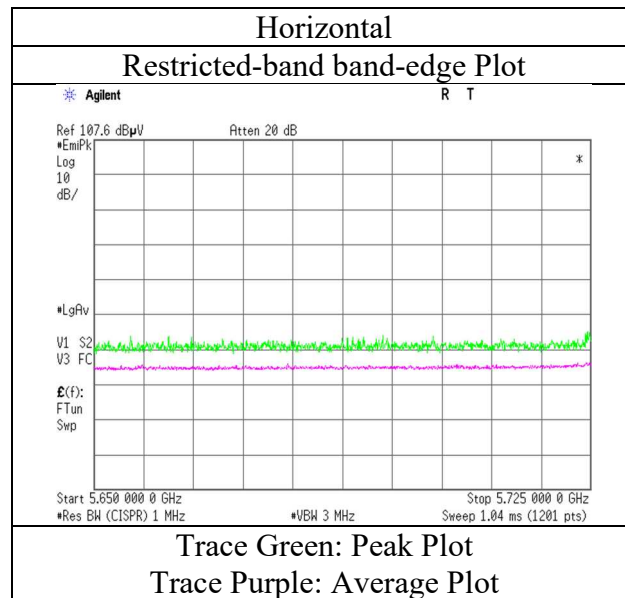
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

Facsimile : +81 478 82 3373

Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-20 MIMO 5745 MHz with 11g 2437 MHz
EUT	Hi type



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

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Radiated Spurious Emission

Report No. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 3, 2020
Temperature / Humidity 22 deg. C / 59 % RH
(1 GHz - 6.4 GHz)
Engineer Hiromitsu Tanabe
Mode Tx 11ac-20 MIMO 5825 MHz with 11g 2437 MHz
EUT Hi type

(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	52.00	34.21	15.37	45.39	2.05	58.24	-36.98	27.0	63.9	144	353	
Hori.	5855.000	PK	51.15	34.24	15.37	45.39	2.05	57.42	-37.80	15.6	53.4	144	353	
Hori.	5875.000	PK	51.00	34.37	15.39	45.38	2.05	57.43	-37.79	10.0	47.7	144	353	
Hori.	5925.000	PK	52.41	34.67	15.41	45.33	2.05	59.21	-36.01	-27.0	9.0	144	353	
Vert.	5850.000	PK	51.24	34.21	15.37	45.39	2.05	57.48	-37.74	27.0	64.7	151	344	
Vert.	5855.000	PK	50.75	34.24	15.37	45.39	2.05	57.02	-38.20	15.6	53.8	151	344	
Vert.	5875.000	PK	50.93	34.37	15.39	45.38	2.05	57.36	-37.86	10.0	47.8	151	344	
Vert.	5925.000	PK	52.02	34.67	15.41	45.33	2.05	58.82	-36.40	-27.0	9.4	151	344	

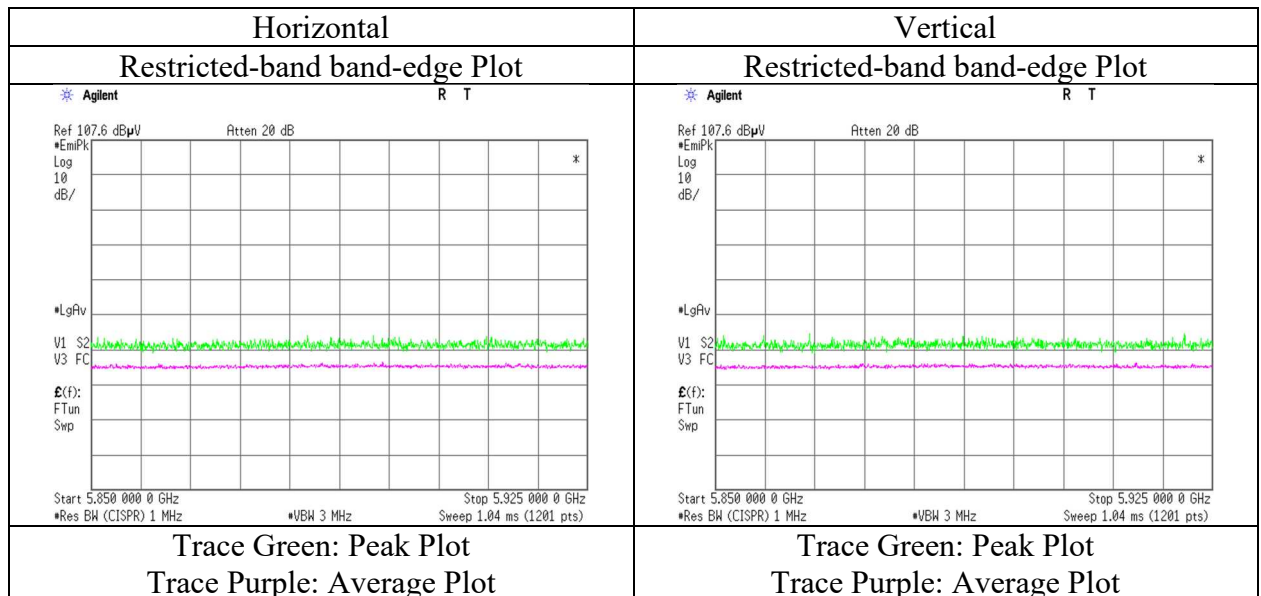
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10 ^ 3)

*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 (3.8 m / 3.0 m) = 2.05 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



* 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

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
	(1 GHz - 6.4 GHz)
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-40 MIMO 5190 MHz with 11g 2437 MHz
EUT	Hi type

(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.	5150.000	PK	51.38	32.51	15.00	45.38	2.05	55.56	73.9	18.3	146	335	VBW:13 kHz
Hori.	5150.000	AV	42.53	32.51	15.00	45.38	2.05	46.71	53.9	7.1	146	335	
Vert.	5150.000	PK	52.58	32.51	15.00	45.38	2.05	56.76	73.9	17.1	115	0	VBW:13 kHz
Vert.	5150.000	AV	42.46	32.51	15.00	45.38	2.05	46.64	53.9	7.2	115	0	

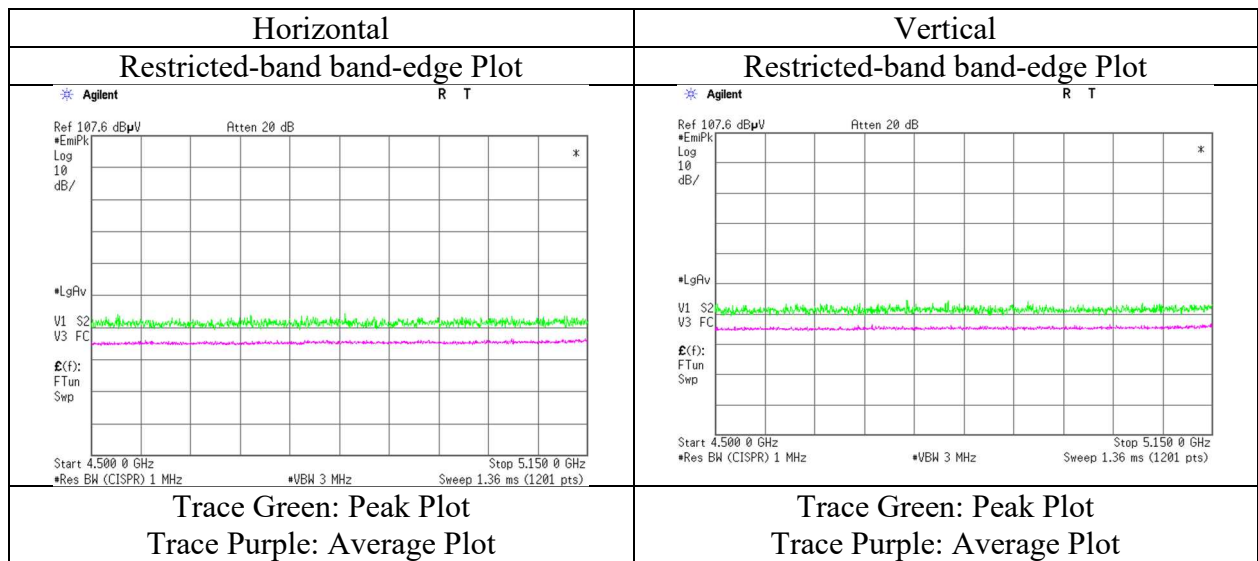
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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

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



* 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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 3, 2020
Temperature / Humidity	22 deg. C / 59 % RH
	(1 GHz - 6.4 GHz)
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-40 MIMO 5230 MHz with 11g 2437 MHz
EUT	Hi type

(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.	5350.000	PK	51.30	32.96	15.11	45.45	2.05	55.97	73.9	17.9	132	289	VBW:13 kHz
Hori.	5350.000	AV	41.90	32.96	15.11	45.45	2.05	46.57	53.9	7.3	132	289	
Vert.	5350.000	PK	50.95	32.96	15.11	45.45	2.05	55.62	73.9	18.2	115	358	VBW:13 kHz
Vert.	5350.000	AV	41.70	32.96	15.11	45.45	2.05	46.37	53.9	7.5	115	358	

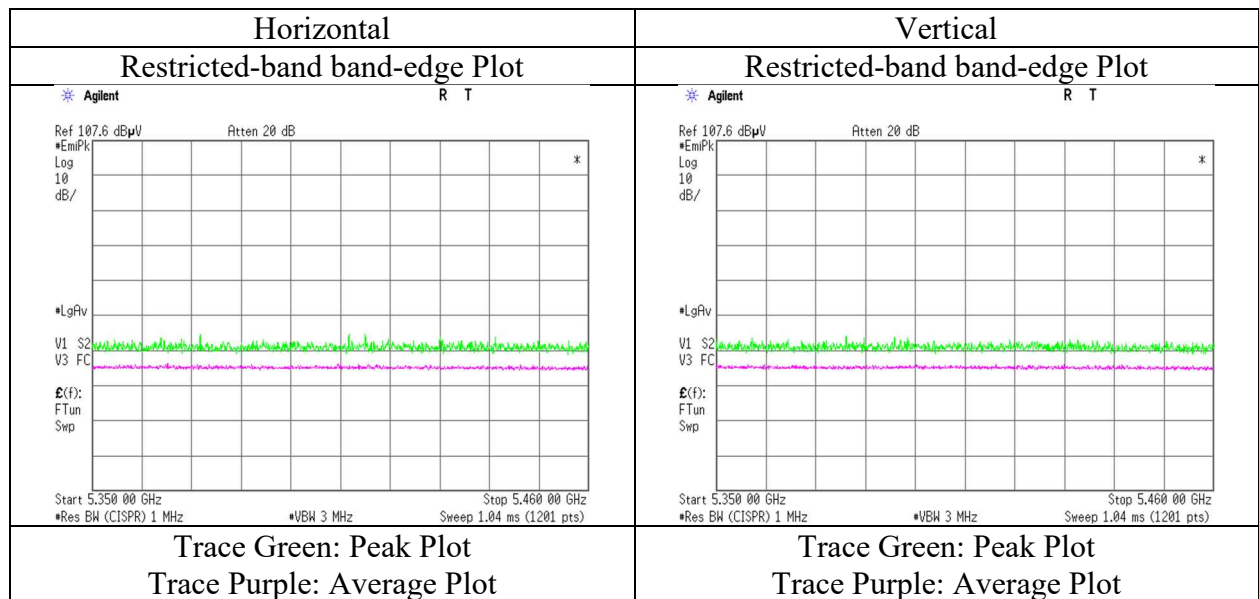
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.05\text{ dB}$

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

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



* 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. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 3, 2020
Temperature / Humidity 22 deg. C / 59 % RH
(1 GHz - 6.4 GHz)
Engineer Hiromitsu Tanabe
Mode Tx 11ac-40 MIMO 5755 MHz with 11g 2437 MHz
EUT Hi type

(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	51.50	33.49	15.27	45.47	2.05	56.84	-38.38	-27.0	11.3	130	314	
Hori.	5700.000	PK	52.13	33.61	15.30	45.47	2.05	57.62	-37.60	10.0	47.6	130	314	
Hori.	5720.000	PK	54.99	33.67	15.31	45.46	2.05	60.56	-34.66	15.6	50.2	130	314	
Hori.	5725.000	PK	58.70	33.68	15.31	45.46	2.05	64.28	-30.94	27.0	57.9	130	314	
Vert.	5650.000	PK	51.53	33.49	15.27	45.47	2.05	56.87	-38.35	-27.0	11.3	154	344	
Vert.	5700.000	PK	52.82	33.61	15.30	45.47	2.05	58.31	-36.91	10.0	46.9	154	344	
Vert.	5720.000	PK	53.13	33.67	15.31	45.46	2.05	58.70	-36.52	15.6	52.1	154	344	
Vert.	5725.000	PK	54.75	33.68	15.31	45.46	2.05	60.33	-34.89	27.0	61.8	154	344	

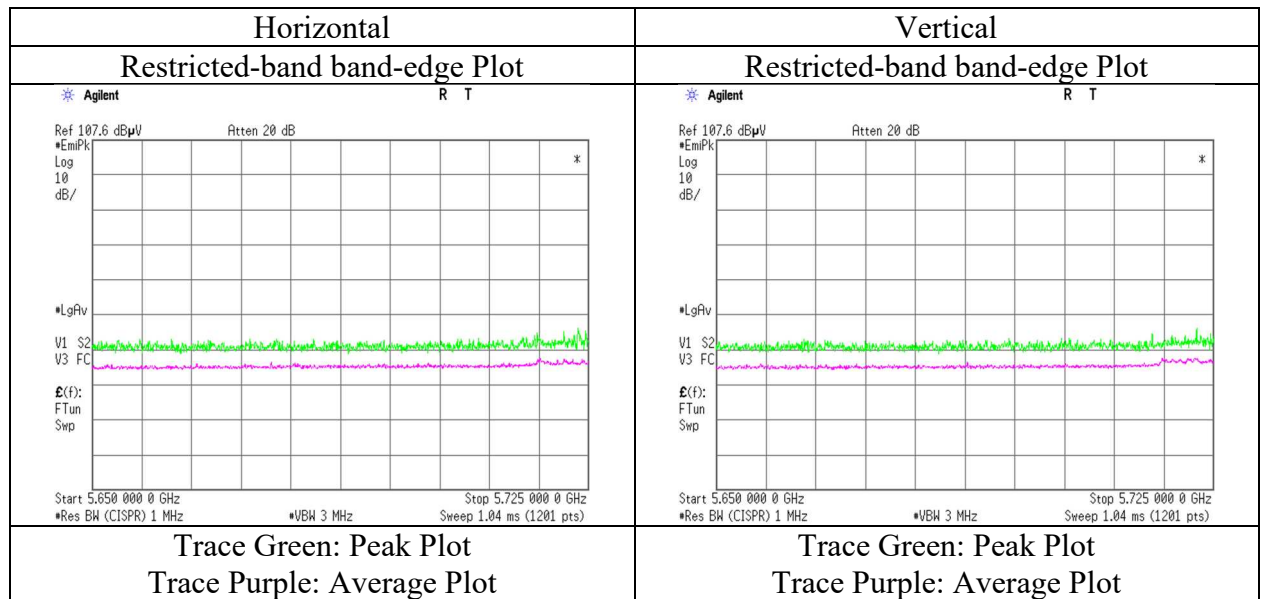
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10 ^ 3)

*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 (3.8 m / 3.0 m) = 2.05 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



* 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

Report No. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 3, 2020
Temperature / Humidity 22 deg. C / 59 % RH
(1 GHz - 6.4 GHz)
Engineer Hiromitsu Tanabe
Mode Tx 11ac-40 MIMO 5795 MHz with 11g 2437 MHz
EUT Hi type

(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	51.49	34.21	15.37	45.39	2.05	57.73	-37.49	27.0	64.4	171	330	
Hori.	5855.000	PK	51.10	34.24	15.37	45.39	2.05	57.37	-37.85	15.6	53.4	171	330	
Hori.	5875.000	PK	51.34	34.37	15.39	45.38	2.05	57.77	-37.45	10.0	47.4	171	330	
Hori.	5925.000	PK	51.53	34.67	15.41	45.33	2.05	58.33	-36.89	-27.0	9.8	171	330	
Vert.	5850.000	PK	51.16	34.21	15.37	45.39	2.05	57.40	-37.82	27.0	64.8	151	344	
Vert.	5855.000	PK	51.17	34.24	15.37	45.39	2.05	57.44	-37.78	15.6	53.3	151	344	
Vert.	5875.000	PK	51.12	34.37	15.39	45.38	2.05	57.55	-37.67	10.0	47.6	151	344	
Vert.	5925.000	PK	51.61	34.67	15.41	45.33	2.05	58.41	-36.81	-27.0	9.8	151	344	

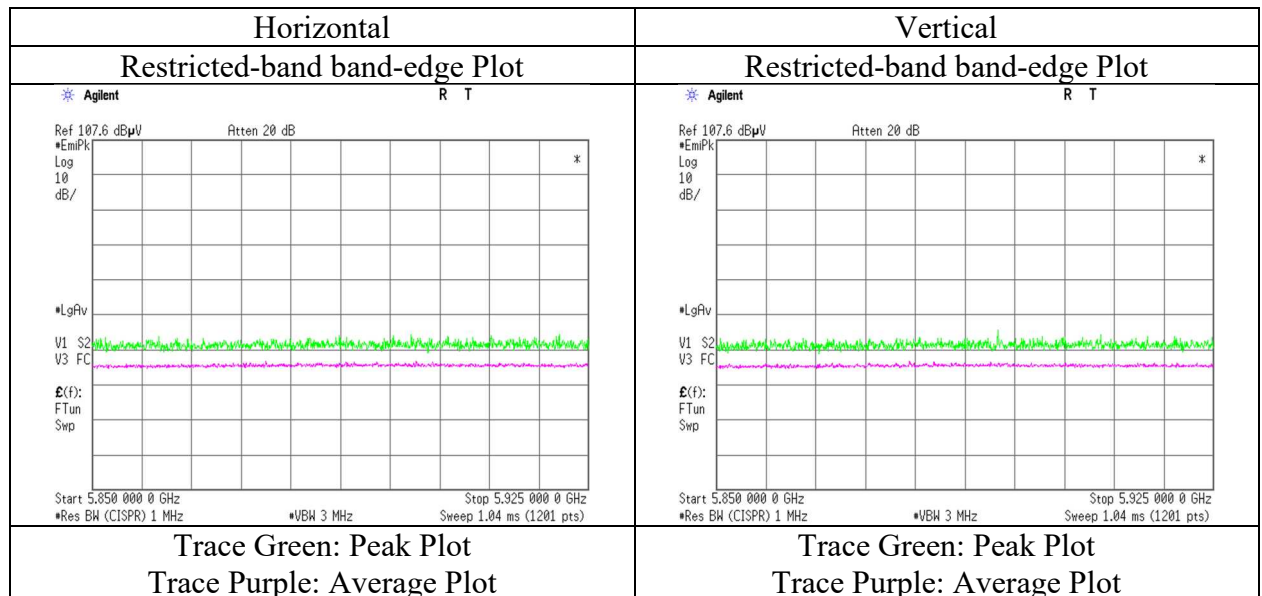
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10 ^ 3)

*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 (3.8 m / 3.0 m) = 2.05 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



* 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.

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Radiated Spurious Emission

Report No. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 4, 2020
Temperature / Humidity 23 deg. C / 54 % RH
(1 GHz - 6.4 GHz)
Engineer Kazuhiro Ando
Mode Tx 11ac-80 MIMO 5210 MHz with 11g 2437 MHz
EUT Hi type

(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.	5150.000	PK	53.00	32.51	15.00	45.38	2.05	57.18	73.9	16.7	100	293	
Hori.	5350.000	PK	51.23	32.96	15.11	45.45	2.05	55.90	73.9	18.0	100	293	
Hori.	5150.000	AV	43.10	32.51	15.00	45.38	2.05	47.28	53.9	6.6	100	293	VBW:18 kHz
Hori.	5350.000	AV	42.61	32.96	15.11	45.45	2.05	47.28	53.9	6.6	100	293	VBW:18 kHz
Vert.	5150.000	PK	51.73	32.51	15.00	45.38	2.05	55.91	73.9	17.9	111	0	
Vert.	5350.000	PK	51.15	32.96	15.11	45.45	2.05	55.82	73.9	18.0	111	0	
Vert.	5150.000	AV	43.41	32.51	15.00	45.38	2.05	47.59	53.9	6.3	111	0	VBW:18 kHz
Vert.	5350.000	AV	42.65	32.96	15.11	45.45	2.05	47.32	53.9	6.5	111	0	VBW:18 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).

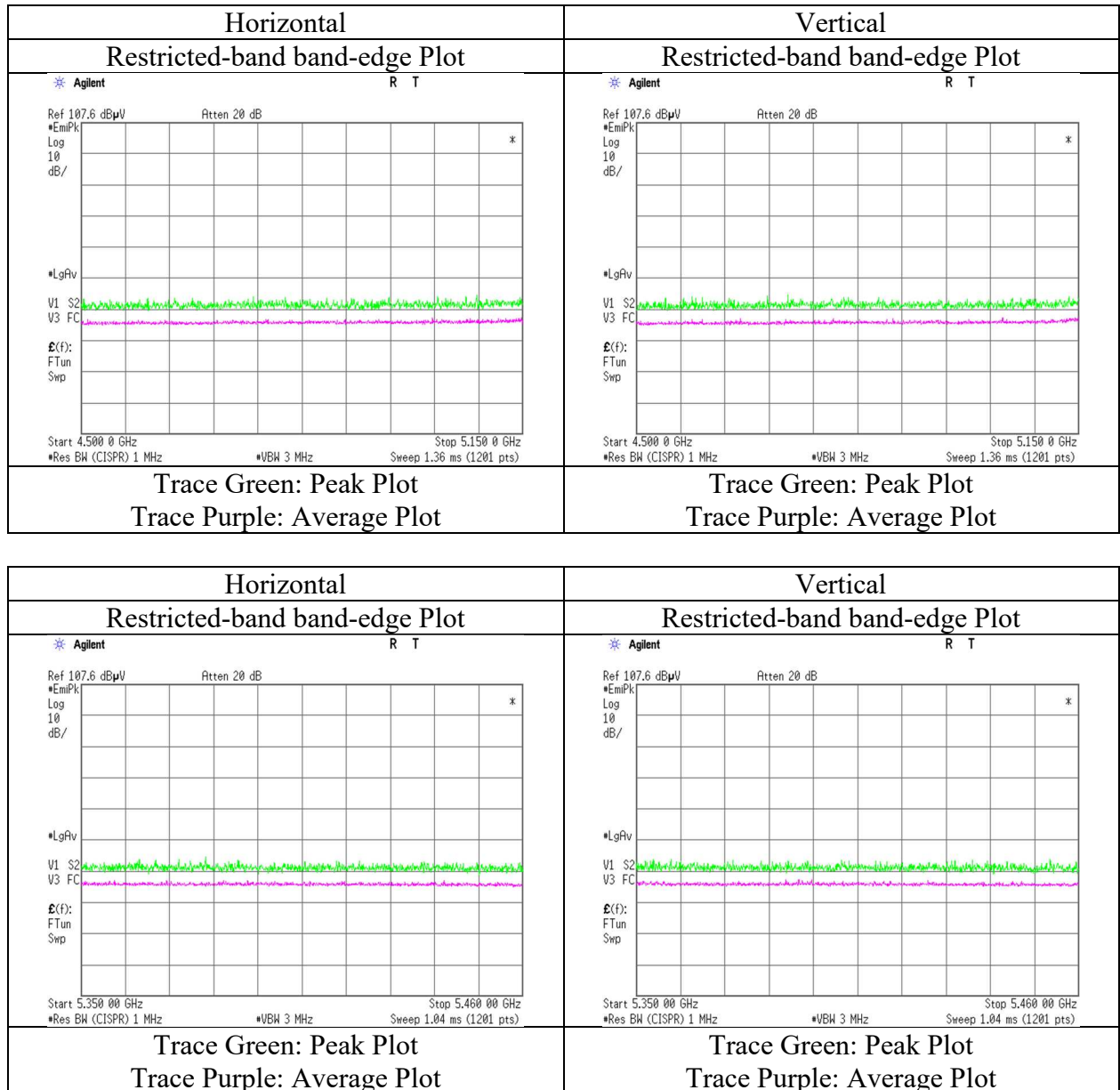
Distance factor : 1 GHz - 10 GHz : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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

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

Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 54 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-80 MIMO 5210 MHz with 11g 2437 MHz
EUT	Hi type



* 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.

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Radiated Spurious Emission

Report No. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 4, 2020
Temperature / Humidity 23 deg. C / 54 % RH
(1 GHz - 6.4 GHz)
Engineer Kazuhiro Ando
Mode Tx 11ac-80 MIMO 5775 MHz with 11g 2437 MHz
EUT Hi type

(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	51.69	33.49	15.27	45.47	2.05	57.03	-38.19	-27.0	11.1	149	315	
Hori.	5700.000	PK	54.25	33.61	15.30	45.47	2.05	59.74	-35.48	10.0	45.4	149	315	
Hori.	5720.000	PK	56.02	33.67	15.31	45.46	2.05	61.59	-33.63	15.6	49.2	149	315	
Hori.	5725.000	PK	54.05	33.68	15.31	45.46	2.05	59.63	-35.59	27.0	62.5	149	315	
Hori.	5850.000	PK	50.66	34.21	15.37	45.39	2.05	56.90	-38.32	27.0	65.3	149	315	
Hori.	5855.000	PK	50.60	34.24	15.37	45.39	2.05	56.87	-38.35	15.6	53.9	149	315	
Hori.	5875.000	PK	50.19	34.37	15.39	45.38	2.05	56.62	-38.60	10.0	48.6	149	315	
Hori.	5925.000	PK	51.82	34.67	15.41	45.33	2.05	58.62	-36.60	-27.0	9.6	149	315	
Vert.	5650.000	PK	51.79	33.49	15.27	45.47	2.05	57.13	-38.09	-27.0	11.0	153	343	
Vert.	5700.000	PK	53.27	33.61	15.30	45.47	2.05	58.76	-36.46	10.0	46.4	153	343	
Vert.	5720.000	PK	55.45	33.67	15.31	45.46	2.05	61.02	-34.20	15.6	49.8	153	343	
Vert.	5725.000	PK	54.85	33.68	15.31	45.46	2.05	60.43	-34.79	27.0	61.7	153	343	
Vert.	5850.000	PK	50.00	34.21	15.37	45.39	2.05	56.24	-38.98	27.0	65.9	153	343	
Vert.	5855.000	PK	51.25	34.24	15.37	45.39	2.05	57.52	-37.70	15.6	53.3	153	343	
Vert.	5875.000	PK	51.77	34.37	15.39	45.38	2.05	58.20	-37.02	10.0	47.0	153	343	
Vert.	5925.000	PK	51.39	34.67	15.41	45.33	2.05	58.19	-37.03	-27.0	10.0	153	343	

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).

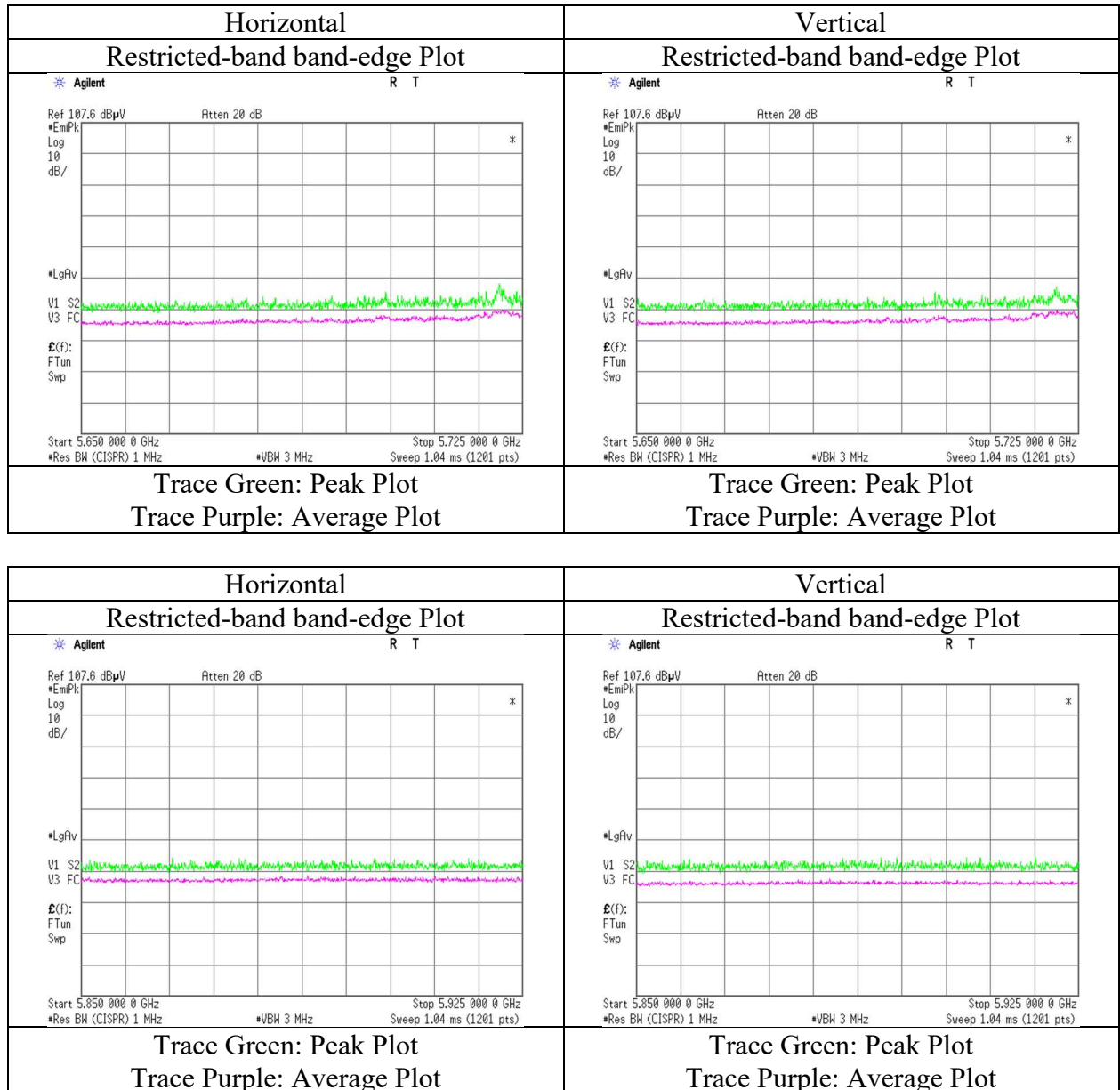
Distance factor : 1 GHz - 10 GHz : 20log (3.8 m / 3.0 m) = 2.05 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 54 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-80 MIMO 5775 MHz with 11g 2437 MHz
EUT	Hi type



* 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.

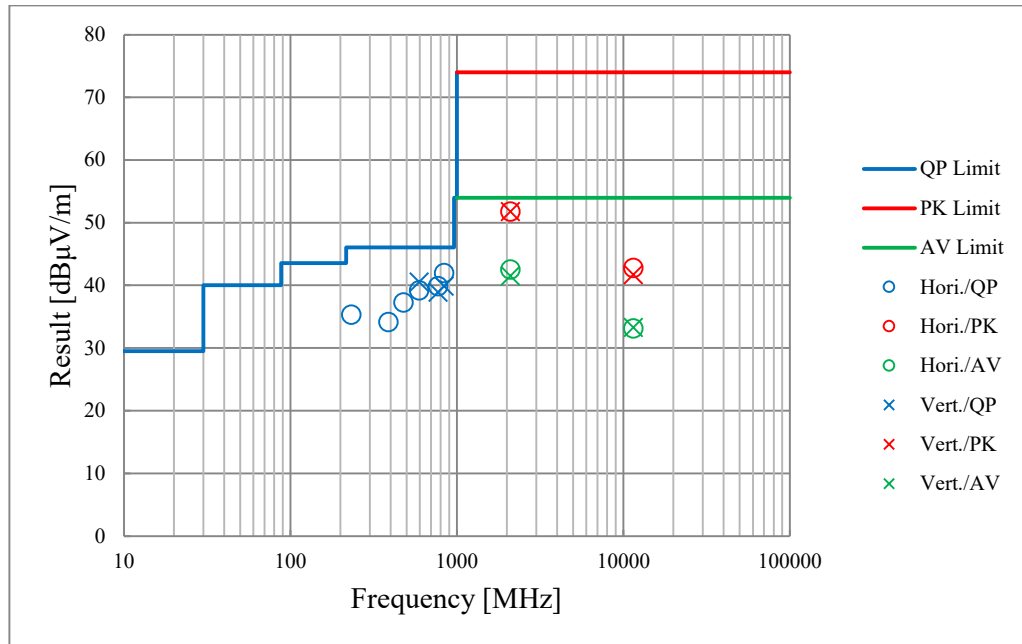
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81 478 88 6500

Facsimile : +81 478 82 3373

Radiated Spurious Emission
(Plot data, Worst case)

Report No.	13408125M-C-R1				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.6	No.6	No.6	No.6	No.6
Date	August 6, 2020	August 3, 2020	August 5, 2020	August 5, 2020	August 5, 2020
Temperature / Humidity	22 deg. C / 55 % RH	22 deg. C / 59 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH
Engineer	Kazuhiro Ando	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 11g 2437 MHz				
EUT	Hi type				



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

Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 54 % RH
	(1 GHz - 6.4 GHz)
Engineer	Kazuhiro Ando
Mode	Tx 11ac-20 MIMO 5180 MHz with BT Hopping On DH5
EUT	Hi type

(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.	5150.000	PK	51.72	32.51	15.00	45.38	2.05	55.90	73.9	18.0	154	295	VBW:10 kHz
Hori.	5150.000	AV	42.00	32.51	15.00	45.38	2.05	46.18	53.9	7.7	154	295	
Vert.	5150.000	PK	51.98	32.51	15.00	45.38	2.05	56.16	73.9	17.7	100	0	VBW:10 kHz
Vert.	5150.000	AV	42.34	32.51	15.00	45.38	2.05	46.52	53.9	7.3	100	0	

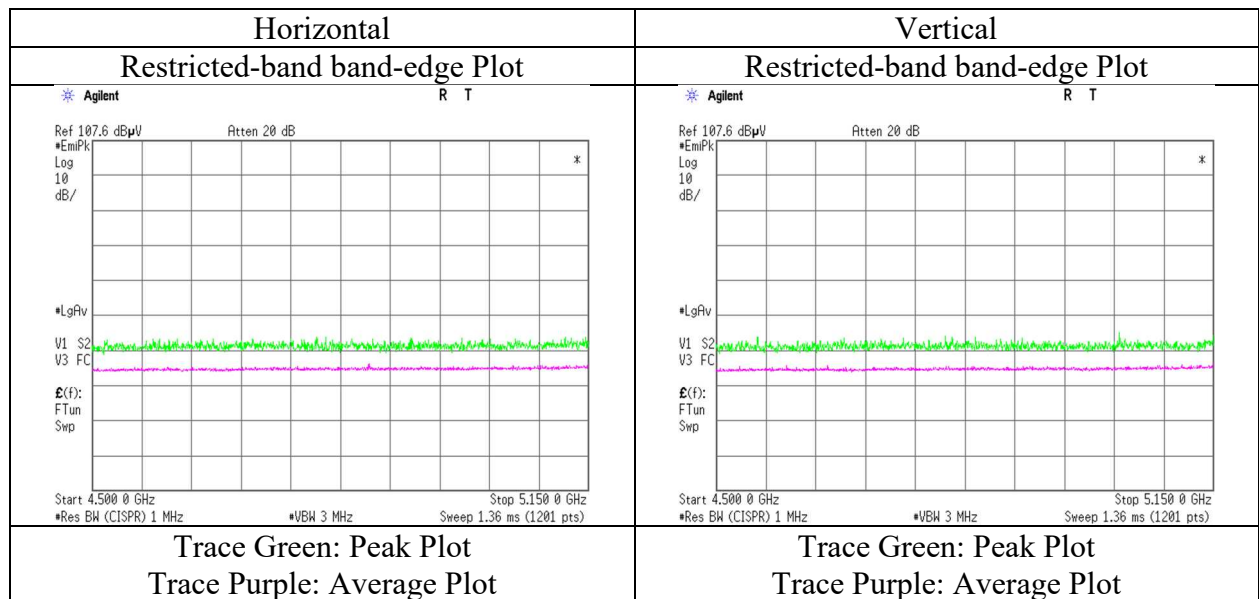
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.05\text{ dB}$

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

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



* 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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 54 % RH
	(1 GHz - 6.4 GHz)
Engineer	Kazuhiro Ando
Mode	Tx 11ac-20 MIMO 5240 MHz with BT Hopping On DH5
EUT	Hi type

(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.	5350.000	PK	50.89	32.96	15.11	45.45	2.05	55.56	73.9	18.3	131	293	VBW:10 kHz
Hori.	5350.000	AV	41.29	32.96	15.11	45.45	2.05	45.96	53.9	7.9	131	293	
Vert.	5350.000	PK	50.91	32.96	15.11	45.45	2.05	55.58	73.9	18.3	144	357	VBW:10 kHz
Vert.	5350.000	AV	41.32	32.96	15.11	45.45	2.05	45.99	53.9	7.9	144	357	

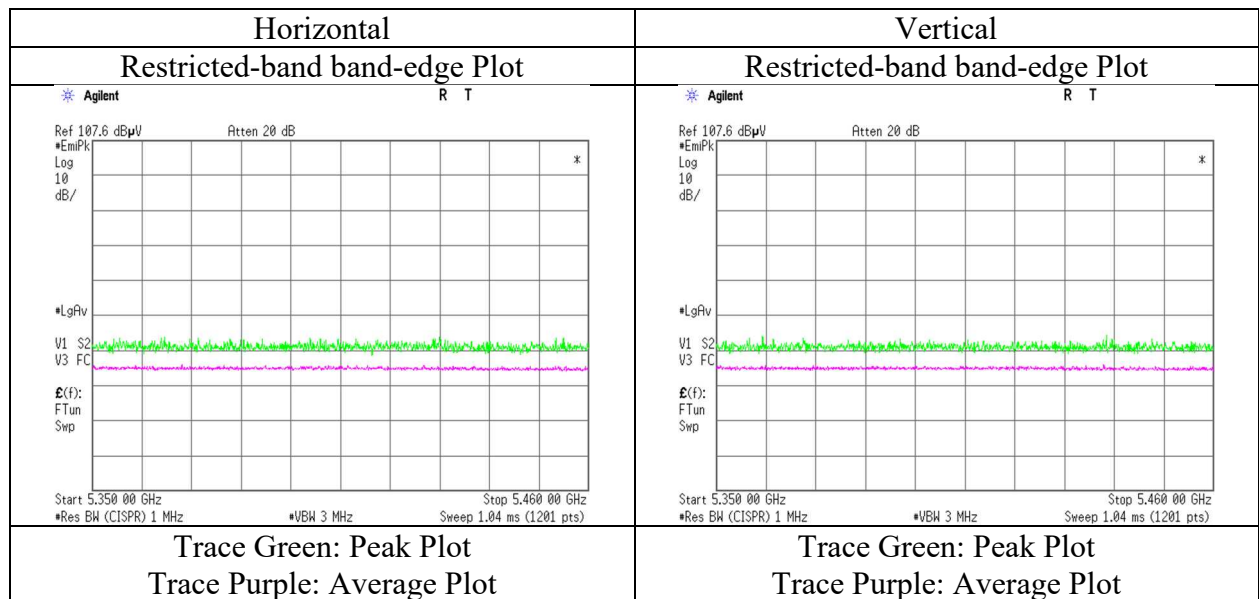
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.05\text{ dB}$

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

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



* 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.	13408125M-C-R1				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.6	No.6	No.6	No.6	No.6
Date	August 6, 2020	August 4, 2020	August 5, 2020	August 5, 2020	August 5, 2020
Temperature / Humidity	22 deg. C / 55 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	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 DH5				
EUT	Hi type				

(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.	232.687	QP	49.00	10.80	7.64	32.35	0.00	35.09	46.0	10.9	147	291	
Hori.	387.793	QP	42.90	15.43	8.56	32.27	0.00	34.62	46.0	11.3	100	15	
Hori.	477.386	QP	42.70	17.53	9.02	32.24	0.00	37.01	46.0	8.9	100	20	
Hori.	593.535	QP	42.40	19.69	9.52	32.23	0.00	39.38	46.0	6.6	182	248	
Hori.	772.556	QP	40.60	22.21	10.25	32.02	0.00	41.04	46.0	4.9	119	210	
Hori.	838.143	QP	40.80	22.80	10.51	31.80	0.00	42.31	46.0	3.6	117	219	
Hori.	2092.500	PK	51.43	29.07	13.10	43.86	2.05	51.79	73.9	22.1	254	183	
Hori.	11490.000	PK	48.01	38.66	7.84	42.79	-9.54	42.18	73.9	31.7	150	0	
Hori.	2092.500	AV	42.32	29.07	13.10	43.86	2.05	42.68	53.9	11.2	254	183	VBW:10 Hz
Hori.	11490.000	AV	38.96	38.66	7.84	42.79	-9.54	33.13	53.9	20.7	150	0	VBW:10 kHz
Vert.	593.552	QP	42.70	19.69	9.52	32.23	0.00	39.68	46.0	6.3	123	337	
Vert.	772.624	QP	38.90	22.21	10.25	32.02	0.00	39.34	46.0	6.6	100	162	
Vert.	838.342	QP	37.00	22.80	10.51	31.80	0.00	38.51	46.0	7.4	100	306	
Vert.	2092.500	PK	51.09	29.07	13.10	43.86	2.05	51.45	73.9	22.4	284	268	
Vert.	11490.000	PK	48.41	38.66	7.84	42.79	-9.54	42.58	73.9	31.3	150	0	
Vert.	2092.500	AV	41.16	29.07	13.10	43.86	2.05	41.52	53.9	12.3	284	268	VBW:10 Hz
Vert.	11490.000	AV	39.17	38.66	7.84	42.79	-9.54	33.34	53.9	20.5	150	0	VBW:10 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 (3.8 m / 3.0 m) = 2.05 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	51.84	33.49	15.27	45.47	2.05	57.18	-38.04	-27.0	11.0	100	314	
Hori.	5700.000	PK	51.31	33.61	15.30	45.47	2.05	56.80	-38.42	10.0	48.4	100	314	
Hori.	5720.000	PK	52.98	33.67	15.31	45.46	2.05	58.55	-36.67	15.6	52.2	100	314	
Hori.	5725.000	PK	56.26	33.68	15.31	45.46	2.05	61.84	-33.38	27.0	60.3	100	314	
Hori.	17235.000	PK	50.74	41.09	9.83	44.82	-9.54	47.30	-47.92	-27.0	20.9	150	0	
Vert.	5650.000	PK	50.71	33.49	15.27	45.47	2.05	56.05	-39.17	-27.0	12.1	115	12	
Vert.	5700.000	PK	52.87	33.61	15.30	45.47	2.05	58.36	-36.86	10.0	46.8	115	12	
Vert.	5720.000	PK	51.57	33.67	15.31	45.46	2.05	57.14	-38.08	15.6	53.6	115	12	
Vert.	5725.000	PK	53.95	33.68	15.31	45.46	2.05	59.53	-35.69	27.0	62.6	115	12	
Vert.	17235.000	PK	49.35	41.09	9.83	44.82	-9.54	45.91	-49.31	-27.0	22.3	150	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 (3.8 m / 3.0 m) = 2.05 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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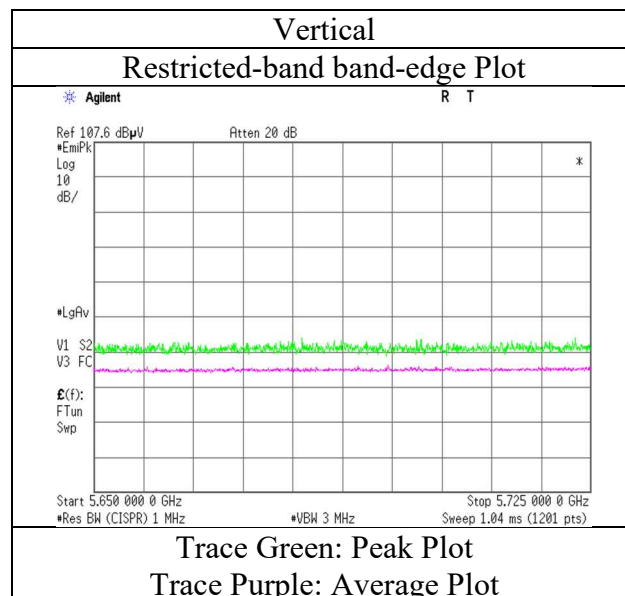
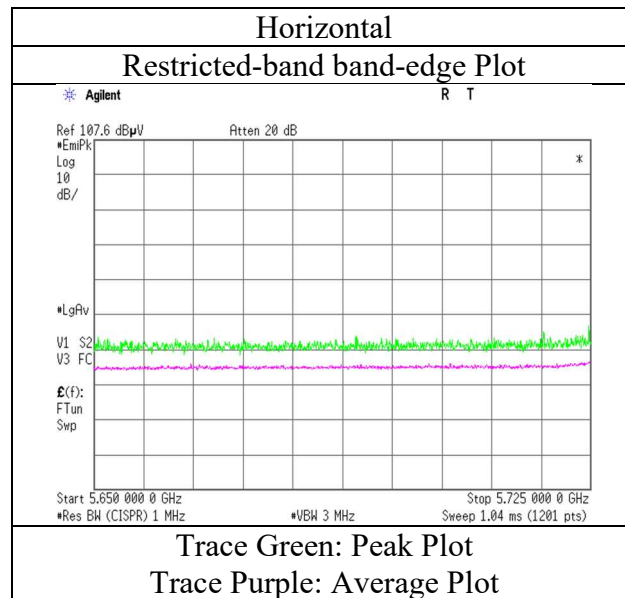
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

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Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 54 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-20 MIMO 5745 MHz with BT Hopping On DH5
EUT	Hi type



* 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. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 4, 2020
Temperature / Humidity 23 deg. C / 54 % RH
(1 GHz - 6.4 GHz)
Engineer Kazuhiro Ando
Mode Tx 11ac-20 MIMO 5825 MHz with BT Hopping On DHS
EUT Hi type

(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	50.27	34.21	15.37	45.39	2.05	56.51	-38.71	27.0	65.7	100	311	
Hori.	5855.000	PK	51.21	34.24	15.37	45.39	2.05	57.48	-37.74	15.6	53.3	100	311	
Hori.	5875.000	PK	50.25	34.37	15.39	45.38	2.05	56.68	-38.54	10.0	48.5	100	311	
Hori.	5925.000	PK	51.77	34.67	15.41	45.33	2.05	58.57	-36.65	-27.0	9.6	100	311	
Vert.	5850.000	PK	50.60	34.21	15.37	45.39	2.05	56.84	-38.38	27.0	65.3	100	342	
Vert.	5855.000	PK	50.97	34.24	15.37	45.39	2.05	57.24	-37.98	15.6	53.5	100	342	
Vert.	5875.000	PK	50.21	34.37	15.39	45.38	2.05	56.64	-38.58	10.0	48.5	100	342	
Vert.	5925.000	PK	51.00	34.67	15.41	45.33	2.05	57.80	-37.42	-27.0	10.4	100	342	

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

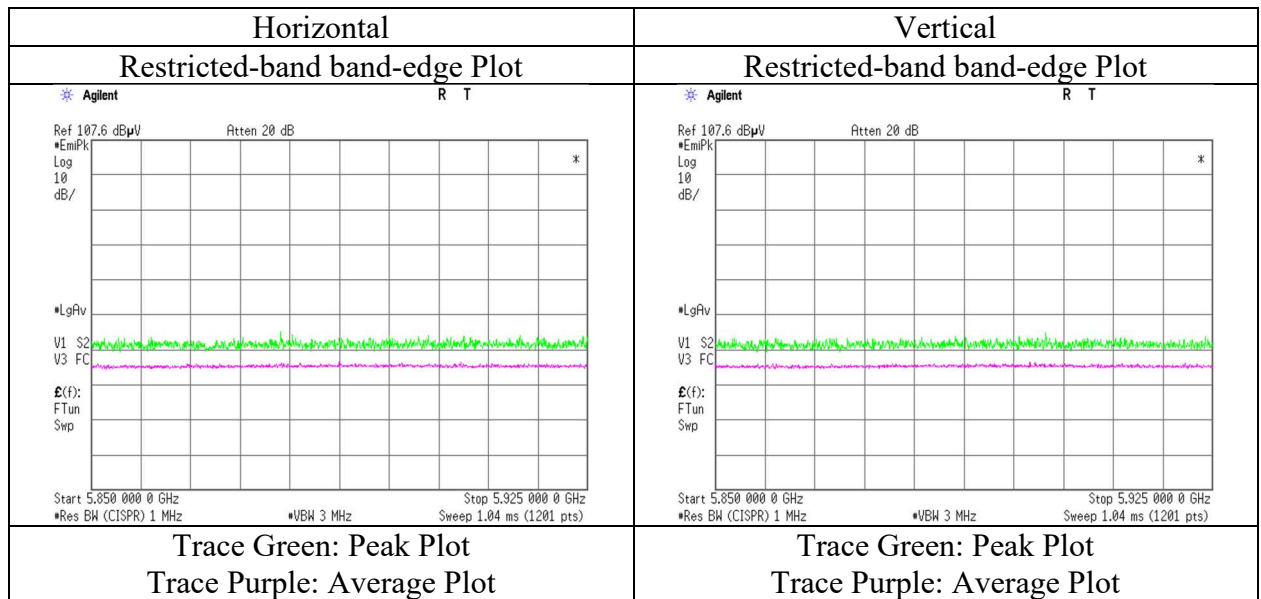
Result(EIRP)[dBm]=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10 ^ 3)

*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 (3.8 m / 3.0 m) = 2.05 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



* 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.

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Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 54 % RH
	(1 GHz - 6.4 GHz)
Engineer	Kazuhiro Ando
Mode	Tx 11ac-40 MIMO 5190 MHz with BT Hopping On DHS
EUT	Hi type

(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.	5150.000	PK	51.73	32.51	15.00	45.38	2.05	55.91	73.9	17.9	140	274	VBW:13 kHz
Hori.	5150.000	AV	42.67	32.51	15.00	45.38	2.05	46.85	53.9	7.0	140	274	
Vert.	5150.000	PK	51.97	32.51	15.00	45.38	2.05	56.15	73.9	17.7	100	0	VBW:13 kHz
Vert.	5150.000	AV	42.93	32.51	15.00	45.38	2.05	47.11	53.9	6.7	100	0	

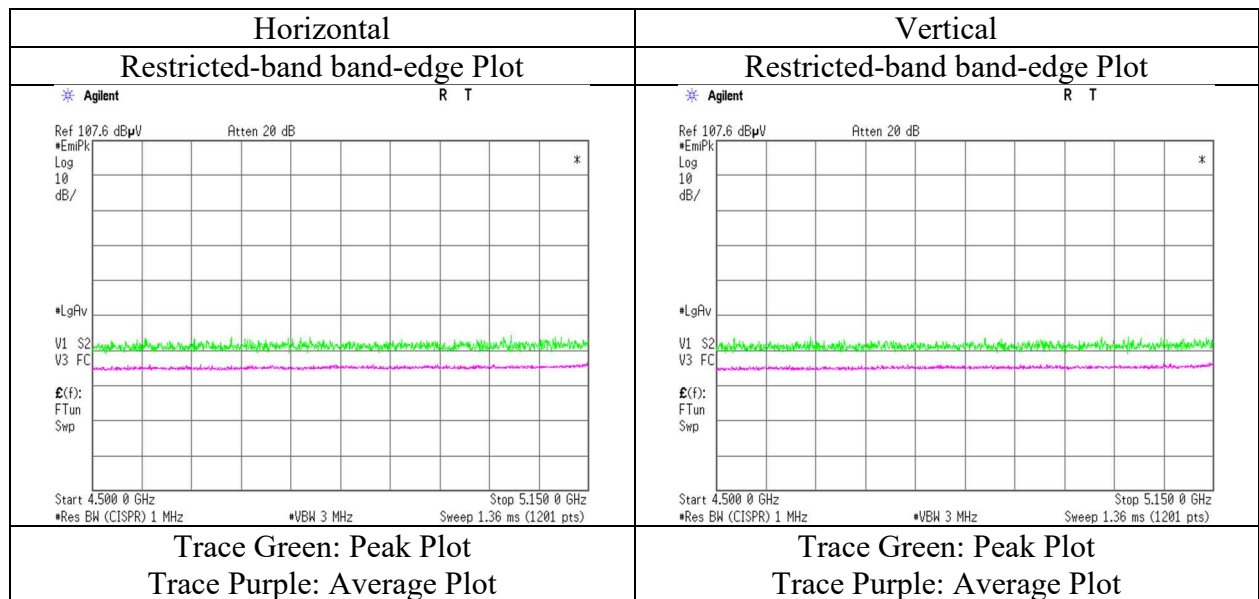
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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

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



* 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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 54 % RH
	(1 GHz - 6.4 GHz)
Engineer	Kazuhiro Ando
Mode	Tx 11ac-40 MIMO 5230 MHz with BT Hopping On DH5
EUT	Hi type

(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.	5350.000	PK	51.62	32.96	15.11	45.45	2.05	56.29	73.9	17.6	117	290	VBW:13 kHz
Hori.	5350.000	AV	42.20	32.96	15.11	45.45	2.05	46.87	53.9	7.0	117	290	
Vert.	5350.000	PK	50.66	32.96	15.11	45.45	2.05	55.33	73.9	18.5	109	359	VBW:13 kHz
Vert.	5350.000	AV	41.58	32.96	15.11	45.45	2.05	46.25	53.9	7.6	109	359	

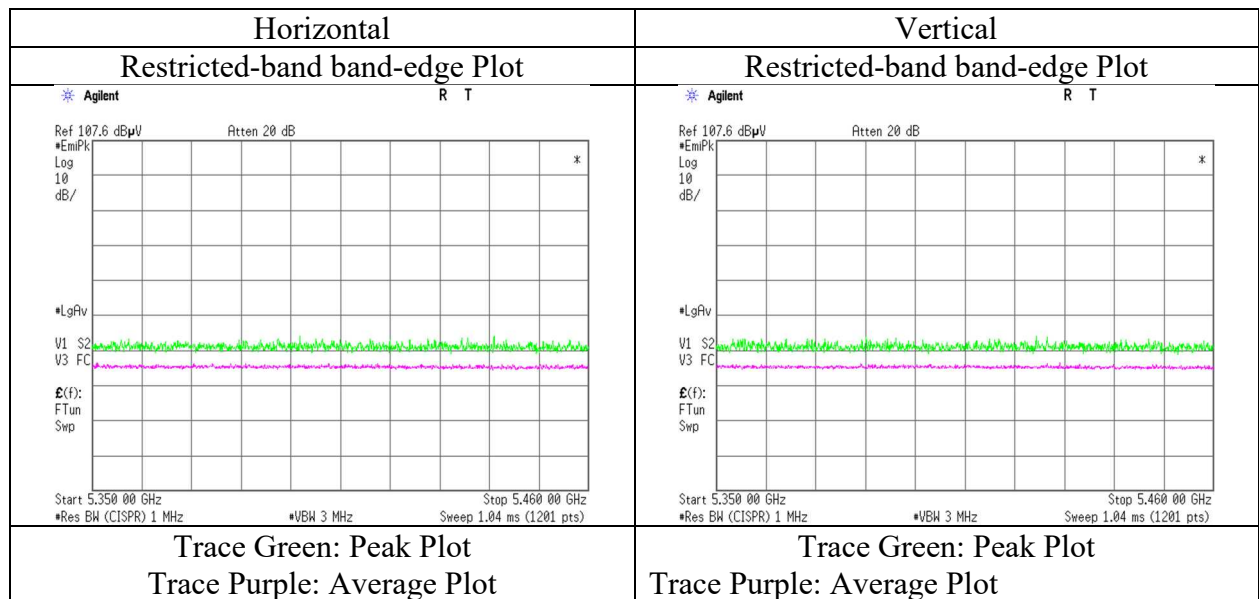
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.05\text{ dB}$

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

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



* 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. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 4, 2020
Temperature / Humidity 23 deg. C / 54 % RH
(1 GHz - 6.4 GHz)
Engineer Kazuhiro Ando
Mode Tx 11ac-40 MIMO 5755 MHz with BT Hopping On DHS
EUT Hi type

(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	51.93	33.49	15.27	45.47	2.05	57.27	-37.95	-27.0	10.9	121	315	
Hori.	5700.000	PK	52.01	33.61	15.30	45.47	2.05	57.50	-37.72	10.0	47.7	121	315	
Hori.	5720.000	PK	55.03	33.67	15.31	45.46	2.05	60.60	-34.62	15.6	50.2	121	315	
Hori.	5725.000	PK	56.89	33.68	15.31	45.46	2.05	62.47	-32.75	27.0	59.7	121	315	
Vert.	5650.000	PK	50.95	33.49	15.27	45.47	2.05	56.29	-38.93	-27.0	11.9	126	343	
Vert.	5700.000	PK	51.39	33.61	15.30	45.47	2.05	56.88	-38.34	10.0	48.3	126	343	
Vert.	5720.000	PK	54.25	33.67	15.31	45.46	2.05	59.82	-35.40	15.6	51.0	126	343	
Vert.	5725.000	PK	54.04	33.68	15.31	45.46	2.05	59.62	-35.60	27.0	62.6	126	343	

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

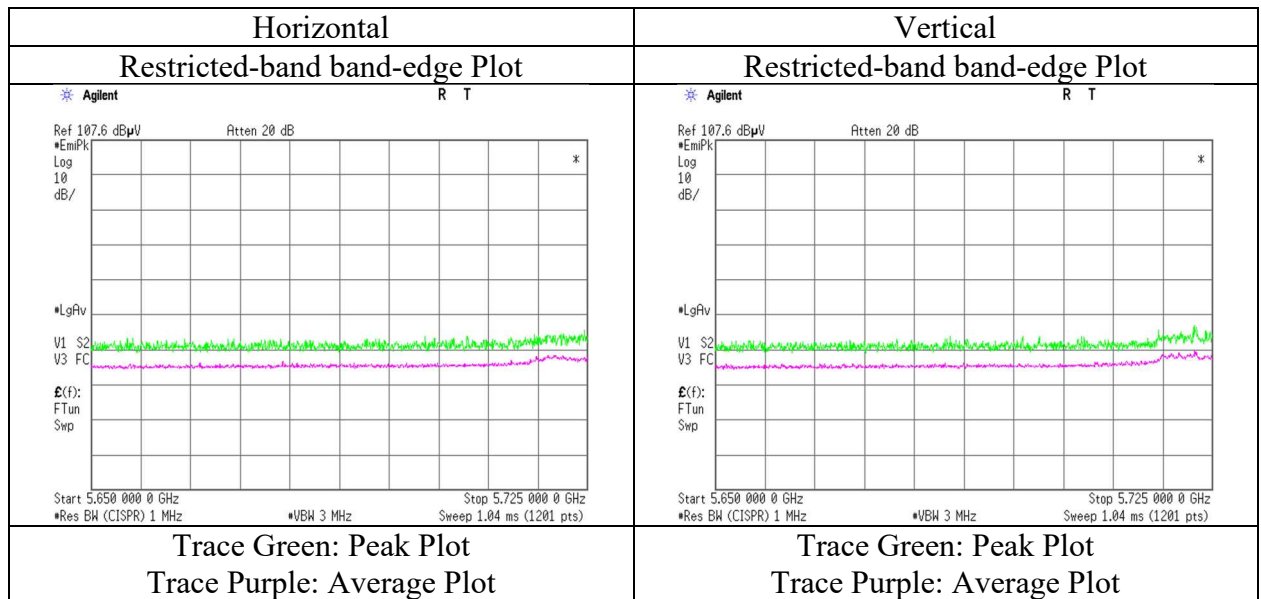
Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

*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 (3.8 m / 3.0 m) = 2.05 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



* 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.

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Kashima EMC Lab.

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Radiated Spurious Emission

Report No. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 4, 2020
Temperature / Humidity 23 deg. C / 54 % RH
(1 GHz - 6.4 GHz)
Engineer Kazuhiro Ando
Mode Tx 11ac-40 MIMO 5795 MHz with BT Hopping On DHS
EUT Hi type

(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	51.06	34.21	15.37	45.39	2.05	57.30	-37.92	27.0	64.9	181	331	
Hori.	5855.000	PK	51.20	34.24	15.37	45.39	2.05	57.47	-37.75	15.6	53.3	181	331	
Hori.	5875.000	PK	51.29	34.37	15.39	45.38	2.05	57.72	-37.50	10.0	47.5	181	331	
Hori.	5925.000	PK	52.20	34.67	15.41	45.33	2.05	59.00	-36.22	-27.0	9.2	181	331	
Vert.	5850.000	PK	50.78	34.21	15.37	45.39	2.05	57.02	-38.20	27.0	65.2	150	344	
Vert.	5855.000	PK	51.11	34.24	15.37	45.39	2.05	57.38	-37.84	15.6	53.4	150	344	
Vert.	5875.000	PK	51.34	34.37	15.39	45.38	2.05	57.77	-37.45	10.0	47.4	150	344	
Vert.	5925.000	PK	52.59	34.67	15.41	45.33	2.05	59.39	-35.83	-27.0	8.8	150	344	

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

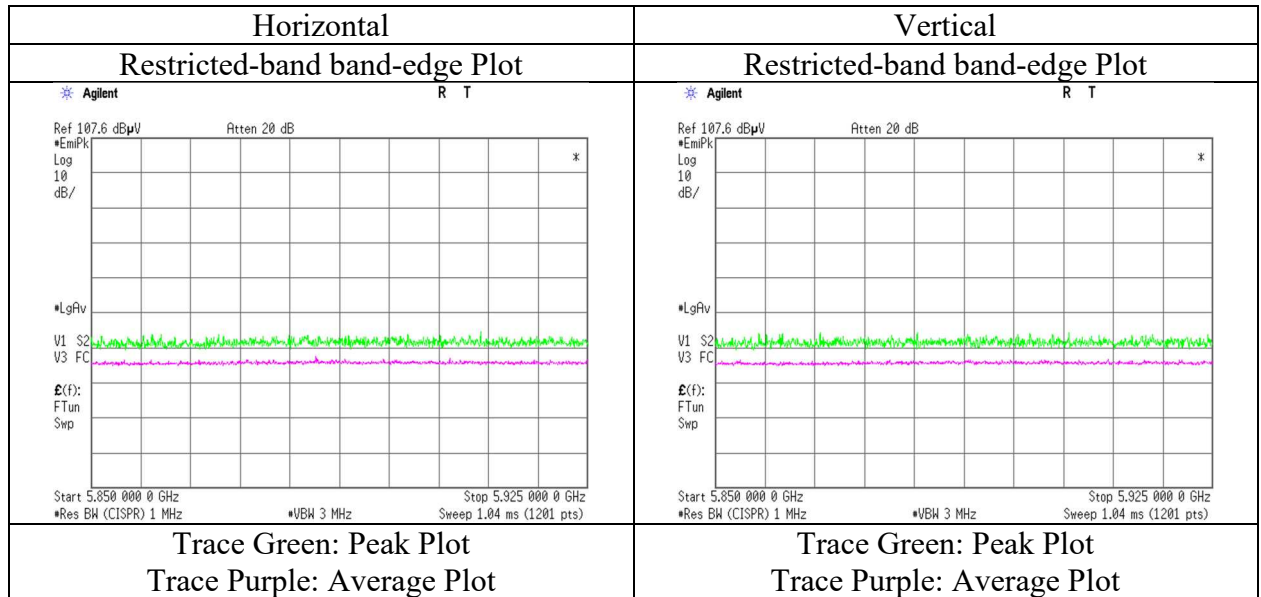
Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10 ^ 3)

*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 (3.8 m / 3.0 m) = 2.05 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



* 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

Report No. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 4, 2020
Temperature / Humidity 23 deg. C / 54 % RH
(1 GHz - 6.4 GHz)
Engineer Hiromitsu Tanabe
Mode Tx 11ac-80 MIMO 5210 MHz with BT Hopping On DH5
EUT Hi type

(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.	5150.000	PK	51.23	32.51	15.00	45.38	2.05	55.41	73.9	18.4	164	278	
Hori.	5350.000	PK	50.30	32.96	15.11	45.45	2.05	54.97	73.9	18.9	164	278	
Hori.	5150.000	AV	42.97	32.51	15.00	45.38	2.05	47.15	53.9	6.7	164	278	VBW:18 kHz
Hori.	5350.000	AV	42.60	32.96	15.11	45.45	2.05	47.27	53.9	6.6	164	278	VBW:18 kHz
Vert.	5150.000	PK	52.34	32.51	15.00	45.38	2.05	56.52	73.9	17.3	112	358	
Vert.	5350.000	PK	50.89	32.96	15.11	45.45	2.05	55.56	73.9	18.3	112	358	
Vert.	5150.000	AV	43.66	32.51	15.00	45.38	2.05	47.84	53.9	6.0	112	358	VBW:18 kHz
Vert.	5350.000	AV	42.67	32.96	15.11	45.45	2.05	47.34	53.9	6.5	112	358	VBW:18 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).

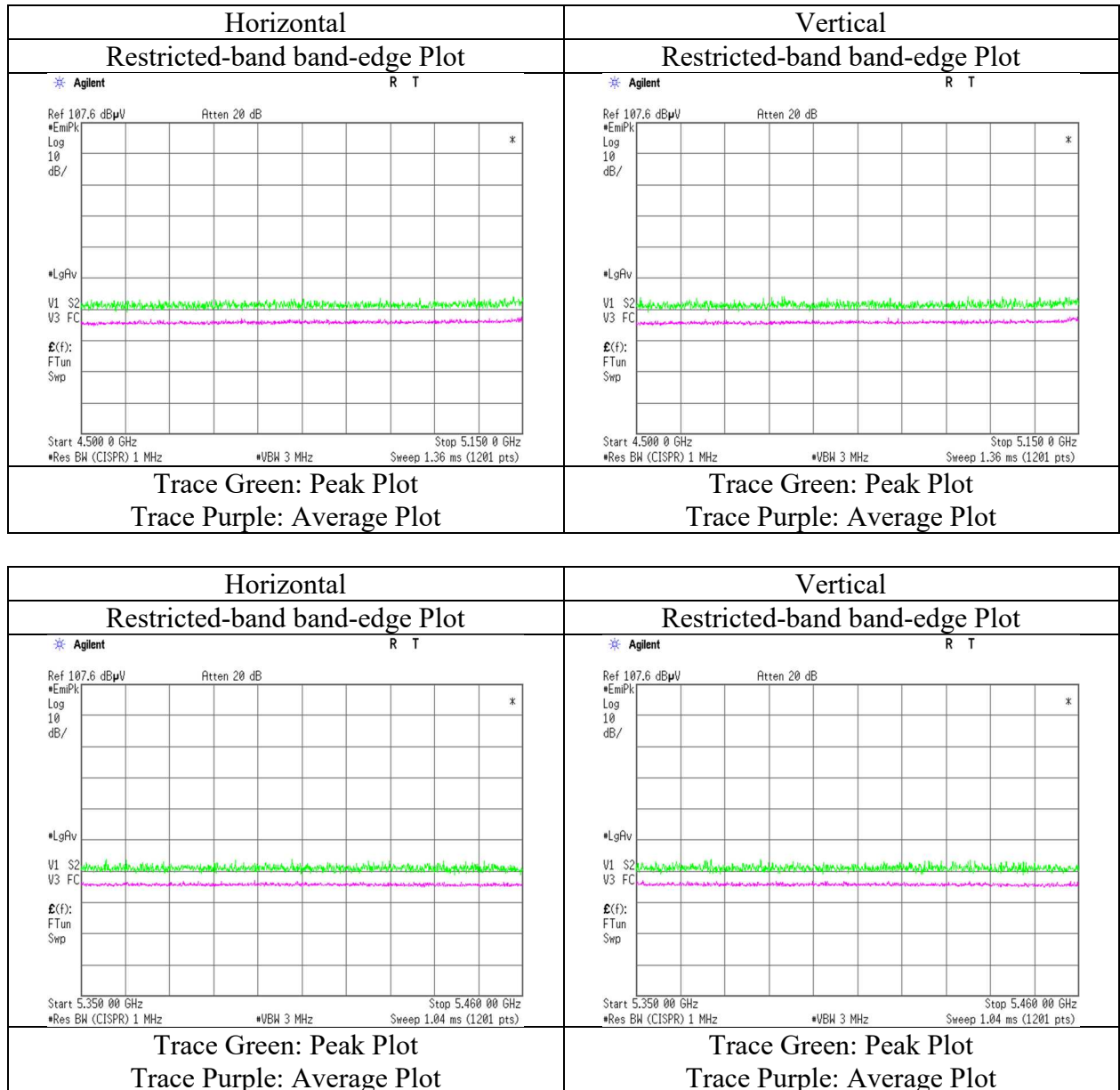
Distance factor : 1 GHz - 10 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.05\text{ dB}$

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

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

Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 54 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-80 MIMO 5210 MHz with BT Hopping On DH5
EUT	Hi type



* 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.

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Radiated Spurious Emission

Report No. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.6
Date August 4, 2020
Temperature / Humidity 23 deg. C / 54 % RH
(1 GHz - 6.4 GHz)
Engineer Hiromitsu Tanabe
Mode Tx 11ac-80 MIMO 5775 MHz with BT Hopping On DH5
EUT Hi type

(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	51.39	33.49	15.27	45.47	2.05	56.73	-38.49	-27.0	11.4	150	317	
Hori.	5700.000	PK	53.50	33.61	15.30	45.47	2.05	58.99	-36.23	10.0	46.2	150	317	
Hori.	5720.000	PK	54.49	33.67	15.31	45.46	2.05	60.06	-35.16	15.6	50.7	150	317	
Hori.	5725.000	PK	55.00	33.68	15.31	45.46	2.05	60.58	-34.64	27.0	61.6	150	317	
Hori.	5850.000	PK	50.61	34.21	15.37	45.39	2.05	56.85	-38.37	27.0	65.3	150	317	
Hori.	5855.000	PK	50.61	34.24	15.37	45.39	2.05	56.88	-38.34	15.6	53.9	150	317	
Hori.	5875.000	PK	50.98	34.37	15.39	45.38	2.05	57.41	-37.81	10.0	47.8	150	317	
Hori.	5925.000	PK	52.27	34.67	15.41	45.33	2.05	59.07	-36.15	-27.0	9.1	150	317	
Vert.	5650.000	PK	51.31	33.49	15.27	45.47	2.05	56.65	-38.57	-27.0	11.5	153	344	
Vert.	5700.000	PK	52.29	33.61	15.30	45.47	2.05	57.78	-37.44	10.0	47.4	153	344	
Vert.	5720.000	PK	53.62	33.67	15.31	45.46	2.05	59.19	-36.03	15.6	51.6	153	344	
Vert.	5725.000	PK	53.98	33.68	15.31	45.46	2.05	59.56	-35.66	27.0	62.6	153	344	
Vert.	5850.000	PK	50.63	34.21	15.37	45.39	2.05	56.87	-38.35	27.0	65.3	153	344	
Vert.	5855.000	PK	50.98	34.24	15.37	45.39	2.05	57.25	-37.97	15.6	53.5	153	344	
Vert.	5875.000	PK	51.69	34.37	15.39	45.38	2.05	58.12	-37.10	10.0	47.1	153	344	
Vert.	5925.000	PK	51.63	34.67	15.41	45.33	2.05	58.43	-36.79	-27.0	9.7	153	344	

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).

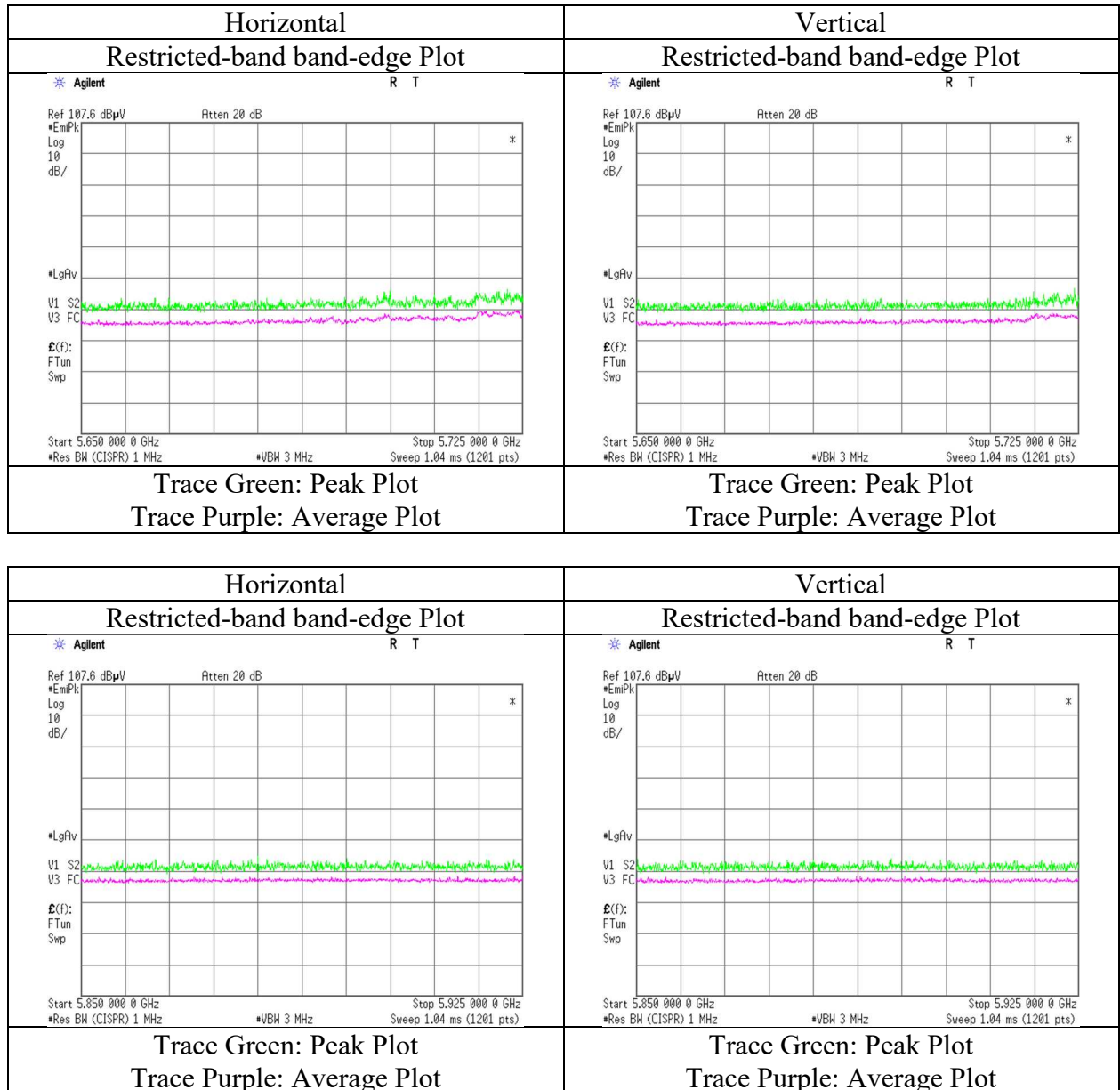
Distance factor : 1 GHz - 10 GHz : 20log (3.8 m / 3.0 m) = 2.05 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.6
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 54 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-80 MIMO 5775 MHz with BT Hopping On DH5
EUT	Hi type



* 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

Report No.	13408125M-C-R1				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.11	No.11	No.11	No.11	No.11
Date	November 12, 2020	November 13, 2020	November 13, 2020	November 13, 2020	November 13, 2020
Temperature / Humidity	19 deg. C / 42 % RH	22 deg. C / 39 % RH	22 deg. C / 39 % RH	22 deg. C / 39 % RH	22 deg. C / 39 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	Kazuhiro Ando	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 with 11g 2437MHz and BT Hopping On DH5				
EUT	Hi type				

(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.	232.718	QP	48.12	10.81	7.17	32.06	0.00	34.04	46.0	11.9	142	56	
Hori.	307.196	QP	42.80	13.72	7.57	32.02	0.00	32.07	46.0	13.9	106	0	
Hori.	477.109	QP	39.36	17.53	8.39	32.00	0.00	33.28	46.0	12.7	100	14	
Hori.	593.417	QP	41.70	19.68	8.85	32.05	0.00	38.18	46.0	7.8	186	245	
Hori.	778.087	QP	38.32	22.22	9.44	31.93	0.00	38.05	46.0	7.9	123	220	
Hori.	850.487	QP	39.53	22.84	9.68	31.69	0.00	40.36	46.0	5.6	110	221	
Hori.	2092.500	PK	51.22	29.07	13.10	43.86	2.05	51.58	73.9	22.3	243	263	
Hori.	11490.000	PK	47.67	38.66	7.84	42.79	-9.54	41.84	73.9	32.0	150	0	
Hori.	2092.500	AV	41.36	29.07	13.10	43.86	2.05	41.72	53.9	12.1	243	263	VBW:10 Hz
Hori.	11490.000	AV	38.57	38.66	7.84	42.79	-9.54	32.74	53.9	21.1	150	0	VBW:10 kHz
Vert.	593.144	QP	42.42	19.67	8.85	32.05	0.00	38.89	46.0	7.1	119	333	
Vert.	771.940	QP	39.37	22.20	9.42	31.95	0.00	39.04	46.0	6.9	100	47	
Vert.	837.476	QP	36.67	22.79	9.64	31.74	0.00	37.36	46.0	8.6	100	40	
Vert.	2092.500	PK	51.07	29.07	13.10	43.86	2.05	51.43	73.9	22.4	253	217	
Vert.	11490.000	PK	47.69	38.66	7.84	42.79	-9.54	41.86	73.9	32.0	150	0	
Vert.	2092.500	AV	41.28	29.07	13.10	43.86	2.05	41.64	53.9	12.2	253	217	VBW:10 Hz
Vert.	11490.000	AV	38.66	38.66	7.84	42.79	-9.54	32.83	53.9	21.0	150	0	VBW:10 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 : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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	51.11	33.49	15.27	45.47	2.05	56.45	-38.77	-27.0	11.7	122	314	
Hori.	5700.000	PK	51.27	33.61	15.30	45.47	2.05	56.76	-38.46	10.0	48.4	122	314	
Hori.	5720.000	PK	52.31	33.67	15.31	45.46	2.05	57.88	-37.34	15.6	52.9	122	314	
Hori.	5725.000	PK	56.04	33.68	15.31	45.46	2.05	61.62	-33.60	27.0	60.6	122	314	
Hori.	17235.000	PK	49.77	41.09	9.83	44.82	-9.54	46.33	-48.89	-27.0	21.8	150	0	
Vert.	5650.000	PK	50.65	33.49	15.27	45.47	2.05	55.99	-39.23	-27.0	12.2	100	342	
Vert.	5700.000	PK	51.45	33.61	15.30	45.47	2.05	56.94	-38.28	10.0	48.2	100	342	
Vert.	5720.000	PK	51.50	33.67	15.31	45.46	2.05	57.07	-38.15	15.6	53.7	100	342	
Vert.	5725.000	PK	53.81	33.68	15.31	45.46	2.05	59.39	-35.83	27.0	62.8	100	342	
Vert.	17235.000	PK	48.92	41.09	9.83	44.82	-9.54	45.48	-49.74	-27.0	22.7	150	0	

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

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

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.8 \text{ m} / 3.0 \text{ m}) = 2.05 \text{ dB}$

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.

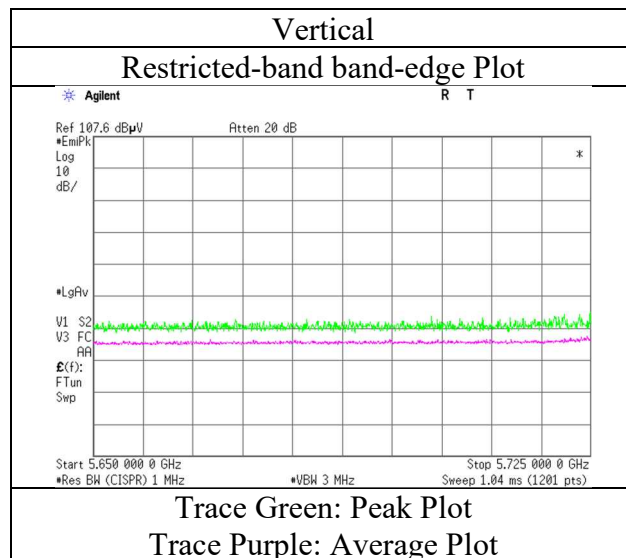
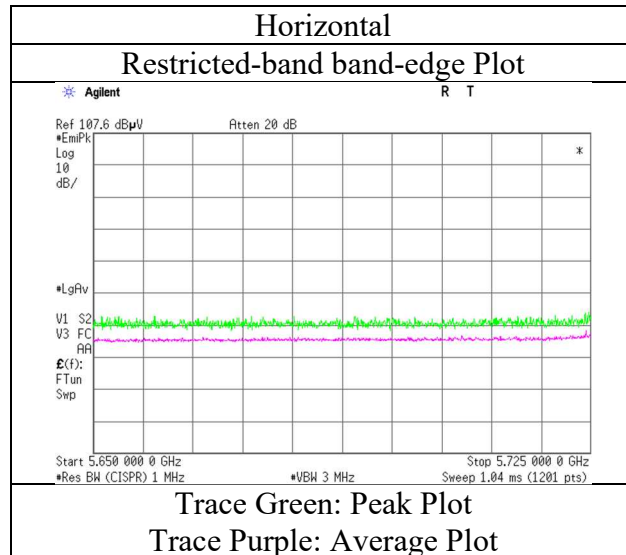
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

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Radiated Spurious Emission

Report No. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.11
Date November 13, 2020
Temperature / Humidity 22 deg. C / 39 % RH
Engineer Kazuhiro Ando
Mode Tx 11ac-20 MIMO 5745 MHz with 11g 2437MHz and BT Hopping On DH5
EUT Hi type

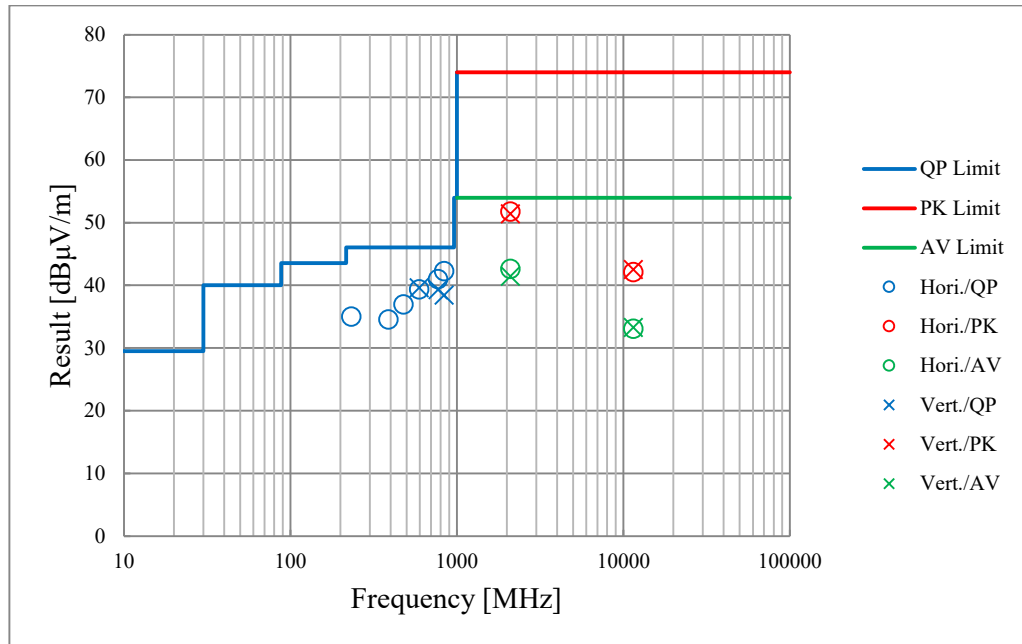


* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

Radiated Spurious Emission
(Plot data, Worst case)

Report No.	13408125M-C-R1				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.6	No.6	No.6	No.6	No.6
Date	August 6, 2020	August 4, 2020	August 5, 2020	August 5, 2020	August 5, 2020
Temperature / Humidity	22 deg. C / 55 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH	23 deg. C / 54 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	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 DH5				
EUT	Hi type				



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

Radiated Spurious Emission

Report No.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 17, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 57 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Hiromitsu Tanabe	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5180 MHz			
EUT	Lo type			

(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.	2111.580	PK	51.34	28.92	13.12	43.87	2.21	51.72	73.9	22.1	155	250	
Hori.	5150.000	PK	51.29	32.51	15.00	45.38	2.21	55.63	73.9	18.2	201	334	
Hori.	15540.000	PK	50.05	38.26	9.25	45.56	-9.54	42.46	73.9	31.4	150	0	
Hori.	2111.580	AV	43.43	28.92	13.12	43.87	2.21	43.81	53.9	10.0	155	250	VBW:10 Hz
Hori.	5150.000	AV	41.87	32.51	15.00	45.38	2.21	46.21	53.9	7.6	201	334	VBW:10 kHz
Hori.	15540.000	AV	41.17	38.26	9.25	45.56	-9.54	33.58	53.9	20.3	150	0	VBW:10 kHz
Vert.	2111.580	PK	50.81	28.92	13.12	43.87	2.21	51.19	73.9	22.7	100	167	
Vert.	5150.000	PK	51.34	32.51	15.00	45.38	2.21	55.68	73.9	18.2	194	328	
Vert.	15540.000	PK	50.42	38.26	9.25	45.56	-9.54	42.83	73.9	31.0	150	0	
Vert.	2111.580	AV	41.89	28.92	13.12	43.87	2.21	42.27	53.9	11.6	100	167	VBW:10 Hz
Vert.	5150.000	AV	42.12	32.51	15.00	45.38	2.21	46.46	53.9	7.4	194	328	VBW:10 kHz
Vert.	15540.000	AV	41.79	38.26	9.25	45.56	-9.54	34.20	53.9	19.7	150	0	VBW:10 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 : $20\log(3.87 \text{ m} / 3.0 \text{ m}) = 2.21 \text{ dB}$

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.	10360.000	PK	47.98	38.49	7.53	42.25	-9.54	42.21	-53.01	-27.0	26.0	150	0	
Vert.	10360.000	PK	47.53	38.49	7.53	42.25	-9.54	41.76	-53.46	-27.0	26.4	150	0	

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

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

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

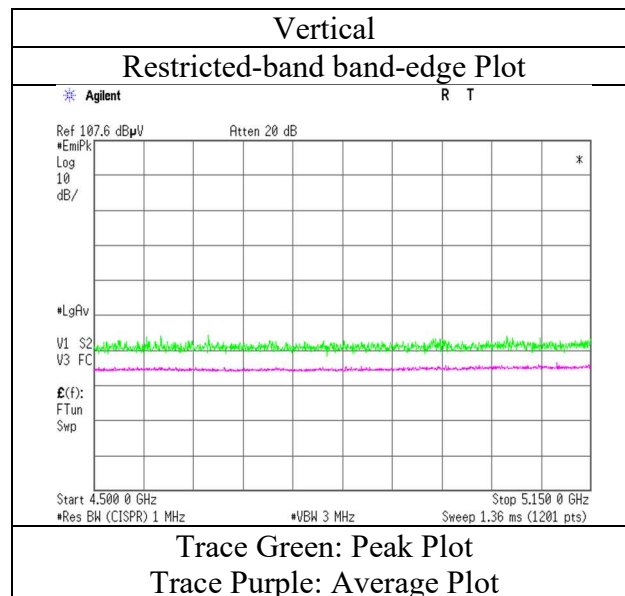
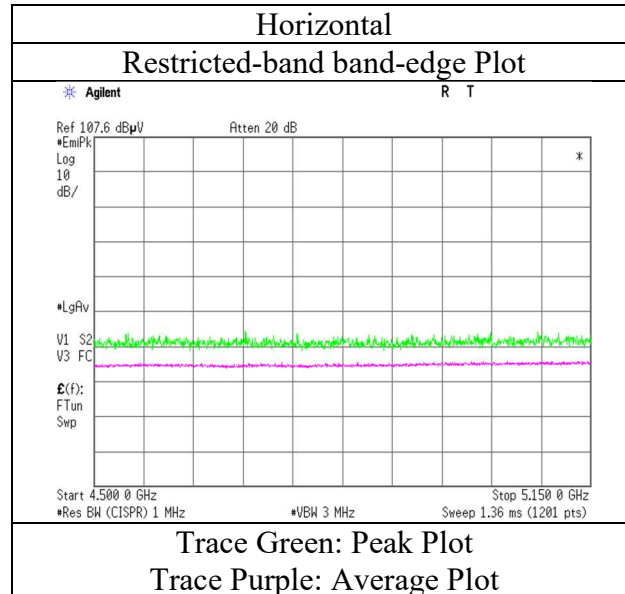
Distance factor : 1 GHz - 10 GHz : $20\log(3.87 \text{ m} / 3.0 \text{ m}) = 2.21 \text{ dB}$

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

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

Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	August 17, 2020
Temperature / Humidity	24 deg. C / 57 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-20 MIMO 5180 MHz
EUT	Lo type



* 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

Report No.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 17, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 57 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Hiromitsu Tanabe	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5220 MHz			
EUT	Lo type			

(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.	2111.580	PK	51.20	28.92	13.12	43.87	2.21	51.58	73.9	22.3	155	250	
Hori.	15660.000	PK	50.32	38.53	9.27	45.13	-9.54	43.45	73.9	30.4	150	0	
Hori.	2111.580	AV	43.28	28.92	13.12	43.87	2.21	43.66	53.9	10.2	155	250	VBW:10 Hz
Hori.	15660.000	AV	42.12	38.53	9.27	45.13	-9.54	35.25	53.9	18.6	150	0	VBW:10 kHz
Vert.	2111.580	PK	51.11	28.92	13.12	43.87	2.21	51.49	73.9	22.4	100	167	
Vert.	15660.000	PK	49.92	38.53	9.27	45.13	-9.54	43.05	73.9	30.8	150	0	
Vert.	2111.580	AV	41.84	28.92	13.12	43.87	2.21	42.22	53.9	11.6	100	167	VBW:10 Hz
Vert.	15660.000	AV	42.29	38.53	9.27	45.13	-9.54	35.42	53.9	18.4	150	0	VBW:10 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 (3.87 m / 3.0 m) = 2.21 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.	10440.000	PK	46.88	38.62	7.56	42.16	-9.54	41.36	-53.86	-27.0	26.8	150	0	
Vert.	10440.000	PK	46.21	38.62	7.56	42.16	-9.54	40.69	-54.53	-27.0	27.5	150	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 (3.87 m / 3.0 m) = 2.21 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 17, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 57 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Hiromitsu Tanabe	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5240 MHz			
EUT	Lo type			

(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.	2111.330	PK	51.41	28.92	13.12	43.87	2.21	51.79	73.9	22.1	155	250	
Hori.	5350.000	PK	50.71	32.96	15.11	45.45	2.21	55.54	73.9	18.3	134	343	
Hori.	15720.000	PK	50.27	38.65	9.31	44.98	-9.54	43.71	73.9	30.1	150	0	
Hori.	2111.330	AV	43.30	28.92	13.12	43.87	2.21	43.68	53.9	10.2	155	250	VBW:10 Hz
Hori.	5350.000	AV	41.76	32.96	15.11	45.45	2.21	46.59	53.9	7.3	134	343	VBW:10 kHz
Hori.	15720.000	AV	40.98	38.65	9.31	44.98	-9.54	34.42	53.9	19.4	150	0	VBW:10 kHz
Vert.	2111.330	PK	51.00	28.92	13.12	43.87	2.21	51.38	73.9	22.5	100	167	
Vert.	5350.000	PK	51.29	32.96	15.11	45.45	2.21	56.12	73.9	17.7	226	327	
Vert.	15720.000	PK	49.41	38.65	9.31	44.98	-9.54	42.85	73.9	31.0	150	0	
Vert.	2111.330	AV	41.80	28.92	13.12	43.87	2.21	42.18	53.9	11.7	100	167	VBW:10 Hz
Vert.	5350.000	AV	41.87	32.96	15.11	45.45	2.21	46.70	53.9	7.2	226	327	VBW:10 kHz
Vert.	15720.000	AV	41.17	38.65	9.31	44.98	-9.54	34.61	53.9	19.2	150	0	VBW:10 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 (3.87 m / 3.0 m) = 2.21 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.	10480.000	PK	47.05	38.68	7.59	42.12	-9.54	41.66	-53.56	-27.0	26.5	150	0	
Vert.	10480.000	PK	46.49	38.68	7.59	42.12	-9.54	41.10	-54.12	-27.0	27.1	150	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).

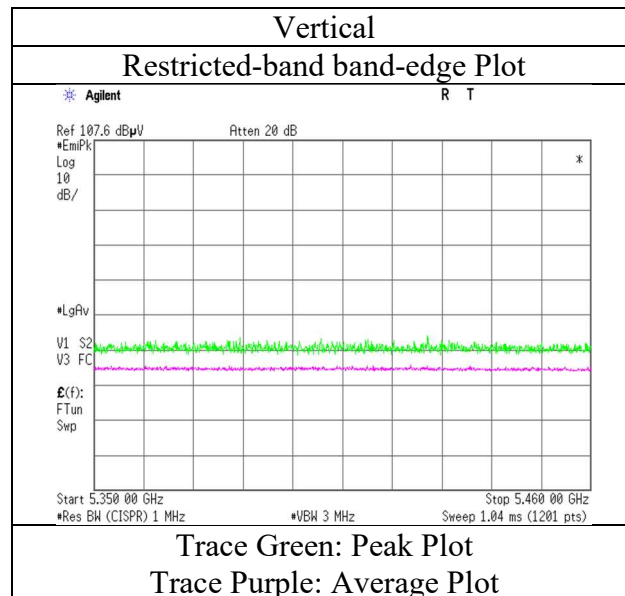
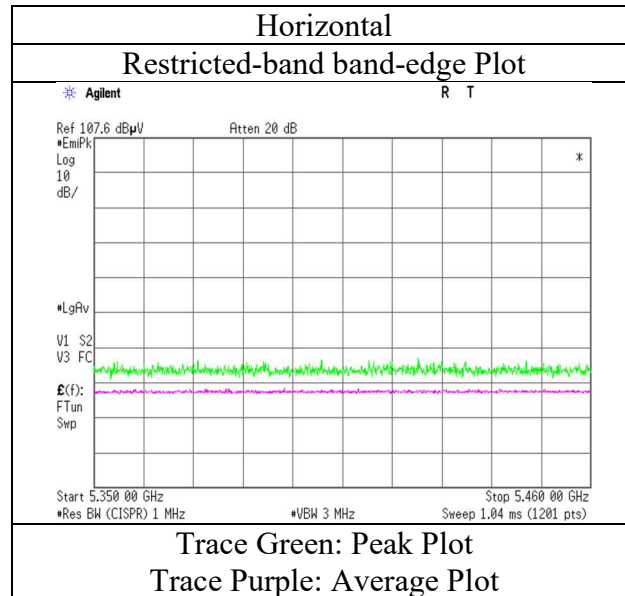
Distance factor : 1 GHz - 10 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	August 17, 2020
Temperature / Humidity	24 deg. C / 57 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-20 MIMO 5240 MHz
EUT	Lo type



* 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.	13408125M-C-R1				
Test place	Kashima EMC Lab.				
Semi Anechoic Chamber	No.6	No.11	No.11	No.11	No.11
Date	August 17, 2020	August 17, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 56 % RH	24 deg. C / 57 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	Hiromitsu Tanabe	Kazuhiro Ando	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				
EUT	Lo type				

(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.	245.759	QP	47.95	11.72	7.73	32.34	0.00	35.06	46.0	10.9	146	279	
Hori.	248.375	QP	45.40	11.77	7.75	32.34	0.00	32.58	46.0	13.4	136	277	
Hori.	253.433	QP	47.77	11.89	7.78	32.34	0.00	35.10	46.0	10.9	118	281	
Hori.	491.517	QP	37.95	17.70	9.08	32.24	0.00	32.49	46.0	13.5	100	307	
Hori.	874.997	QP	32.51	22.98	10.61	31.61	0.00	34.49	46.0	11.5	125	152	
Hori.	999.996	QP	35.31	24.09	11.02	30.53	0.00	39.89	53.9	14.0	100	143	
Hori.	2111.580	PK	50.66	28.92	13.12	43.87	2.21	51.04	73.9	22.8	156	250	
Hori.	11490.000	PK	47.78	38.66	7.84	42.79	-9.54	41.95	73.9	31.9	150	0	
Hori.	2111.580	AV	43.00	28.92	13.12	43.87	2.21	43.38	53.9	10.5	156	250	VBW:10 Hz
Hori.	11490.000	AV	39.04	38.66	7.84	42.79	-9.54	33.21	53.9	20.6	150	0	VBW:10 kHz
Vert.	245.759	QP	40.42	11.72	7.73	32.34	0.00	27.53	46.0	18.4	100	30	
Vert.	874.997	QP	30.61	22.98	10.61	31.61	0.00	32.59	46.0	13.4	100	294	
Vert.	999.996	QP	32.10	24.09	11.02	30.53	0.00	36.68	53.9	17.2	117	171	
Vert.	2111.580	PK	51.32	28.92	13.12	43.87	2.21	51.70	73.9	22.2	100	167	
Vert.	11490.000	PK	47.81	38.66	7.84	42.79	-9.54	41.98	73.9	31.9	150	0	
Vert.	2111.580	AV	41.91	28.92	13.12	43.87	2.21	42.29	53.9	11.6	100	167	VBW:10 Hz
Vert.	11490.000	AV	38.95	38.66	7.84	42.79	-9.54	33.12	53.9	20.7	150	0	VBW:10 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 : $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

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	51.42	33.49	15.27	45.47	2.21	56.92	-38.30	-27.0	11.3	198	341	
Hori.	5700.000	PK	52.06	33.61	15.30	45.47	2.21	57.71	-37.51	10.0	47.5	198	341	
Hori.	5720.000	PK	53.81	33.67	15.31	45.46	2.21	59.54	-35.68	15.6	51.2	198	341	
Hori.	5725.000	PK	60.16	33.68	15.31	45.46	2.21	65.90	-29.32	27.0	56.3	198	341	
Hori.	17235.000	PK	49.51	41.09	9.83	44.82	-9.54	46.07	-49.15	-27.0	22.1	150	0	
Vert.	5650.000	PK	50.17	33.49	15.27	45.47	2.21	55.67	-39.55	-27.0	12.5	165	338	
Vert.	5700.000	PK	50.47	33.61	15.30	45.47	2.21	56.12	-39.10	10.0	49.1	165	338	
Vert.	5720.000	PK	53.45	33.67	15.31	45.46	2.21	59.18	-36.04	15.6	51.6	165	338	
Vert.	5725.000	PK	54.19	33.68	15.31	45.46	2.21	59.93	-35.29	27.0	62.2	165	338	
Vert.	17235.000	PK	49.83	41.09	9.83	44.82	-9.54	46.39	-48.83	-27.0	21.8	150	0	

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

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

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

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.

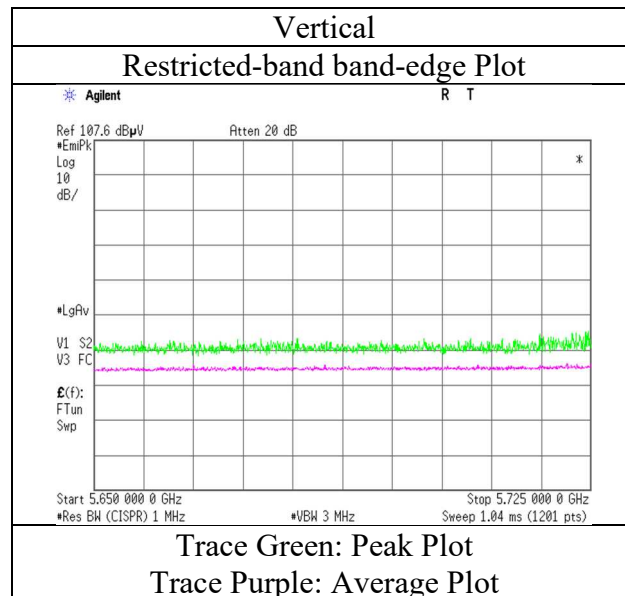
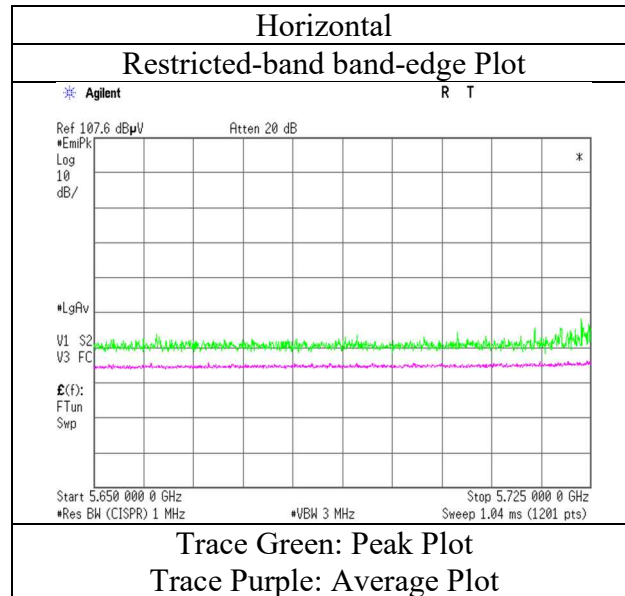
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Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	August 17, 2020
Temperature / Humidity	24 deg. C / 57 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-20 MIMO 5745 MHz
EUT	Lo type



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

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Radiated Spurious Emission

Report No.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 17, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 57 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Hiromitsu Tanabe	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(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			
EUT	Lo type			

(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.	2111.300	PK	51.22	28.92	13.12	43.87	2.21	51.60	73.9	22.3	155	248	
Hori.	11570.000	PK	47.04	38.66	7.86	42.97	-9.54	41.05	73.9	32.8	150	0	
Hori.	2111.300	AV	42.92	28.92	13.12	43.87	2.21	43.30	53.9	10.6	155	248	VBW:10 Hz
Hori.	11570.000	AV	38.93	38.66	7.86	42.97	-9.54	32.94	53.9	20.9	150	0	VBW:10 kHz
Vert.	2111.300	PK	50.87	28.92	13.12	43.87	2.21	51.25	73.9	22.6	100	169	
Vert.	11570.000	PK	46.77	38.66	7.86	42.97	-9.54	40.78	73.9	33.1	150	0	
Vert.	2111.300	AV	41.85	28.92	13.12	43.87	2.21	42.23	53.9	11.6	100	169	VBW:10 Hz
Vert.	11570.000	AV	39.29	38.66	7.86	42.97	-9.54	33.30	53.9	20.6	150	0	VBW:10 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 (3.87 m / 3.0 m) = 2.21 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	50.48	41.34	9.85	44.77	-9.54	47.36	-47.86	-27.0	20.8	150	0	
Vert.	17355.000	PK	49.88	41.34	9.85	44.77	-9.54	46.76	-48.46	-27.0	21.4	150	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 (3.87 m / 3.0 m) = 2.21 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 17, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 57 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Hiromitsu Tanabe	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 MIMO 5825 MHz			
EUT	Lo type			

(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.	2111.090	PK	50.81	28.92	13.12	43.87	2.21	51.19	73.9	22.7	160	248	
Hori.	11650.000	PK	48.65	38.61	7.88	43.18	-9.54	42.42	73.9	31.4	150	0	
Hori.	2111.090	AV	42.74	28.92	13.12	43.87	2.21	43.12	53.9	10.7	160	248	VBW:10 Hz
Hori.	11650.000	AV	38.97	38.61	7.88	43.18	-9.54	32.74	53.9	21.1	150	0	VBW:10 kHz
Vert.	2111.090	PK	50.55	28.92	13.12	43.87	2.21	50.93	73.9	22.9	100	169	
Vert.	11650.000	PK	47.38	38.61	7.88	43.18	-9.54	41.15	73.9	32.7	150	0	
Vert.	2111.090	AV	41.87	28.92	13.12	43.87	2.21	42.25	53.9	11.6	100	169	VBW:10 Hz
Vert.	11650.000	AV	38.93	38.61	7.88	43.18	-9.54	32.70	53.9	21.2	150	0	VBW:10 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 (3.87 m / 3.0 m) = 2.21 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	51.80	34.21	15.37	45.39	2.21	58.20	-37.02	27.0	64.0	175	340	
Hori.	5855.000	PK	50.11	34.24	15.37	45.39	2.21	56.54	-38.68	15.6	54.2	175	340	
Hori.	5875.000	PK	50.20	34.37	15.39	45.38	2.21	56.79	-38.43	10.0	48.4	175	340	
Hori.	5925.000	PK	51.06	34.67	15.41	45.33	2.21	58.02	-37.20	-27.0	10.2	175	340	
Hori.	17475.000	PK	50.05	41.50	9.94	44.66	-9.54	47.29	-47.93	-27.0	20.9	150	0	
Vert.	5850.000	PK	51.03	34.21	15.37	45.39	2.21	57.43	-37.79	27.0	64.7	155	338	
Vert.	5855.000	PK	50.16	34.24	15.37	45.39	2.21	56.59	-38.63	15.6	54.2	155	338	
Vert.	5875.000	PK	50.58	34.37	15.39	45.38	2.21	57.17	-38.05	10.0	48.0	155	338	
Vert.	5925.000	PK	51.06	34.67	15.41	45.33	2.21	58.02	-37.20	-27.0	10.2	155	338	
Vert.	17475.000	PK	49.16	41.50	9.94	44.66	-9.54	46.40	-48.82	-27.0	21.8	150	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).

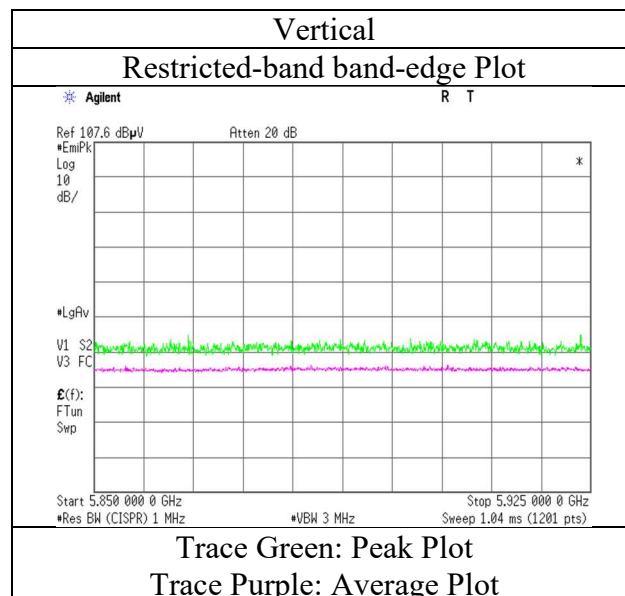
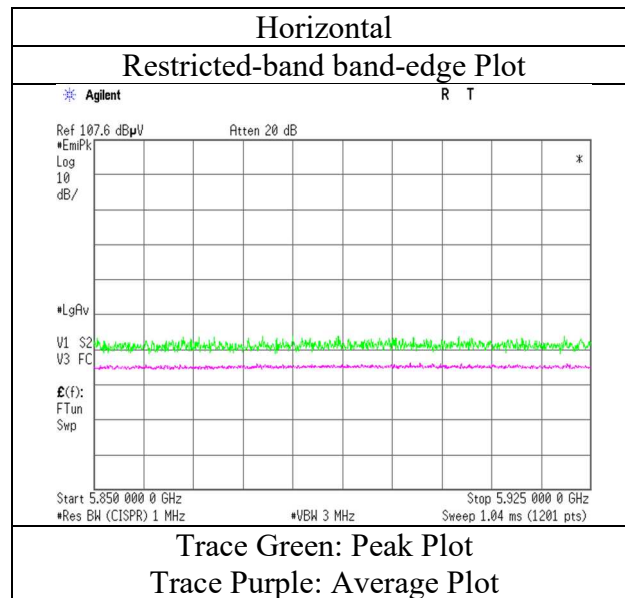
Distance factor : 1 GHz - 10 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	August 17, 2020
Temperature / Humidity	24 deg. C / 57 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-20 MIMO 5825 MHz
EUT	Lo type



* 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 17, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 57 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Hiromitsu Tanabe	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-40 MIMO 5190 MHz			
EUT	Lo type			

(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.	2111.680	PK	51.87	28.92	13.12	43.87	2.21	52.25	73.9	21.6	162	247	
Hori.	5150.000	PK	52.88	32.51	15.00	45.38	2.21	57.22	73.9	16.6	100	338	
Hori.	15570.000	PK	50.58	38.31	9.25	45.45	-9.54	43.15	73.9	30.7	150	0	
Hori.	2111.680	AV	42.77	28.92	13.12	43.87	2.21	43.15	53.9	10.7	162	247	VBW:10 Hz
Hori.	5150.000	AV	42.88	32.51	15.00	45.38	2.21	47.22	53.9	6.6	100	338	VBW:13 kHz
Hori.	15570.000	AV	41.36	38.31	9.25	45.45	-9.54	33.93	53.9	19.9	150	0	VBW:13 kHz
Vert.	2111.678	PK	50.56	28.92	13.12	43.87	2.21	50.94	73.9	22.9	100	170	
Vert.	5150.000	PK	50.97	32.51	15.00	45.38	2.21	55.31	73.9	18.5	197	328	
Vert.	15570.000	PK	50.09	38.31	9.25	45.45	-9.54	42.66	73.9	31.2	150	0	
Vert.	2111.678	AV	41.90	28.92	13.12	43.87	2.21	42.28	53.9	11.6	100	170	VBW:10 Hz
Vert.	5150.000	AV	42.23	32.51	15.00	45.38	2.21	46.57	53.9	7.3	197	328	VBW:13 kHz
Vert.	15570.000	AV	41.15	38.31	9.25	45.45	-9.54	33.72	53.9	20.1	150	0	VBW:13 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 : $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

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.	10380.000	PK	46.86	38.53	7.55	42.23	-9.54	41.17	-54.05	-27.0	27.0	150	0	
Vert.	10380.000	PK	46.94	38.53	7.55	42.23	-9.54	41.25	-53.97	-27.0	26.9	150	0	

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

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

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

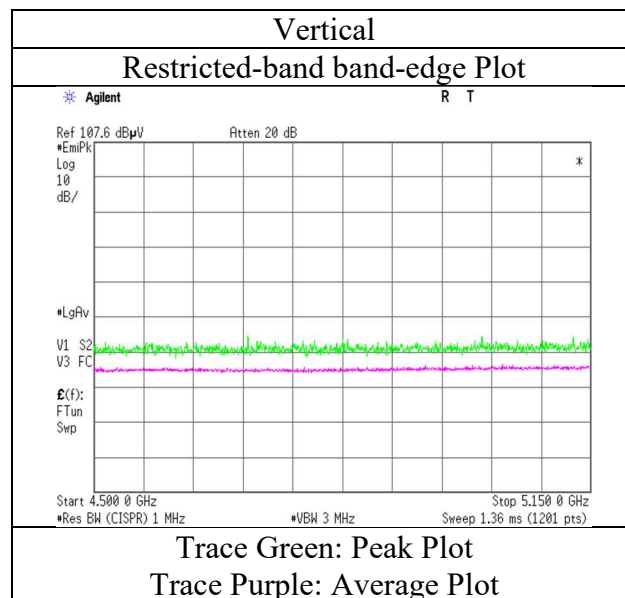
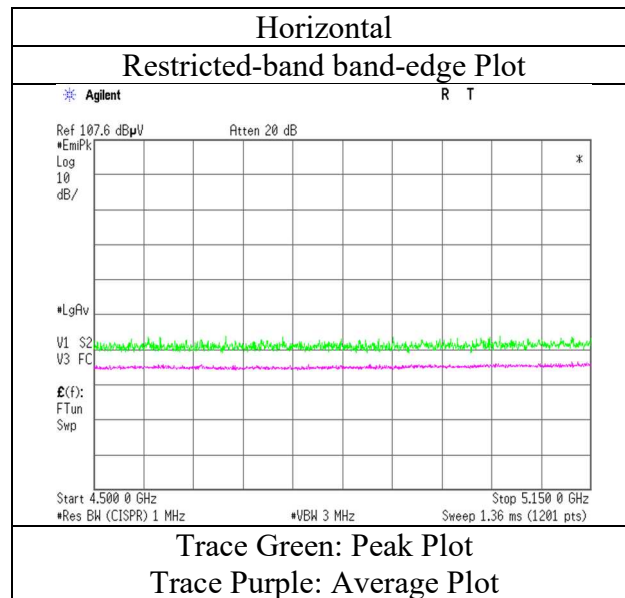
Distance factor : 1 GHz - 10 GHz : $20\log(3.87\text{ m} / 3.0\text{ m}) = 2.21\text{ dB}$

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

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

Radiated Spurious Emission

Report No. 13408125M-C-R1
Test place Kashima EMC Lab.
Semi Anechoic Chamber No.11
Date August 17, 2020
Temperature / Humidity 24 deg. C / 57 % RH
Engineer Hiromitsu Tanabe
Mode Tx 11ac-40 MIMO 5190 MHz
EUT Lo type



* 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

Report No.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 17, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 57 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Hiromitsu Tanabe	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-40 MIMO 5230MHz			
EUT	Lo type			

(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.	2111.230	PK	51.77	28.92	13.12	43.87	2.21	52.15	73.9	21.7	161	247	
Hori.	5350.000	PK	50.03	32.96	15.11	45.45	2.21	54.86	73.9	19.0	106	341	
Hori.	15690.000	PK	49.50	38.60	9.30	45.02	-9.54	42.84	73.9	31.0	150	0	
Hori.	2111.230	AV	42.64	28.92	13.12	43.87	2.21	43.02	53.9	10.8	161	247	VBW:10 Hz
Hori.	5350.000	AV	42.26	32.96	15.11	45.45	2.21	47.09	53.9	6.8	106	341	VBW:13 kHz
Hori.	15690.000	AV	41.37	38.60	9.30	45.02	-9.54	34.71	53.9	19.1	150	0	VBW:13 kHz
Vert.	2111.230	PK	51.64	28.92	13.12	43.87	2.21	52.02	73.9	21.8	100	168	
Vert.	5350.000	PK	49.84	32.96	15.11	45.45	2.21	54.67	73.9	19.2	219	327	
Vert.	15690.000	PK	49.64	38.60	9.30	45.02	-9.54	42.98	73.9	30.9	150	0	
Vert.	2111.230	AV	41.80	28.92	13.12	43.87	2.21	42.18	53.9	11.7	100	168	VBW:10 Hz
Vert.	5350.000	AV	42.47	32.96	15.11	45.45	2.21	47.30	53.9	6.6	219	327	VBW:13 kHz
Vert.	15690.000	AV	41.65	38.60	9.30	45.02	-9.54	34.99	53.9	18.9	150	0	VBW:13 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 (3.87 m / 3.0 m) = 2.21 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.	10460.000	PK	47.60	38.65	7.58	42.14	-9.54	42.15	-53.07	-27.0	26.0	150	0	
Vert.	10460.000	PK	46.57	38.65	7.58	42.14	-9.54	41.12	-54.10	-27.0	27.1	150	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).

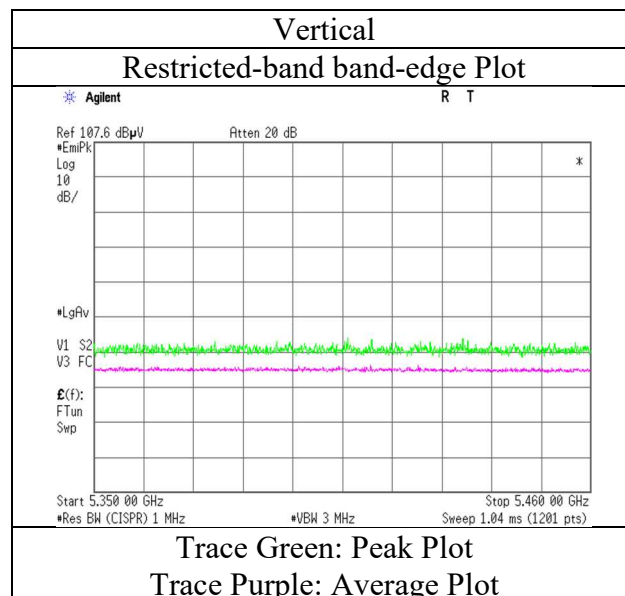
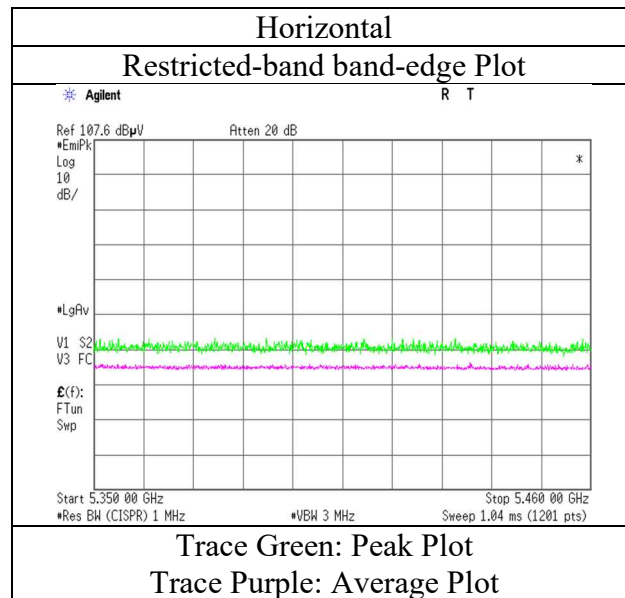
Distance factor : 1 GHz - 10 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	August 17, 2020
Temperature / Humidity	24 deg. C / 57 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-40 MIMO 5230 MHz
EUT	Lo type



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

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Radiated Spurious Emission

Report No.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 18, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 59 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-40 MIMO 5755MHz			
EUT	Lo type			

(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.	2112.170	PK	51.73	28.91	13.12	43.87	2.21	52.10	73.9	21.8	160	245	
Hori.	11510.000	PK	47.88	38.65	7.84	42.83	-9.54	42.00	73.9	31.9	150	0	
Hori.	2112.170	AV	42.88	28.91	13.12	43.87	2.21	43.25	53.9	10.6	160	245	VBW:10 Hz
Hori.	11510.000	AV	39.09	38.65	7.84	42.83	-9.54	33.21	53.9	20.7	150	0	VBW:13 kHz
Vert.	2112.170	PK	50.94	28.91	13.12	43.87	2.21	51.31	73.9	22.5	100	172	
Vert.	11510.000	PK	48.32	38.65	7.84	42.83	-9.54	42.44	73.9	31.4	150	0	
Vert.	2112.170	AV	41.42	28.91	13.12	43.87	2.21	41.79	53.9	12.1	100	172	VBW:10 Hz
Vert.	11510.000	AV	39.43	38.65	7.84	42.83	-9.54	33.55	53.9	20.3	150	0	VBW:13 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 (3.87 m / 3.0 m) = 2.21 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	51.73	33.49	15.27	45.47	2.21	57.23	-37.99	-27.0	10.9	164	343	
Hori.	5700.000	PK	52.10	33.61	15.30	45.47	2.21	57.75	-37.47	10.0	47.4	164	343	
Hori.	5720.000	PK	55.41	33.67	15.31	45.46	2.21	61.14	-34.08	15.6	49.6	164	343	
Hori.	5725.000	PK	55.54	33.68	15.31	45.46	2.21	61.28	-33.94	27.0	60.9	164	343	
Hori.	17265.000	PK	49.77	41.17	9.82	44.81	-9.54	46.41	-48.81	-27.0	21.8	150	0	
Vert.	5650.000	PK	52.46	33.49	15.27	45.47	2.21	57.96	-37.26	-27.0	10.2	163	337	
Vert.	5700.000	PK	51.85	33.61	15.30	45.47	2.21	57.50	-37.72	10.0	47.7	163	337	
Vert.	5720.000	PK	54.46	33.67	15.31	45.46	2.21	60.19	-35.03	15.6	50.6	163	337	
Vert.	5725.000	PK	56.53	33.68	15.31	45.46	2.21	62.27	-32.95	27.0	59.9	163	337	
Vert.	17265.000	PK	50.06	41.17	9.82	44.81	-9.54	46.70	-48.52	-27.0	21.5	150	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).

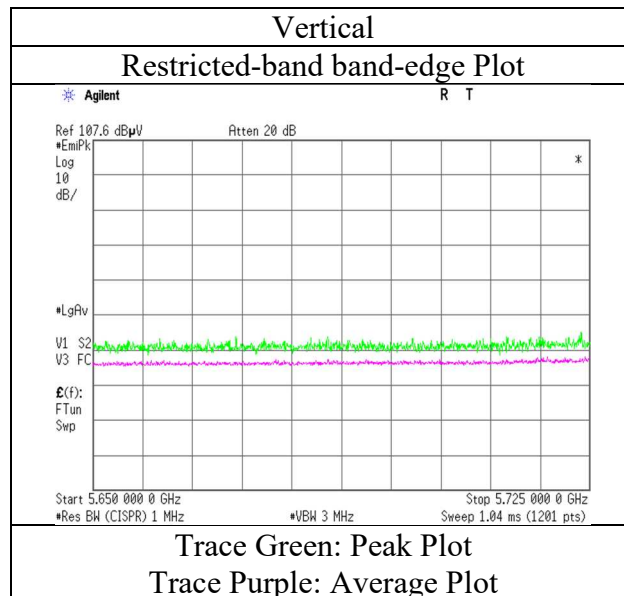
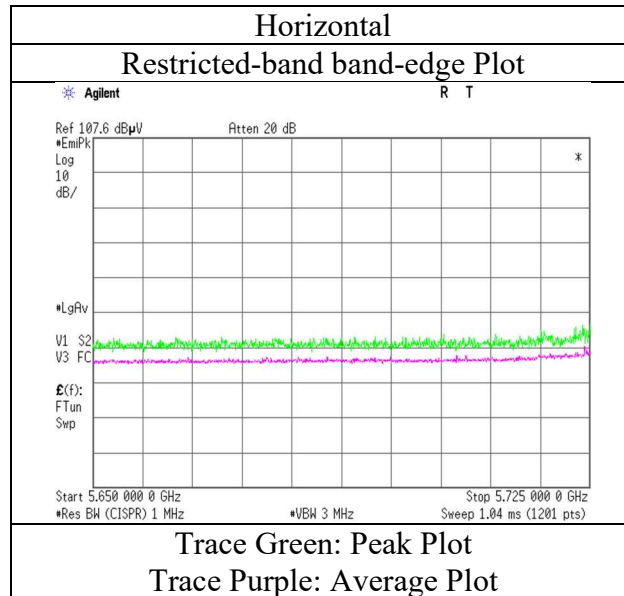
Distance factor : 1 GHz - 10 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	August 18, 2020
Temperature / Humidity	24 deg. C / 59 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-40 MIMO 5755 MHz
EUT	Lo type



* 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 18, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 59 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-40 MIMO 5795MHz			
EUT	Lo type			

(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.	2112.170	PK	50.96	28.91	13.12	43.87	2.21	51.33	73.9	22.5	157	248	
Hori.	11590.000	PK	48.28	38.66	7.85	43.03	-9.54	42.22	73.9	31.6	150	0	
Hori.	2112.170	AV	43.03	28.91	13.12	43.87	2.21	43.40	53.9	10.5	157	248	VBW:10 Hz
Hori.	11590.000	AV	39.33	38.66	7.85	43.03	-9.54	33.27	53.9	20.6	150	0	VBW:13 kHz
Vert.	2112.170	PK	50.76	28.91	13.12	43.87	2.21	51.13	73.9	22.7	100	191	
Vert.	11590.000	PK	47.68	38.66	7.85	43.03	-9.54	41.62	73.9	32.2	150	0	
Vert.	2112.170	AV	42.05	28.91	13.12	43.87	2.21	42.42	53.9	11.4	100	191	VBW:10 Hz
Vert.	11590.000	AV	39.42	38.66	7.85	43.03	-9.54	33.36	53.9	20.5	150	0	VBW:13 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 (3.87 m / 3.0 m) = 2.21 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	51.29	34.21	15.37	45.39	2.21	57.69	-37.53	27.0	64.5	163	333	
Hori.	5855.000	PK	51.50	34.24	15.37	45.39	2.21	57.93	-37.29	15.6	52.8	163	333	
Hori.	5875.000	PK	50.98	34.37	15.39	45.38	2.21	57.57	-37.65	10.0	47.6	163	333	
Hori.	5925.000	PK	51.45	34.67	15.41	45.33	2.21	58.41	-36.81	-27.0	9.8	163	333	
Hori.	17385.000	PK	51.06	41.42	9.86	44.78	-9.54	48.02	-47.20	-27.0	20.2	150	0	
Vert.	5850.000	PK	51.18	34.21	15.37	45.39	2.21	57.58	-37.64	27.0	64.6	147	339	
Vert.	5855.000	PK	51.52	34.24	15.37	45.39	2.21	57.95	-37.27	15.6	52.8	147	339	
Vert.	5875.000	PK	51.12	34.37	15.39	45.38	2.21	57.71	-37.51	10.0	47.5	147	339	
Vert.	5925.000	PK	51.32	34.67	15.41	45.33	2.21	58.28	-36.94	-27.0	9.9	147	339	
Vert.	17385.000	PK	50.06	41.42	9.86	44.78	-9.54	47.02	-48.20	-27.0	21.2	150	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).

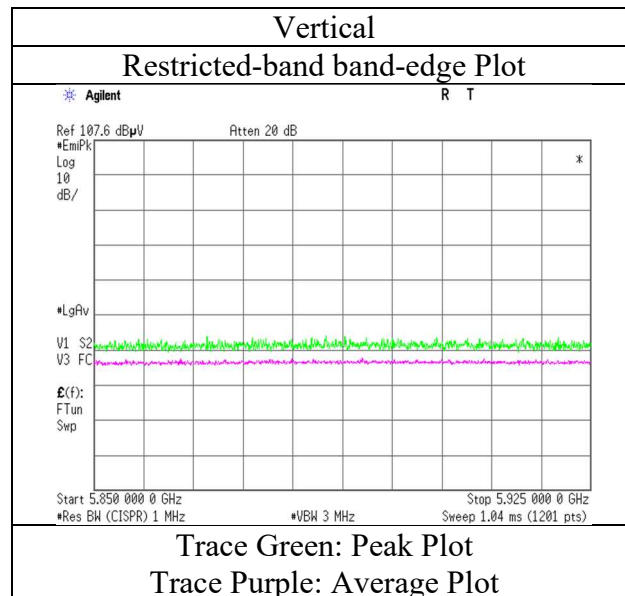
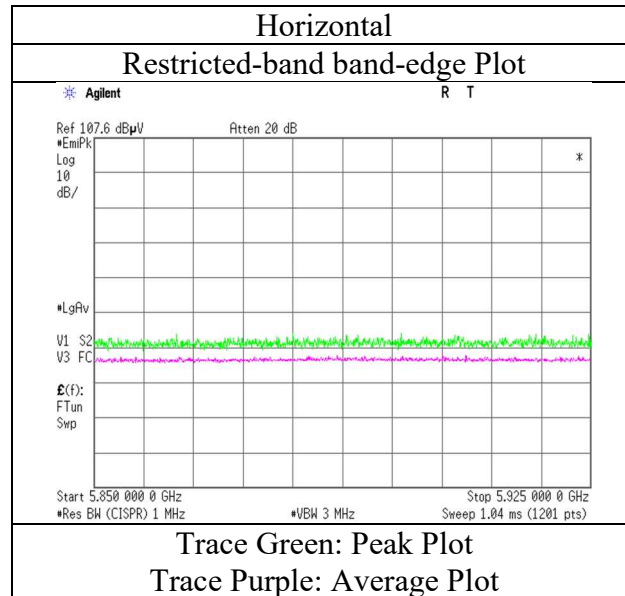
Distance factor : 1 GHz - 10 GHz : 20log (3.87 m / 3.0 m) = 2.21 dB

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.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	August 18, 2020
Temperature / Humidity	24 deg. C / 59 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-40 MIMO 5795 MHz
EUT	Lo type



* 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.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 18, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 59 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-80 MIMO 5210MHz			
EUT	Lo type			

(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.	2110.927	PK	51.28	28.92	13.12	43.87	2.21	51.66	73.9	22.2	200	240	
Hori.	5150.000	PK	54.82	32.51	15.00	45.38	2.21	59.16	73.9	14.7	137	342	
Hori.	5350.000	PK	51.03	32.96	15.11	45.45	2.21	55.86	73.9	18.0	137	342	
Hori.	15630.000	PK	50.42	38.46	9.27	45.24	-9.54	43.37	73.9	30.5	150	0	
Hori.	2110.927	AV	42.45	28.92	13.12	43.87	2.21	42.83	53.9	11.0	200	240	VBW:10 Hz
Hori.	5150.000	AV	43.84	32.51	15.00	45.38	2.21	48.18	53.9	5.7	137	342	VBW:18 kHz
Hori.	5350.000	AV	43.06	32.96	15.11	45.45	2.21	47.89	53.9	6.0	137	342	VBW:18 kHz
Hori.	15630.000	AV	42.51	38.46	9.27	45.24	-9.54	35.46	53.9	18.4	150	0	VBW:18 kHz
Vert.	2110.927	PK	51.23	28.92	13.12	43.87	2.21	51.61	73.9	22.2	100	191	
Vert.	5150.000	PK	52.41	32.51	15.00	45.38	2.21	56.75	73.9	17.1	187	331	
Vert.	5350.000	PK	51.87	32.96	15.11	45.45	2.21	56.70	73.9	17.2	100	0	
Vert.	15630.000	PK	50.71	38.46	9.27	45.24	-9.54	43.66	73.9	30.2	150	0	
Vert.	2110.927	AV	42.28	28.92	13.12	43.87	2.21	42.66	53.9	11.2	100	191	VBW:10 Hz
Vert.	5150.000	AV	43.73	32.51	15.00	45.38	2.21	48.07	53.9	5.8	187	331	VBW:18 kHz
Vert.	5350.000	AV	42.92	32.96	15.11	45.45	2.21	47.75	53.9	6.1	100	0	VBW:18 kHz
Vert.	15630.000	AV	42.39	38.46	9.27	45.24	-9.54	35.34	53.9	18.5	150	0	VBW:18 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 (3.87 m / 3.0 m) = 2.21 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.	10420.000	PK	46.91	38.59	7.55	42.19	-9.54	41.32	-53.90	-27.0	26.9	150	0	
Vert.	10420.000	PK	46.95	38.59	7.55	42.19	-9.54	41.36	-53.86	-27.0	26.8	150	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 (3.87 m / 3.0 m) = 2.21 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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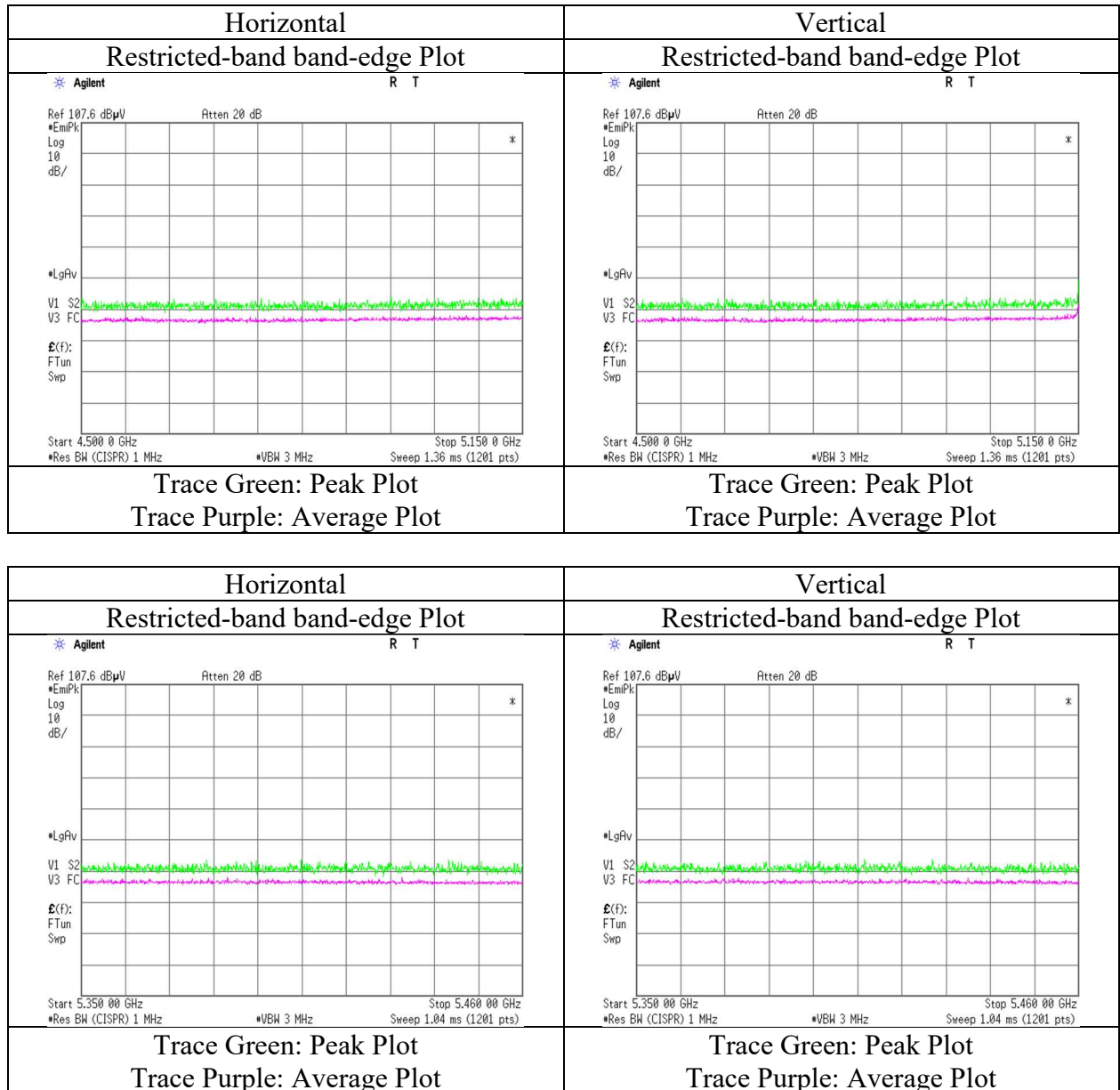
1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan

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Radiated Spurious Emission

Report No.	13408125M-C-R1
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.11
Date	August 18, 2020
Temperature / Humidity	24 deg. C / 59 % RH
Engineer	Kazuhiro Ando
Mode	Tx 11ac-80 MIMO 5210 MHz
EUT	Lo type



* 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.

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Radiated Spurious Emission

Report No.	13408125M-C-R1			
Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.11	No.11	No.11	No.11
Date	August 18, 2020	August 18, 2020	August 20, 2020	August 25, 2020
Temperature / Humidity	24 deg. C / 59 % RH	24 deg. C / 59 % RH	23 deg. C / 49 % RH	24 deg. C / 58 % RH
Engineer	Kazuhiro Ando	Kazuhiro Ando	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz -6.4 GHz)	(6.4 GHz -10 GHz)	(10 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-80 MIMO 5775MHz			
EUT	Lo type			

(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.	2111.579	PK	51.85	28.92	13.12	43.87	2.21	52.23	73.9	21.6	111	195	
Hori.	11550.000	PK	48.12	38.66	7.85	42.91	-9.54	42.18	73.9	31.7	150	0	
Hori.	2111.579	AV	43.27	28.92	13.12	43.87	2.21	43.65	53.9	10.2	111	195	VBW:10 Hz
Hori.	11550.000	AV	40.11	38.66	7.85	42.91	-9.54	34.17	53.9	19.7	150	0	VBW:18 kHz
Vert.	2110.927	PK	51.97	28.92	13.12	43.87	2.21	52.35	73.9	21.5	100	194	
Vert.	11550.000	PK	48.30	38.66	7.85	42.91	-9.54	42.36	73.9	31.5	150	0	
Vert.	2110.927	AV	41.84	28.92	13.12	43.87	2.21	42.22	53.9	11.6	100	194	VBW:10 Hz
Vert.	11550.000	AV	40.46	38.66	7.85	42.91	-9.54	34.52	53.9	19.3	150	0	VBW:18 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 (3.87 m / 3.0 m) = 2.21 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	52.21	33.49	15.27	45.47	2.21	57.71	-37.51	-27.0	10.5	163	342	
Hori.	5700.000	PK	52.90	33.61	15.30	45.47	2.21	58.55	-36.67	10.0	46.6	163	342	
Hori.	5720.000	PK	54.56	33.67	15.31	45.46	2.21	60.29	-34.93	15.6	50.5	163	342	
Hori.	5725.000	PK	53.09	33.68	15.31	45.46	2.21	58.83	-36.39	27.0	63.3	163	342	
Hori.	5850.000	PK	51.26	34.21	15.37	45.39	2.21	57.66	-37.56	27.0	64.5	163	342	
Hori.	5855.000	PK	51.46	34.24	15.37	45.39	2.21	57.89	-37.33	15.6	52.9	163	342	
Hori.	5875.000	PK	51.16	34.37	15.39	45.38	2.21	57.75	-37.47	10.0	47.4	163	342	
Hori.	5925.000	PK	52.53	34.67	15.41	45.33	2.21	59.49	-35.73	-27.0	8.7	163	342	
Hori.	17325.000	PK	50.67	41.29	9.85	44.77	-9.54	47.50	-47.72	-27.0	20.7	150	0	
Vert.	5650.000	PK	52.04	33.49	15.27	45.47	2.21	57.54	-37.68	-27.0	10.6	156	337	
Vert.	5700.000	PK	53.01	33.61	15.30	45.47	2.21	58.66	-36.56	10.0	46.5	156	337	
Vert.	5720.000	PK	53.60	33.67	15.31	45.46	2.21	59.33	-35.89	15.6	51.4	156	337	
Vert.	5725.000	PK	53.09	33.68	15.31	45.46	2.21	58.83	-36.39	27.0	63.3	156	337	
Vert.	5850.000	PK	51.57	34.21	15.37	45.39	2.21	57.97	-37.25	27.0	64.2	156	337	
Vert.	5855.000	PK	51.19	34.24	15.37	45.39	2.21	57.62	-37.60	15.6	53.2	156	337	
Vert.	5875.000	PK	50.98	34.37	15.39	45.38	2.21	57.57	-37.65	10.0	47.6	156	337	
Vert.	5925.000	PK	52.15	34.67	15.41	45.33	2.21	59.11	-36.11	-27.0	9.1	156	337	
Vert.	17325.000	PK	51.18	41.29	9.85	44.77	-9.54	48.01	-47.21	-27.0	20.2	150	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 (3.87 m / 3.0 m) = 2.21 dB

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

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