RADIO TEST REPORT

Test Report No. : 14033439S-B

Applicant	:	**Sony Corporation Japan & Sony Group Companies**
Type of EUT	:	**AV Receiver**
Model Number of EUT	:	**XAV-AX6000**
FCC ID	:	**AK8XAVAX6000**
Test regulation	:	**FCC Part 15 Subpart E: 2021**
Test result	:	**Complied (Refer to SECTION 3)**

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 product certification, approval, or endorsement by the A2LA accreditation body.
6. This test report covers Radio technical requirements.
   It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. The all test items in this test report are conducted by UL Japan, Inc. Shonan 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.

Date of test: January 18 to February 4, 2022

Representative test engineer:
Hiromasa Sato
Engineer

Approved by:
Kazuya Noda
Leader

CERTIFICATE 1266.03

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

REVISION HISTORY

Original Test Report No.: 14033439S-B

Revision	Test report No.	Date	Page revised	Contents
- (Original)	14033439S-B	March 22, 2022	-	-

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Reference: Abbreviations (Including words undescribed in this report)

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

CONTENTS **PAGE**

SECTION 1: Customer information

Company Name	:	Sony Corporation Japan & Sony Group Companies
Address	:	700/402 Moo. 7, Amata City Chonburi Industrial Estate, Don Hua Roh, Muang Chonburi, Chonburi 20000, Thailand
Telephone Number	:	+66 38 214900 17 Ext : 1932
Contact Person	:	Jumroen Phaoenchoke

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	:	AV Receiver
Model Number	:	XAV-AX6000
Serial Number	:	Refer to SECTION 4.2
Receipt Date	:	January 17, 2022
Condition	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	:	No Modification by the test lab.

2.2 Product Description

Model: XAV-AX6000 (referred to as the EUT in this report) is a AV Receiver.

General Specification

Rating	:	DC 12 V
Clock frequency (ies) in the system	:	32.768 kHz (GPS), 32.768 kHz (MCU), 32.768 kHz (PMIC), 28.6363630 MHz (Video Decoder), 24 MHz (SoC), 9.25 MHz (MCU), 12 MHz (FM/AM Tuner), 26 MHz (GPS) 6.144 MHz (Audio I2S), 12.288 MHz (DSP), 12.288 MHz (DAC_PCM), 48 MHz (WiFi/BT Module), 1600 MHz (SoC CPU), 1500 MHz (DDR4), 200 MHz (MIPI), 240 MHz (USB), 200 MHz (SDIO, eMMC)

Radio Specification

Bluetooth (BR / EDR function)

Radio Type	:	Transceiver
Frequency of Operation	:	2402 MHz - 2480 MHz
Modulation	:	FHSS, GFSK
Antenna type	:	Monopole antenna
Antenna Gain	:	2.0 dBi (Peak), -3.7 dBi (Average)
Operating Temperature	:	0 deg. C to +40 deg. C
Clock frequency	:	48 MHz

Wireless LAN

Radio Type	:	Transceiver
Frequency of Operation	:	5745 MHz - 5825 MHz
Modulation	:	OFDM
Antenna type	:	Monopole antenna
Antenna Gain	:	3.2 dBi (Peak), -7.2 dBi (Average)
Operating Temperature	:	0 deg. C to +40 deg. C
Clock frequency	:	48 MHz

SECTION 3: Test specification, procedures & results

3.1 Test Specification

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

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

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

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	**FCC:** ANSI C63.10-2013	**FCC:** 15.407 (b) (6) / 15.207	N/A	N/A	*1)
	ISED: RSS-Gen 8.8	**ISED:** RSS-Gen 8.8			
26 dB Emission Bandwidth	**FCC:** KDB Publication Number 789033	**FCC:** 15.407 (a) (1) (2) (3)	See data	N/A	*2)
	ISED: -	**ISED:** -			
Maximum Conducted Output Power	**FCC:** KDB Publication Number 789033	**FCC:** 15.407 (a) (1) (2) (3)		Complied a)	Conducted
	ISED: -	**ISED:** RSS-247 6.2.1.1 6.2.2.1 6.2.3.1 6.2.4.1			
Maximum Power Spectral Density	**FCC:** KDB Publication Number 789033	**FCC :** 15.407 (a) (1) (2) (3)		Complied b)	Conducted
	ISED: -	**ISED:** RSS-247 6.2.1.1 6.2.2.1 6.2.3.1 6.2.4.1			
Spurious Emission Restricted Band Edge	**FCC:** ANSI C63.10-2013 KDB Publication Number 789033	**FCC:** 15.407 (b), 15.205 and 15.209	2.4 dB 999.993 MHz, QP, Horizontal, Mode: Tx 11ac-20, 5745 MHz	Complied# c) / d)	Conducted (< 30 MHz) / Radiated (> 30 MHz) *3)
	ISED: -	**ISED:** RSS-247 6.2.1.2 6.2.2.2 6.2.3.2 6.2.4.2			
6 dB Emission Bandwidth	**FCC:** ANSI C63.10-2013	**FCC:** 15.407 (e)	See data	Complied e)	Conducted
	ISED: -	**ISED:** RSS-247 6.2.4.1			

Note: UL Japan, Inc.'s EMI Work Procedures:Work Instructions-ULID-003591 and Work Instructions-ULID-003593.
*1) The test is not applicable since the EUT does not have AC Mains.
*2) The test is not applicable since the EUT support only U-NII-3 band.
*3) 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 Maximum Conducted Output Power)
b) Refer to APPENDIX 1 (data of Maximum Power Spectral Density)
c) Refer to APPENDIX 1 (data of Radiated Spurious Emission)
d) Refer to APPENDIX 1 (data of Conducted Spurious Emission)
e) Refer to APPENDIX 1 (data of 6 dB Bandwidth)

Symbols:
Complied — The data of this test item has enough margin, more than the measurement uncertainty.
Complied# — The data of this test item meets the limits unless the measurement uncertainty is taken into consideration.

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

FCC Part 15.31 (e)
The EUT provides stable voltage constantly to the wireless transmitter regardless of input voltage.
Instead of a new battery, DC power supply was used for the test. That does not affect the test result, therefore the EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

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

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99 % Occupied Band Width	**ISED:** RSS-Gen 6.7	**ISED:** -	N/A	Complied f)	Conducted
f) Refer to APPENDIX 1 (data of 99 % Occupied Bandwidth)					

Other than above, 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 $k = 2$.

Shonan EMC Lab.

Item	Frequency range	Uncertainty (+/-)			
		No. 1 SAC / SR	No. 2 SAC / SR	No. 3 SAC / SR	No. 4,5,6,8 SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.6 dB	2.6 dB	2.7 dB	2.7 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	2.9 dB	2.9 dB	2.9 dB	-
	30 MHz-200 MHz	4.6 dB	4.6 dB	4.6 dB	-
	200 MHz-1 GHz	6.0 dB	6.0 dB	6.0 dB	-
	1 GHz-6 GHz	4.8 dB	4.8 dB	4.8 dB	-
	6 GHz-18 GHz	5.4 dB	5.4 dB	5.4 dB	-
	18 GHz-40 GHz	5.6 dB	5.6 dB	5.7 dB	-
Radiated emission (Measurement distance: 1 m)	1 GHz-18 GHz	5.7 dB	5.7 dB	5.7 dB	-
	18 GHz-40 GHz	5.9 dB	5.9 dB	5.9 dB	-

SAC=Semi-Anechoic Chamber

SR= Shielded Room is applied besides radiated emission

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)_SPM-06	1.2 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-06	2.0 dB
Power Measurement above 1 GHz (Average Detector)_SPM-07	1.2 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-07	1.3 dB
Power Measurement above 1 GHz (Average Detector)_SPM-13	1.3 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-13	1.3 dB
Spurious emission (Conducted) below 1GHz	0.93 dB
Spurious emission (Conducted), Power Density measurement 1 GHz-3 GHz	0.92 dB
Spurious emission (Conducted), Power Density measurement 3 GHz-18 GHz	2.3 dB
Spurious emission (Conducted) 18 GHz-26.5 GHz	2.3 dB
Spurious emission (Conducted) 26.5 GHz-40 GHz	2.3 dB
Bandwidth Measurement	0.012 %
Duty cycle and Time Measurement	0.27 %
Temperature_SCH-01	0.93 deg.C.
Humidity_SCH-01	4.1 %
Temperature_SCH-02	2.0 deg.C.
Humidity_SCH-02	6.6 %
Voltage	0.97 %

3.5 Test Location

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Telephone: +81 463 50 6400, Facsimile: +81 463 50 6401
A2LA Certificate Number: 1266.03
(FCC test firm registration number: 626366, ISED lab company number: 2973D / CAB identifier: JP0001)

Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
No.1 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 Shielded room	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 Shielded room	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 Shielded room	-	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

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

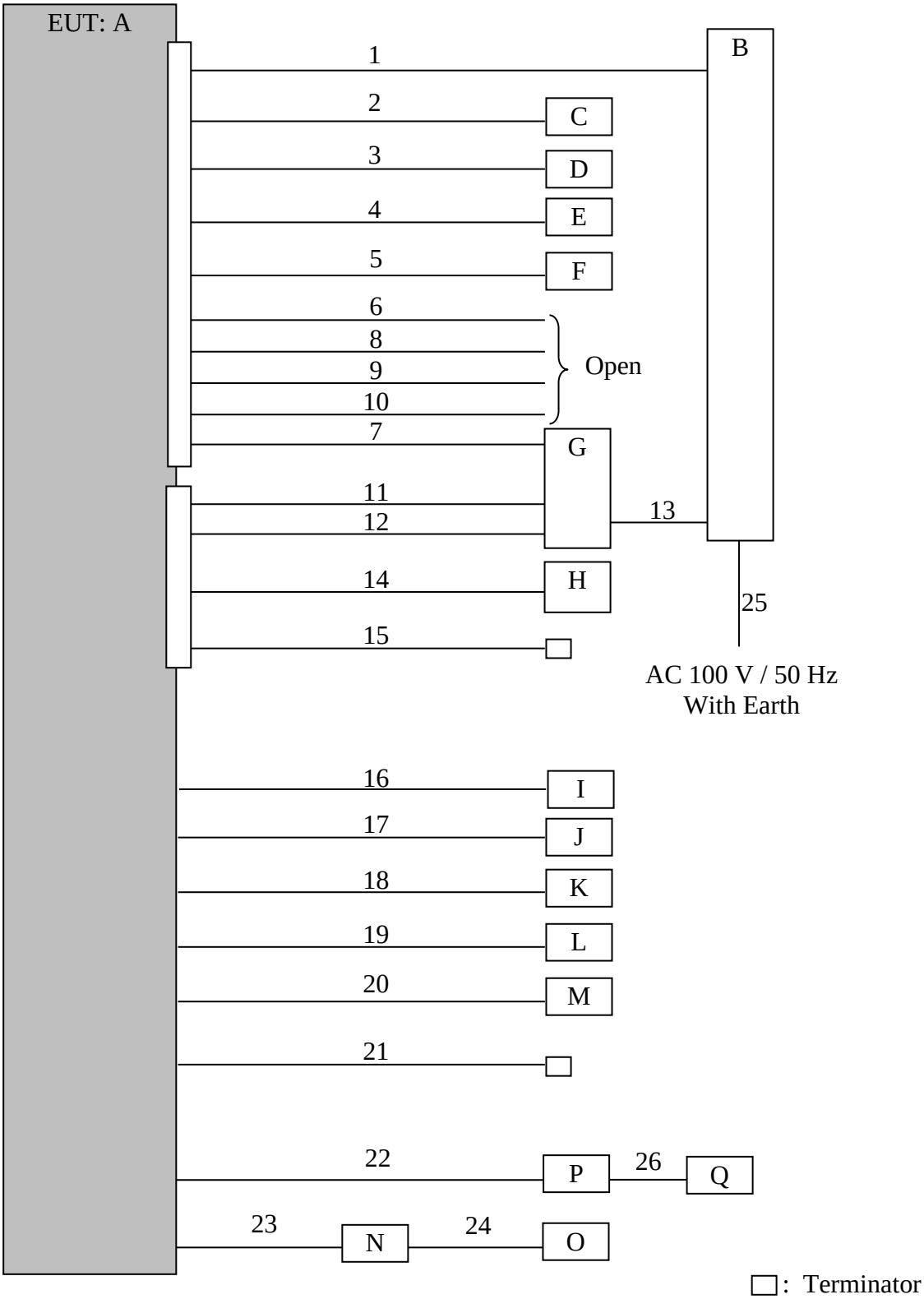
Mode	Remarks*
IEEE 802.11a (11a)	48 Mbps, PN9
IEEE 802.11n 20 MHz BW (11n-20)	MCS 7, PN9
IEEE 802.11ac 20 MHz BW (11ac-20)	MCS 6, PN9
*The worst condition was determined based on the test result of Maximum Conducted Output Power.	
*Power of the EUT was set by the software as follows; Power settings: 14 Software: myftm, Version: 1.0 (Date: 2022.1.18, Storage location: Driven by connected PC) *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

*The details of Operation mode(s)

Test Item	Operating Mode	Tested Frequency
		Upper Band
6 dB Bandwidth 99 % Occupied Bandwidth, Maximum Conducted Output Power, Maximum Power Spectral Density	11a Tx 11n-20 Tx 11ac-20 Tx	5745 MHz 5785 MHz 5825 MHz
Radiated Spurious Emission (Below 1 GHz) Conducted Spurious Emission	11ac-20 Tx *1)	5745 MHz
Radiated Spurious Emission (Above 1 GHz)	11ac-20 Tx	5745 MHz 5785 MHz 5825 MHz
	11a Tx 11n-20 Tx	5745 MHz *2) 5825 MHz *2)
*1) The mode was tested as a representative, because it had the highest power at antenna terminal test. *2) Only band edge tests were performed.		

4.2 Configuration and peripherals

<For Radiated Emission>



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

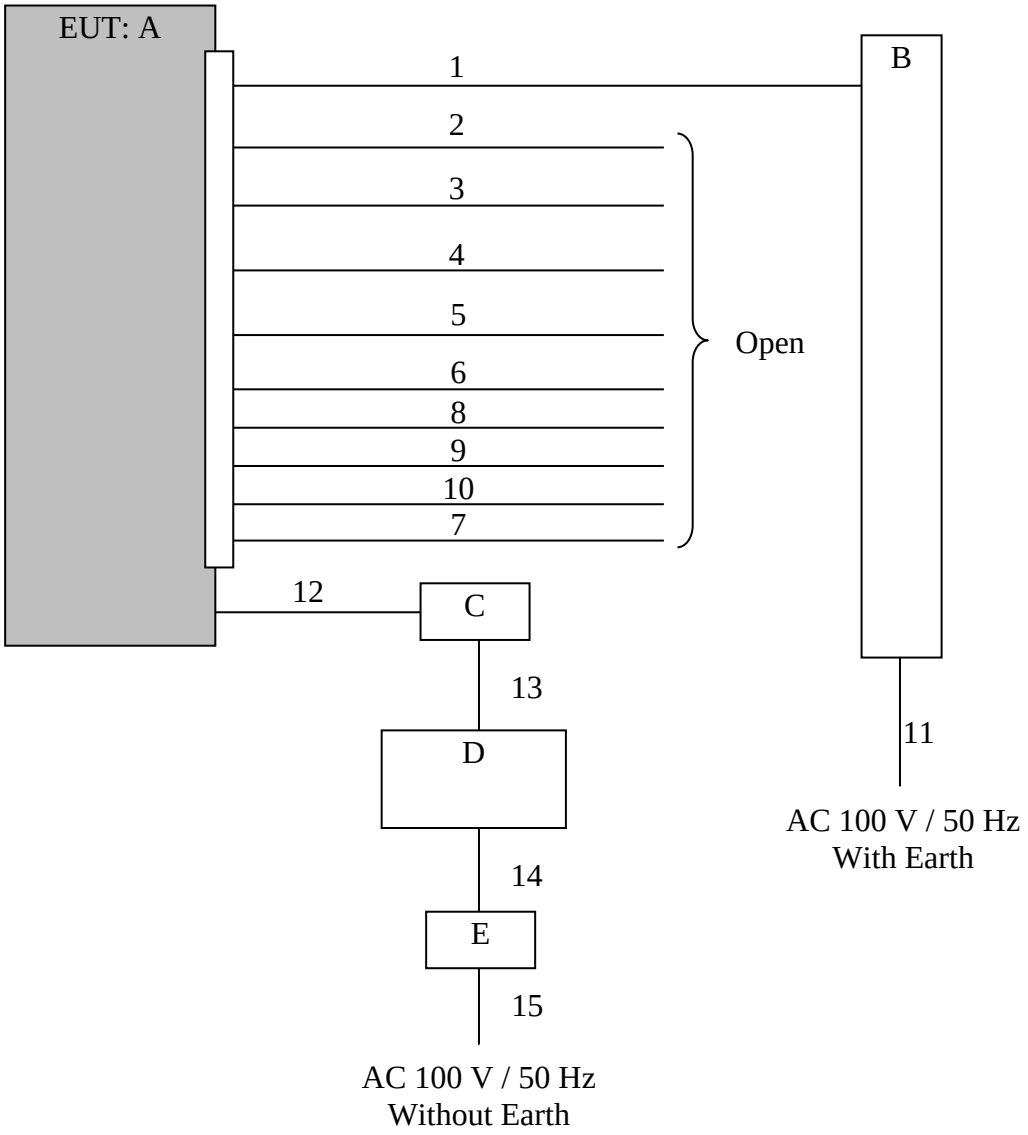
Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	AV Receiver	XAV-AX6000	118	SONY	EUT
B	DC Power Supply	PAN60-10A	NL002383	Kikusui	-
C	Speaker	TS-F1030	V44QAH2	Pioneer	-
D	Speaker	TS-F1030	V44QAH2	Pioneer	-
E	Speaker	TS-F1030	V44QBA1	Pioneer	-
F	Speaker	TS-F1030	V44QBA1	Pioneer	-
G	Amplifier	XM-GS4	0000052	SONY	-
H	Video Camera	HC-W585M	DM7LA002009	Panasonic	-
I	USB Memory	RUF3-AC32G-YE	P00316	BUFFALO	-
J	Microphone	-	-	SONY	-
K	Wired Remote Controller	RM-X4S	-	SONY	-
L	GPS Antenna	-	-	SONY	-
M	Universal Radio Replacement And Steering Wheel Interface	ADS-MRR	-	Maestro	-
N	Sirius XM Tuner	SXV300	1VH90D08	SiriusXM Radio	-
O	Antenna	NGVA3	1624A	SiriusXM Radio	-
P	iPhone	MQ792JA	C8PY95XLLC6H	Apple	-
Q	Lightning Digital AV Adapter	A1438	-	Apple	-

List of cables used

No.	Cable	Length (m)	Shield-Cable	Shield-Connector	Remarks
1	DC	0.15+1.0+0.1	Unshielded	Unshielded	ACC, B+, GND
2	Speaker	0.15+2.0+0.15	Unshielded	Unshielded	Front-L (+/-)
3	Speaker	0.15+2.0+0.15	Unshielded	Unshielded	Front-R (+/-)
4	Speaker	0.15+2.0+0.15	Unshielded	Unshielded	Rear-L (+/-)
5	Speaker	0.15+2.0+0.15	Unshielded	Unshielded	Rear-R (+/-)
6	ILL	0.15+1.0	Unshielded	Unshielded	-
7	REM OUT	0.15+1.5+0.3	Unshielded	Unshielded	-
8	SPEED IN	0.15+1.0	Unshielded	Unshielded	-
9	REVERSE IN	0.15+1.0	Unshielded	Unshielded	-
10	Parking Brake	2.0	Unshielded	Unshielded	-
11	AUDIO OUT 1	0.15+3.6	Shielded	Shielded	L/R
12	AUDIO OUT 2	0.15+3.6	Shielded	Shielded	L/R
13	DC	1.4	Unshielded	Unshielded	-
14	REAR CAMERA IN	0.15+3.5	Shielded	Shielded	-
15	SUB OUT	0.15+1.5	Shielded	Shielded	-
16	USB	1.5	Shielded	Shielded	-
17	Microphone	3.5	Shielded	Shielded	-
18	Wired Remote Controller	1.9	Shielded	Shielded	-
19	GPS Antenna	3.0	Shielded	Shielded	-
20	Data Link	3.0	Unshielded	Unshielded	-
21	AM/FM Antenna	2.0	Shielded	Shielded	-
22	HDMI	2.0	Shielded	Shielded	-
23	Sirius XM	0.65	Shielded	Shielded	-
24	Antenna	7.0	Shielded	Shielded	-
25	AC	1.8	Unshielded	Unshielded	-
26	Lightning	0.05	Shielded	Shielded	-

<For Antenna Terminated conducted test>



* 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	AV Receiver	XAV-AX6000	116	SONY	EUT
B	DC Power Supply	PAN35-10A	NA000955	Kikusui	-
C	USB-LAN Converter	EDC-GUA3-W	08L168701192A	ELECOM	-
D	Laptop Computer	ThinkPad L580	PF-1PMM0X	Lenovo	-
E	AC Adapter	ADLX45YLC2A	8SSA10E75842L1C Z9480J61	Lenovo	-

List of cables used

No.	Cable	Length (m)	Shield-Cable	Shield-Connector	Remarks
1	DC	0.15+2.8	Unshielded	Unshielded	ACC, B+, GND
2	Speaker	0.15	Unshielded	Unshielded	Front-L (+/-)
3	Speaker	0.15	Unshielded	Unshielded	Front-R (+/-)
4	Speaker	0.15	Unshielded	Unshielded	Rear-L (+/-)
5	Speaker	0.15	Unshielded	Unshielded	Rear-R (+/-)
6	ILL	0.15	Unshielded	Unshielded	-
7	REM OUT	0.15	Unshielded	Unshielded	-
8	SPEED IN	0.15	Unshielded	Unshielded	-
9	REVERSE IN	0.15	Unshielded	Unshielded	-
10	Parking Brake	2.0	Unshielded	Unshielded	-
11	AC	2.9	Unshielded	Unshielded	-
12	USB	0.1	Shielded	Shielded	-
13	LAN	3.0	Unshielded	Unshielded	-
14	DC	1.8	Unshielded	Unshielded	Laptop Computer
15	AC	0.9	Unshielded	Unshielded	Laptop Computer

SECTION 5: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

< Below 1 GHz >
EUT was placed on a urethane platform of nominal size, 1.5 m by 1.0 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.

The height of the measuring antenna varied between 1 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.
Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.
The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

< Below 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 U-NII-3 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:

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

Test Antennas are used as below;

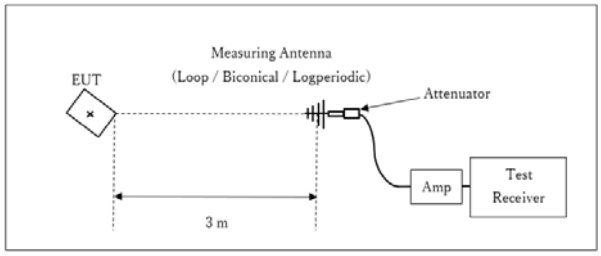
Frequency	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

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

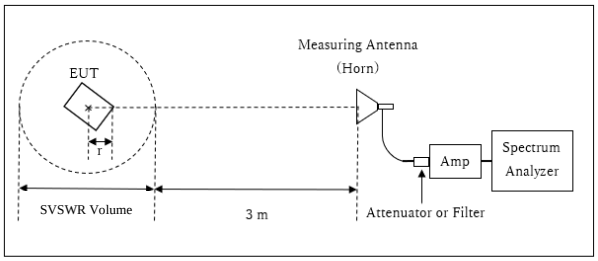
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz - 10 GHz

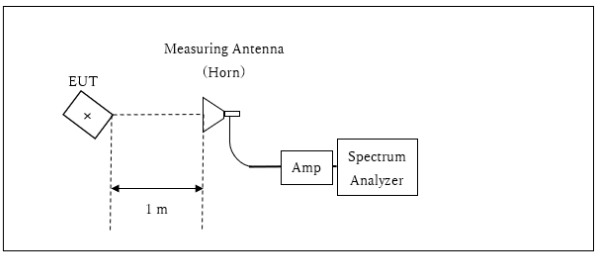


r : Radius of an outer periphery of EUT
× : Center of turn table

Distance Factor: 20 x log (3.9 m / 3.0 m) = 2.28 dB
* Test Distance: (3 + SVSWR Volume /2) - r = 3.9 m

SVSWR Volume : 2.0 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
r = 0.1 m

10 GHz – 40 GHz



× : Center of turn table

Distance Factor: 20 x log (1.0 m / 3.0 m) = -9.54 dB
*Test Distance: 1 m

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

Antenna polarization	Carrier	Spurious (30 MHz - 1 GHz)	Spurious (1 GHz - 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	30 deg.	0 deg.	30 deg.	0 deg.	0 deg.	0 deg.	0 deg.
Vertical	30 deg.	0 deg.	30 deg.	0 deg.	0 deg.	0 deg.	0 deg.

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

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

SECTION 6: Antenna Terminal Conducted Tests

Test Procedure

The tests were made with below setting connected to the antenna port.

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used and Test method
99 % Occupied Bandwidth *1)	Enough width to display emission skirts	1 % to 5 % of OBW	≥ 3 RBW	Auto	Peak	Max Hold	Spectrum Analyzer
6 dB Bandwidth	Enough to capture the emission	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Conducted Output Power	-	-	-	Auto	Average	-	Power Meter (Sensor: 160 MHz BW) (Method PM-G)
Maximum Power Spectral Density	Encompass the entire EBW	100 kHz *2)	≥ 3 RBW	Auto	RMS *5) Power Averaging (100 times)	Clear Write	Spectrum Analyzer
Conducted Spurious Emission*3) *4)	9 kHz – 150 kHz 150 kHz – 30 MHz	200 Hz 10 kHz	620 Hz 30 kHz	Auto	Peak	Max Hold	Spectrum Analyzer

* 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".

*1) Peak hold was applied as Worst-case measurement.
*2) KDB 789033 D02 says that RBW is set to be 500 kHz for 5.725 GHz-5.850 GHz, but it is not possible with spectrum analyzer, so RBW Correction Factor (10 log(500 kHz / 100 kHz)) was added to the test result.
*3) In the frequency range below 30 MHz, RBW was narrowed to separate the noise contents. Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart. (9 kHz-150 kHz: RBW = 200 Hz, 150 kHz-30 MHz: RBW = 10 kHz)
*4) The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 Ohmes. For example, the measurement at frequency 9 kHz resulted in a level of 45.5 dBuV/m, which is equivalent to 45.5 – 51.5 = -6.0 dBuA/m, which has the same margin, 3 dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.
*5) Power was measured with using the gate function.

The test results and limit are rounded off to two decimals place, so some differences might be observed.
The equipment and cables were not used for factor 0 dB of the data sheets.

Test data : APPENDIX
Test result : Pass

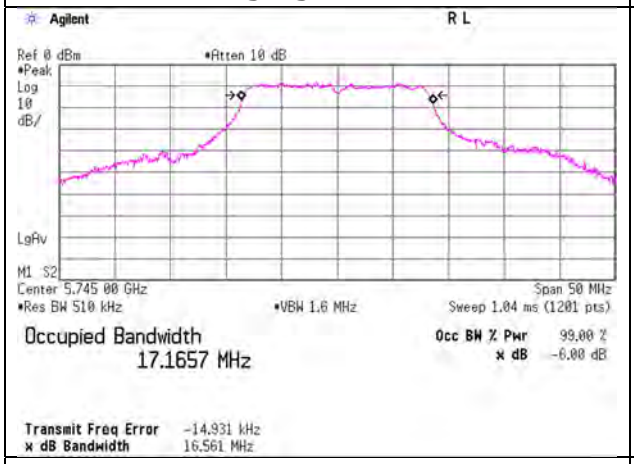
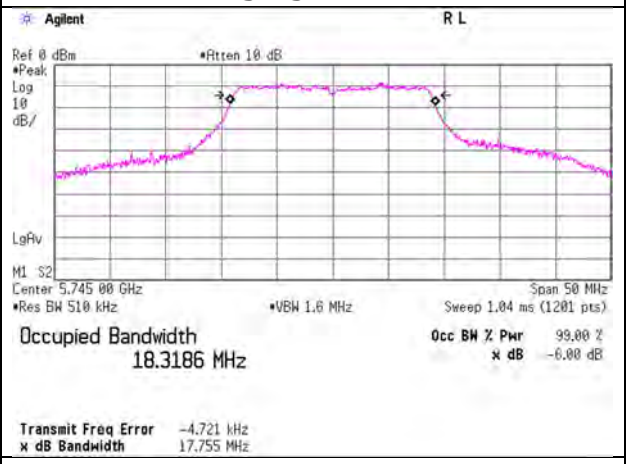
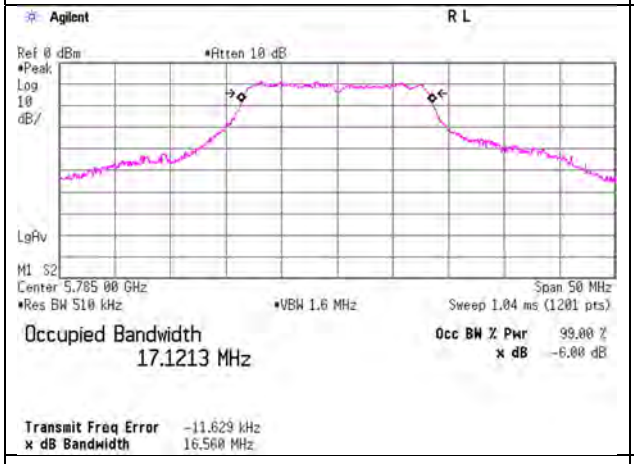
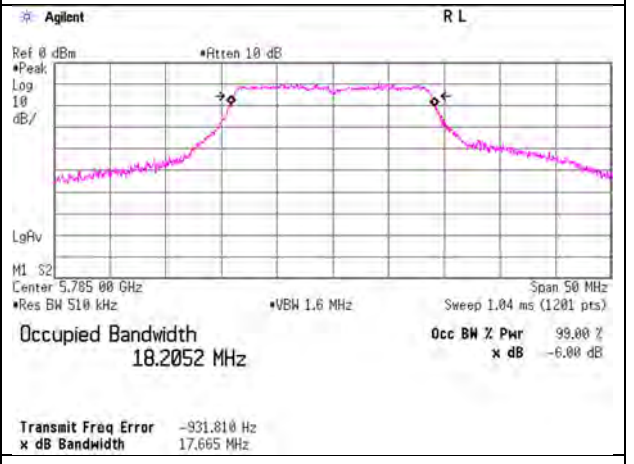
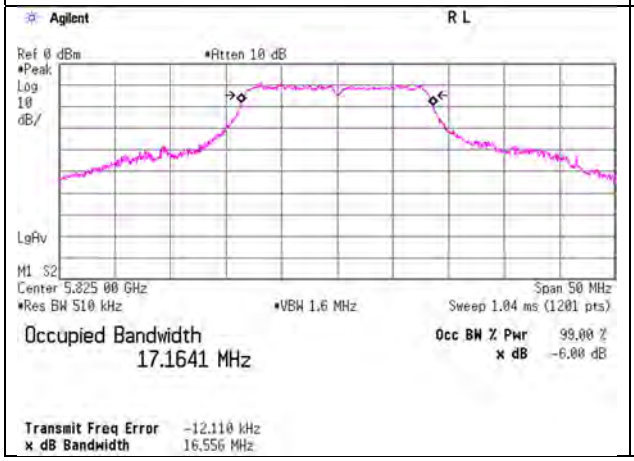
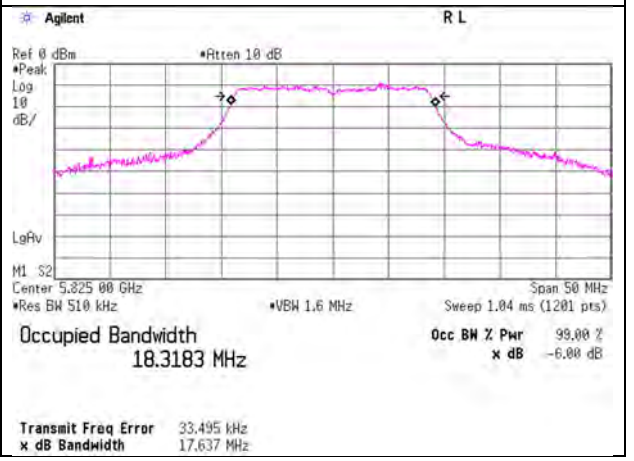
APPENDIX 1: Test data

99 % Occupied Bandwidth

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx

Mode	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
11a	5745	17165.7
	5785	17121.3
	5825	17164.1
11n-20	5745	18318.6
	5785	18205.2
	5825	18318.3
11ac-20	5745	18458.4
	5785	18356.0
	5825	18399.9

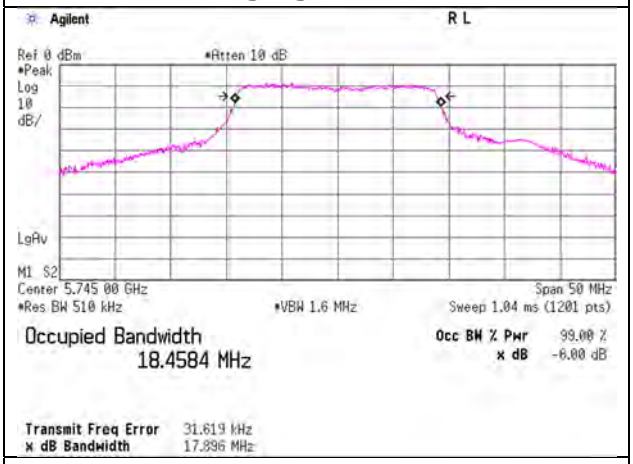
99 % Occupied Bandwidth

11a	11n-20
5745 MHz	**5745 MHz**
	
5785 MHz	**5785 MHz**
	
5825 MHz	**5825 MHz**
	

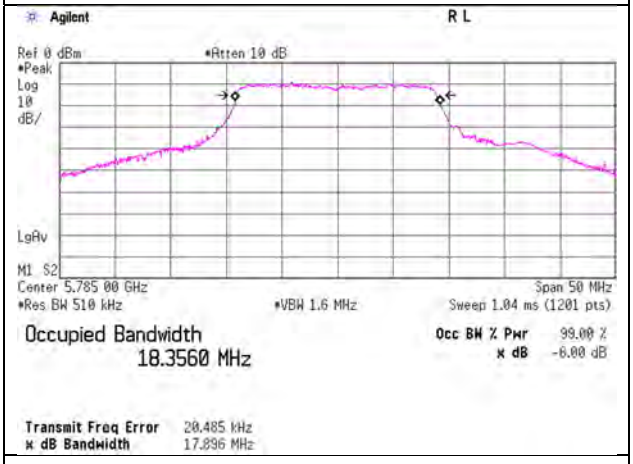
99 % Occupied Bandwidth

11ac-20

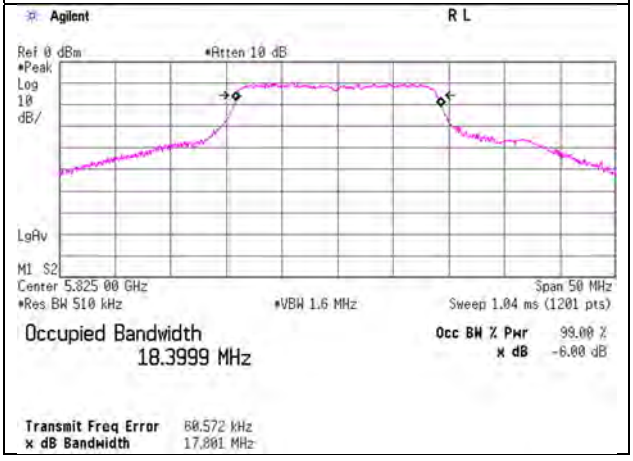
5745 MHz



5785 MHz



5825 MHz

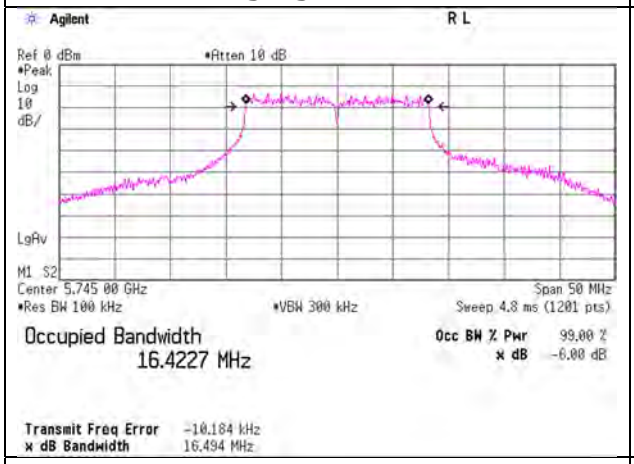
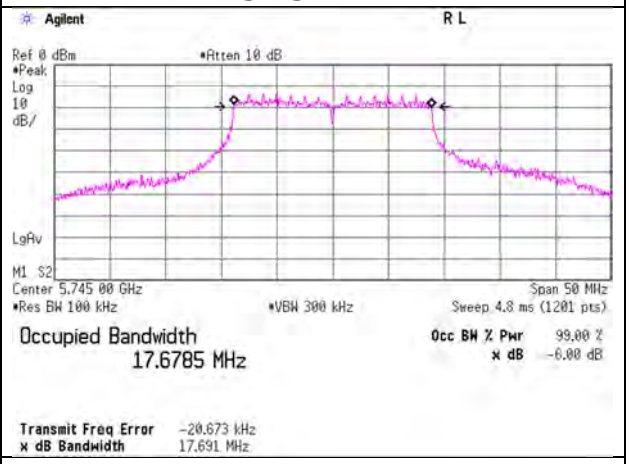
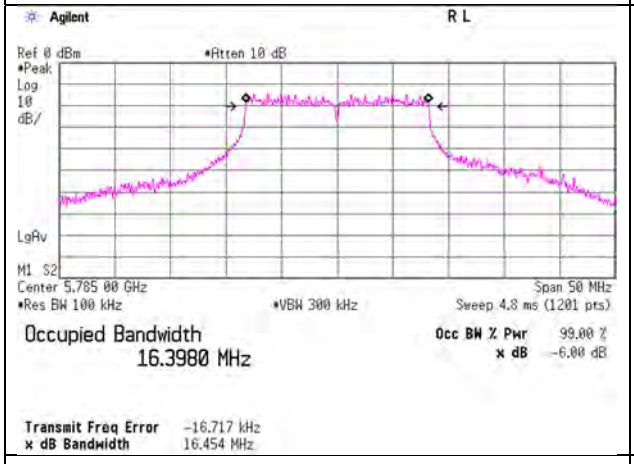
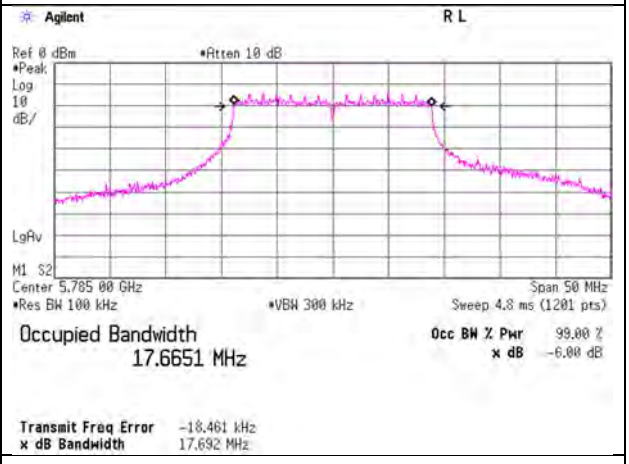
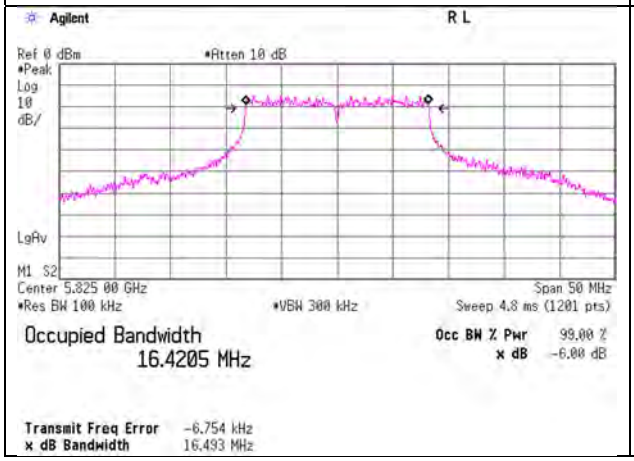
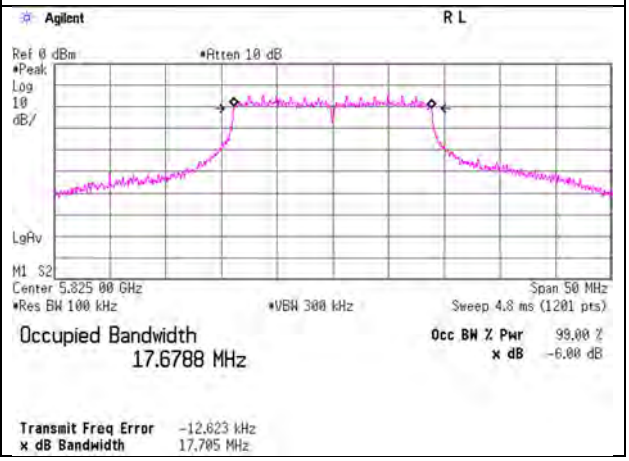


6 dB Bandwidth

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx

Mode	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
11a	5745	16.494	> 0.500
	5785	16.454	> 0.500
	5825	16.493	> 0.500
11n-20	5745	17.691	> 0.500
	5785	17.692	> 0.500
	5825	17.705	> 0.500
11ac-20	5745	17.705	> 0.500
	5785	17.701	> 0.500
	5825	17.713	> 0.500

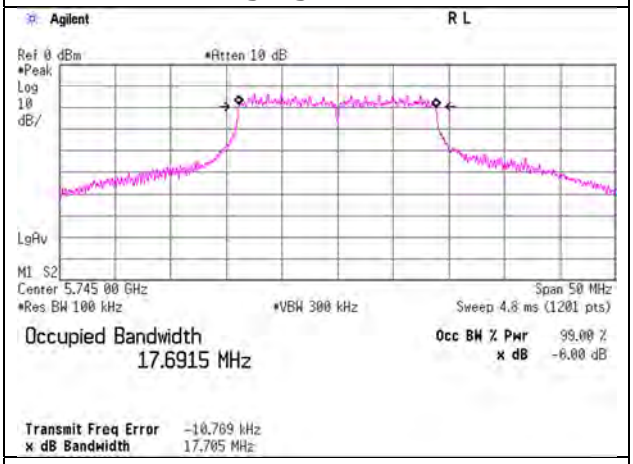
6 dB Bandwidth

11a	11n-20
5745 MHz	**5745 MHz**
	
5785 MHz	**5785 MHz**
	
5825 MHz	**5825 MHz**
	

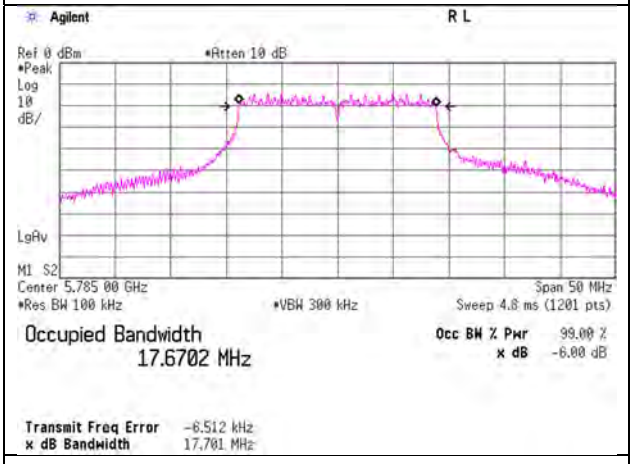
6 dB Bandwidth

11ac-20

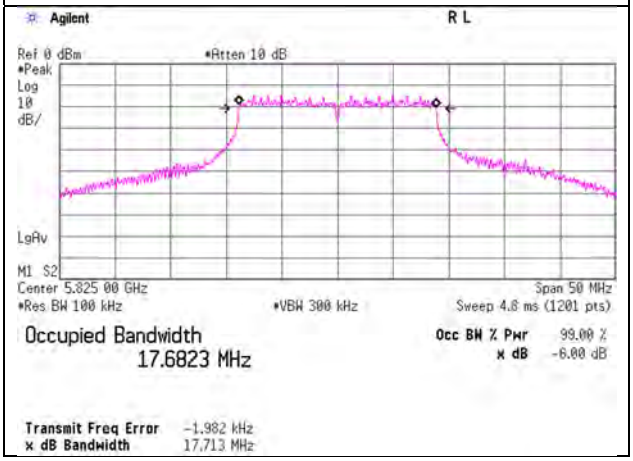
5745 MHz



5785 MHz



5825 MHz



Maximum Conducted Output Power

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx

Applied limit: 15.407, mobile and portable client device

Mode	Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain	26 dB EBW (B for FCC)	99% OBW (B for ISED)	Conducted Power				e.i.r.p.			
									Result		Limit	Margin	Result		Limit	Margin
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
11a	5745	-3.45	2.63	9.98	0.00	3.2	-	17.166	9.16	8.25	30.00	20.84	12.36	17.24	36.00	23.64
	5785	-4.06	2.65	9.98	0.00	3.2	-	17.121	8.57	7.19	30.00	21.43	11.77	15.02	36.00	24.23
	5825	-4.53	2.66	9.98	0.00	3.2	-	17.164	8.11	6.47	30.00	21.89	11.31	13.52	36.00	24.69
11n-20	5745	-3.43	2.63	9.98	0.00	3.2	-	18.319	9.18	8.29	30.00	20.82	12.38	17.32	36.00	23.62
	5785	-3.99	2.65	9.98	0.00	3.2	-	18.205	8.64	7.31	30.00	21.36	11.84	15.27	36.00	24.16
	5825	-4.35	2.66	9.98	0.00	3.2	-	18.318	8.29	6.74	30.00	21.71	11.49	14.09	36.00	24.51
11ac-20	5745	-3.31	2.63	9.98	0.00	3.2	-	18.458	9.30	8.52	30.00	20.70	12.50	17.80	36.00	23.50
	5785	-3.92	2.65	9.98	0.00	3.2	-	18.356	8.71	7.43	30.00	21.29	11.91	15.51	36.00	24.09
	5825	-4.28	2.66	9.98	0.00	3.2	-	18.400	8.36	6.85	30.00	21.64	11.56	14.32	36.00	24.44

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W
*1) Power was measured with using the gate function of power meter.

Maximum Conducted Output Power

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx 11a

5745 MHz

Mode	Rate Mbps	Reading (timed average) [dBm]	Duty factor *1) [dB]	Burst power [dBm]	Remarks
11a	6	-3.58	0.00	-3.58	-
	9	-3.62	0.00	-3.62	-
	12	-3.59	0.00	-3.59	-
	18	-3.62	0.00	-3.62	-
	24	-3.70	0.00	-3.70	-
	36	-3.56	0.00	-3.56	-
	48	-3.45	0.00	-3.45	*
	54	-3.48	0.00	-3.48	-

* Worst rate

Sample Calculation:

Burst power = Reading (timed average) + Duty factor

All comparison were carried out on same frequency and measurement factors.

*1) Power was measured with using the gate function of power meter.

Maximum Conducted Output Power

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx 11n-20

5745 MHz

Mode	MCS Number	Reading (timed average) [dBm]	Duty factor *1) [dB]	Burst power [dBm]	Remarks
11n-20	0	-3.66	0.00	-3.66	-
	1	-3.86	0.00	-3.86	-
	2	-3.59	0.00	-3.59	-
	3	-3.56	0.00	-3.56	-
	4	-3.54	0.00	-3.54	-
	5	-3.44	0.00	-3.44	-
	6	-3.45	0.00	-3.45	-
	7	-3.43	0.00	-3.43	*

* Worst rate

Sample Calculation:

Burst power = Reading (timed average) + Duty factor

All comparison were carried out on same frequency and measurement factors.

*1) Power was measured with using the gate function of power meter.

Maximum Conducted Output Power

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx 11ac-20

5745 MHz

Mode	MCS Number	Reading (timed average) [dBm]	Duty factor *1) [dB]	Burst power [dBm]	Remarks
11ac-20	0	-3.59	0.00	-3.59	-
	1	-3.63	0.00	-3.63	-
	2	-3.49	0.00	-3.49	-
	3	-3.52	0.00	-3.52	-
	4	-3.44	0.00	-3.44	-
	5	-3.38	0.00	-3.38	-
	6	-3.31	0.00	-3.31	*
	7	-3.40	0.00	-3.40	-
	8	-3.32	0.00	-3.32	-

* Worst rate

Sample Calculation:

Burst power = Reading (timed average) + Duty factor

All comparison were carried out on same frequency and measurement factors.

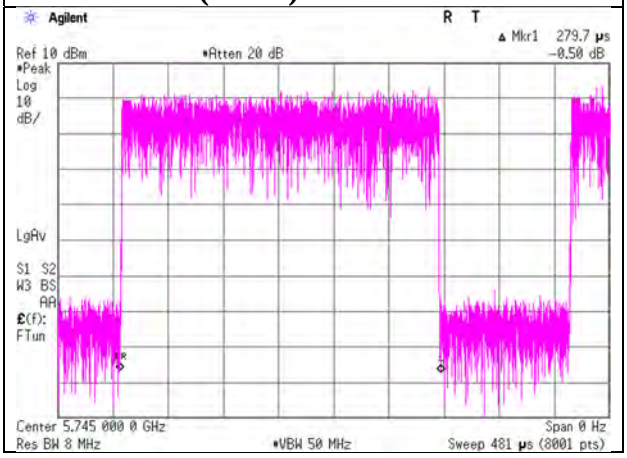
*1) Power was measured with using the gate function of power meter.

Burst rate confirmation

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx

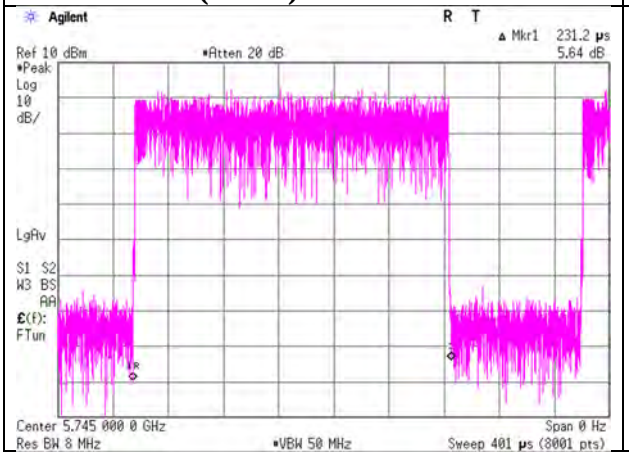
11a 48 Mbps

VBW: 1/T = 3575 Hz<3600 Hz
T: (Tx on) = 0.2797 ms



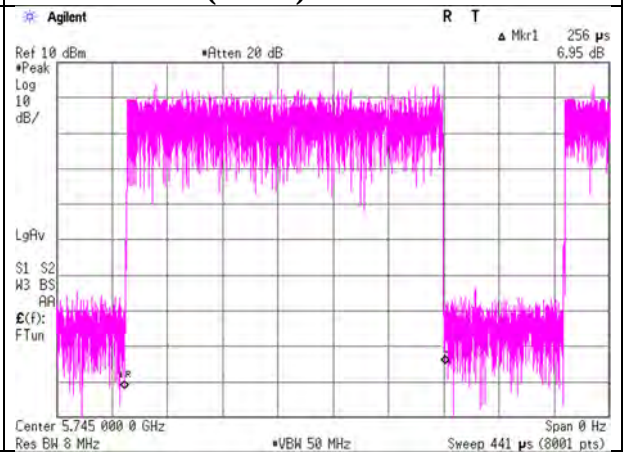
11n-20 MCS 7

VBW: 1/T = 4325 Hz<4700 Hz
T: (Tx on) = 0.2312 ms



11ac-20 MCS 6

VBW: 1/T = 3906 Hz<4300 Hz
T: (Tx on) = 0.256 ms



Maximum Power Spectral Density

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx 11a

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /100 kHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor *1) [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted) Result [dBm /500 kHz]	PSD (Conducted) Limit [dBm /500 kHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /500 kHz]	PSD (e.i.r.p.) Limit [dBm /500 kHz]	PSD (e.i.r.p.) Margin [dB]
5745	-23.03	2.63	9.98	0.00	3.2	6.99	-3.42	30.00	33.42	-0.22	36.00	36.22
5785	-24.29	2.65	9.98	0.00	3.2	6.99	-4.67	30.00	34.67	-1.47	36.00	37.47
5825	-24.39	2.66	9.98	0.00	3.2	6.99	-4.76	30.00	34.76	-1.56	36.00	37.56

Sample Calculation:
PSD: Power Spectral Density
The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.
RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)
PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain
*1) Power was measured with using the gate function of Spectrum Analyzer.

Maximum Power Spectral Density

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx 11n-20

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /100 kHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor *1) [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted) Result [dBm /500 kHz]	PSD (Conducted) Limit [dBm /500 kHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /500 kHz]	PSD (e.i.r.p.) Limit [dBm /500 kHz]	PSD (e.i.r.p.) Margin [dB]
5745	-23.53	2.63	9.98	0.00	3.2	6.99	-3.92	30.00	33.92	-0.72	36.00	36.72
5785	-23.96	2.65	9.98	0.00	3.2	6.99	-4.35	30.00	34.35	-1.15	36.00	37.15
5825	-23.78	2.66	9.98	0.00	3.2	6.99	-4.15	30.00	34.15	-0.95	36.00	36.95

Sample Calculation:
PSD: Power Spectral Density
The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.
RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)
PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain
*1) Power was measured with using the gate function of Spectrum Analyzer.

Maximum Power Spectral Density

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx 11ac-20

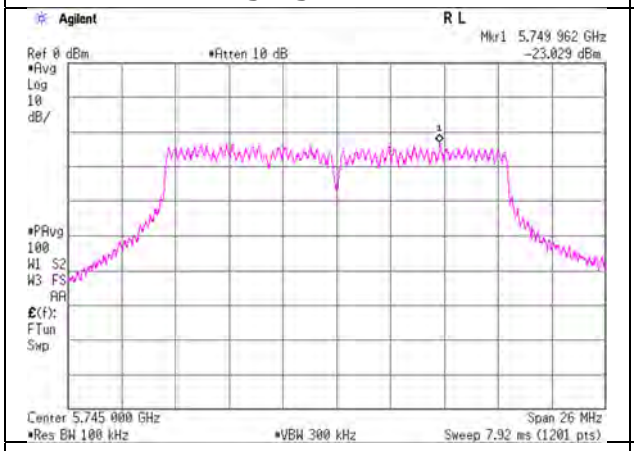
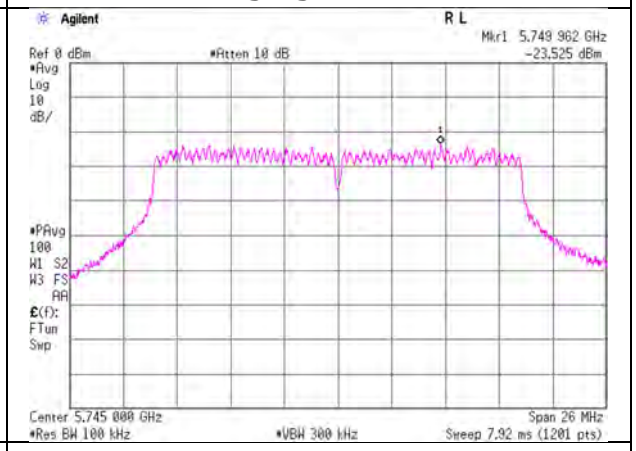
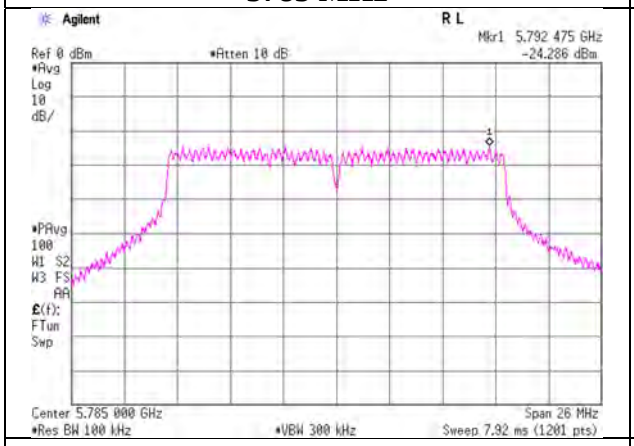
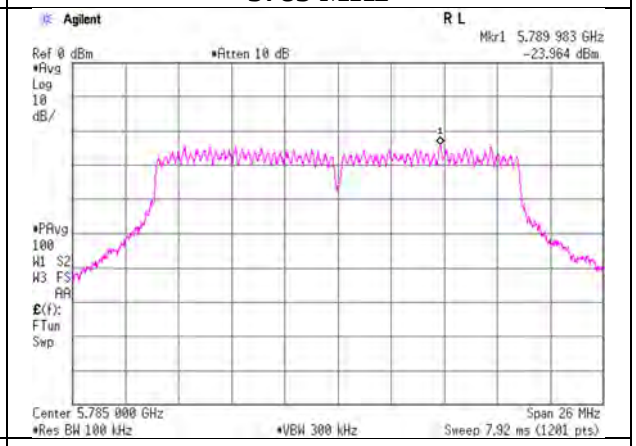
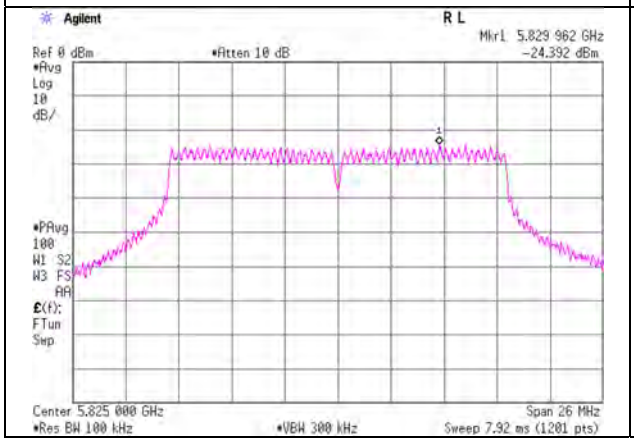
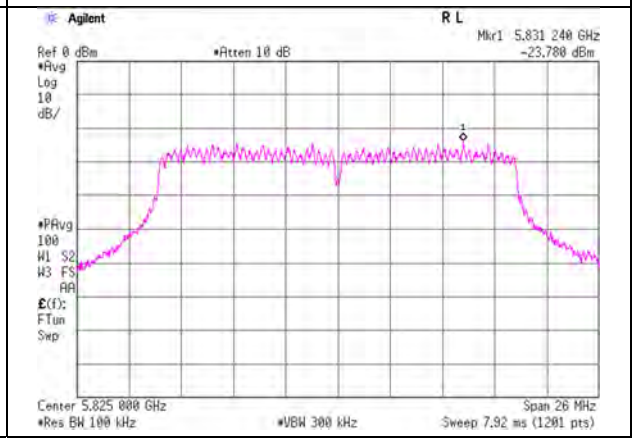
Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /100 kHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor *1) [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted) Result [dBm /500 kHz]	PSD (Conducted) Limit [dBm /500 kHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /500 kHz]	PSD (e.i.r.p.) Limit [dBm /500 kHz]	PSD (e.i.r.p.) Margin [dB]
5745	-23.62	2.63	9.98	0.00	3.2	6.99	-4.02	30.00	34.02	-0.82	36.00	36.82
5785	-23.29	2.65	9.98	0.00	3.2	6.99	-3.67	30.00	33.67	-0.47	36.00	36.47
5825	-24.18	2.66	9.98	0.00	3.2	6.99	-4.55	30.00	34.55	-1.35	36.00	37.35

Sample Calculation:
PSD: Power Spectral Density
The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.
RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)
PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain
*1) Power was measured with using the gate function of Spectrum Analyzer.

Maximum Power Spectral Density

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx

11a	11n-20
5745 MHz	**5745 MHz**
	
5785 MHz	**5785 MHz**
	
5825 MHz	**5825 MHz**
	

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Shonan EMC Lab.
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Telephone : +81 463 50 6400
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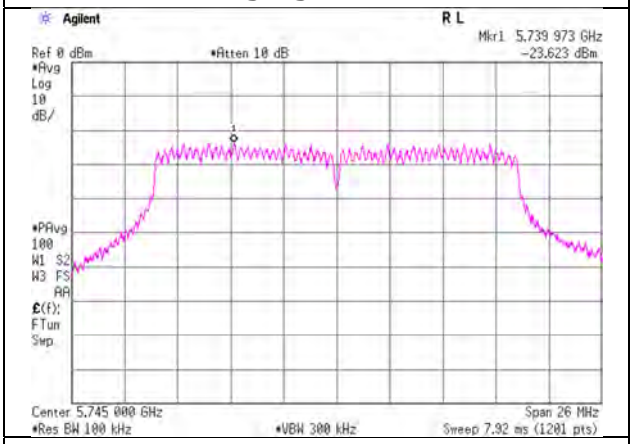
Maximum Power Spectral Density

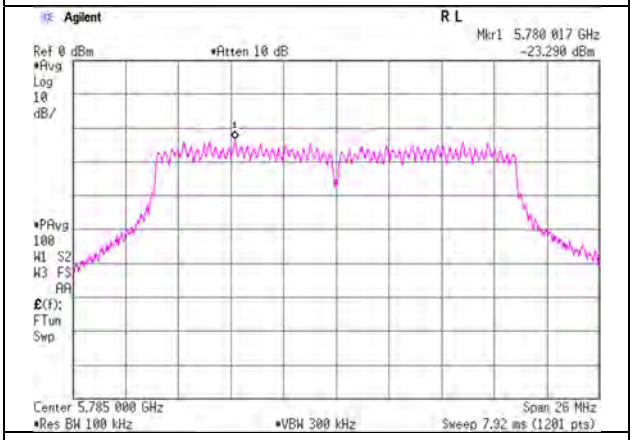
Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx

11ac-20

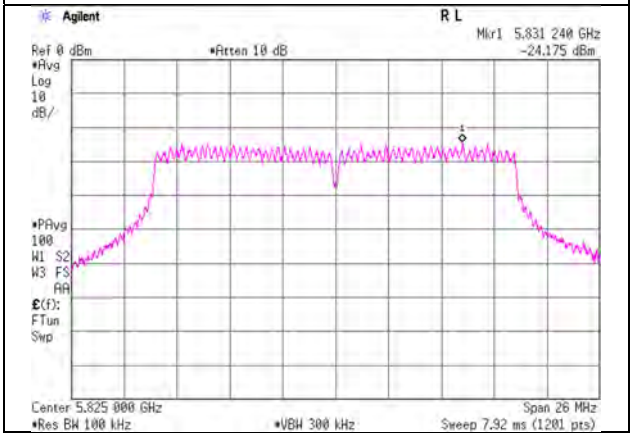
5745 MHz



5785 MHz



5825 MHz



Radiated Spurious Emission

Report No.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 1, 2022
Temperature / Humidity	23 deg.C, 32 %RH
Engineer	Yusuke Tanikawara
	(1 GHz -6.4 GHz)
Mode	Tx 11a 5745 MHz

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

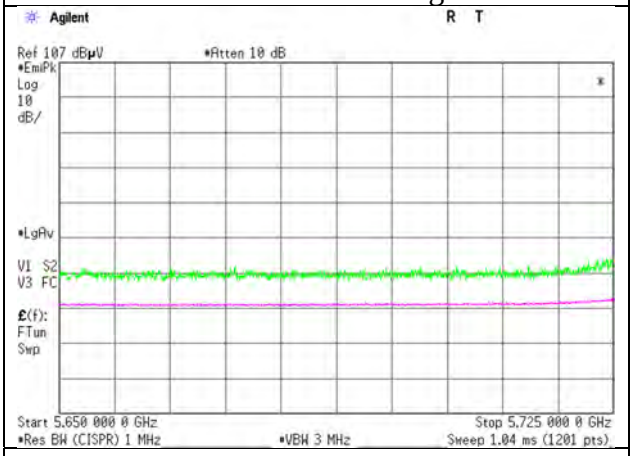
(* PK: Peak, AV: Average, QP: Quasi-Peak)

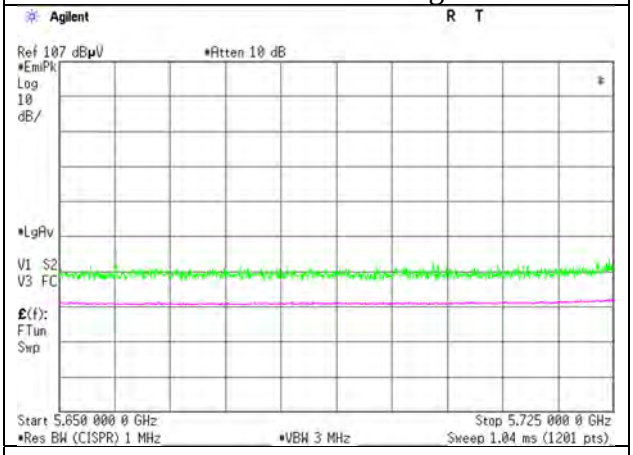
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.93	32.74	16.73	43.42	2.28	57.26	-37.97	-27.0	**10.9**	137	200	-
Hori.	5700.000	PK	48.97	32.87	16.75	43.42	2.28	57.45	-37.78	10.0	47.7	137	200	-
Hori.	5720.000	PK	51.56	32.93	16.76	43.42	2.28	60.11	-35.12	15.6	50.7	137	200	-
Hori.	5725.000	PK	53.74	32.95	16.76	43.42	2.28	62.31	-32.92	27.0	59.9	137	200	-
Vert.	5650.000	PK	48.33	32.74	16.73	43.42	2.28	56.66	-38.57	-27.0	11.5	188	16	-
Vert.	5700.000	PK	49.00	32.87	16.75	43.42	2.28	57.48	-37.75	10.0	47.7	188	16	-
Vert.	5720.000	PK	49.77	32.93	16.76	43.42	2.28	58.32	-36.91	15.6	52.5	188	16	-
Vert.	5725.000	PK	52.72	32.95	16.76	43.42	2.28	61.29	-33.94	27.0	60.9	188	16	-

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 (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 1, 2022
Temperature / Humidity	23 deg.C, 32 %RH
Engineer	Yusuke Tanikawara (1 GHz -6.4 GHz)
Mode	Tx 11a 5745 MHz

Horizontal
Restricted-band band-edge Plot

Trace Green: Peak Plot Trace Purple: Average Plot

Vertical
Restricted-band band-edge Plot

Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 1, 2022
Temperature / Humidity	23 deg.C, 32 %RH
Engineer	Yusuke Tanikawara
	(1 GHz -6.4 GHz)
Mode	Tx 11a 5825 MHz

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

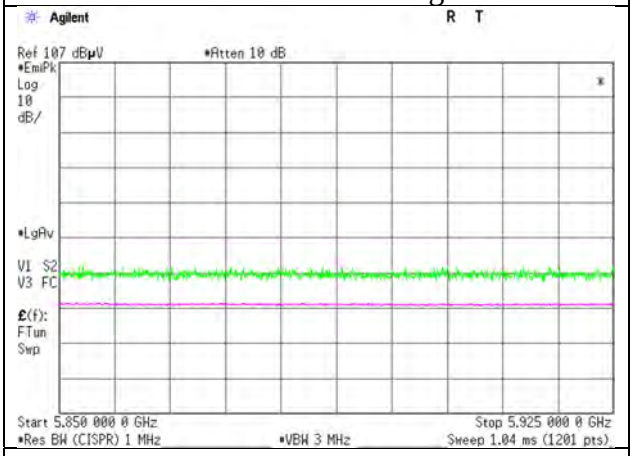
(* PK: Peak, AV: Average, QP: Quasi-Peak)

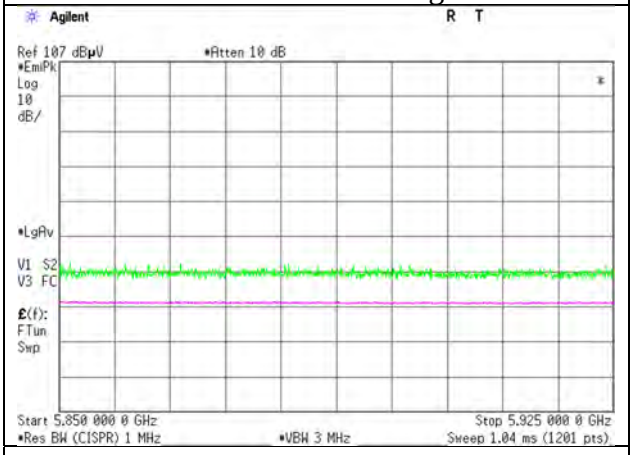
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	49.70	33.26	16.84	43.43	2.28	58.65	-36.58	27.0	63.5	142	209	-
Hori.	5855.000	PK	48.91	33.27	16.84	43.43	2.28	57.87	-37.36	15.6	52.9	142	209	-
Hori.	5875.000	PK	48.72	33.31	16.87	43.43	2.28	57.75	-37.48	10.0	47.4	142	209	-
Hori.	5925.000	PK	49.17	33.43	16.89	43.43	2.28	58.34	-36.89	-27.0	9.8	142	209	-
Vert.	5850.000	PK	49.35	33.26	16.84	43.43	2.28	58.30	-36.93	27.0	63.9	187	157	-
Vert.	5855.000	PK	48.60	33.27	16.84	43.43	2.28	57.56	-37.67	15.6	53.2	187	157	-
Vert.	5875.000	PK	49.32	33.31	16.87	43.43	2.28	58.35	-36.88	10.0	46.8	187	157	-
Vert.	5925.000	PK	49.52	33.43	16.89	43.43	2.28	58.69	-36.54	-27.0	**9.5**	187	157	-

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 (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 1, 2022
Temperature / Humidity	23 deg.C, 32 %RH
Engineer	Yusuke Tanikawara (1 GHz -6.4 GHz)
Mode	Tx 11a 5825 MHz

Horizontal
Restricted-band band-edge Plot

Trace Green: Peak Plot Trace Purple: Average Plot

Vertical
Restricted-band band-edge Plot

Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 1, 2022
Temperature / Humidity	23 deg.C, 32 %RH
Engineer	Yusuke Tanikawara
	(1 GHz -6.4 GHz)
Mode	Tx 11n-20 5745 MHz

(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	50.08	32.74	16.73	43.42	2.28	58.41	-36.82	-27.0	**9.8**	150	213	-
Hori.	5700.000	PK	49.40	32.87	16.75	43.42	2.28	57.88	-37.35	10.0	47.3	150	213	-
Hori.	5720.000	PK	50.89	32.93	16.76	43.42	2.28	59.44	-35.79	15.6	51.3	150	213	-
Hori.	5725.000	PK	53.33	32.95	16.76	43.42	2.28	61.90	-33.33	27.0	60.3	150	213	-
Vert.	5650.000	PK	48.83	32.74	16.73	43.42	2.28	57.16	-38.07	-27.0	11.0	378	203	-
Vert.	5700.000	PK	48.82	32.87	16.75	43.42	2.28	57.30	-37.93	10.0	47.9	378	203	-
Vert.	5720.000	PK	49.74	32.93	16.76	43.42	2.28	58.29	-36.94	15.6	52.5	378	203	-
Vert.	5725.000	PK	50.33	32.95	16.76	43.42	2.28	58.90	-36.33	27.0	63.3	378	203	-

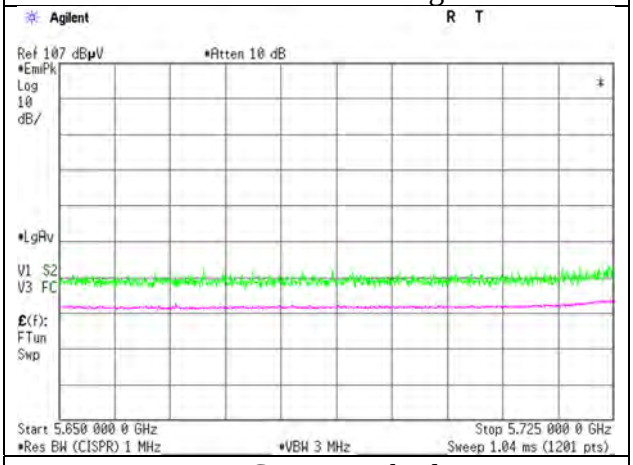
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).
Distance factor : 1 GHz - 10 GHz : 20log (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 1, 2022
Temperature / Humidity	23 deg.C, 32 %RH
Engineer	Yusuke Tanikawara
	(1 GHz -6.4 GHz)
Mode	Tx 11n-20 5745 MHz

Horizontal

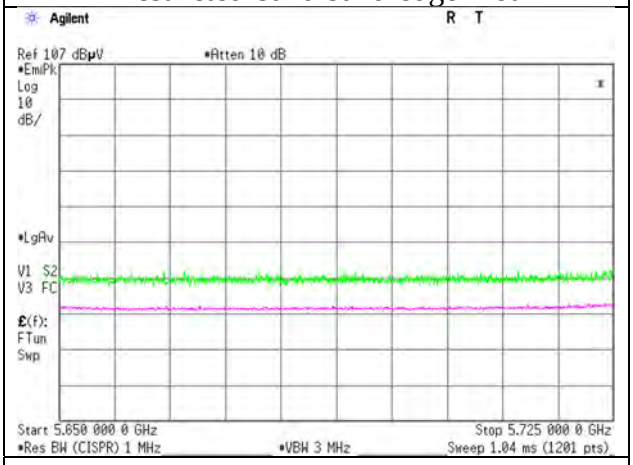
Restricted-band band-edge Plot



Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green: Peak Plot
Trace Purple: Average Plot

* 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.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 1, 2022
Temperature / Humidity	23 deg.C, 32 %RH
Engineer	Yusuke Tanikawara
	(1 GHz -6.4 GHz)
Mode	Tx 11n-20 5825 MHz

(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	49.81	33.26	16.84	43.43	2.28	58.76	-36.47	27.0	63.4	185	215	-
Hori.	5855.000	PK	49.08	33.27	16.84	43.43	2.28	58.04	-37.19	15.6	52.7	185	215	-
Hori.	5875.000	PK	49.11	33.31	16.87	43.43	2.28	58.14	-37.09	10.0	47.0	185	215	-
Hori.	5925.000	PK	49.05	33.43	16.89	43.43	2.28	58.22	-37.01	-27.0	**10.0**	185	215	-
Vert.	5850.000	PK	50.93	33.26	16.84	43.43	2.28	59.88	-35.35	27.0	62.3	198	156	-
Vert.	5855.000	PK	49.48	33.27	16.84	43.43	2.28	58.44	-36.79	15.6	52.3	198	156	-
Vert.	5875.000	PK	49.10	33.31	16.87	43.43	2.28	58.13	-37.10	10.0	47.1	198	156	-
Vert.	5925.000	PK	48.02	33.43	16.89	43.43	2.28	57.19	-38.04	-27.0	11.0	198	156	-

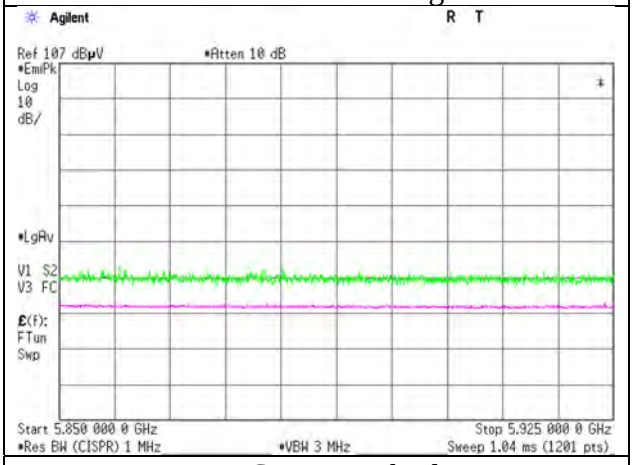
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).
Distance factor : 1 GHz - 10 GHz : 20log (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 1, 2022
Temperature / Humidity	23 deg.C, 32 %RH
Engineer	Yusuke Tanikawara
	(1 GHz -6.4 GHz)
Mode	Tx 11n-20 5825 MHz

Horizontal

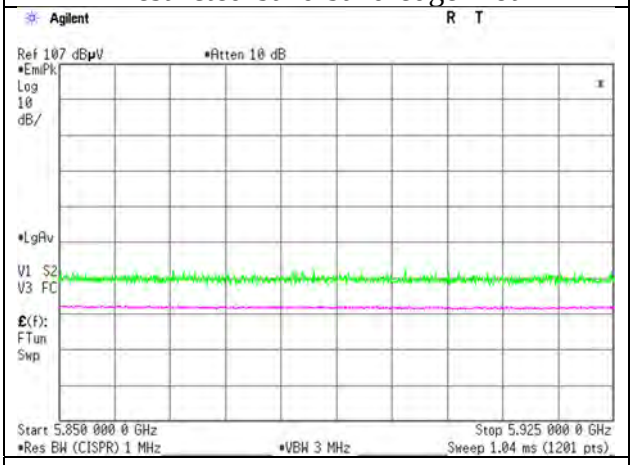
Restricted-band band-edge Plot



Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green: Peak Plot
Trace Purple: Average Plot

* 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.	14033439S-B		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.3	No.1	No.3
Date	January 26, 2022	February 2, 2022	February 4, 2022
Temperature / Humidity	24 deg.C, 31 %RH	23 deg.C, 33 %RH	22 deg.C, 31 %RH
Engineer	Yosuke Murakami	Hiromasa Sato	Hiromasa Sato
	(30 MHz -1 GHz)	(1 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 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.	63.589	QP	44.70	7.51	6.49	32.16	0.00	26.54	40.0	13.4	352	141	-
Hori.	268.418	QP	46.30	12.90	8.40	31.98	0.00	35.62	46.0	10.3	124	126	-
Hori.	405.502	QP	43.30	16.03	9.09	31.94	0.00	36.48	46.0	9.5	100	26	-
Hori.	860.157	QP	37.20	21.74	10.82	31.27	0.00	38.49	46.0	7.5	136	64	-
Hori.	958.461	QP	32.90	22.11	11.14	30.52	0.00	35.63	46.0	10.3	103	168	-
Hori.	999.993	QP	47.90	22.50	11.29	30.20	0.00	51.49	53.9	**2.4**	100	194	-
Hori.	1000.000	PK	51.35	23.84	13.18	39.31	2.28	51.34	73.9	22.5	210	290	-
Hori.	11490.000	PK	43.56	37.89	11.13	39.65	-9.54	43.39	73.9	30.5	153	278	-
Hori.	1000.000	AV	46.98	23.84	13.18	39.31	2.28	46.97	53.9	6.9	210	290	VBW:10 Hz
Hori.	11490.000	AV	34.53	37.89	11.13	39.65	-9.54	34.36	53.9	19.5	153	278	VBW:4.3 kHz
Vert.	39.548	QP	36.90	15.16	6.63	32.18	0.00	26.51	40.0	13.4	100	217	-
Vert.	49.148	QP	42.90	11.55	6.78	32.17	0.00	29.06	40.0	10.9	100	253	-
Vert.	600.004	QP	43.30	19.42	9.89	31.90	0.00	40.71	46.0	5.2	100	184	-
Vert.	884.816	QP	36.80	21.89	10.89	31.12	0.00	38.46	46.0	7.5	100	6	-
Vert.	909.308	QP	36.00	22.02	10.96	30.95	0.00	38.03	46.0	7.9	100	5	-
Vert.	933.884	QP	37.30	22.09	11.05	30.73	0.00	39.71	46.0	6.2	100	3	-
Vert.	958.461	QP	36.10	22.11	11.14	30.52	0.00	38.83	46.0	7.1	100	3	-
Vert.	999.993	QP	45.30	22.50	11.29	30.20	0.00	48.89	53.9	5.0	112	192	-
Vert.	1000.000	PK	48.59	23.84	13.18	39.31	2.28	48.58	73.9	25.3	134	42	-
Vert.	11490.000	PK	44.34	37.89	11.13	39.65	-9.54	44.17	73.9	29.7	163	358	-
Vert.	1000.000	AV	44.36	23.84	13.18	39.31	2.28	44.35	53.9	9.5	134	42	VBW:10 Hz
Vert.	11490.000	AV	35.38	37.89	11.13	39.65	-9.54	35.21	53.9	18.6	163	358	VBW:4.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).
Distance factor : 1 GHz - 10 GHz : 20log (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 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	45.66	31.95	17.59	39.87	2.28	57.61	-37.62	-27.0	10.6	120	209	-
Hori.	5700.000	PK	45.65	32.07	17.63	39.89	2.28	57.74	-37.49	10.0	47.4	120	209	-
Hori.	5720.000	PK	48.20	32.12	17.64	39.89	2.28	60.35	-34.88	15.6	50.4	120	209	-
Hori.	5725.000	PK	49.74	32.14	17.64	39.89	2.28	61.91	-33.32	27.0	60.3	120	209	-
Hori.	17235.000	PK	43.63	40.12	14.35	38.80	-9.54	49.76	-45.47	-27.0	18.4	150	0	Floor Level
Vert.	5650.000	PK	45.31	31.95	17.59	39.87	2.28	57.26	-37.97	-27.0	10.9	400	198	-
Vert.	5700.000	PK	45.48	32.07	17.63	39.89	2.28	57.57	-37.66	10.0	47.6	400	198	-
Vert.	5720.000	PK	45.30	32.12	17.64	39.89	2.28	57.45	-37.78	15.6	53.3	400	198	-
Vert.	5725.000	PK	46.26	32.14	17.64	39.89	2.28	58.43	-36.80	27.0	63.8	400	198	-
Vert.	17235.000	PK	43.71	40.12	14.35	38.80	-9.54	49.84	-45.39	-27.0	18.3	150	0	Floor Level

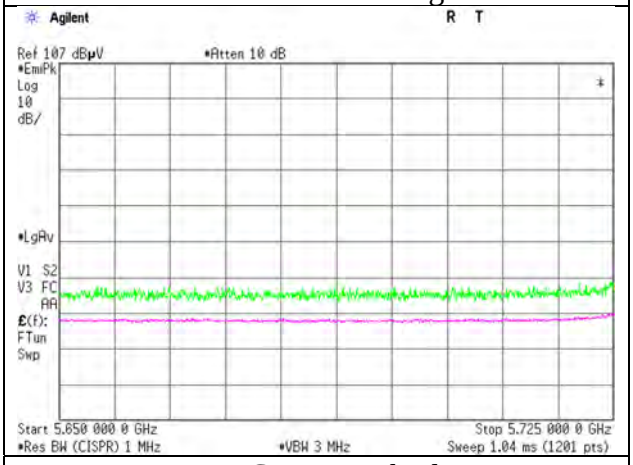
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).
Distance factor : 1 GHz - 10 GHz : 20log (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.1
Date	February 2, 2022
Temperature / Humidity	23 deg.C, 33 %RH
Engineer	Hiromasa Sato
	(1 GHz -18 GHz)
Mode	Tx 11ac-20 5745 MHz

Horizontal

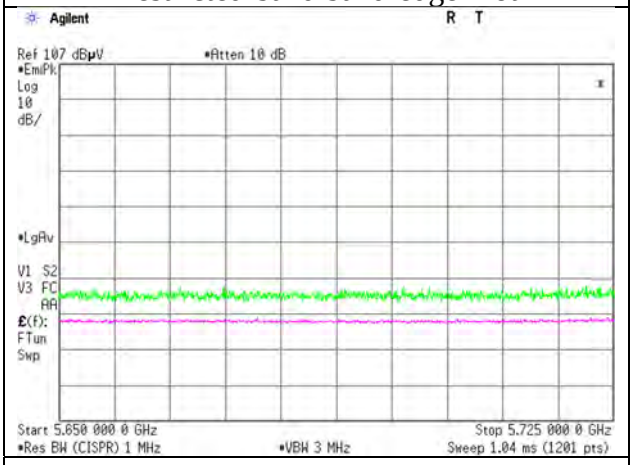
Restricted-band band-edge Plot



Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green: Peak Plot
Trace Purple: Average Plot

* 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.	14033439S-B	
Test place	Shonan EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	February 2, 2022	February 4, 2022
Temperature / Humidity	23 deg.C, 33 %RH	22 deg.C, 31 %RH
Engineer	Hiromasa Sato	Hiromasa Sato
	(1 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 5785 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.	1000.000	PK	50.22	23.84	13.18	39.31	2.28	50.21	73.9	23.6	304	258	-
Hori.	11570.000	PK	43.95	37.97	11.18	39.49	-9.54	44.07	73.9	29.8	153	260	-
Hori.	1000.000	AV	45.60	23.84	13.18	39.31	2.28	45.59	53.9	**8.3**	304	258	VBW:10 Hz
Hori.	11570.000	AV	34.44	37.97	11.18	39.49	-9.54	34.56	53.9	19.3	153	260	VBW:4.3 kHz
Vert.	1000.000	PK	49.38	23.84	13.18	39.31	2.28	49.37	73.9	24.5	134	54	-
Vert.	11570.000	PK	44.03	37.97	11.18	39.49	-9.54	44.15	73.9	29.7	186	359	-
Vert.	1000.000	AV	44.79	23.84	13.18	39.31	2.28	44.78	53.9	9.1	134	54	VBW:10 Hz
Vert.	11570.000	AV	35.54	37.97	11.18	39.49	-9.54	35.66	53.9	18.2	186	359	VBW:4.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).
Distance factor : 1 GHz - 10 GHz : 20log (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 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	44.21	40.26	14.48	38.54	-9.54	50.87	-44.36	-27.0	17.3	150	0	Floor Level
Vert.	17355.000	PK	44.06	40.26	14.48	38.54	-9.54	50.72	-44.51	-27.0	17.5	150	0	Floor Level

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 (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	14033439S-B	
Test place	Shonan EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	February 2, 2022	February 4, 2022
Temperature / Humidity	23 deg.C, 33 %RH	22 deg.C, 31 %RH
Engineer	Hiromasa Sato	Hiromasa Sato
	(1 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 5825 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.	1000.000	PK	49.97	23.84	13.18	39.31	2.28	49.96	73.9	23.9	171	270	-
Hori.	11650.000	PK	43.72	38.02	11.25	39.31	-9.54	44.14	73.9	29.7	151	262	-
Hori.	1000.000	AV	44.61	23.84	13.18	39.31	2.28	44.60	53.9	9.3	171	270	VBW:10 Hz
Hori.	11650.000	AV	34.83	38.02	11.25	39.31	-9.54	35.25	53.9	18.6	151	262	VBW:4.3 kHz
Vert.	1000.000	PK	51.10	23.84	13.18	39.31	2.28	51.09	73.9	22.8	126	16	-
Vert.	11650.000	PK	44.75	38.02	11.25	39.31	-9.54	45.17	73.9	28.7	191	359	-
Vert.	1000.000	AV	46.37	23.84	13.18	39.31	2.28	46.36	53.9	**7.5**	126	16	VBW:10 Hz
Vert.	11650.000	AV	34.48	38.02	11.25	39.31	-9.54	34.90	53.9	19.0	191	359	VBW:4.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).
Distance factor : 1 GHz - 10 GHz : 20log (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 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	45.94	32.46	17.73	39.93	2.28	58.48	-36.75	27.0	63.7	160	210	-
Hori.	5855.000	PK	44.59	32.47	17.74	39.93	2.28	57.15	-38.08	15.6	53.6	160	210	-
Hori.	5875.000	PK	44.82	32.50	17.76	39.94	2.28	57.42	-37.81	10.0	47.8	160	210	-
Hori.	5925.000	PK	44.20	32.57	17.79	39.95	2.28	56.89	-38.34	-27.0	11.3	160	210	-
Hori.	17475.000	PK	44.10	40.34	14.61	38.28	-9.54	51.23	-44.00	-27.0	17.0	150	0	Floor Level
Vert.	5850.000	PK	45.02	32.46	17.73	39.93	2.28	57.56	-37.67	27.0	64.6	328	154	-
Vert.	5855.000	PK	44.63	32.47	17.74	39.93	2.28	57.19	-38.04	15.6	53.6	328	154	-
Vert.	5875.000	PK	44.47	32.50	17.76	39.94	2.28	57.07	-38.16	10.0	48.1	328	154	-
Vert.	5925.000	PK	44.16	32.57	17.79	39.95	2.28	56.85	-38.38	-27.0	11.3	328	154	-
Vert.	17475.000	PK	44.38	40.34	14.61	38.28	-9.54	51.51	-43.72	-27.0	16.7	150	0	Floor Level

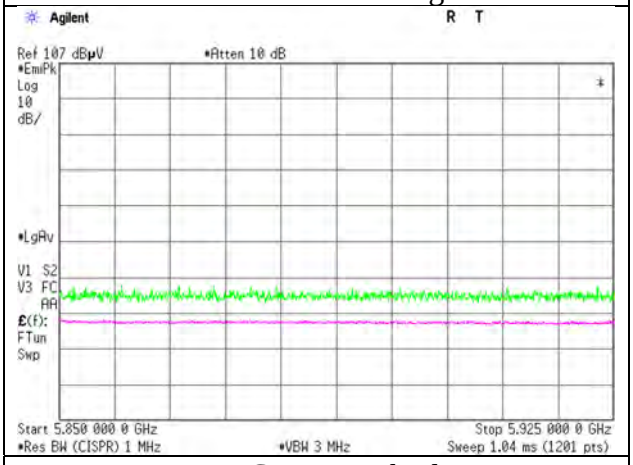
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).
Distance factor : 1 GHz - 10 GHz : 20log (3.90 m / 3.0 m) = 2.28 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	14033439S-B
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.1
Date	February 2, 2022
Temperature / Humidity	23 deg.C, 33 %RH
Engineer	Hiromasa Sato
	(1 GHz -18 GHz)
Mode	Tx 11ac-20 5825 MHz

Horizontal

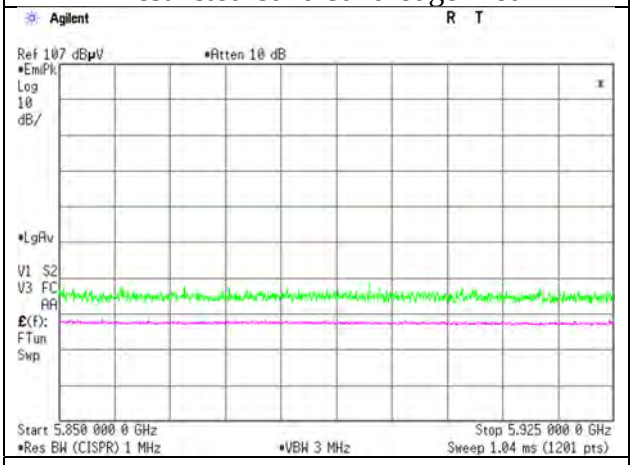
Restricted-band band-edge Plot



Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot

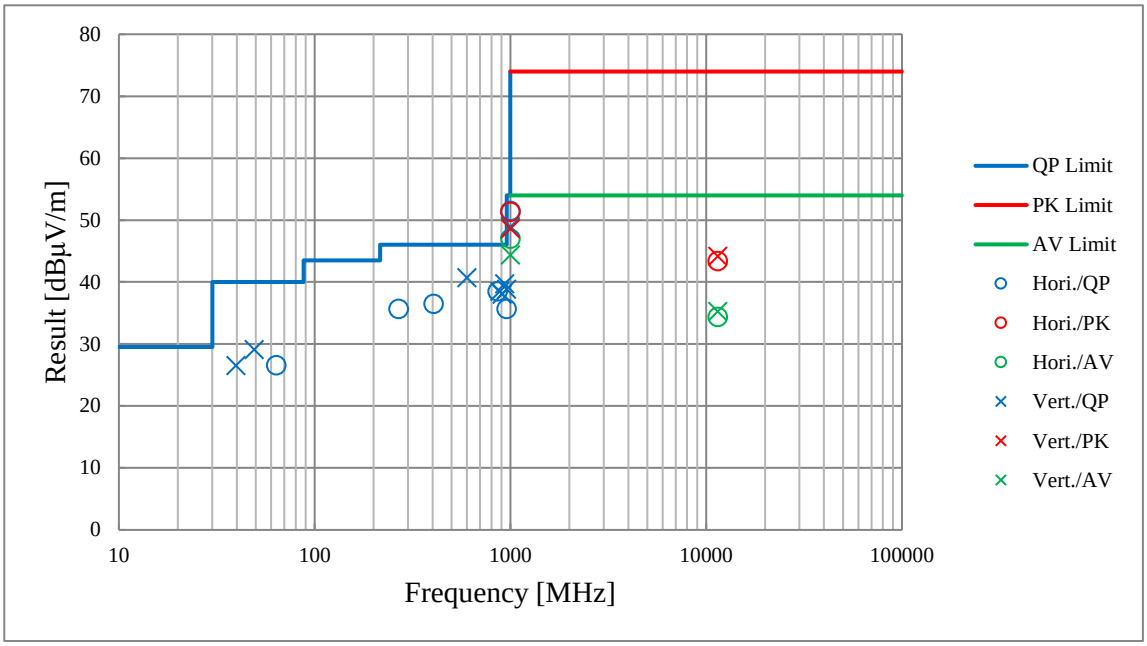


Trace Green: Peak Plot
Trace Purple: Average Plot

* 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)

Report No.	14033439S-B		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.3	No.1	No.3
Date	January 26, 2022	February 2, 2022	February 4, 2022
Temperature / Humidity	24 deg.C, 31 %RH	23 deg.C, 33 %RH	22 deg.C, 31 %RH
Engineer	Yosuke Murakami	Hiromasa Sato	Hiromasa Sato
	(30 MHz -1 GHz)	(1 GHz -18 GHz)	(18 GHz -40 GHz)
Mode	Tx 11ac-20 5745 MHz		

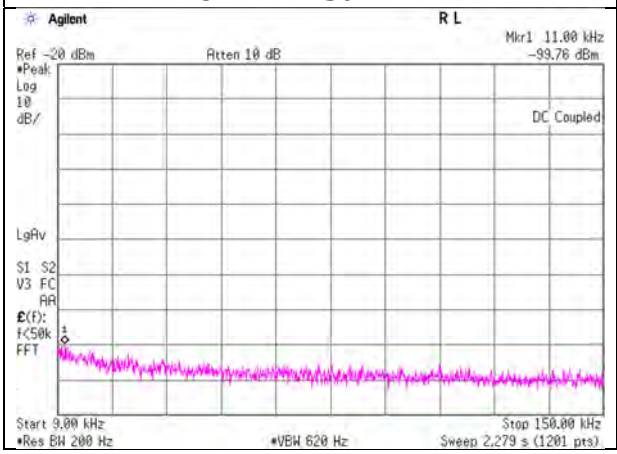


*These plots data contains sufficient number to show the trend of characteristic features for EUT.

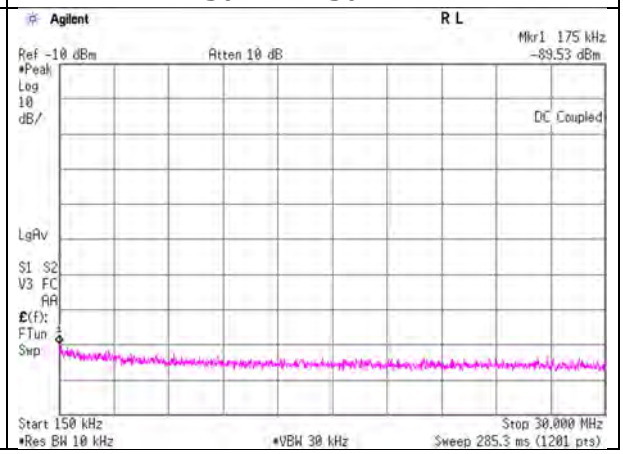
Conducted Spurious Emission

Report No.	14033439S-B
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	January 18, 2022
Temperature / Humidity	24 deg. C / 27 % RH
Engineer	Miku Ikudome
Mode	Tx 11ac-20 5745 MHz

9 kHz - 150 kHz



150 kHz - 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator [dB]	Antenna Gain* [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
11.00	-99.8	0.01	9.8	3.2	1	-86.7	300	6.0	-25.5	46.7	72.2	-
175.00	-89.5	0.01	9.8	3.2	1	-76.5	300	6.0	-15.2	22.7	37.9	-

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]

EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)

N: Number of output

*2.0 dBi was applied to the test result based on KDB 789033 since antenna gain was less than 2.0 dBi.

APPENDIX 2: Test instruments

Test equipment(1/2)

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	KTS-07	145111	Digital Tester	SANWA	PC500	7019232	2021/09/14	12
AT	SAT10-12	151609	Attenuator	Weinschel Corp.	54A-10	81601	2021/03/01	12
AT	SCC-G67	196949	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	803480/2	2021/03/01	12
AT	SOS-27	191845	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2021/08/02	12
AT	SPM-07	146247	Power Meter	Keysight Technologies Inc	8990B	MY5100272	2021/05/25	12
AT	SPSS-04	146310	Power sensor	Keysight Technologies Inc	N1923A	MY5326009	2021/05/25	12
AT	SRENT-22	202830	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY48250036	2021/12/01	12
RE	COTS-SEMI-5	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,ME,PE)	-	-	-
RE	KJM-02	146432	Measure	TAJIMA	GL19-55	-	-	-
RE	KSA-08	145089	Spectrum Analyzer	Keysight Technologies Inc	E4446A	MY46180525	2021/10/13	12
RE	SAEC-01(SVSWR)	145561	Semi-Anechoic Chamber	TDK	SAEC-01(SVSWR)	1	2021/05/09	12
RE	SAEC-03(NSA)	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2021/04/27	12
RE	SAEC-03(SVSWR)	145566	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	2021/05/21	12
RE	SAF-03	145126	Pre Amplifier	SONOMA	310N	290213	2021/02/10	12
RE	SAF-04	145127	Pre Amplifier	Toyo Corporation	TPA0118-36	2072554	2021/05/17	12
RE	SAF-06	145005	Pre Amplifier	Toyo Corporation	TPA0118-36	1440491	2022/02/04	12
RE	SAF-08	145007	Pre Amplifier	Toyo Corporation	HAP18-26W	19	2021/03/01	12
RE	SAF-10	145129	Pre Amplifier	Toyo Corporation	HAP26-40W	10	2021/03/01	12
RE	SAT10-05	145136	Attenuator	Keysight Technologies Inc	8493C-010	74864	2021/10/07	12
RE	SAT6-13	167094	Attenuator	JFW	50HF-006N	-	2021/02/10	12
RE	SBA-03	145023	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	BBA9106	91032666	2021/05/15	12
RE	SCC-C1/C2/C3/C4/C5/C10/SRSE-03	145171	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	2021/04/12	12
RE	SCC-G05	145039	Coaxial Cable	Junkosha	J12J102207-00	APR-30-15-037	2022/01/06	12
RE	SCC-G15	145176	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	2021/03/01	12
RE	SCC-G40	166491	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S005	2022/01/06	12
RE	SCC-G41	151617	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S006	2022/01/06	12
RE	SCC-G43	156380	Coaxial Cable	Huber+Suhner	SUCOFLEX_104_E	SN MY 13406/4E	2021/05/17	12
RE	SCC-G57	179540	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	802815/2	2021/05/18	12
RE	SCC-G58	183047	Coaxial Cable	Huber+Suhner	SUCOFLEX 104	800287/4A	2021/05/17	12
RE	SCC-G62	196985	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	803650/2	2021/03/01	12
RE	SCC-G68	200008	Coaxial Cable	Huber+Suhner	SUCOFLEX 104	575616/4	2021/07/06	12
RE	SFL-03	145377	Highpass Filter	MICRO-TRONICS	HPM50112	28	2021/10/05	12

Test equipment(2/2)

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	SHA-01	145383	Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	9120D-725	2021/05/20	12
RE	SHA-03	145501	Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	9120D-739	2021/06/14	12
RE	SHA-04	145512	Horn Antenna	ETS-Lindgren	3160-09	00094868	2021/06/14	12
RE	SHA-06	145514	Horn Antenna	ETS-Lindgren	3160-10	00092383	2021/06/14	12
RE	SHA-08	194683	Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA 9120 C	694	2021/03/03	12
RE	SJM-21	207278	Measuring Tool, Tape Measure	ASKUL	-	-	-	-
RE	SLA-07	145529	Logperiodic Antenna	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	196	2021/05/15	12
RE	SOS-20	191837	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2021/08/02	12
RE	SOS-23	191840	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2021/08/02	12
RE	SSA-02	145800	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY48250106	2021/04/13	12
RE	STR-02	145791	Test Receiver	Rohde & Schwarz	ESCI	100575	2021/06/02	12
RE	STS-01	145792	Digital Hitester	HIOKI E.E. CORPORATION	3805-50	80997812	2021/09/14	12
RE	STS-03	146210	Digital Hitester	HIOKI E.E. CORPORATION	3805-50	80997823	2021/09/14	12

***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
AT: Antenna Terminal Conducted test