

RADIO TEST REPORT

Test Report No. 15196050M-C-R1

Customer	PIONEER CORPORATION
Description of EUT	RDS AV RECEIVER
Model Number of EUT	DMH-WT6000NEX
FCC ID	AJDK125
Test Regulation	FCC Part 15 Subpart E
Test Result	Complied
Issue Date	May 28, 2024
Remarks	WLAN (5 GHz band) part Radiated Spurious Emission test

Representative Test EngineerHiromitsu Tanabe
Engineer**Approved By**Kazuhiro Ando
Engineer

CERTIFICATE 1266.01

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

Report Cover Page - Form-ULID-003532 (DCS:13-EM-F0429) Issue# 23.0

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- For test report(s) referred in this report, the latest version (including any revisions) is always referred.

REVISION HISTORY

Original Test Report No. 15196050M-C

This report is a revised version of 15196050M-C. 15196050M-C is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15196050M-C	May 8, 2024	-
1	15196050M-C-R1	May 28, 2024	<u>Page 5</u> Deleted "Clock frequency (ies) in the system" and added "Operating temperature". <u>Page 6</u> Deleted the below comment. * WLAN and Bluetooth do not transmit simultaneously. Deleted the list of Supported GNSS and GNSS signals. Moved the page up from P.6 to P.5. <u>All pages</u> Changed the number of pages.

Reference: Abbreviations (Including words undescribed in this report)

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

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SECTION 1: Customer Information

Company Name	PIONEER CORPORATION
Address	25-1, Yamada, Kawagoe-shi, Saitama, 350-8555, JAPAN
Telephone Number	+81-49-228-6346
Contact Person	Takafumi Ida

The information provided by the customer is as follows;

- Customer, Description 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 and Test Date
- SECTION 4: Operation of EUT during testing

SECTION 2: Equipment Under Test (EUT)

2.1 Identification of EUT

Description	RDS AV RECEIVER
Model Number	DMH-WT6000NEX
Serial Number	Refer to SECTION 4.2
Condition	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	February 29, 2024
Test Date	March 27 to April 8, 2024

2.2 Product Description

General Specification

Rating	DC 14.4 V, 10 A
Operating temperature	-10 deg. C to 60 deg. C

Radio Specification

This report contains data provided by the customer which can impact the validity of results. UL Japan, Inc. is only responsible for the validity of results after the integration of the data provided by the customer. The data provided by the customer is marked "a)" in the table below.

WLAN (IEEE802.11a/11n-20/11ac-20/11n-40/11ac-40/11ac-80)

Equipment Type	Transceiver	
Frequency of Operation	20 MHz Band:	5745 MHz
	40 MHz Band:	5755 MHz
	80 MHz Band:	5775 MHz
Type of Modulation	OFDM	
Antenna Gain ^{a)} :	4.47 dBi	

Bluetooth (BR / EDR / Low Energy)

Equipment Type	Transceiver	
Frequency of Operation	2402 MHz to 2480 MHz	
Type of Modulation	BT: FHSS (GFSK, $\pi/4$ DQPSK, 8 DPSK) BT LE: GFSK	
Antenna Gain ^{a)}	-0.83 dBi	

2.3 Variant model(s)

The EUT has following variant models.

Product description	Model number	Feature								
		Display LCD size	Movable display structure	Bluetooth	Wi-Fi	GNSS	FM/AM	HD Radio	BSD	Guard Cam
RDS AV RECEIVER *	DMH-WT6000NEX	10.1"	Type A	A	A	A	A	A	A	A
RDS AV RECEIVER	DMH-WT5000NEX	9.0"	Type B	A	A	A	A	A	NA	NA

*Tested model A: Applied NA: Not applied

Model DMH-WT6000NEX* and DMH-WT5000NEX contain the same RF module.
The differences between 2 models are above contents and do not affect wireless performance.

SECTION 3: Test specification, Procedures & Results

3.1 Test Specification

Test Specification	FCC Part 15 Subpart E The latest version on the first day of the testing period
Title	FCC 47 CFR Part 15 Radio Frequency Device Subpart E Unlicensed National Information Infrastructure Devices Section 15.407 General technical requirements

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 ISED: -	FCC: 15.407 (b), 15.205 and 15.209 ISED: RSS-247 6.2.1.2 6.2.2.2 6.2.3.2 6.2.4.3	2.6 dB 960.000 MHz, QP, Vert. (Mode: Tx 11a 5745 MHz)	Complied	Radiated (> 30 MHz) *1)

Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.

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

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

FCC Part 15.31 (e)

The EUT provides stable voltage constantly to the wireless transmitter regardless of input voltage. Instead of a new battery, DC power supply was used for the test. That does not affect the test result, therefore the EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

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

3.3 Addition to Standard

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

3.4 Uncertainty

Measurement uncertainty is not taken into account when stating conformity with a specified requirement.
Note: When margins obtained from test results are less than the measurement uncertainty, the test results may exceed the limit.

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

Radiated emission

Measurement distance	Frequency range	Uncertainty (+/-)
3 m	9 kHz to 30 MHz	3.2 dB
	30 MHz to 200 MHz	6.2 dB
	200 MHz to 1000 MHz	6.3 dB
	1 GHz to 6 GHz	4.7 dB
	6 GHz to 18 GHz	5.1 dB
	18 GHz to 40 GHz	5.5 dB
1 m	1 GHz to 18 GHz	5.2 dB
	18 GHz to 40 GHz	5.6 dB
0.5 m	26.5 GHz to 40 GHz	5.8 dB

3.5 Test Location

UL Japan, Inc. Kashima EMC Lab.
1614 Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan
Telephone: +81-478-88-6500
A2LA Certificate Number: 1266.01 / FCC Test Firm Registration Number: 910230
ISED Lab Company Number: 4659A / CAB identifier: JP0006

Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Open site	6.0 x 5.5 x 2.5	20 x 40	10 m
No.5 Open site	8.6 x 7.1 x 2.4	18 x 23	10 m
No.1 Shielded room	5.4 x 4.5 x 2.3	-	-
No.5 Shielded Room	4.2 x 3.1 x 2.5	-	-
No.9 Shielded Room	6.1 x 3.6 x 2.8	-	-
No.6 Semi-anechoic Chamber	8.5 x 5.5 x 5.2	-	3 m
No.10 Semi-anechoic Chamber	18.4 x 9.9 x 7.7	-	10 m
No.11 Semi-anechoic Chamber	9.0 x 6.5 x 5.2	-	3 m
No.1 Measurement room	5.0 x 3.7 x 2.6	-	-
No.2 Measurement room	4.3 x 4.4 x 2.7	-	-

3.6 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

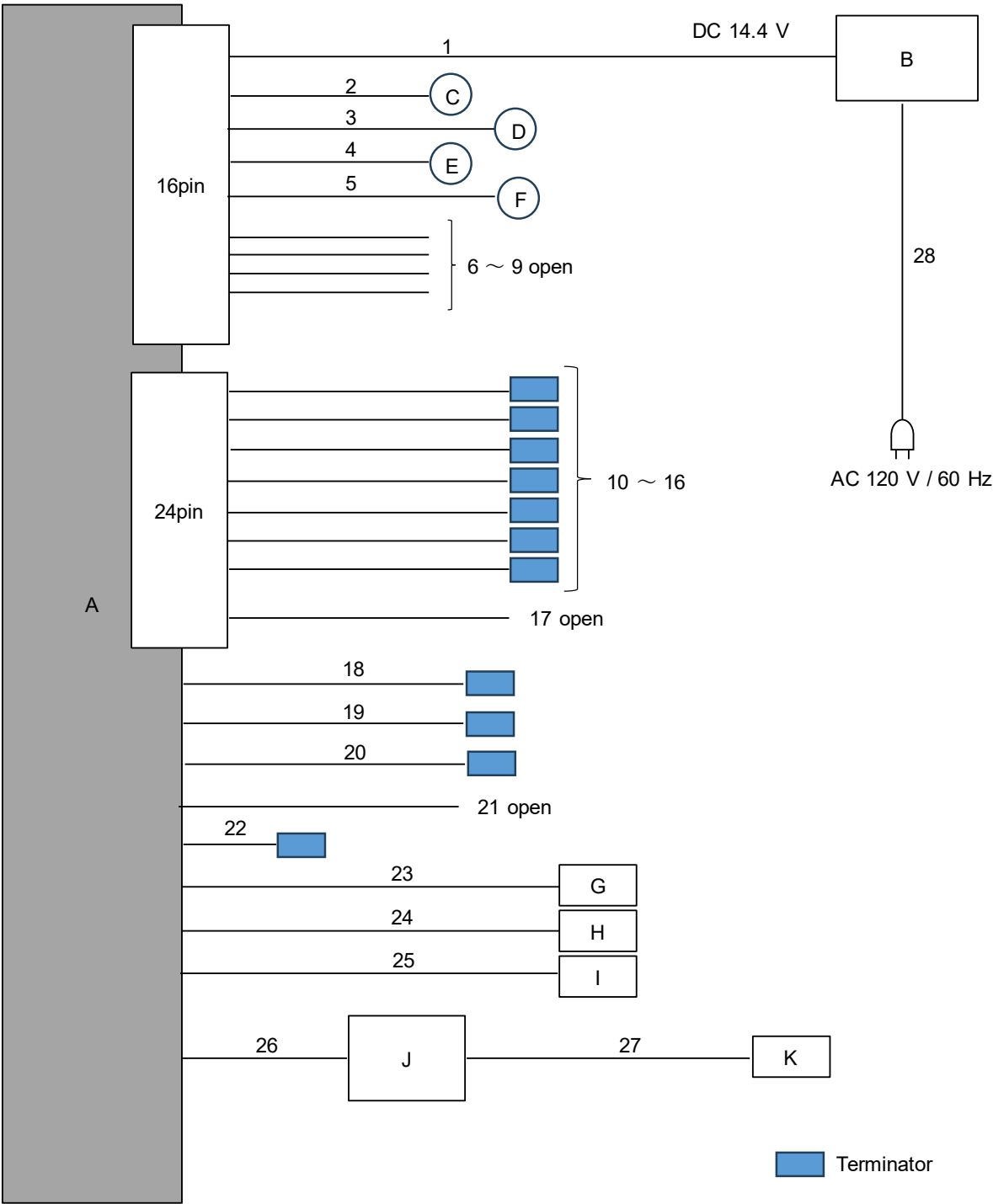
4.1 Operating Mode(s)

Mode	Remarks*
IEEE 802.11a (11a)	36 Mbps, PN9
IEEE 802.11n 20 MHz BW (11n-20)	MCS 0, PN9
IEEE 802.11ac 20 MHz BW (11ac-20)	MCS 0, PN9
IEEE 802.11n 40 MHz BW (11n-40)	MCS 5, PN9
IEEE 802.11ac 40 MHz BW (11ac-40)	MCS 9, PN9
IEEE 802.11ac 80 MHz BW (11ac-80)	MCS 9, PN9
*The worst condition was determined based on the test result of Maximum Conducted Output Power of Test report No. 15196051S-A.	
*Power of the EUT was set by the software as follows; Power 11a: 10 Setting: 11n-20: 9 11ac-20: 9 11n-40: 9 11ac-40: 9 11ac-80: 9 Software: Version: 0.03 (Date: 2024.03.27, 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.	

*Details of Operation Mode(s)

Test Item	Operating Mode	Tested Frequency			
		Lower Band	Middle Band	Additional Band	Upper Band
Radiated Spurious Emission (Below 1 GHz) *1)	Tx 11a	-	-	-	5745 MHz
Radiated Spurious Emission (Above 1 GHz)	Tx 11a	-	-	-	5745 MHz
	Tx 11n-20	-	-	-	
	Tx 11ac-20	-	-	-	
	Tx 11n-40	-	-	-	5755 MHz
	Tx 11ac-40	-	-	-	
	Tx 11ac-80	-	-	-	5775 MHz
*1) The mode was tested as a representative, because it had the highest power at antenna terminal test.					

4.2 Configuration and Peripherals



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

Description of EUT and Support Equipment

No.	Item	Model Number	Serial Number	Manufacturer	Remarks
A	RDS AV RECEIVER	DMH-WT6000NEX	DATM000019UC	PIONEER CORPORATION	EUT
B	DC Power Supply	GSV3000	1708192899	DIAMOND ANTENNA	-
C	Speaker	KFC-RS101	482C	JVCKENWOOD	-
D	Speaker	KFC-RS101	482C	JVCKENWOOD	-
E	Speaker	KFC-RS101	482C	JVCKENWOOD	-
F	Speaker	KFC-RS101	482C	JVCKENWOOD	-
G	GPS	CXF1333	-	PIONEER	-
H	MIC	CPM1127	-	PIONEER	-
I	USB Memory	RUF3-KS8G-BK	-	BAFFALO	-
J	Sirius Module	SXV300	RB2HZDML	Sirius XM Radio Inc.	-
K	Sirius Antenna	NGVA3	2126D	Sirius XM Radio Inc.	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC(+B, ACC, GND, PARKING BRAKE)	0.2 + 1.7 (+B) 0.15 + 1.75 (ACC) 0.4 + 1.5 (GND) 1.9 (PARKING)	Unshielded	Unshielded	-
2	Speaker Front Left	0.2 + 1.0	Unshielded	Unshielded	-
3	Speaker Front Right	0.2 + 1.0	Unshielded	Unshielded	-
4	Speaker Rear Left	0.2 + 1.0	Unshielded	Unshielded	-
5	Speaker Rear Right	0.2 + 1.0	Unshielded	Unshielded	-
6	CAR SPEED SIGNAL INPUT	1.9	Unshielded	Unshielded	-
7	REVERSE-GEAR SIGNAL INPUT	1.9	Unshielded	Unshielded	-
8	ANTENNA CONTROL SYSTEM CONTROL	0.1 + 1.0	Unshielded	Unshielded	-
9	ILLUMINATION	0.1 + 1.0	Unshielded	Unshielded	-
10	Front Output	0.15 + 1.55	Shield	Unshielded	-
11	Rear Output	0.15 + 1.55	Shield	Unshielded	-
12	SUBWOOFER Output	0.15 + 1.55	Shield	Unshielded	-
13	REAR MONITOR	0.25 + 0.75	Shield	Unshielded	-
14	REARVIEW CAMERA IN	0.2 + 0.7	Shield	Unshielded	-
15	SECOND CAMERA INPUT	0.2 + 1.4	Shield	Unshielded	-
16	AUX IN	0.15 + 2.0 + 1.55	Shield	Unshielded	-
17	MUTE	1.1	Unshielded	Unshielded	-
18	Signal	4.2	Unshielded	Unshielded	-
19	Signal	4.2	Unshielded	Unshielded	-
20	Signal	1.8	Unshielded	Unshielded	-
21	Audio	1.0	Shield	Unshielded	-
22	FM	0.3	Shield	Shield	-
23	GPS	3.5	Shield	Shield	-
24	MIC	3.0	Shield	Shield	-
25	USB	1.5	Shield	Shield	-
26	Sirius Module	0.6	Shield	Shield	-
27	Sirius Antenna	7.0	Shield	Shield	-
28	AC	1.7	Unshielded	Unshielded	-

SECTION 5: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

< Below 1 GHz >

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

< Above 1 GHz >

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane. Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.

The 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.

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

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

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

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

< Below 1 GHz >

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

< Above 1 GHz >

Inside of restricted bands (Section 15.205):

Apply to limit in the Section 15.209 (a).

Outside of the restricted bands:

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

For 5.8 GHz band Bandedge

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

Restricted band edge:

Apply to limit in the Section 15.209 (a).

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

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

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

Test Antennas are used as below;

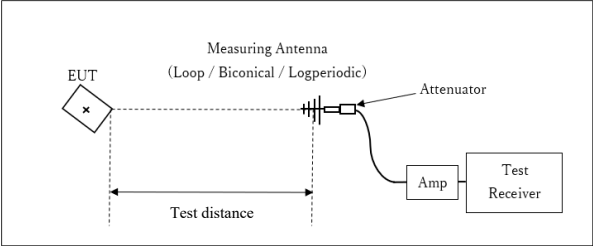
Frequency	30 MHz to 1 GHz	Above 1 GHz
Antenna Type	Hybrid	Horn

Frequency	Below 1 GHz	Above 1 GHz	
Instrument Used	Test Receiver	Spectrum Analyzer	
Detector	QP	Peak	Average
IF Bandwidth	BW: 120 kHz	RBW: 1 MHz VBW: 3 MHz	Method VB *1) RBW: 1 MHz VBW: 1/T 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 2: Test Setup

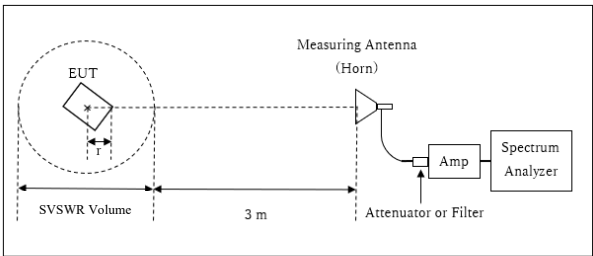
Below 1 GHz



x : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz

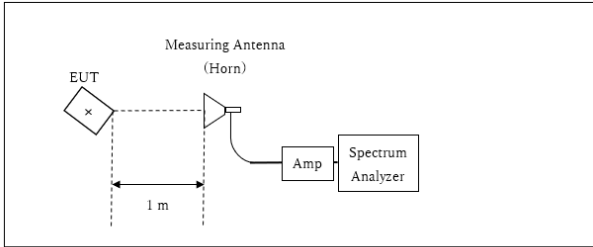


r : Radius of an outer periphery of EUT
x : Center of turn table

Distance Factor: $20 \times \log (4.35 \text{ m} / 3.0 \text{ m}) = 3.23 \text{ dB}$
* Test Distance: $(3 + \text{SVSWR Volume} / 2) - r = 4.35 \text{ m}$

SVSWR Volume : 3.0 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
 $r = 0.15 \text{ m}$

10 GHz to 40 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

The carrier level and noise levels were confirmed at each position of 0 deg. and 40 deg. of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Antenna polarization	Carrier	Spurious (30 MHz - 1 GHz)	Spurious (1 GHz - 2.8 GHz)	Spurious (2.8 GHz - 10 GHz)	Spurious (10 GHz - 18 GHz)	Spurious (18 GHz - 26.5 GHz)	Spurious (26.5 GHz - 40 GHz)
Horizontal	40 deg.	0 deg.	40 deg.	40 deg.	40 deg.	40 deg.	40 deg.
Vertical	40 deg.	0 deg.	40 deg.	40 deg.	40 deg.	40 deg.	40 deg.

Test results are rounded off and limit are rounded down, so some differences might be observed.

Measurement Range : 30 MHz to 40 GHz
Test Data : APPENDIX
Test Result : Pass

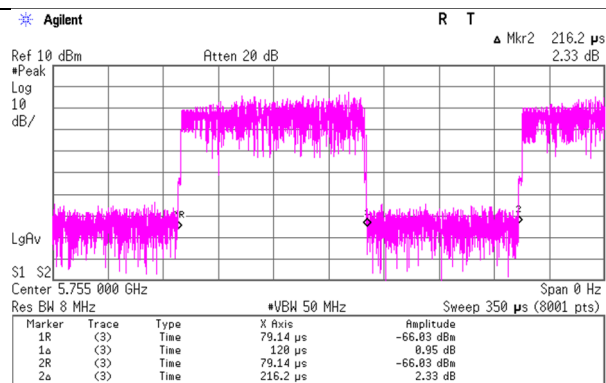
Burst rate confirmation

Test place
Date
Temperature / Humidity
Engineer
Mode

Kashima EMC Lab. No.2 Measurement Room
March 27, 2024
22 deg. C / 40 % RH
Hiromitsu Tanabe
Tx

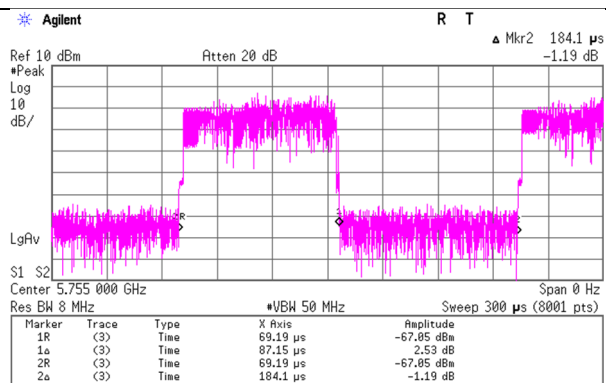
11n-40 MCS 5

$Tx\ on / (Tx\ on + Tx\ off) =$	0.555
$Tx\ on / (Tx\ on + Tx\ off) * 100 =$	55.5 %
$Duty\ factor = 10 * \log (0.2162 / 0.12) =$	2.56 dB
$VBW: 1 / on\ time = 8333.33\ Hz <$	10 kHz



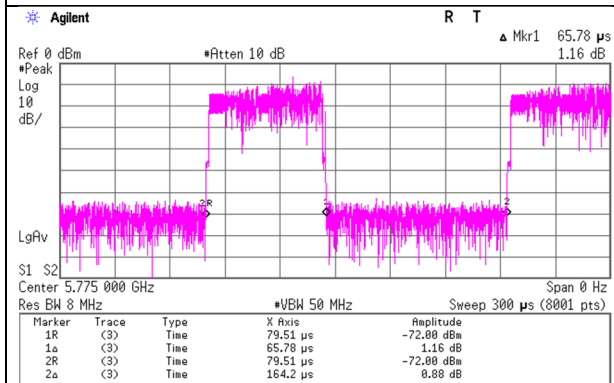
11ac-40 MCS 9

$Tx\ on / (Tx\ on + Tx\ off) =$	0.473
$Tx\ on / (Tx\ on + Tx\ off) * 100 =$	47.3 %
$Duty\ factor = 10 * \log (0.1841 / 0.08715) =$	3.25 dB
$VBW: 1 / on\ time = 11474.47\ Hz <$	20 kHz



11ac-80 MCS 9

$Tx\ on / (Tx\ on + Tx\ off) =$	0.401
$Tx\ on / (Tx\ on + Tx\ off) * 100 =$	40.1 %
$Duty\ factor = 10 * \log (0.1642 / 0.06578) =$	3.97 dB
$VBW: 1 / on\ time = 15202.19\ Hz <$	20 kHz



Radiated Spurious Emission

Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.10	No.10	No.10	No.10
Date	April 12, 2024	March 28, 2024	March 28, 2024	April 8, 2024
Temperature / Humidity	21 deg. C / 51 % RH	20 deg. C / 41 % RH	20 deg. C / 41 % RH	21 deg. C / 42 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe
Mode	(30 MHz to 1 GHz)	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)	(18 GHz to 40 GHz)
	Tx 11a 5745 MHz			

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	254.966	QP	51.10	11.90	7.85	31.05	0.00	39.80	46.0	6.2	100	247	
Hori.	330.800	QP	43.30	14.25	8.35	31.00	0.00	34.90	46.0	11.1	100	87	
Hori.	960.000	QP	34.00	24.05	11.16	30.46	0.00	38.75	46.0	7.2	100	68	
Hori.	1920.000	PK	55.38	25.66	12.95	43.69	3.23	53.53	73.9	20.3	299	223	
Hori.	11490.000	PK	47.53	38.68	8.01	42.81	-9.54	41.87	73.9	32.0	150	0	Floor noise
Hori.	22980.000	PK	47.89	-3.72	10.98	0.00	-9.54	45.61	73.9	28.2	147	214	*1)
Hori.	1920.000	AV	47.56	25.66	12.95	43.69	3.23	45.71	53.9	8.1	299	223	VBW:10 Hz
Hori.	11490.000	AV	37.08	38.68	8.01	42.81	-9.54	31.42	53.9	22.4	150	0	Floor noise
Hori.	22980.000	AV	37.46	-3.72	10.98	0.00	-9.54	35.18	53.9	18.7	147	214	VBW:5 kHz, *1)
Vert.	147.456	QP	41.20	13.31	7.06	31.13	0.00	30.44	43.5	13.0	100	100	
Vert.	248.828	QP	49.30	11.73	7.81	31.05	0.00	37.79	46.0	8.2	188	179	
Vert.	261.150	QP	47.50	12.12	7.90	31.05	0.00	36.47	46.0	9.5	161	189	
Vert.	431.520	QP	39.70	16.60	8.91	30.92	0.00	34.29	46.0	11.7	100	198	
Vert.	554.810	QP	34.80	18.59	9.52	30.82	0.00	32.09	46.0	13.9	100	333	
Vert.	960.000	QP	38.60	24.05	11.16	30.46	0.00	43.35	46.0	2.6	100	167	
Vert.	1920.000	PK	53.75	25.66	12.95	43.69	3.23	51.90	73.9	22.0	229	220	
Vert.	11490.000	PK	47.76	38.68	8.01	42.81	-9.54	42.10	73.9	31.8	150	0	Floor noise
Vert.	22980.000	PK	47.38	-3.72	10.98	0.00	-9.54	45.10	73.9	28.8	150	191	*1)
Vert.	1920.000	AV	44.64	25.66	12.95	43.69	3.23	42.79	53.9	11.1	229	220	VBW:10 Hz
Vert.	11490.000	AV	37.19	38.68	8.01	42.81	-9.54	31.53	53.9	22.3	150	0	Floor noise
Vert.	22980.000	AV	40.77	-3.72	10.98	0.00	-9.54	38.49	53.9	15.4	150	191	VBW:5 kHz, *1)

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

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

Distance factor : 1 GHz - 10 GHz : 20log (4.35 m / 3.0 m) = 3.23 dB

10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

*1) Antenna factor includes amplifier gain

(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	51.00	31.65	15.36	45.42	3.23	55.82	-39.40	-27.0	12.4	112	3	
Hori.	5700.000	PK	50.76	31.87	15.40	45.40	3.23	55.86	-39.36	10.0	49.3	112	3	
Hori.	5720.000	PK	50.81	31.95	15.40	45.39	3.23	56.00	-39.22	15.6	54.8	112	3	
Hori.	5725.000	PK	51.75	31.97	15.41	45.39	3.23	56.97	-38.25	27.0	65.2	112	3	
Hori.	5850.000	PK	50.89	32.45	15.45	45.33	3.23	56.69	-38.53	27.0	65.5	112	3	
Hori.	5855.000	PK	50.65	32.44	15.45	45.33	3.23	56.44	-38.78	15.6	54.3	112	3	
Hori.	5875.000	PK	50.43	32.41	15.46	45.32	3.23	56.21	-39.01	10.0	49.0	112	3	
Hori.	5925.000	PK	50.23	32.39	15.49	45.28	3.23	56.06	-39.16	-27.0	12.1	112	3	
Hori.	17235.000	PK	49.87	41.06	9.77	44.90	-9.54	46.26	-48.96	-27.0	21.9	150	0	Floor noise
Vert.	5650.000	PK	51.53	31.65	15.36	45.42	3.23	56.35	-38.87	-27.0	11.8	105	354	
Vert.	5700.000	PK	51.18	31.87	15.40	45.40	3.23	56.28	-38.94	10.0	48.9	105	354	
Vert.	5720.000	PK	51.28	31.95	15.40	45.39	3.23	56.47	-38.75	15.6	54.3	105	354	
Vert.	5725.000	PK	52.88	31.97	15.41	45.39	3.23	58.10	-37.12	27.0	64.1	105	354	
Vert.	5850.000	PK	50.93	32.45	15.45	45.33	3.23	56.73	-38.49	27.0	65.4	105	354	
Vert.	5855.000	PK	50.44	32.44	15.45	45.33	3.23	56.23	-38.99	15.6	54.5	105	354	
Vert.	5875.000	PK	49.64	32.41	15.46	45.32	3.23	55.42	-39.80	10.0	49.8	105	354	
Vert.	5925.000	PK	50.11	32.39	15.49	45.28	3.23	55.94	-39.28	-27.0	12.2	105	354	
Vert.	17235.000	PK	49.52	41.06	9.77	44.90	-9.54	45.91	-49.31	-27.0	22.3	150	0	Floor noise

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

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

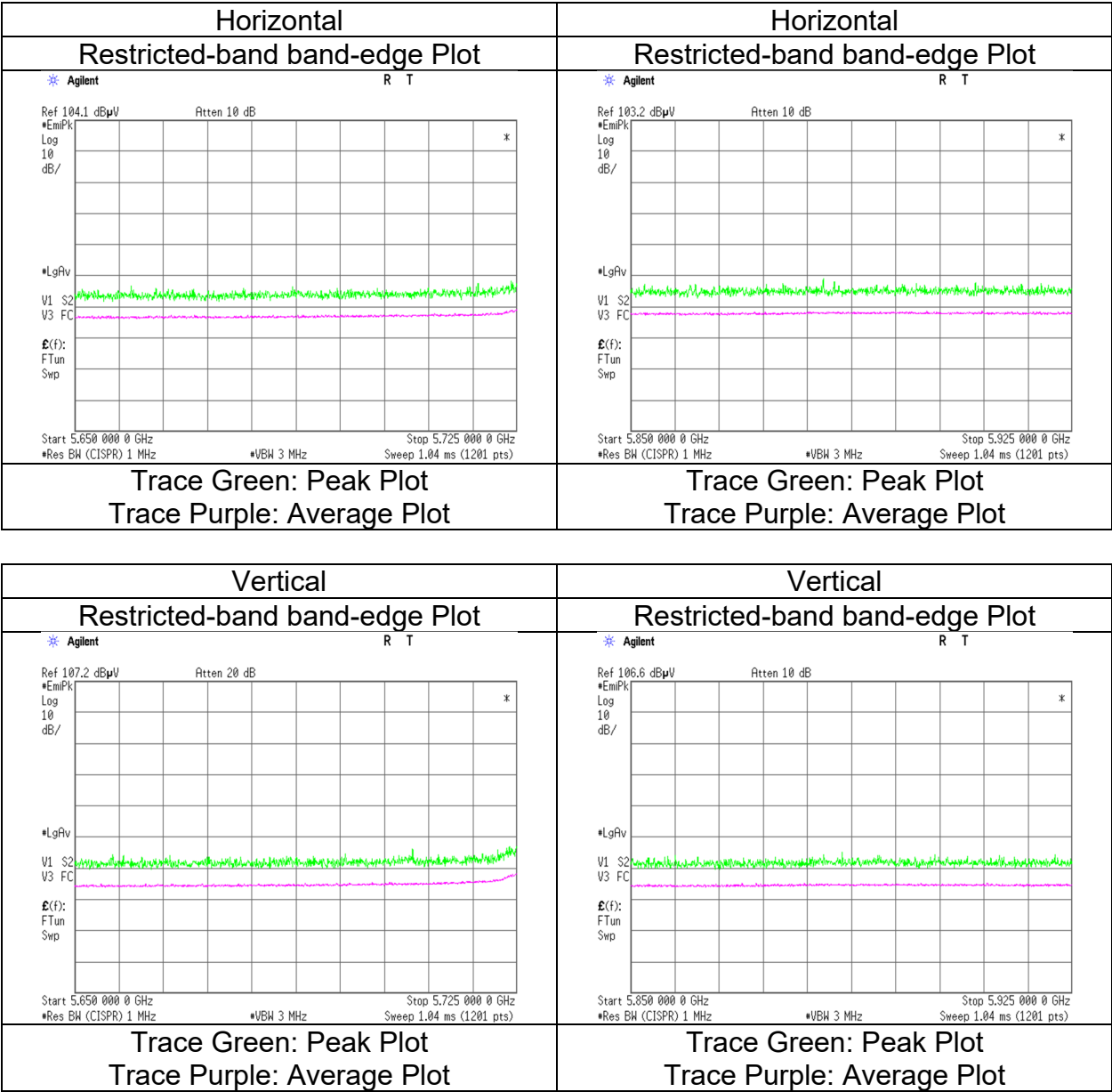
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (4.35 m / 3.0 m) = 3.23 dB

10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Test place Kashima EMC Lab.
Semi Anechoic Chamber No.10
Date March 28, 2024
Temperature / Humidity 20 deg. C / 41 % RH
Engineer Hiromitsu Tanabe
 (1 GHz to 10 GHz)
Mode Tx 11a 5745 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Kashima EMC Lab.	No.10
Semi Anechoic Chamber	No.10	No.10
Date	March 28, 2024	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)
Mode	Tx 11n-20 5745 MHz	(18 GHz to 40 GHz)

(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.	1920.000	PK	55.24	25.66	12.95	43.69	3.23	53.39	73.9	20.5	161	212	
Hori.	11490.000	PK	47.01	38.68	8.01	42.81	-9.54	41.35	73.9	32.5	150	0	Floor noise
Hori.	22980.000	PK	46.42	-3.72	10.98	0.00	-9.54	44.14	73.9	29.7	147	210	*1)
Hori.	1920.000	AV	47.58	25.66	12.95	43.69	3.23	45.73	53.9	8.1	161	212	VBW:10 Hz
Hori.	11490.000	AV	36.28	38.68	8.01	42.81	-9.54	30.62	53.9	23.2	150	0	Floor noise
Hori.	22980.000	AV	38.93	-3.72	10.98	0.00	-9.54	36.65	53.9	17.2	147	210	VBW:1 kHz, *1)
Vert.	1920.000	PK	53.96	25.66	12.95	43.69	3.23	52.11	73.9	21.7	294	235	
Vert.	11490.000	PK	47.12	38.68	8.01	42.81	-9.54	41.46	73.9	32.4	150	0	Floor noise
Vert.	22980.000	PK	46.77	-3.72	10.98	0.00	-9.54	44.49	73.9	29.4	150	190	*1)
Vert.	1920.000	AV	44.92	25.66	12.95	43.69	3.23	43.07	53.9	10.8	294	235	VBW:10 Hz
Vert.	11490.000	AV	36.29	38.68	8.01	42.81	-9.54	30.63	53.9	23.2	150	0	Floor noise
Vert.	22980.000	AV	39.62	-3.72	10.98	0.00	-9.54	37.34	53.9	16.5	150	190	VBW:1 kHz, *1)

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

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

Distance factor : 1 GHz - 10 GHz : 20log (4.35 m / 3.0 m) = 3.23 dB

10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

*1) Antenna factor includes amplifier gain

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	50.74	31.65	15.36	45.42	3.23	55.56	-39.66	-27.0	12.6	110	4	
Hori.	5700.000	PK	50.55	31.87	15.40	45.40	3.23	55.65	-39.57	10.0	49.5	110	4	
Hori.	5720.000	PK	50.84	31.95	15.40	45.39	3.23	56.03	-39.19	15.6	54.7	110	4	
Hori.	5725.000	PK	52.67	31.97	15.41	45.39	3.23	57.89	-37.33	27.0	64.3	110	4	
Hori.	5850.000	PK	50.38	32.45	15.45	45.33	3.23	56.18	-39.04	27.0	66.0	110	4	
Hori.	5855.000	PK	50.02	32.44	15.45	45.33	3.23	55.81	-39.41	15.6	55.0	110	4	
Hori.	5875.000	PK	49.66	32.41	15.46	45.32	3.23	55.44	-39.78	10.0	49.7	110	4	
Hori.	5925.000	PK	50.12	32.39	15.49	45.28	3.23	55.95	-39.27	-27.0	12.2	110	4	
Hori.	17235.000	PK	49.07	41.06	9.77	44.90	-9.54	45.46	-49.76	-27.0	22.7	150	0	Floor noise
Vert.	5650.000	PK	50.60	31.65	15.36	45.42	3.23	55.42	-39.80	-27.0	12.8	105	355	
Vert.	5700.000	PK	50.85	31.87	15.40	45.40	3.23	55.95	-39.27	10.0	49.2	105	355	
Vert.	5720.000	PK	51.29	31.95	15.40	45.39	3.23	56.48	-38.74	15.6	54.3	105	355	
Vert.	5725.000	PK	55.33	31.97	15.41	45.39	3.23	60.55	-34.67	27.0	61.6	105	355	
Vert.	5850.000	PK	49.89	32.45	15.45	45.33	3.23	55.69	-39.53	27.0	66.5	105	355	
Vert.	5855.000	PK	50.57	32.44	15.45	45.33	3.23	56.36	-38.86	15.6	54.4	105	355	
Vert.	5875.000	PK	50.69	32.41	15.46	45.32	3.23	56.47	-38.75	10.0	48.7	105	355	
Vert.	5925.000	PK	50.65	32.39	15.49	45.28	3.23	56.48	-38.74	-27.0	11.7	105	355	
Vert.	17235.000	PK	48.97	41.06	9.77	44.90	-9.54	45.36	-49.86	-27.0	22.8	150	0	Floor noise

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

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

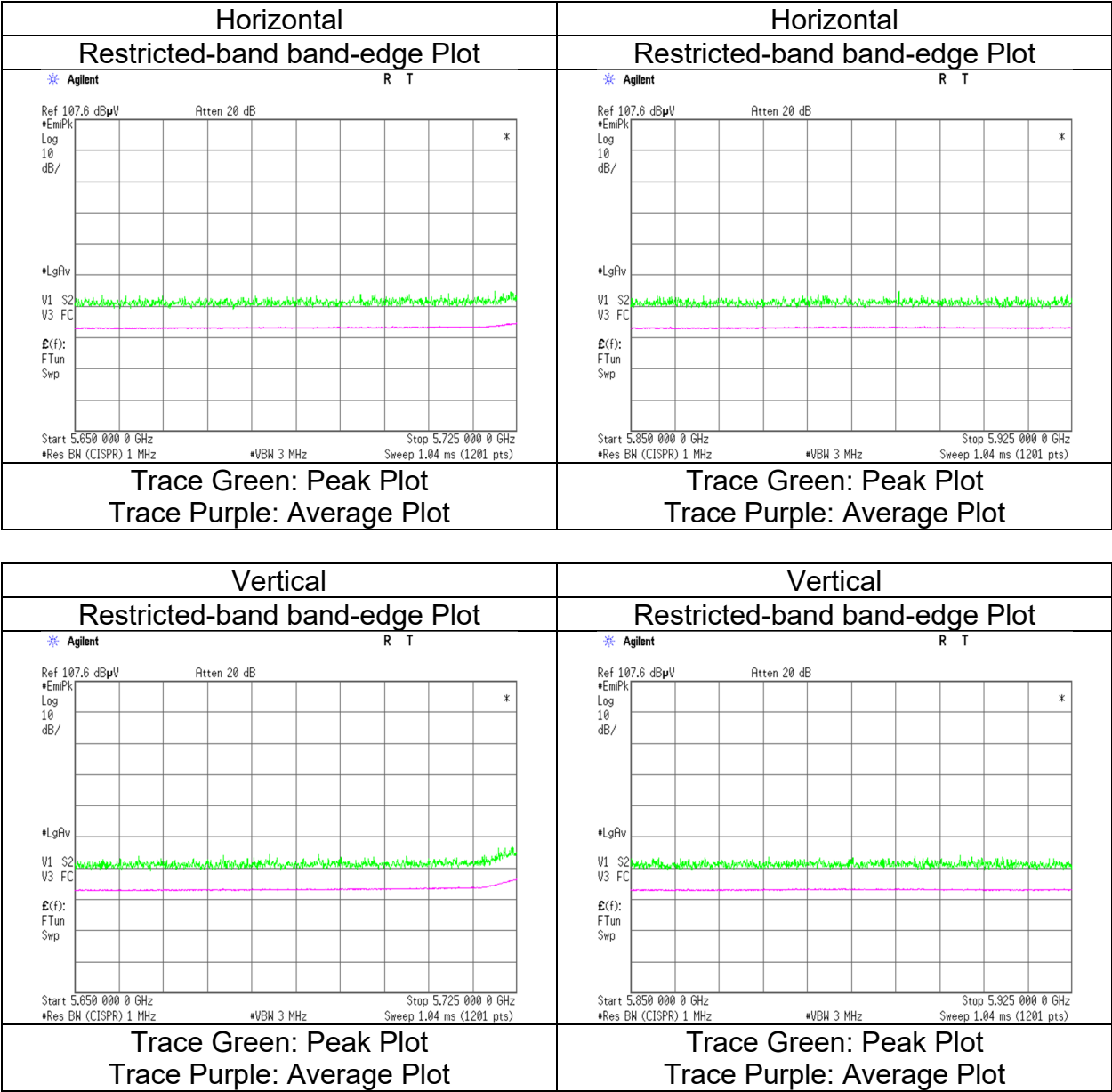
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (4.35 m / 3.0 m) = 3.23 dB

10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11n-20 5745 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Kashima EMC Lab.	No.10
Semi Anechoic Chamber	No.10	No.10
Date	March 28, 2024	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)
Mode	Tx 11ac-20 5745 MHz	(18 GHz to 40 GHz)

(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.	1920.000	PK	55.44	25.66	12.95	43.69	3.23	53.59	73.9	20.3	156	211	
Hori.	11490.000	PK	47.18	38.68	8.01	42.81	-9.54	41.52	73.9	32.3	150	0	Floor noise
Hori.	22980.000	PK	47.39	-3.72	10.98	0.00	-9.54	45.11	73.9	28.7	147	210	*1)
Hori.	1920.000	AV	47.83	25.66	12.95	43.69	3.23	45.98	53.9	7.9	156	211	VBW:10 Hz
Hori.	11490.000	AV	36.32	38.68	8.01	42.81	-9.54	30.66	53.9	23.2	150	0	Floor noise
Hori.	22980.000	AV	39.89	-3.72	10.98	0.00	-9.54	37.61	53.9	16.2	147	210	VBW:1 kHz, *1)
Vert.	1920.000	PK	54.46	25.66	12.95	43.69	3.23	52.61	73.9	21.2	301	234	
Vert.	11490.000	PK	47.03	38.68	8.01	42.81	-9.54	41.37	73.9	32.5	150	0	Floor noise
Vert.	22980.000	PK	47.21	-3.72	10.98	0.00	-9.54	44.93	73.9	28.9	151	190	*1)
Vert.	1920.000	AV	44.79	25.66	12.95	43.69	3.23	42.94	53.9	10.9	301	234	VBW:10 Hz
Vert.	11490.000	AV	36.38	38.68	8.01	42.81	-9.54	30.72	53.9	23.1	150	0	Floor noise
Vert.	22980.000	AV	40.11	-3.72	10.98	0.00	-9.54	37.83	53.9	16.0	151	190	VBW:1 kHz, *1)

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

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

Distance factor : 1 GHz - 10 GHz : 20log (4.35 m / 3.0 m) = 3.23 dB

10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

*1) Antenna factor includes amplifier gain

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	50.42	31.65	15.36	45.42	3.23	55.24	-39.98	-27.0	12.9	113	3	
Hori.	5700.000	PK	50.21	31.87	15.40	45.40	3.23	55.31	-39.91	10.0	49.9	113	3	
Hori.	5720.000	PK	50.86	31.95	15.40	45.39	3.23	56.05	-39.17	15.6	54.7	113	3	
Hori.	5725.000	PK	52.50	31.97	15.41	45.39	3.23	57.72	-37.50	27.0	64.5	113	3	
Hori.	5850.000	PK	50.26	32.45	15.45	45.33	3.23	56.06	-39.16	27.0	66.1	113	3	
Hori.	5855.000	PK	50.74	32.44	15.45	45.33	3.23	56.53	-38.69	15.6	54.2	113	3	
Hori.	5875.000	PK	50.00	32.41	15.46	45.32	3.23	55.78	-39.44	10.0	49.4	113	3	
Hori.	5925.000	PK	51.00	32.39	15.49	45.28	3.23	56.83	-38.39	-27.0	11.3	113	3	
Hori.	17235.000	PK	49.28	41.06	9.77	44.90	-9.54	45.67	-49.55	-27.0	22.5	150	0	Floor noise
Vert.	5650.000	PK	50.87	31.65	15.36	45.42	3.23	55.69	-39.53	-27.0	12.5	154	16	
Vert.	5700.000	PK	50.56	31.87	15.40	45.40	3.23	55.66	-39.56	10.0	49.5	154	16	
Vert.	5720.000	PK	50.82	31.95	15.40	45.39	3.23	56.01	-39.21	15.6	54.8	154	16	
Vert.	5725.000	PK	53.63	31.97	15.41	45.39	3.23	58.85	-36.37	27.0	63.3	154	16	
Vert.	5850.000	PK	50.07	32.45	15.45	45.33	3.23	55.87	-39.35	27.0	66.3	154	16	
Vert.	5855.000	PK	50.13	32.44	15.45	45.33	3.23	55.92	-39.30	15.6	54.9	154	16	
Vert.	5875.000	PK	50.16	32.41	15.46	45.32	3.23	55.94	-39.28	10.0	49.2	154	16	
Vert.	5925.000	PK	50.46	32.39	15.49	45.28	3.23	56.29	-38.93	-27.0	11.9	154	16	
Vert.	17235.000	PK	49.29	41.06	9.77	44.90	-9.54	45.68	-49.54	-27.0	22.5	150	0	Floor noise

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)

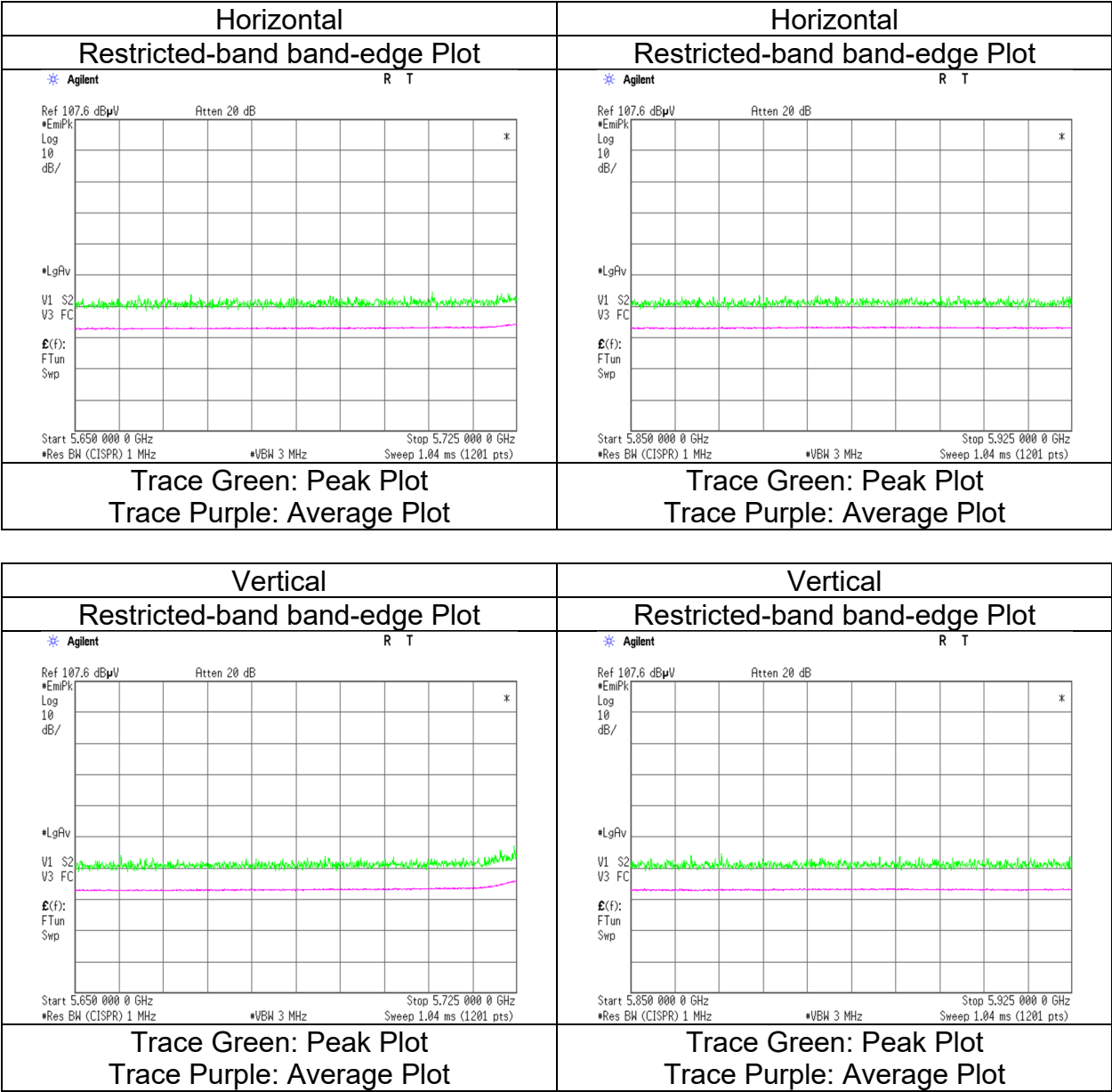
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Distance factor : 1 GHz - 10 GHz : 20log (4.35 m / 3.0 m) = 3.23 dB

10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-20 5745 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Kashima EMC Lab.	No.10
Semi Anechoic Chamber	No.10	No.10
Date	March 28, 2024	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)
Mode	Tx 11n-40 5755 MHz	(18 GHz to 40 GHz)

(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.	1920.000	PK	55.43	25.66	12.95	43.69	3.23	53.58	73.9	20.3	148	211	
Hori.	11510.000	PK	47.46	38.68	8.01	42.85	-9.54	41.76	73.9	32.1	150	0	Floor noise
Hori.	23020.000	PK	48.85	-3.67	10.99	0.00	-9.54	46.63	73.9	27.2	147	211	*1)
Hori.	1920.000	AV	47.45	25.66	12.95	43.69	3.23	45.60	53.9	8.3	148	211	VBW:10 Hz
Hori.	11510.000	AV	38.29	38.68	8.01	42.85	-9.54	32.59	53.9	21.3	150	0	Floor noise
Hori.	23020.000	AV	41.77	-3.67	10.99	0.00	-9.54	39.55	53.9	14.3	147	211	VBW:10 kHz, *1)
Vert.	1920.000	PK	54.06	25.66	12.95	43.69	3.23	52.21	73.9	21.6	288	225	
Vert.	11510.000	PK	47.35	38.68	8.01	42.85	-9.54	41.65	73.9	32.2	150	0	Floor noise
Vert.	23020.000	PK	46.62	-3.67	10.99	0.00	-9.54	44.40	73.9	29.5	150	191	*1)
Vert.	1920.000	AV	45.96	25.66	12.95	43.69	3.23	44.11	53.9	9.7	288	225	VBW:10 Hz
Vert.	11510.000	AV	38.32	38.68	8.01	42.85	-9.54	32.62	53.9	21.2	150	0	Floor noise
Vert.	23020.000	AV	40.47	-3.67	10.99	0.00	-9.54	38.25	53.9	15.6	150	191	VBW:10 kHz, *1)

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

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

Distance factor : 1 GHz - 10 GHz : $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.23\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

*1) Antenna factor includes amplifier gain

(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	51.34	31.65	15.36	45.42	3.23	56.16	-39.06	-27.0	12.0	123	6	
Hori.	5700.000	PK	50.66	31.87	15.40	45.40	3.23	55.76	-39.46	10.0	49.4	123	6	
Hori.	5720.000	PK	51.49	31.95	15.40	45.39	3.23	56.68	-38.54	15.6	54.1	123	6	
Hori.	5725.000	PK	51.06	31.97	15.41	45.39	3.23	56.28	-38.94	27.0	65.9	123	6	
Hori.	5850.000	PK	50.38	32.45	15.45	45.33	3.23	56.18	-39.04	27.0	66.0	123	6	
Hori.	5855.000	PK	50.08	32.44	15.45	45.33	3.23	55.87	-39.35	15.6	54.9	123	6	
Hori.	5875.000	PK	50.60	32.41	15.46	45.32	3.23	56.38	-38.84	10.0	48.8	123	6	
Hori.	5925.000	PK	50.44	32.39	15.49	45.28	3.23	56.27	-38.95	-27.0	11.9	123	6	
Hori.	17265.000	PK	49.13	41.14	9.79	44.88	-9.54	45.64	-49.58	-27.0	22.5	150	0	Floor noise
Vert.	5650.000	PK	50.69	31.65	15.36	45.42	3.23	55.51	-39.71	-27.0	12.7	153	15	
Vert.	5700.000	PK	50.53	31.87	15.40	45.40	3.23	55.63	-39.59	10.0	49.5	153	15	
Vert.	5720.000	PK	51.47	31.95	15.40	45.39	3.23	56.66	-38.56	15.6	54.1	153	15	
Vert.	5725.000	PK	50.91	31.97	15.41	45.39	3.23	56.13	-39.09	27.0	66.0	153	15	
Vert.	5850.000	PK	50.13	32.45	15.45	45.33	3.23	55.93	-39.29	27.0	66.2	153	15	
Vert.	5855.000	PK	50.00	32.44	15.45	45.33	3.23	55.79	-39.43	15.6	55.0	153	15	
Vert.	5875.000	PK	49.57	32.41	15.46	45.32	3.23	55.35	-39.87	10.0	49.8	153	15	
Vert.	5925.000	PK	49.73	32.39	15.49	45.28	3.23	55.56	-39.66	-27.0	12.6	153	15	
Vert.	17265.000	PK	49.31	41.14	9.79	44.88	-9.54	45.82	-49.40	-27.0	22.4	150	0	Floor noise

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

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

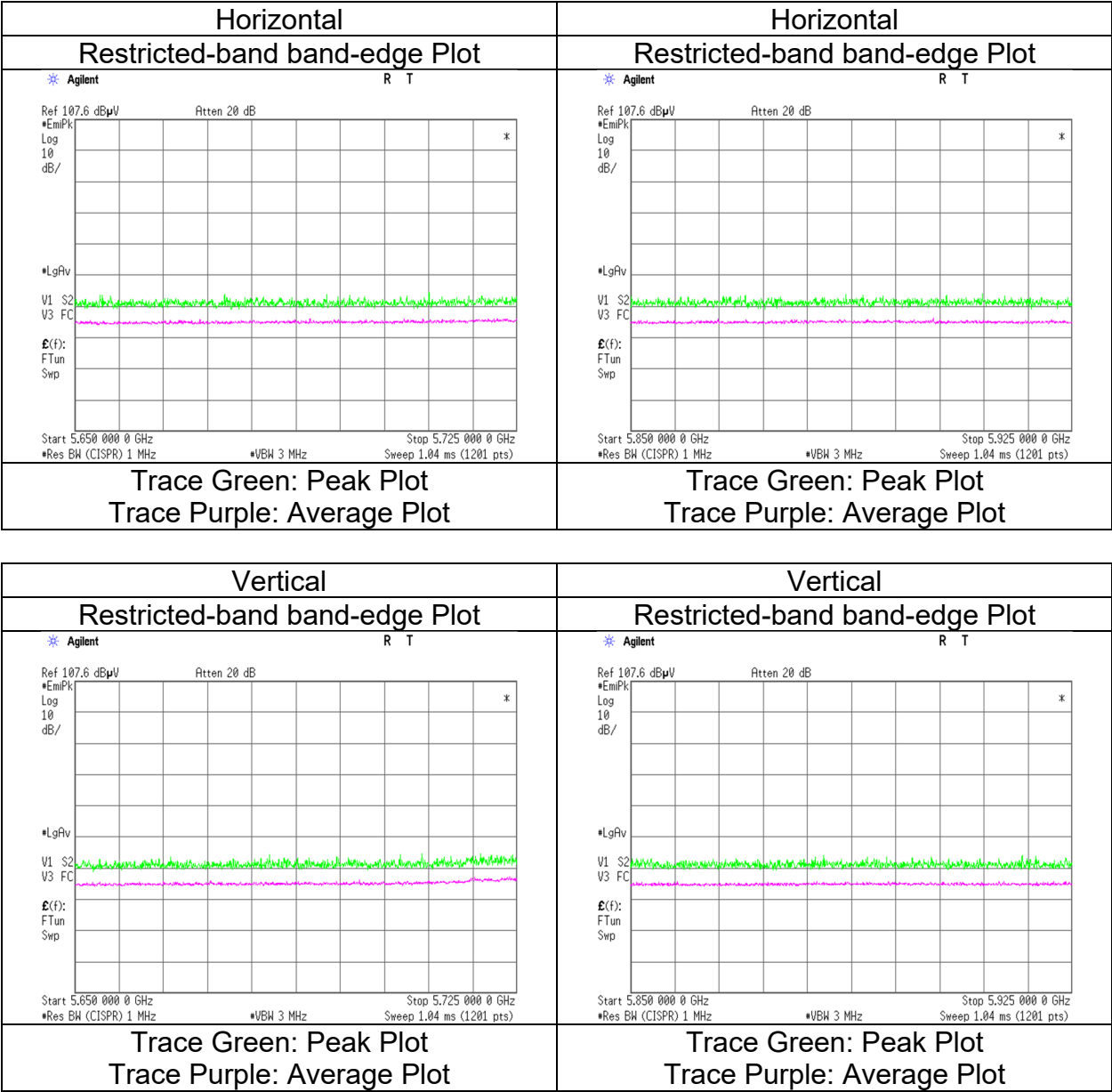
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.23\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11n-40 5755 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Kashima EMC Lab.	No.10
Semi Anechoic Chamber	No.10	No.10
Date	March 28, 2024	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)
Mode	Tx 11ac-40 5755 MHz	(18 GHz to 40 GHz)

(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.	1920.000	PK	55.17	25.66	12.95	43.69	3.23	53.32	73.9	20.5	157	211	
Hori.	11510.000	PK	47.32	38.68	8.01	42.85	-9.54	41.62	73.9	32.2	150	0	Floor noise
Hori.	23020.000	PK	47.25	-3.67	10.99	0.00	-9.54	45.03	73.9	28.8	148	210	*1)
Hori.	1920.000	AV	48.08	25.66	12.95	43.69	3.23	46.23	53.9	7.6	157	211	VBW:10 Hz
Hori.	11510.000	AV	38.96	38.68	8.01	42.85	-9.54	33.26	53.9	20.6	150	0	Floor noise
Hori.	23020.000	AV	42.00	-3.67	10.99	0.00	-9.54	39.78	53.9	14.1	148	210	VBW:20 kHz, *1)
Vert.	1920.000	PK	53.57	25.66	12.95	43.69	3.23	51.72	73.9	22.1	289	234	
Vert.	11510.000	PK	48.23	38.68	8.01	42.85	-9.54	42.53	73.9	31.3	150	0	Floor noise
Vert.	23020.000	PK	47.02	-3.67	10.99	0.00	-9.54	44.80	73.9	29.1	149	191	*1)
Vert.	1920.000	AV	44.69	25.66	12.95	43.69	3.23	42.84	53.9	11.0	289	234	VBW:10 Hz
Vert.	11510.000	AV	38.53	38.68	8.01	42.85	-9.54	32.83	53.9	21.0	150	0	Floor noise
Vert.	23020.000	AV	41.36	-3.67	10.99	0.00	-9.54	39.14	53.9	14.7	149	191	VBW:20 kHz, *1)

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

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

Distance factor : 1 GHz - 10 GHz : $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.23\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

*1) Antenna factor includes amplifier gain

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	50.80	31.65	15.36	45.42	3.23	55.62	-39.60	-27.0	12.6	123	6	
Hori.	5700.000	PK	50.64	31.87	15.40	45.40	3.23	55.74	-39.48	10.0	49.4	123	6	
Hori.	5720.000	PK	51.08	31.95	15.40	45.39	3.23	56.27	-38.95	15.6	54.5	123	6	
Hori.	5725.000	PK	50.89	31.97	15.41	45.39	3.23	56.11	-39.11	27.0	66.1	123	6	
Hori.	5850.000	PK	49.73	32.45	15.45	45.33	3.23	55.53	-39.69	27.0	66.6	123	6	
Hori.	5855.000	PK	49.85	32.44	15.45	45.33	3.23	55.64	-39.58	15.6	55.1	123	6	
Hori.	5875.000	PK	50.01	32.41	15.46	45.32	3.23	55.79	-39.43	10.0	49.4	123	6	
Hori.	5925.000	PK	50.26	32.39	15.49	45.28	3.23	56.09	-39.13	-27.0	12.1	123	6	
Hori.	17265.000	PK	48.34	41.14	9.79	44.88	-9.54	44.85	-50.37	-27.0	23.3	150	0	Floor noise
Vert.	5650.000	PK	50.69	31.65	15.36	45.42	3.23	55.51	-39.71	-27.0	12.7	103	356	
Vert.	5700.000	PK	51.33	31.87	15.40	45.40	3.23	56.43	-38.79	10.0	48.7	103	356	
Vert.	5720.000	PK	51.56	31.95	15.40	45.39	3.23	56.75	-38.47	15.6	54.0	103	356	
Vert.	5725.000	PK	51.39	31.97	15.41	45.39	3.23	56.61	-38.61	27.0	65.6	103	356	
Vert.	5850.000	PK	50.93	32.45	15.45	45.33	3.23	56.73	-38.49	27.0	65.4	103	356	
Vert.	5855.000	PK	50.53	32.44	15.45	45.33	3.23	56.32	-38.90	15.6	54.5	103	356	
Vert.	5875.000	PK	50.43	32.41	15.46	45.32	3.23	56.21	-39.01	10.0	49.0	103	356	
Vert.	5925.000	PK	50.58	32.39	15.49	45.28	3.23	56.41	-38.81	-27.0	11.8	103	356	
Vert.	17265.000	PK	48.88	41.14	9.79	44.88	-9.54	45.39	-49.83	-27.0	22.8	150	0	Floor noise

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

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

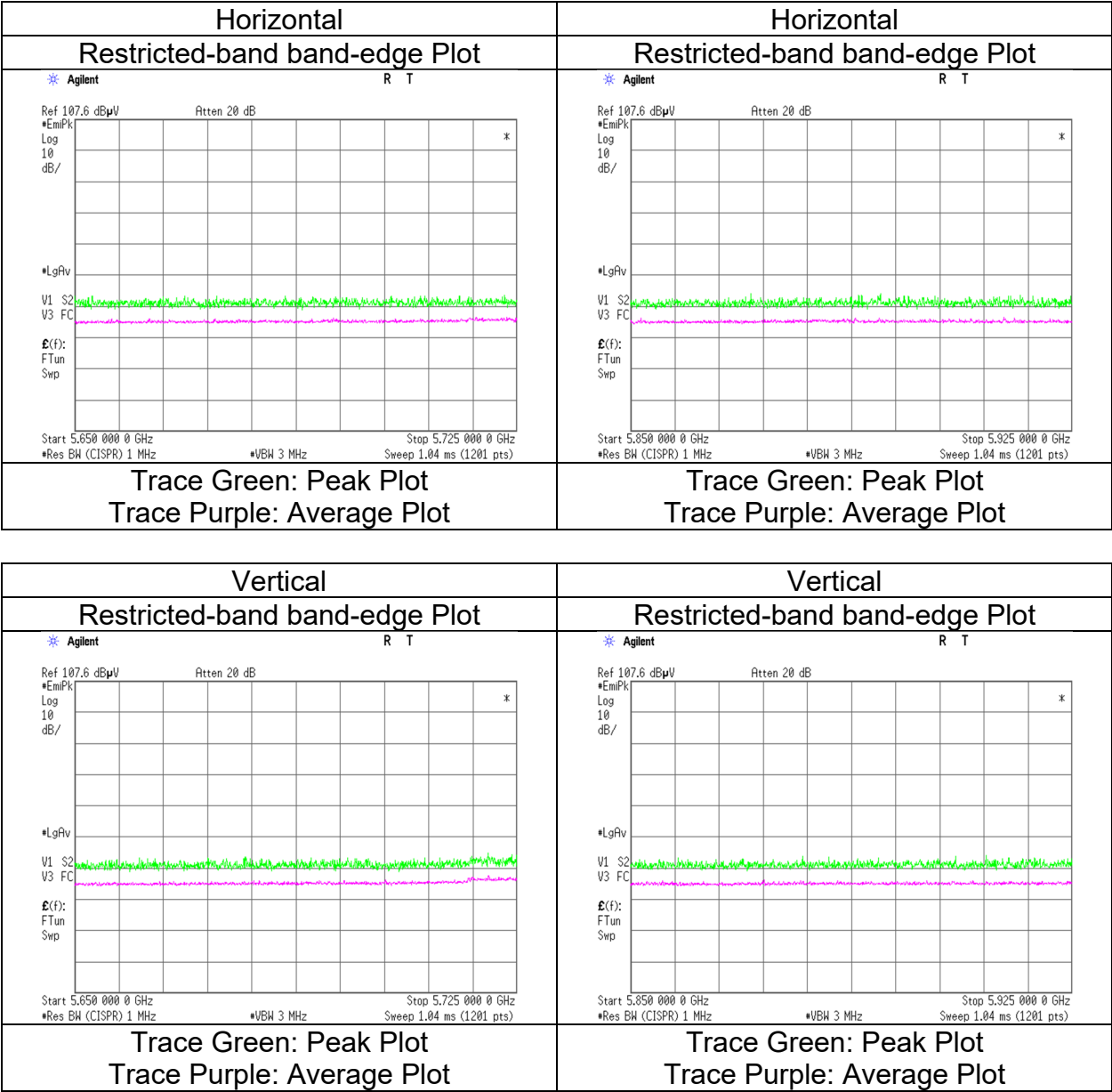
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(4.35\text{ m} / 3.0\text{ m}) = 3.23\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-40 5755 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Kashima EMC Lab.	No.10
Semi Anechoic Chamber	No.10	No.10
Date	March 28, 2024	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe
	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)
Mode	Tx 11ac-80 5775 MHz	(18 GHz to 40 GHz)

(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.	1920.000	PK	54.87	25.66	12.95	43.69	3.23	53.02	73.9	20.8	154	214	
Hori.	11550.000	PK	47.17	38.68	8.01	42.94	-9.54	41.38	73.9	32.5	150	0	Floor noise
Hori.	23100.000	PK	46.55	-3.55	11.01	0.00	-9.54	44.47	73.9	29.4	149	209	*1)
Hori.	1920.000	AV	47.30	25.66	12.95	43.69	3.23	45.45	53.9	8.4	154	214	VBW:10 Hz
Hori.	11550.000	AV	39.48	38.68	8.01	42.94	-9.54	33.69	53.9	20.2	150	0	Floor noise
Hori.	23100.000	AV	40.83	-3.55	11.01	0.00	-9.54	38.75	53.9	15.1	149	209	VBW:20 kHz, *1)
Vert.	1920.000	PK	53.76	25.66	12.95	43.69	3.23	51.91	73.9	21.9	298	234	
Vert.	11550.000	PK	47.38	38.68	8.01	42.94	-9.54	41.59	73.9	32.3	150	0	Floor noise
Vert.	23100.000	PK	46.79	-3.55	11.01	0.00	-9.54	44.71	73.9	29.1	150	216	*1)
Vert.	1920.000	AV	45.00	25.66	12.95	43.69	3.23	43.15	53.9	10.7	298	234	VBW:10 Hz
Vert.	11550.000	AV	39.63	38.68	8.01	42.94	-9.54	33.84	53.9	20.0	150	0	Floor noise
Vert.	23100.000	AV	41.18	-3.55	11.01	0.00	-9.54	39.10	53.9	14.8	150	216	VBW:20 kHz, *1)

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

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

Distance factor : 1 GHz - 10 GHz : 20log (4.35 m / 3.0 m) = 3.23 dB

10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

*1) Antenna factor includes amplifier gain

(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	52.38	31.65	15.36	45.42	3.23	57.20	-38.02	-27.0	11.0	100	4	
Hori.	5700.000	PK	51.97	31.87	15.40	45.40	3.23	57.07	-38.15	10.0	48.1	100	4	
Hori.	5720.000	PK	52.18	31.95	15.40	45.39	3.23	57.37	-37.85	15.6	53.4	100	4	
Hori.	5725.000	PK	52.65	31.97	15.41	45.39	3.23	57.87	-37.35	27.0	64.3	100	4	
Hori.	5850.000	PK	52.79	32.45	15.45	45.33	3.23	58.59	-36.63	27.0	63.6	100	4	
Hori.	5855.000	PK	51.77	32.44	15.45	45.33	3.23	57.56	-37.66	15.6	53.2	100	4	
Hori.	5875.000	PK	51.46	32.41	15.46	45.32	3.23	57.24	-37.98	10.0	47.9	100	4	
Hori.	5925.000	PK	51.81	32.39	15.49	45.28	3.23	57.64	-37.58	-27.0	10.5	100	4	
Hori.	17325.000	PK	49.77	41.28	9.83	44.82	-9.54	46.52	-48.70	-27.0	21.7	150	0	Floor noise
Vert.	5650.000	PK	52.11	31.65	15.36	45.42	3.23	56.93	-38.29	-27.0	11.2	115	355	
Vert.	5700.000	PK	52.02	31.87	15.40	45.40	3.23	57.12	-38.10	10.0	48.1	115	355	
Vert.	5720.000	PK	53.61	31.95	15.40	45.39	3.23	58.80	-36.42	15.6	52.0	115	355	
Vert.	5725.000	PK	53.69	31.97	15.41	45.39	3.23	58.91	-36.31	27.0	63.3	115	355	
Vert.	5850.000	PK	52.02	32.45	15.45	45.33	3.23	57.82	-37.40	27.0	64.4	115	355	
Vert.	5855.000	PK	51.97	32.44	15.45	45.33	3.23	57.76	-37.46	15.6	53.0	115	355	
Vert.	5875.000	PK	51.45	32.41	15.46	45.32	3.23	57.23	-37.99	10.0	47.9	115	355	
Vert.	5925.000	PK	51.72	32.39	15.49	45.28	3.23	57.55	-37.67	-27.0	10.6	115	355	
Vert.	17325.000	PK	48.39	41.28	9.83	44.82	-9.54	45.14	-50.08	-27.0	23.0	150	0	Floor noise

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

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

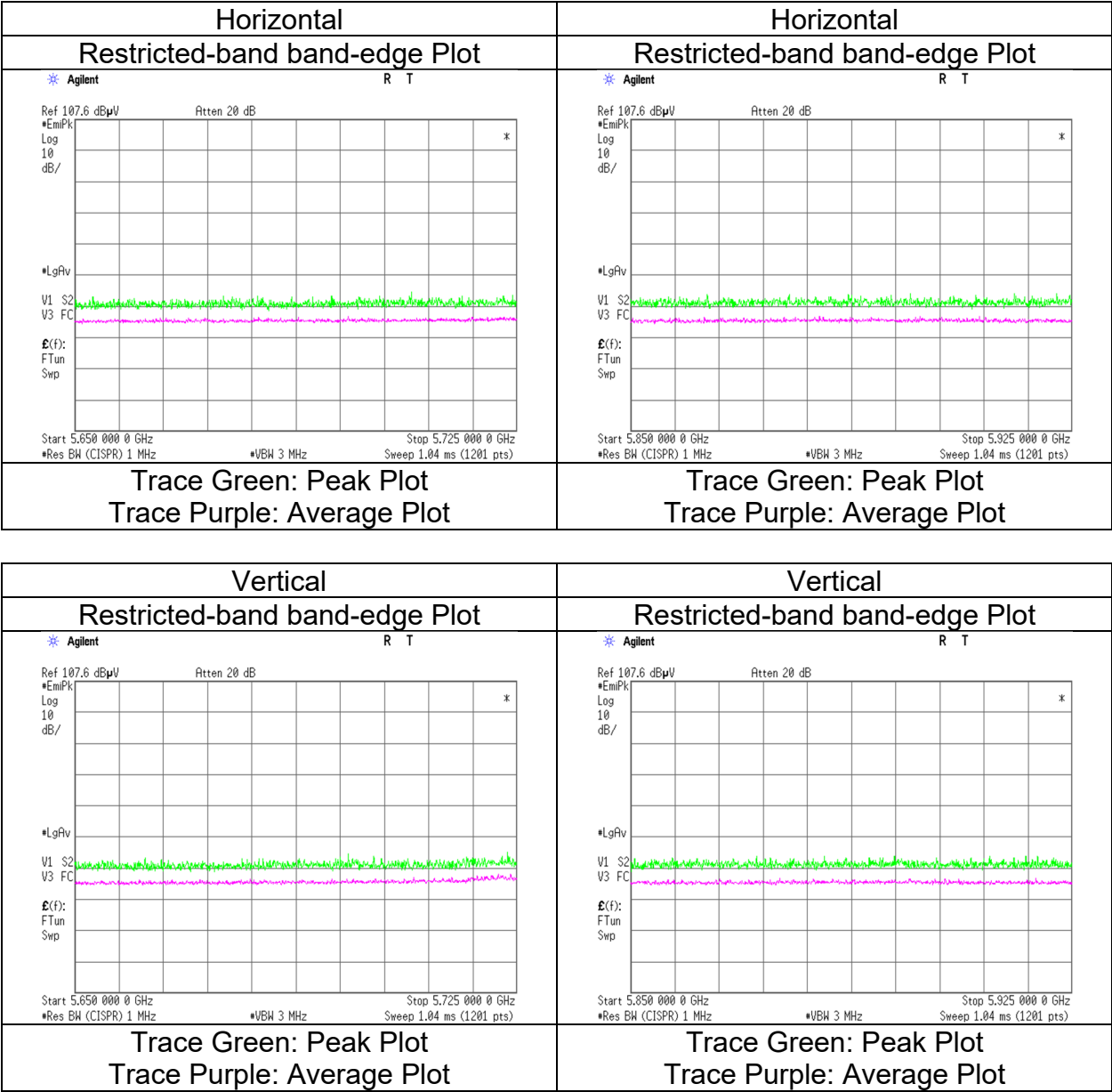
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (4.35 m / 3.0 m) = 3.23 dB

10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

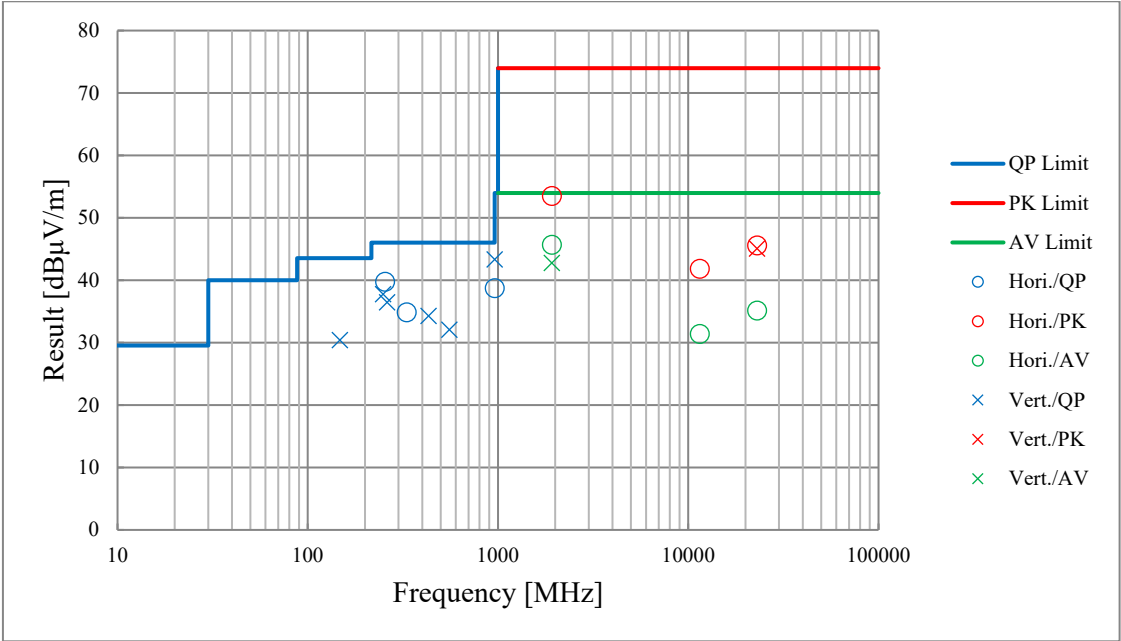
Test place	Kashima EMC Lab.
Semi Anechoic Chamber	No.10
Date	March 28, 2024
Temperature / Humidity	20 deg. C / 41 % RH
Engineer	Hiromitsu Tanabe
Mode	Tx 11ac-80 5775 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(Plot data, Worst case mode for Maximum Conducted Output Power)

Test place	Kashima EMC Lab.			
Semi Anechoic Chamber	No.10	No.10	No.10	No.10
Date	April 12, 2024	March 28, 2024	March 28, 2024	April 8, 2024
Temperature / Humidity	21 deg. C / 51 % RH	20 deg. C / 41 % RH	20 deg. C / 41 % RH	21 deg. C / 42 % RH
Engineer	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe	Hiromitsu Tanabe
	(30 MHz to 1 GHz)	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)	(18 GHz to 40 GHz)
Mode	Tx 11a 5745 MHz			



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

APPENDIX 2: Test Instruments

Test Equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	143121	LOGBICON	Schwarzbeck Mess-Elektronik OHG	VULB 9168	343	2023/04/18	12
RE	178806	5dB Fixed Atten.	Pasternack Enterprises	PE7047-5	none	2023/04/18	12
RE	143165	10 Site RE 3m System	UL Japan	none	none	2023/08/01	12
RE	183880	Pre-Amplifier	UL Japan	ZKL-2	001	2023/04/21	12
RE	144199	Test Receiver	Keysight Technologies Inc	N9038A	MY53290016	2023/07/05	12
RE	144632	Semi Anechoic Chamber	TDK	NSA (No.10)	10	2023/05/08	12
RE	143455	Double Ridged Wave Guide	ETS-Lindgren (Cedar Park, Texas)	3115	00204569	2024/02/09	12
RE	143140	Micro Wave Cable	Junkosha	MWX221	1407S222	2023/11/17	12
RE	192243	Microwave Cable	Huber+Suhner	SF104/11N/11PC35/8000MM	808995/4	2024/01/19	12
RE	142940	Pre-Amplifier	Micro Wave Factory	MPR-1G26.5-35	161399	2023/06/08	12
RE	143023	10dB Fixed Atten.	Weinschel - API Technologies Corp	54A-10	56251	2023/05/25	12
RE	143443	HPF	Micro-Tronics	HPM50112-02	006	2023/05/24	12
RE	143643	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY52490024	2023/06/21	12
RE	144633	Semi Anechoic Chamber	TDK	SVSWR (No.10)	10	2023/05/08	12
RE	143438	Double Ridged Horn	ETS-Lindgren (Cedar Park, Texas)	3160-09	00166043	2023/06/19	12
RE	142937	Pre-Amplifier	TOYO	HAP18-26W	00000035	2023/06/19	12
RE	142992	Micro Wave Cable	Suhner	SUCOFLEX102	MY010/2A	2023/06/04	12
RE	144193	Test Receiver	Rohde & Schwarz	ESU40	100426	2023/04/20	12
RE	143439	Double Ridged Horn	ETS-Lindgren (Cedar Park, Texas)	3160-10	00165191	2023/09/23	12
RE	142938	Pre-Amplifier	TOYO	HAP26-40W	B3208602205-103	2023/09/23	12
RE	142988	Micro Wave Cable	Suhner	SUCOFLEX102	MY3772/2	2023/05/25	12
RE	222745	Measure	SHINWA RULES CO., LTD.	80862	none	-	-
RE	143542	Temperature & Humidity Indicator	HIOKI E.E. CORPORATION	3641/9680-50	090999895/090905406	2023/06/27	12
RE	143133	Barometer	Sanoh Co., Ltd	SBR-151	001439	2023/03/10	36
RE	144216	Digital Multimeter	Fluke Corporation	115	994460954	2023/10/24	12
RE	178804	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3 (RE,CE,ME,PE)	Ver 3.1.0484	-	-

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

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

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

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

Test item:

RE: Radiated Emission