RADIO TEST REPORT

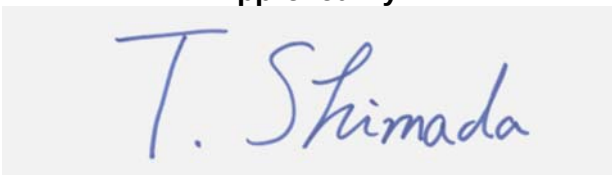
Test Report No. 15411862H-R1

Customer	**Panasonic Automotive Systems Co., Ltd.**
Description of EUT	**CAR DISPLAY AUDIO**
Model Number of EUT	**AN2402**
FCC ID	**ACJ932AN2402**
Test Regulation	**FCC Part 15 Subpart E**
Test Result	**Complied**
Issue Date	**April 11, 2025**
Remarks	**- WLAN (5 GHz band) part** **- Except for DFS test**

Representative Test Engineer

Shousei Hamaguchi
Engineer

Approved By



Takumi Shimada
Engineer

CERTIFICATE 5107.02

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan, Inc.

☒ There is no testing item of "Non-accreditation".

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REVISION HISTORY

Original Test Report No. 15411862H

This report is a revised version of 15411862H. 15411862H is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15411862H	March 18, 2025	-
1	15411862H-R1	April 11, 2025	**General Specification in clause 2.2** - Change the item name from “Rating” to “Nominal”
			Radio Specification in clause 2.2 - Change antenna gain value for WLAN 5 GHz: 5 dBi -> 3 dBi
			APPENDIX 1: Test Data - Change antenna gain value in each the test result table for Maximum Conducted Output Power, Maximum Power Spectral Density and Conducted Spurious Emission: 5 dBi -> 3 dBi

Reference: Abbreviations (Including words undescribed in this report)

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

CONTENTS PAGE

SECTION 1: Customer Information

Company Name	Panasonic Automotive Systems Co., Ltd. *1)
Address	4261, Ikonobe-cho, Tsuzuki-ku, Yokohama-shi, Kanagawa-ken 224-8520, Japan
Telephone Number	+81-80-3444-7148
Contact Person	Taichi Haraoka

*1) The Grantee name in the FCC application is “Panasonic Corporation of North America”.

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	CAR DISPLAY AUDIO
Model Number	AN2402
Serial Number	Refer to SECTION 4.2
Condition	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	September 12, 2024 (Test from September 18 to October 7, 2024) February 7, 2025 (Test from March 14 to 17, 2025)
Test Date	September 18 to October 7, 2024 March 14 to 17, 2025

2.2 Product Description

General Specification

Nominal	DC 13.2 V
Operating temperature	-30 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.

Bluetooth (BR / EDR)

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	FHSS (GFSK, π/4 DQPSK, 8 DPSK)
Antenna Gain	5 dBi

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

Equipment Type	Transceiver	
Frequency of Operation	20 MHz Band	5745 MHz to 5805 MHz
	40 MHz Band	5755 MHz to 5795 MHz
	80 MHz Band	5775 MHz
Type of Modulation	OFDM	
Antenna Gain[a)]	3 dBi	

AM / FM

Equipment Type	Receiver
Frequency of Operation	AM: 530 kHz to 1710 kHz FM: 87.9 MHz to 107.9 MHz
Type of Modulation	AM FM

GNSS

Equipment Type	Receiver
Frequency of Operation	See table below.

Supported GNSS and GNSS signals

GNSS	RNSS Frequency Band / Frequency [MHz]					
	1559 to 1610		1215 to 1300		1164 to 1215	
BDS	☐B1I	1561.098	-		-	
	☐B1C (IGSO)	1561.098				
	☐B1C (MEO)	1561.098				
Galileo	☒E1	1575.42	☐E6	1278.75	☐E5a	1176.45
					☐E5b	1207.14
GLONASS	☐G1	1598.0625 - 1605.375	☐G2	1242.9375 - 1248.625	-	
GPS	☒L1 C/A	1575.42	☐L2C	1227.6	☐L5	1176.45
	☐L1C	1575.42				
SBAS	☐L1	1575.42	-		☐L5	1176.45

☒ Supported GNSS signal
☐ Not supported GNSS signal

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

* 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) (9) / 15.207	-	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)	-	N/A	*2)
	ISED: -	**ISED:** -			
Maximum Conducted Output Power	**FCC:** KDB Publication Number 789033	**FCC:** 15.407 (a) (1) (2) (3)	See data	Complied	Conducted
	ISED: -	**ISED:** RSS-247 6.2			
Maximum Power Spectral Density	**FCC:** KDB Publication Number 789033	**FCC :** 15.407 (a) (1) (2) (3)		Complied	Conducted
	ISED: -	**ISED:** RSS-247 6.2			
Spurious Emission Restricted Band Edge	**FCC:** ANSI C63.10-2013 KDB Publication Number 789033	**FCC:** 15.407 (b), 15.205 and 15.209	12.8 dB 11610.0 MHz Horizontal, AV	Complied	Conducted (below 30 MHz) / Radiated (above 30 MHz) *3)
	ISED: -	**ISED:** RSS-247 6.2			
6 dB Emission Bandwidth	**FCC:** ANSI C63.10-2013	**FCC:** 15.407 (e)	See data	Complied	Conducted
	ISED: -	**ISED:** RSS-247 6.2			

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) The test is not applicable since the EUT is not the device that is designed to be connected to the public utility (AC) power line.
*2) The test was not applicable since the EUT is the device operates 5.8 GHz band only.
*3) 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)
This EUT provides the stable voltage constantly to RF Part regardless of input voltage.
Therefore, this EUT complies with the requirement.

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

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	-	Conducted

Other than above, 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		Unit	Calculated Uncertainty (+/-)
3 m	9 kHz to 30 MHz		dB	3.3
10 m			dB	3.1
3 m	30 MHz to 200 MHz	Horizontal	dB	4.7
		Vertical	dB	4.7
	200 MHz to 1000 MHz	Horizontal	dB	4.8
		Vertical	dB	6.0
10 m	30 MHz to 200 MHz	Horizontal	dB	5.2
		Vertical	dB	5.1
	200 MHz to 1000 MHz	Horizontal	dB	5.2
		Vertical	dB	5.2
3 m	1 GHz to 6 GHz		dB	5.1
	6 GHz to 18 GHz		dB	5.4
1 m	10 GHz to 18 GHz		dB	5.4
	18 GHz to 26.5 GHz		dB	5.3
	26.5 GHz to 40 GHz		dB	4.8
0.5 m	26.5 GHz to 40 GHz		dB	5.0

Antenna Terminal Conducted

Item	Unit	Calculated Uncertainty (+/-)
Antenna terminated conducted emission / Power density / Burst power	dB	3.47
Adjacent channel power (ACP)	dB	2.28
Bandwidth (OBW)	%	0.96
Time readout (time span upto 100 msec)	%	0.11
Time readout (time span upto 1000 msec)	%	0.11
Time readout (time span upto 60 sec)	%	0.02
Power measurement (Power meter < 8 GHz)	dB	1.46
Power measurement (Call box < 6 GHz)	dB	1.69
Frequency readout (Frequency counter)	ppm	0.67
Frequency readout (Spectrum analyzer frequency readout function)	ppm	2.13
Temperature (constant temperature bath)	deg. C	0.69
Humidity (constant temperature bath)	%RH	2.98
Modulation characteristics	%	6.93
Frequency for mobile	ppm	0.08
Contention-based protocol	dB	2.26

3.5 Test Location

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 Japan
Telephone: +81-596-24-8999
A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919
ISED Lab Company Number: 2973C / CAB identifier: JP0002

Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.5 measurement room	6.4 x 6.4 x 3.0	6.4 x 6.4	-	-
No.6 shielded room	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	3.1 x 5.0 x 2.7	3.1 x 5.0	-	-
No.9 measurement room	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.10 shielded room	3.8 x 2.8 x 2.8	3.8 x 2.8	-	-
No.11 measurement room	4.0 x 3.4 x 2.5	N/A	-	-
No.12 measurement room	2.6 x 3.4 x 2.5	N/A	-	-
Large Chamber	16.9 x 22.1 x 10.17	16.9 x 22.1	-	10 m
Small Chamber	5.3 x 6.69 x 3.59	5.3 x 6.69	-	-

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)	6 Mbps, PN9
IEEE 802.11n 20 MHz BW (11n-20)	MCS 0 (Short GI), PN9
IEEE 802.11ac 20 MHz BW (11ac-20)	MCS 0 (Short GI), PN9
IEEE 802.11n 40 MHz BW (11n-40)	MCS 0 (Short GI), PN9
IEEE 802.11ac 40 MHz BW (11ac-40)	MCS 0 (Short GI), PN9
IEEE 802.11ac 80 MHz BW (11ac-80)	MCS 0 (Short GI), PN9
*Transmitting duty was 100 % on all tests. *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 Setting: 9 dBm Software: MCU Version: V01 (Date: September 18, 2024, 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.	
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.	

*The Details of Operation Mode(s)

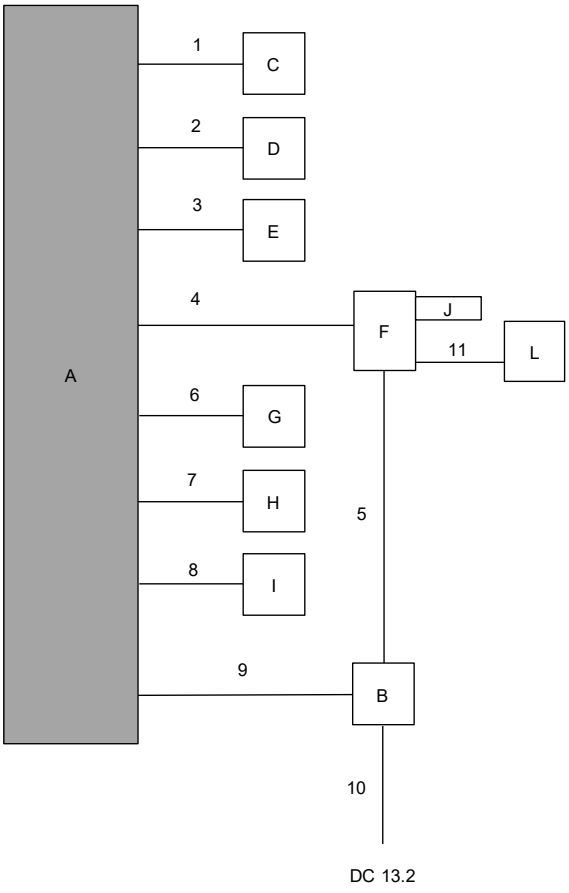
Test Item	Operating Mode	Tested Frequency Upper Band
99 % Occupied Bandwidth, 6 dB Bandwidth, Maximum Conducted Output Power, Maximum Power Spectral Density,	Tx 11a Tx 11n-20 Tx 11ac-20	5745 MHz 5785 MHz 5805 MHz
	Tx 11n-40 Tx 11ac-40	5755 MHz 5795 MHz
	Tx 11ac-80	5775 MHz
Radiated Spurious Emission (Below 1 GHz), Conducted Spurious Emission	Tx 11ac-40 *1)	5755 MHz
Radiated Spurious Emission (Above 1 GHz)	Tx 11a Tx 11ac-20 *2)	5745 MHz 5785 MHz 5805 MHz
	Tx 11ac-40 *2)	5755 MHz 5795 MHz
	Tx 11ac-80 *2)	5775 MHz
*1) The mode was tested as a representative, because it had the highest power at antenna terminal test. *2) For each bandwidth, 20 MHz BW, 40 MHz BW, 80 MHz BW, the test was conducted on representative mode that had the highest output power since 11n and 11ac have the same modulation method.		

Simultaneous transmission

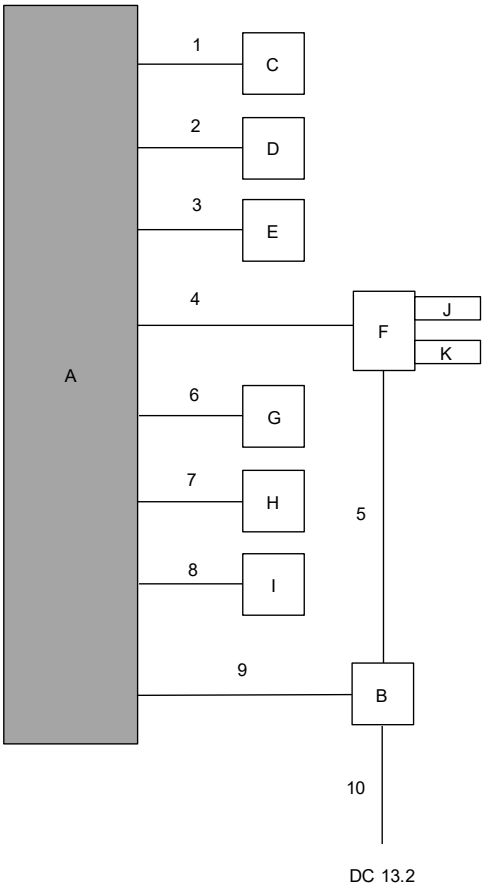
Test Item	Mode *1)
Radiated Spurious Emission	Tx 11a 5805 MHz + 3DH5 Hopping
*1) The test was conducted on representative mode, the worst mode at Spurious emission test for WLAN 5 GHz and the mode had the highest power at Antenna terminal conducted test for BT band.	

4.2 Configuration and Peripherals

For Radiated Spurious Emission (RE)



For Antenna Terminal Conducted Tests (AT)



* 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	CAR DISPLAY AUDIO	AN2402	NASLDA-A2S021	Panasonic Automotive Systems Co., Ltd.	EUT, For RE
			NASLDA-A2S020		EUT, For AT
B	SW BOX	ALL IN 1 SW BOX Ver.6	RS-23_No.057	Panasonic Automotive Systems Co., Ltd.	-
C	ST Switch Board	STRG-SW 5-LEVEL	RS-23-027	Panasonic Automotive Systems Co., Ltd.	-
D	Rear Camera	GP-KD7601RA	25M200106	Panasonic	-
E	Microphone	28336 7AA2A	28336 FD 7AA2A AX	Hosiden Corporation	-
F	USB HUB	284H3 7JA1A	244010078A	MinebeaMitsumi Inc.	-
G	FM Antenna Dummy	FAKRA FM 1 signal Dummy	RS-F017	Panasonic Automotive Systems Co., Ltd.	-
H	GNSS Antenna	25975 5EF0A	R16-A450	MinebeaMitsumi Inc.	-
I	2 Ω Dummy Resistor Jig	-	RS-24_No.005	Panasonic Automotive Systems Co., Ltd.	-
J	USB Memory	RUF3-K16GB	P10416	Buffalo Inc.	-
K	USB Memory	RUF3-K16GB	P10416	Buffalo Inc.	For AT
L	iPhone 8	MQ7A2J/A	F4GVGPWVJC6J	Apple	For RE

List of Cables Useddd

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal Cable	2.5	Unshielded	Unshielded	-
2	Signal Cable	2.2	Unshielded	Unshielded	-
3	Microphone Cable	2.0	Unshielded	Unshielded	-
4	USB Cable	2.0	Shielded	Shielded	-
5	DC Cable	4.0	Unshielded	Unshielded	-
6	FM/AM Cable	2.0	Shielded	Shielded	-
7	GNSS Antenna Cable	2.7	Shielded	Shielded	-
8	Audio Cable	2.3	Shielded	Shielded	-
9	DC Cable	3.7	Unshielded	Unshielded	-
10	DC Cable	1.5	Unshielded	Unshielded	-
11	USB Cable	1.0	Shielded	Shielded	For RE

SECTION 5: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

< Below 1 GHz >
EUT was placed on a urethane platform of nominal size, 0.5 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. 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:

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

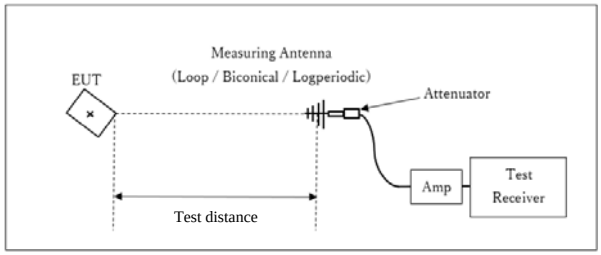
Test Antennas are used as below;

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 AD RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (RMS) Trace: ≥ 100 traces If duty cycle was less than 98%, a duty factor was added to the results.

Figure 1: Test Setup

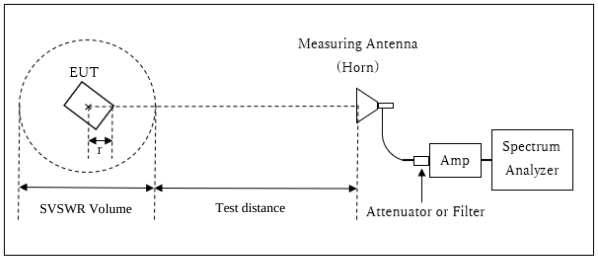
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz



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

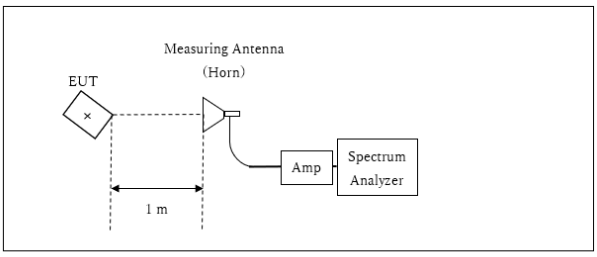
[1 GHz to 6 GHz]
Distance Factor: 20 x log (3.9 m* / 3.0 m) = 2.28 dB
*(Test Distance + SVSWR Volume /2) - r = 3.9 m

Test Distance: 3 m
SVSWR Volume: 2 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
r: 0.1 m

[6 GHz to 10 GHz]
Distance Factor: 20 x log (4.9 m* / 3.0 m) = 4.27 dB
*(Test Distance + SVSWR Volume /2) - r = 4.9 m

Test Distance: 4.3
SVSWR Volume: 1.4 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
r: 0.1 m

10 GHz to 40 GHz



× : Center of turn table

Distance Factor: 20 x log (1.0 m / 3.0 m) = -9.5 dB
*Test Distance: 1 m

The test was made on EUT at the normal use position.

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

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
26 dB Bandwidth	Enough to capture the emission	Close to 1 % of EBW	> RBW	Auto	Peak	Max Hold	Spectrum Analyzer
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: 80 MHz BW) (Method PM-G)
Maximum Power Spectral Density	Encompass the entire EBW	470 kHz *2)	≥ 3 RBW	Auto	RMS Power Averaging (200 times)	Clear Write	Spectrum Analyzer
Conducted Spurious Emission*3) *4)	9 kHz to 150 kHz	200 Hz	620 Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150 kHz to 30 MHz	10 kHz	30 kHz				

*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 to 5.850 GHz, but it is not possible with spectrum analyzer, so RBW Correction Factor (10 log(500 kHz / 470 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 low enough as shown in the chart.
(9 kHz to 150 kHz: RBW = 200 Hz, 150 kHz to 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.

Test results are rounded off and limit are rounded down, 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

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	September 27, 2024	March 14, 2025
Temperature / Humidity	23 deg. C / 59 % RH	24 deg. C / 35 % RH
Engineer	Shousei Hamaguchi	Shousei Hamaguchi
Mode	Tx	

11a

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5745	16420.4
5785	16386.6
5805	16376.5

11n-20

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5745	17516.6
5785	***17517.9***
5805	17504.9

11ac-20

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5745	17510.2
5785	17516.8
5805	***17517.7***

11n-40

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5755	***35891.7***
5795	35884.3

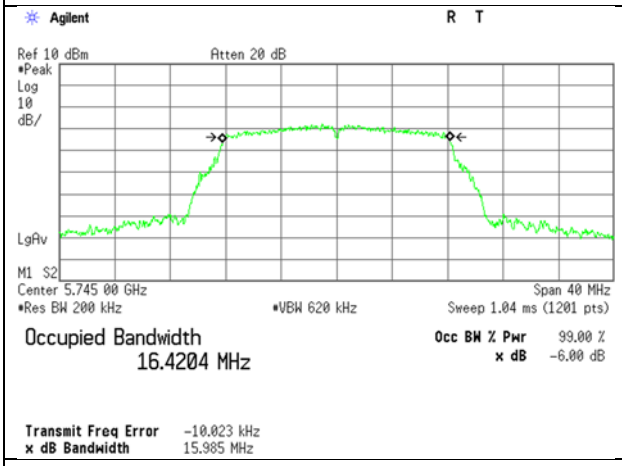
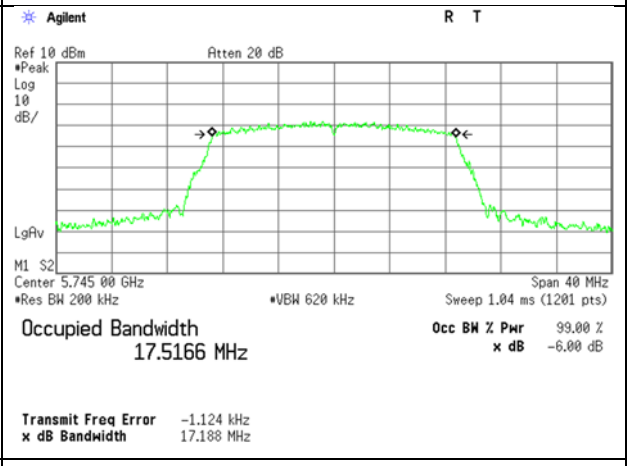
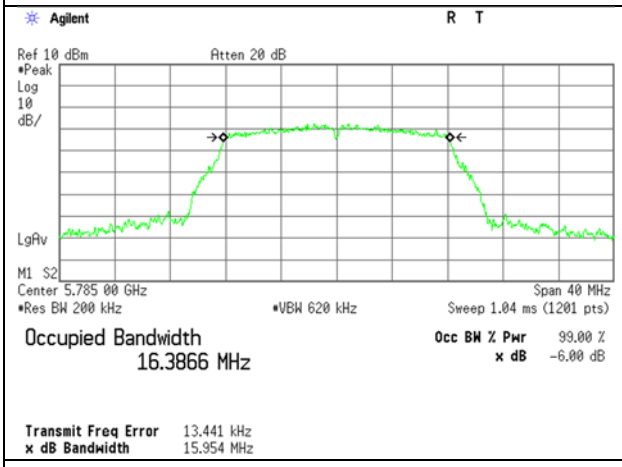
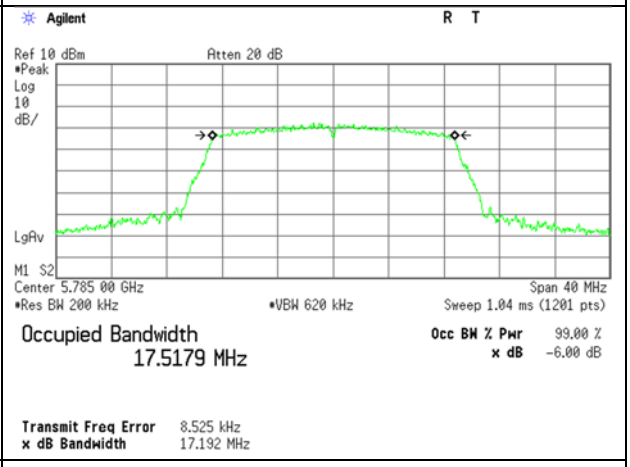
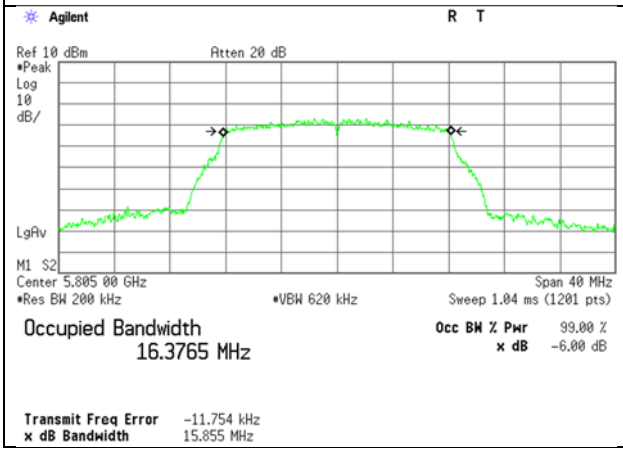
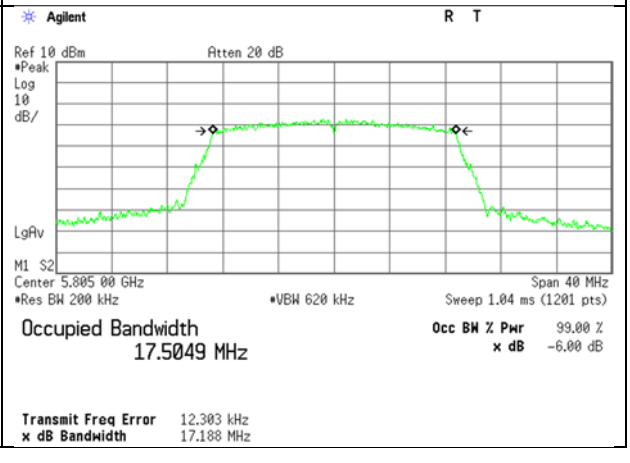
11ac-40

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5755	***35949.9***
5795	35895.3

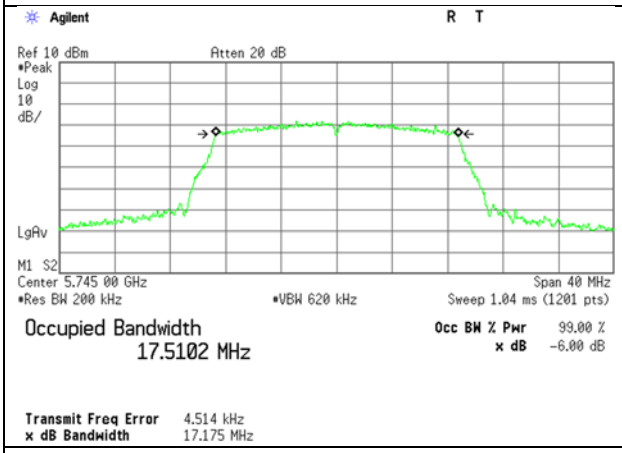
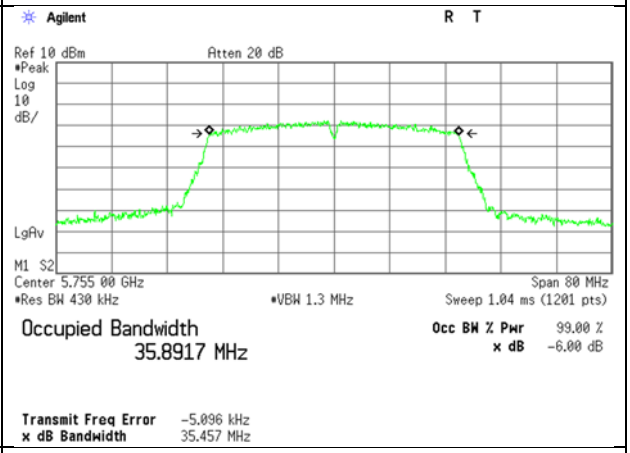
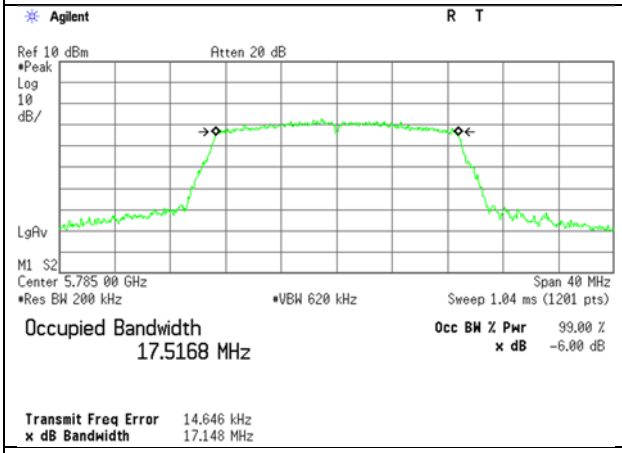
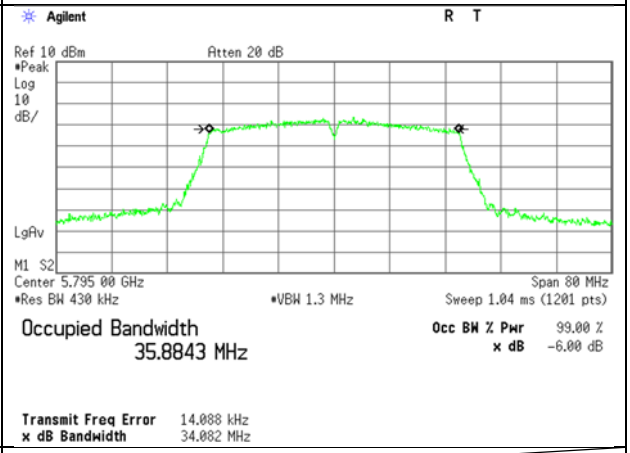
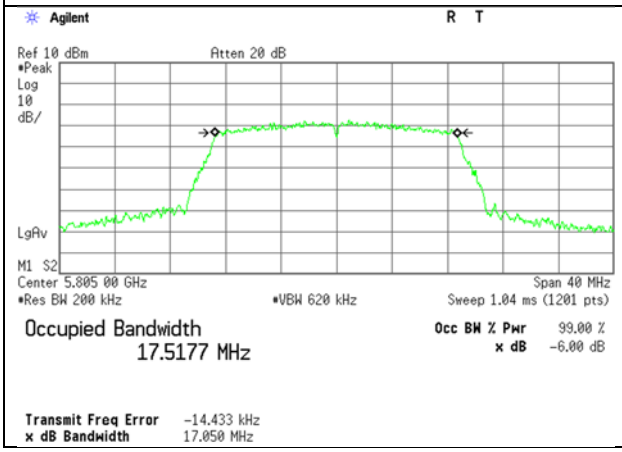
11ac-80

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5775	***75016.2***

99 % Occupied Bandwidth

11a	11n-20
5745 MHz	**5745 MHz**
	
5785 MHz	**5785 MHz**
	
5805 MHz	**5805 MHz**
	

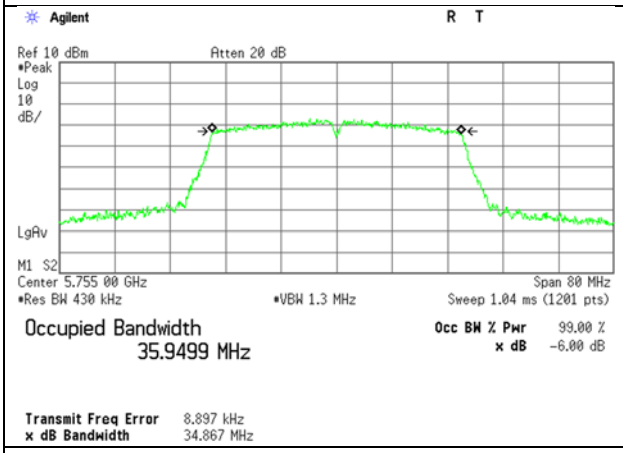
99 % Occupied Bandwidth

11ac-20	11n-40
5745 MHz	**5755 MHz**
	
5785 MHz	**5795 MHz**
	
5805 MHz	
	

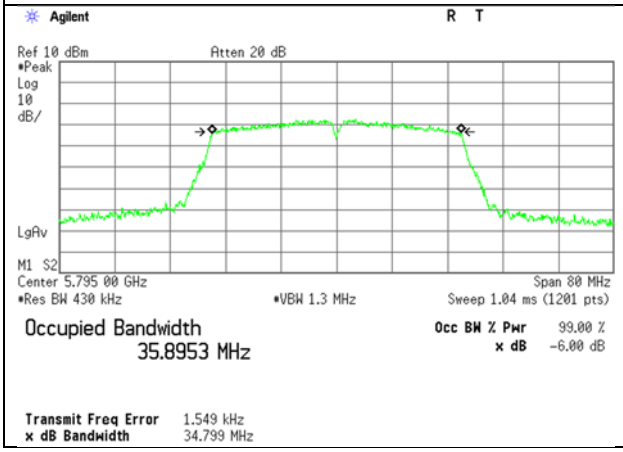
99 % Occupied Bandwidth

11ac-40

5755 MHz

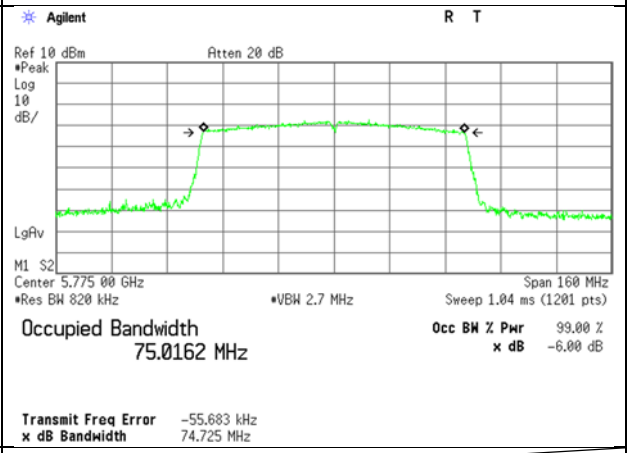


5795 MHz



11ac-80

5775 MHz



6 dB Bandwidth

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	September 27, 2024	March 14, 2025
Temperature / Humidity	23 deg. C / 59 % RH	24 deg. C / 35 % RH
Engineer	Shousei Hamaguchi	Shousei Hamaguchi
Mode	Tx	

11a

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5745	16.347	> 0.500
5785	16.280	> 0.500
5805	16.347	> 0.500

11n-20

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5745	17.596	> 0.500
5785	17.580	> 0.500
5805	17.549	> 0.500

11ac-20

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5745	17.622	> 0.500
5785	17.332	> 0.500
5805	17.540	> 0.500

11n-40

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5755	35.773	> 0.500
5795	35.822	> 0.500

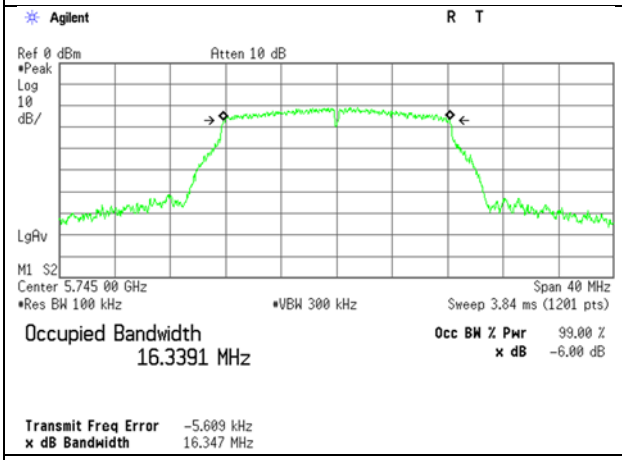
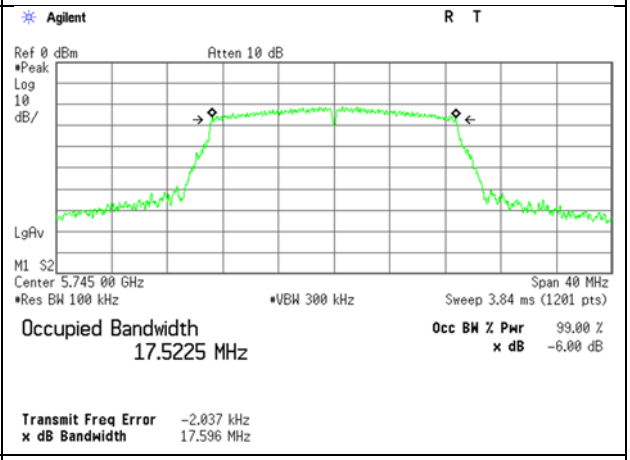
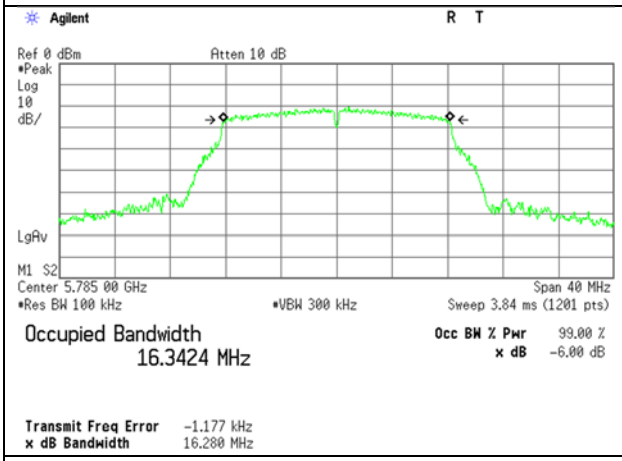
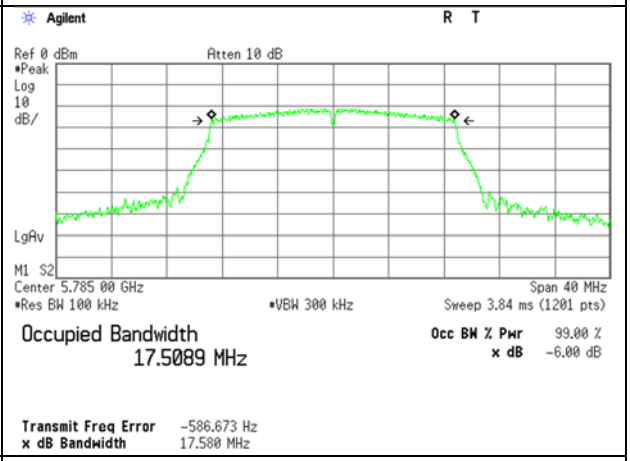
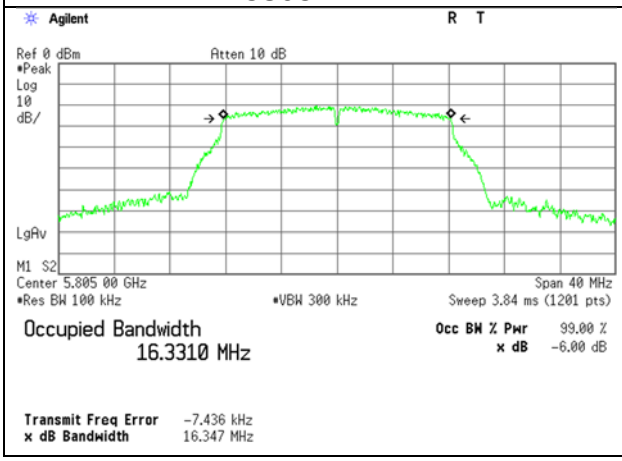
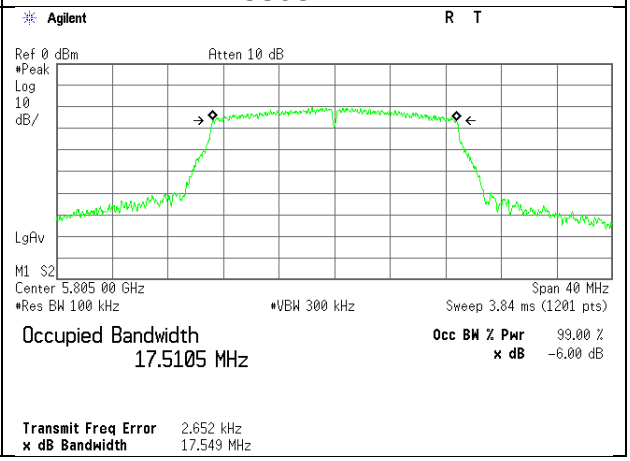
11ac-40

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5755	35.988	> 0.500
5795	35.768	> 0.500

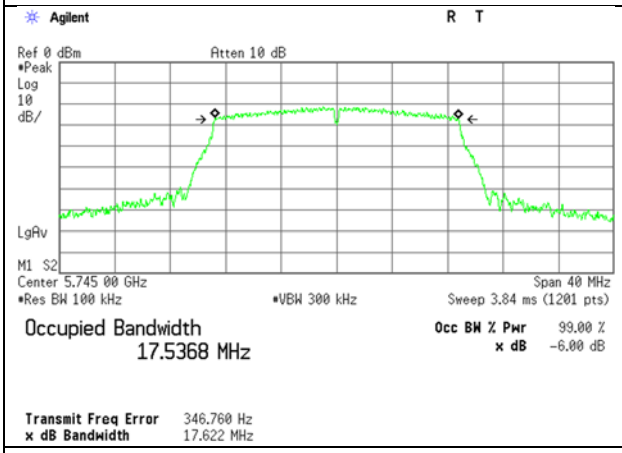
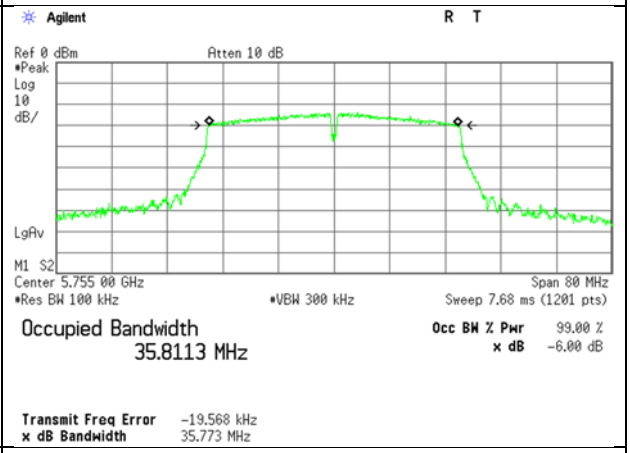
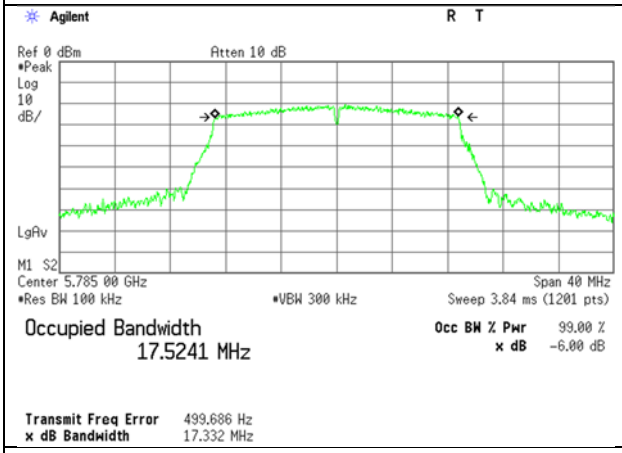
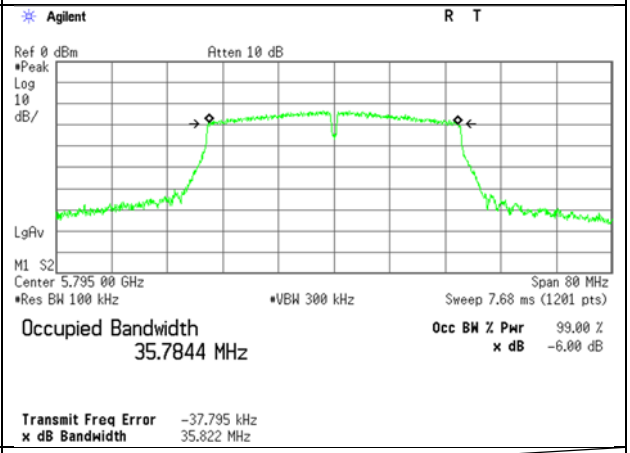
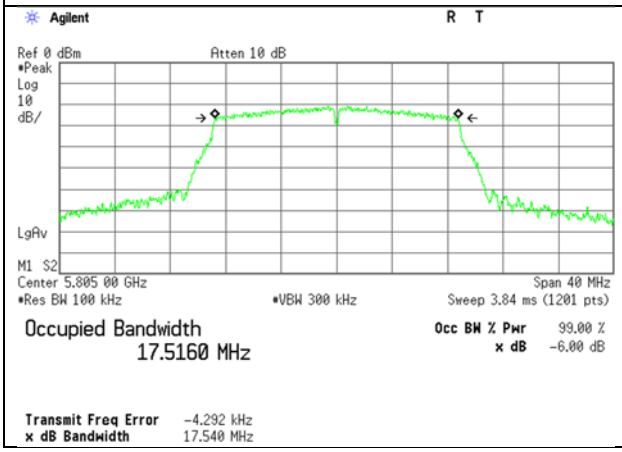
11ac-80

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5775	75.988	> 0.500

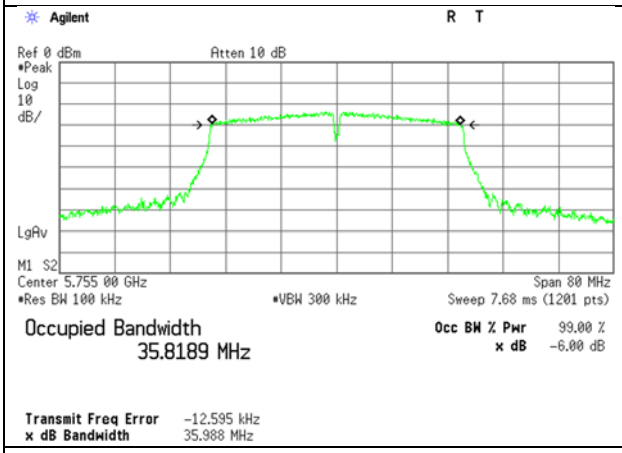
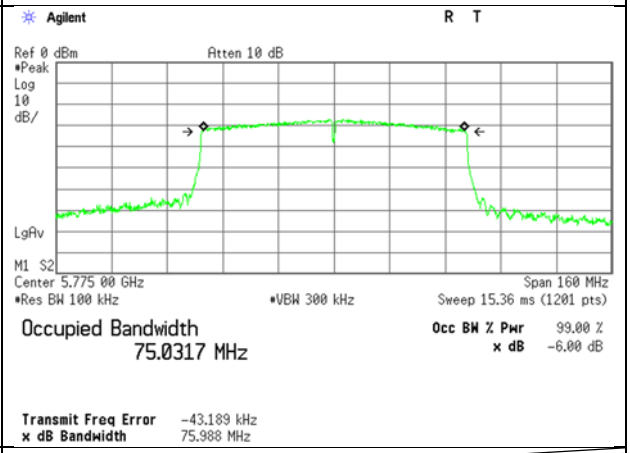
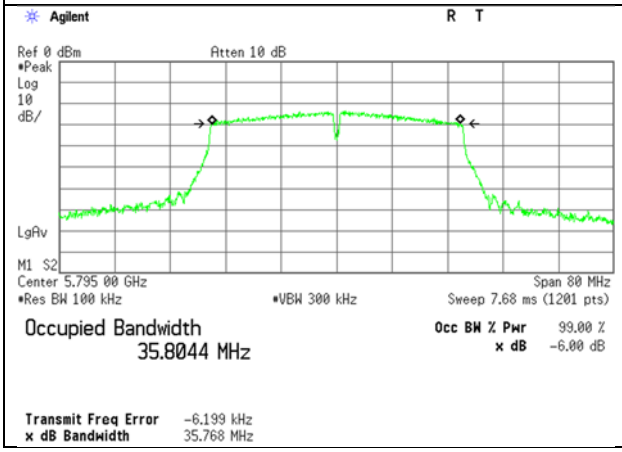
6 dB Bandwidth

11a	11n-20
5745 MHz	**5745 MHz**
	
5785 MHz	**5785 MHz**
	
5805 MHz	**5805 MHz**
	

6 dB Bandwidth

11ac-20	11n-40
5745 MHz	**5755 MHz**
	
5785 MHz	**5795 MHz**
	
5805 MHz	
	

6 dB Bandwidth

11ac-40	11ac-80
5755 MHz	**5775 MHz**
	
5795 MHz	
	

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	September 27, 2024	March 14, 2025
Temperature / Humidity	23 deg. C / 59 % RH	24 deg. C / 35 % RH
Engineer	Shousei Hamaguchi	Shousei Hamaguchi
Mode	Tx 11a	

11a

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Conducted Power						e.i.r.p.					
					Result		FCC 15.407		RSS-247		Result		FCC 15.407		RSS-247	
							Limit	Margin	Limit	Margin			Limit	Margin	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]
5745	-7.76	2.03	9.85	3.00	4.12	2.58	30.00	25.88	30.00	25.88	7.12	5.16	36.00	28.88	36.00	28.88
5785	-7.63	2.03	9.85	3.00	***4.25***	***2.66***	30.00	25.75	30.00	25.75	***7.25***	***5.31***	36.00	28.75	36.00	28.75
5805	-7.68	2.04	9.85	3.00	4.21	2.64	30.00	25.79	30.00	25.79	7.21	5.27	36.00	28.79	36.00	28.79

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

15.407 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
For all test frequencies, B was applied the minimum value (18.000 MHz) as conservative limit.

RSS-247 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
e.i.r.p. Limit (5150 MHz-5250 MHz) = 200mW or (10 + 10logB) dBm, whichever is lower
e.i.r.p. Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 1W or (17 + 10logB) dBm, whichever is lower
For all test frequencies, B was applied the minimum value (16.600 MHz) as conservative limit.

The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725-5850MHz for IC)

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	September 27, 2024	March 14, 2025
Temperature / Humidity	23 deg. C / 59 % RH	24 deg. C / 35 % RH
Engineer	Shousei Hamaguchi	Shousei Hamaguchi
Mode	Tx 11n-20	

11n-20

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Conducted Power Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin	e.i.r.p. Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin
[MHz]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]
5745	-7.66	2.03	9.85	3.00	4.22	2.64	30.00	25.78	30.00	25.78	7.22	5.28	36.00	28.78	36.00	28.78
5785	-7.55	2.03	9.85	3.00	***4.33***	***2.71***	30.00	25.67	30.00	25.67	***7.33***	***5.41***	36.00	28.67	36.00	28.67
5805	-7.69	2.04	9.85	3.00	4.20	2.63	30.00	25.80	30.00	25.80	7.20	5.25	36.00	28.80	36.00	28.80

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

15.407 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
For all test frequencies, B was applied the minimum value (18.000 MHz) as conservative limit.

RSS-247 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
e.i.r.p. Limit (5150 MHz-5250 MHz) = 200mW or (10 + 10logB) dBm, whichever is lower
e.i.r.p. Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 1W or (17 + 10logB) dBm, whichever is lower
For all test frequencies, B was applied the minimum value (16.600 MHz) as conservative limit.

The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725-5850MHz for I

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	September 27, 2024	March 14, 2025
Temperature / Humidity	23 deg. C / 59 % RH	24 deg. C / 35 % RH
Engineer	Shousei Hamaguchi	Shousei Hamaguchi
Mode	Tx 11ac-20	

11ac-20

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Conducted Power Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin	e.i.r.p. Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin
[MHz]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]
5745	-7.65	2.03	9.85	3.00	4.23	2.65	30.00	25.77	30.00	25.77	7.23	5.29	36.00	28.77	36.00	28.77
5785	-7.54	2.03	9.85	3.00	***4.34***	***2.72***	30.00	25.66	30.00	25.66	***7.34***	***5.42***	36.00	28.66	36.00	28.66
5805	-7.56	2.04	9.85	3.00	4.33	2.71	30.00	25.67	30.00	25.67	7.33	5.41	36.00	28.67	36.00	28.67

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

15.407 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
For all test frequencies, B was applied the minimum value (18.000 MHz) as conservative limit.

RSS-247 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
e.i.r.p. Limit (5150 MHz-5250 MHz) = 200mW or (10 + 10logB) dBm, whichever is lower
e.i.r.p. Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 1W or (17 + 10logB) dBm, whichever is lower
For all test frequencies, B was applied the minimum value (16.600 MHz) as conservative limit.

The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725-5850MHz for I

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.8 Measurement Room
Date	September 27, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Shousei Hamaguchi
Mode	Tx 11n-40

11n-40

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Conducted Power Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin	e.i.r.p. Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin
[MHz]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]
5755	-7.50	2.03	9.85	3.00	***4.38***	***2.74***	30.00	25.62	30.00	25.62	***7.38***	***5.48***	36.00	28.62	36.00	28.62
5795	-7.53	2.04	9.85	3.00	4.36	2.73	30.00	25.64	30.00	25.64	7.36	5.45	36.00	28.64	36.00	28.64

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

15.407 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
For all test frequencies, B was applied the minimum value (18.000 MHz) as conservative limit.

RSS-247 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
e.i.r.p. Limit (5150 MHz-5250 MHz) = 200mW or (10 + 10logB) dBm, whichever is lower
e.i.r.p. Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 1W or (17 + 10logB) dBm, whichever is lower
For all test frequencies, B was applied the minimum value (16.600 MHz) as conservative limit.

The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725-5850MHz for I

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.8 Measurement Room
Date	September 27, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Shousei Hamaguchi
Mode	Tx 11ac-40

11ac-40

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Conducted Power Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin	e.i.r.p. Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin
[MHz]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]
5755	-7.33	2.03	9.85	3.00	***4.55***	***2.85***	30.00	25.45	30.00	25.45	***7.55***	***5.69***	36.00	28.45	36.00	28.45
5795	-7.49	2.04	9.85	3.00	4.40	2.76	30.00	25.60	30.00	25.60	7.40	5.50	36.00	28.60	36.00	28.60

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

15.407 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
For all test frequencies, B was applied the minimum value (18.000 MHz) as conservative limit.

RSS-247 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
e.i.r.p. Limit (5150 MHz-5250 MHz) = 200mW or (10 + 10logB) dBm, whichever is lower
e.i.r.p. Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 1W or (17 + 10logB) dBm, whichever is lower
For all test frequencies, B was applied the minimum value (16.600 MHz) as conservative limit.

The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725-5850MHz for I

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.8 Measurement Room
Date	September 27, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Shousei Hamaguchi
Mode	Tx 11ac-80

11ac-80

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Conducted Power Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin	e.i.r.p. Result		FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin
[MHz]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[dB]
5775	-7.82	2.03	9.85	3.00	***4.06***	***2.55***	30.00	25.94	30.00	25.94	***7.06***	***5.09***	36.00	28.94	36.00	28.94

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

15.407 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
For all test frequencies, B was applied the minimum value (18.000 MHz) as conservative limit.

RSS-247 Limit
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1W
e.i.r.p. Limit (5150 MHz-5250 MHz) = 200mW or (10 + 10logB) dBm, whichever is lower
e.i.r.p. Limit (5250 MHz-5350 MHz, 5470 MHz-5600 MHz, 5650 MHz-5725 MHz) = 1W or (17 + 10logB) dBm, whichever is lower
For all test frequencies, B was applied the minimum value (16.600 MHz) as conservative limit.

The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725-5850MHz for I

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.6 Measurement Room
Date	September 18, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Tomoya Sone
Mode	Tx 11a

5745 MHz

Mode	Rate Mbps	Reading Short GI [dBm]	Reading Long GI [dBm]	Remarks
11a	6	-1.98	-2.02	*
	9	-2.13	-	
	12	-2.37	-	
	18	-2.06	-	
	24	-2.07	-	
	36	-2.03	-	
	48	-2.46	-	
	54	-2.73	-	

* Worst rate

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

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.6 Measurement Room
Date	September 18, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Tomoya Sone
Mode	Tx 11n-20

5745 MHz

Mode	MCS Number	Reading Short GI [dBm]	Reading Long GI [dBm]	Remarks
11n-20	0	-1.98	-2.11	*
	1	-2.22	-	
	2	-2.35	-	
	3	-2.34	-	
	4	-2.37	-	
	5	-2.30	-	
	6	-2.49	-	
	7	-2.48	-	

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

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.6 Measurement Room
Date	September 18, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Tomoya Sone
Mode	Tx 11ac-20

5745 MHz

Mode	MCS Number	Reading Short GI [dBm]	Reading Long GI [dBm]	Remarks
11ac-20	0	-1.98	-2.05	*
	1	-2.09	-	
	2	-2.08	-	
	3	-2.22	-	
	4	-2.35	-	
	5	-2.46	-	
	6	-2.33	-	
	7	-2.77	-	
	8	-2.64	-	

* Worst rate

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

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.6 Measurement Room
Date	September 18, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Tomoya Sone
Mode	Tx 11n-40

5755 MHz

Mode	MCS Number	Reading Short GI [dBm]	Reading Long GI [dBm]	Remarks
11n-40	0	-1.95	-2.01	*
	1	-2.06	-	
	2	-2.28	-	
	3	-2.24	-	
	4	-2.19	-	
	5	-2.27	-	
	6	-2.69	-	
	7	-2.67	-	

* Worst rate

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

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.6 Measurement Room
Date	September 18, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Tomoya Sone
Mode	Tx 11ac-40

5755 MHz

Mode	MCS Number	Reading Short GI [dBm]	Reading Long GI [dBm]	Remarks
11ac-40	0	-1.68	-1.85	*
	1	-1.89		
	2	-2.04		
	3	-2.45		
	4	-2.70		
	5	-2.39		
	6	-2.43		
	7	-2.68		
	8	-2.61		
	9	-2.78		

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

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.6 Measurement Room
Date	September 18, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Tomoya Sone
Mode	Tx 11ac-80

5775 MHz

Mode	MCS Number	Reading Short GI [dBm]	Reading Long GI [dBm]	Remarks
11ac-80	0	-2.57	-2.60	*
	1	-2.65		
	2	-2.64		
	3	-2.68		
	4	-2.82		
	5	-2.96		
	6	-2.97		
	7	-2.95		
	8	-2.76		
	9	-2.93		

* Worst rate

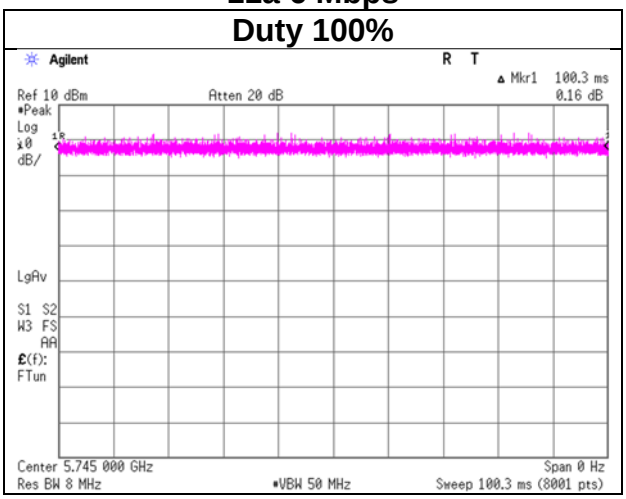
All comparison were carried out on same frequency and measurement factors.

Burst rate confirmation

Test place	Ise EMC Lab. No.8 Measurement Room
Date	September 27, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Shousei Hamaguchi
Mode	Tx

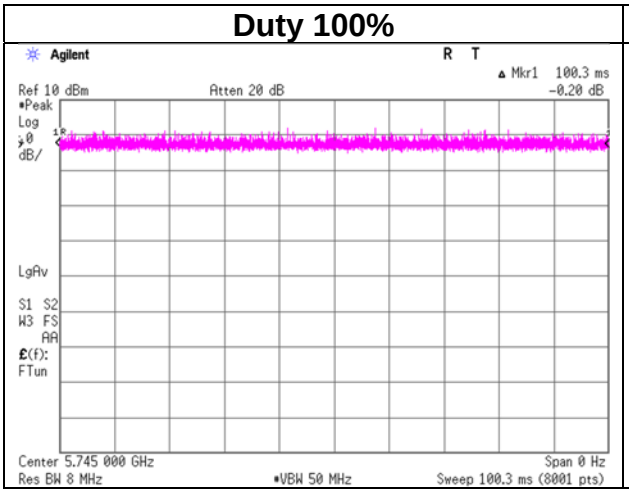
11a 6 Mbps

Duty 100%



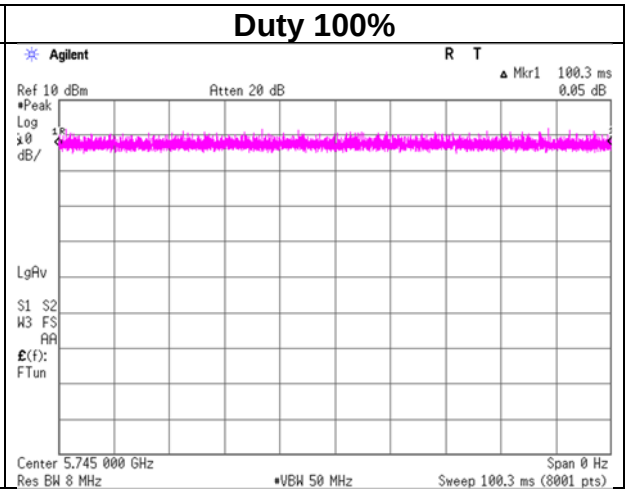
11n-20 MCS 0

Duty 100%



11ac-20 MCS 0

Duty 100%

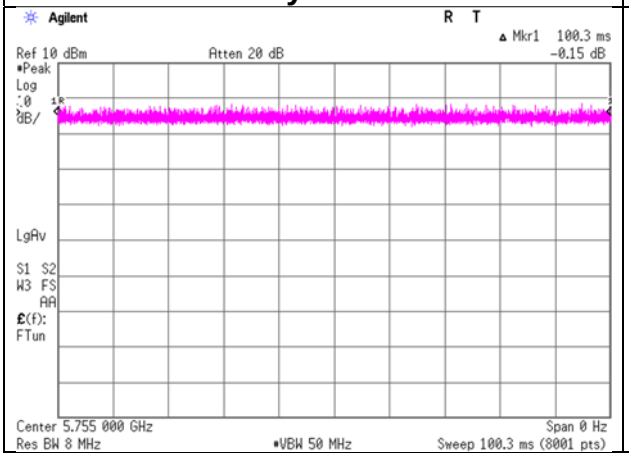


Burst rate confirmation

Test place	Ise EMC Lab. No.8 Measurement Room
Date	September 27, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Shousei Hamaguchi
Mode	Tx

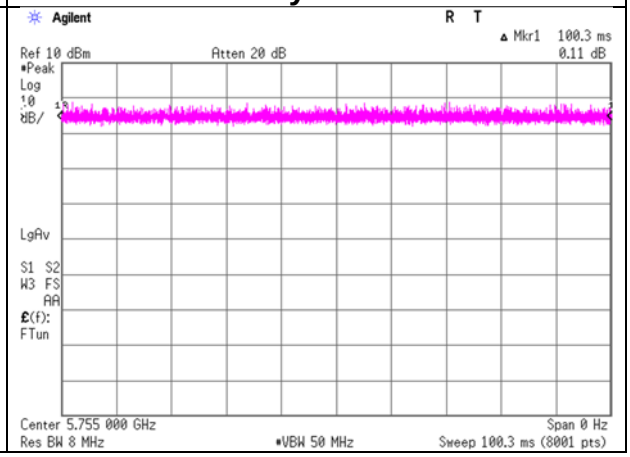
11n-40 MCS 0

Duty 100%



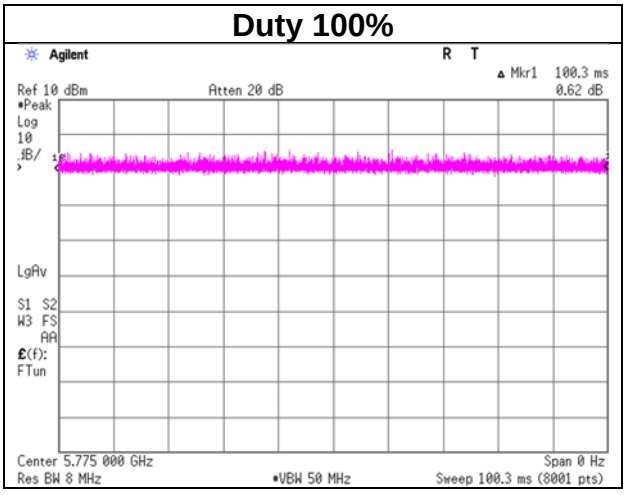
11ac-40 MCS 0

Duty 100%



11ac-80 MCS 0

Duty 100%



Maximum Power Spectral Density

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	September 27, 2024	March 14, 2025
Temperature / Humidity	23 deg. C / 59 % RH	24 deg. C / 35 % RH
Engineer	Shousei Hamaguchi	Shousei Hamaguchi
Mode	Tx 11a	

Tested Frequency	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	RBW Correction Factor	PSD (Conducted)					PSD (e.i.r.p.)				
						Result	FCC 15.407		RSS-247		Result	FCC 15.407		RSS-247	
							Limit	Margin	Limit	Margin		Limit	Margin	Limit	Margin
[MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]
5745	-20.93	2.03	9.85	3.00	0.27	-8.78	30.00	38.78	30.00	38.78	-5.78	36.00	41.78	36.00	41.78
5785	-20.80	2.03	9.85	3.00	0.27	-8.65	30.00	38.65	30.00	38.65	-5.65	36.00	41.65	36.00	41.65
5805	-20.24	2.04	9.85	3.00	0.27	***-8.08***	30.00	38.08	30.00	38.08	***-5.08***	36.00	41.08	36.00	41.08

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 + RBW Correction Factor
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

The conducted PSD limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725 MHz-5850 MHz for IC

Maximum Power Spectral Density

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	September 27, 2024	March 14, 2025
Temperature / Humidity	23 deg. C / 59 % RH	24 deg. C / 35 % RH
Engineer	Shousei Hamaguchi	Shousei Hamaguchi
Mode	Tx 11n-20	

Tested Frequency	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	RBW Correction Factor	PSD (Conducted)					PSD (e.i.r.p.)				
						Result	FCC 15.407		RSS-247		Result	FCC 15.407		RSS-247	
							Limit	Margin	Limit	Margin		Limit	Margin	Limit	Margin
[MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]
5745	-21.03	2.03	9.85	3.00	0.27	-8.88	30.00	38.88	30.00	38.88	-5.88	36.00	41.88	36.00	41.88
5785	-20.93	2.03	9.85	3.00	0.27	-8.77	30.00	38.77	30.00	38.77	-5.77	36.00	41.77	36.00	41.77
5805	-20.28	2.04	9.85	3.00	0.27	***-8.12***	30.00	38.12	30.00	38.12	***-5.12***	36.00	41.12	36.00	41.12

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 + RBW Correction Factor
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

The conducted PSD limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725 MHz-5850 MHz for IC

Maximum Power Spectral Density

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	September 27, 2024	March 14, 2025
Temperature / Humidity	23 deg. C / 59 % RH	24 deg. C / 35 % RH
Engineer	Shousei Hamaguchi	Shousei Hamaguchi
Mode	Tx 11ac-20	

Tested Frequency	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	RBW Correction Factor	PSD (Conducted)					PSD (e.i.r.p.)				
						Result	FCC 15.407		RSS-247		Result	FCC 15.407		RSS-247	
							Limit	Margin	Limit	Margin		Limit	Margin	Limit	Margin
[MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]
5745	-21.17	2.03	9.85	3.00	0.27	-9.02	30.00	39.02	30.00	39.02	-6.02	36.00	42.02	36.00	42.02
5785	-20.78	2.03	9.85	3.00	0.27	-8.63	30.00	38.63	30.00	38.63	-5.63	36.00	41.63	36.00	41.63
5805	-20.65	2.04	9.85	3.00	0.27	***-8.49***	30.00	38.49	30.00	38.49	***-5.49***	36.00	41.49	36.00	41.49

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 + RBW Correction Factor
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

The conducted PSD limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725 MHz-5850 MHz for IC

Maximum Power Spectral Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	September 27, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Shousei Hamaguchi
Mode	Tx 11n-40

Tested Frequency	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	RBW Correction Factor	PSD (Conducted) Result	FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin	PSD (e.i.r.p.) Result	FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin
[MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]
5755	-23.76	2.03	9.85	3.00	0.27	-11.60	30.00	41.60	30.00	41.60	-8.60	36.00	44.60	36.00	44.60
5795	-23.56	2.04	9.85	3.00	0.27	***-11.40***	30.00	41.40	30.00	41.40	***-8.40***	36.00	44.40	36.00	44.40

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 + RBW Correction Factor
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

The conducted PSD limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725 MHz-5850 MHz for IC

Maximum Power Spectral Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	September 27, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Shousei Hamaguchi
Mode	Tx 11ac-40

Tested Frequency	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	RBW Correction Factor	PSD (Conducted) Result	FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin	PSD (e.i.r.p.) Result	FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin
[MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]
5755	-23.65	2.03	9.85	3.00	0.27	***-11.50***	30.00	41.50	30.00	41.50	***-8.50***	36.00	44.50	36.00	44.50
5795	-23.72	2.04	9.85	3.00	0.27	-11.56	30.00	41.56	30.00	41.56	-8.56	36.00	44.56	36.00	44.56

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 + RBW Correction Factor
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

The conducted PSD limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725 MHz-5850 MHz for IC

Maximum Power Spectral Density

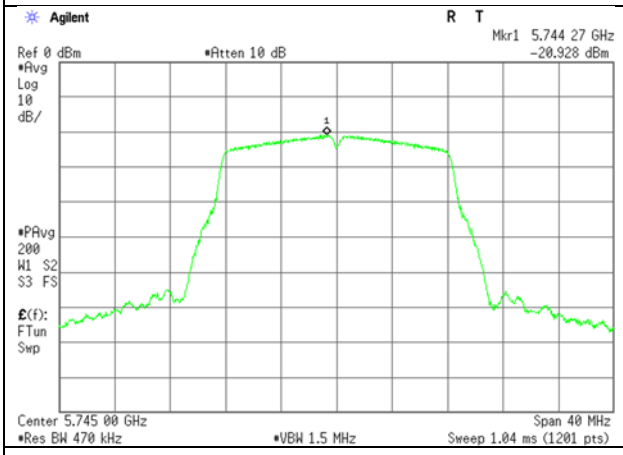
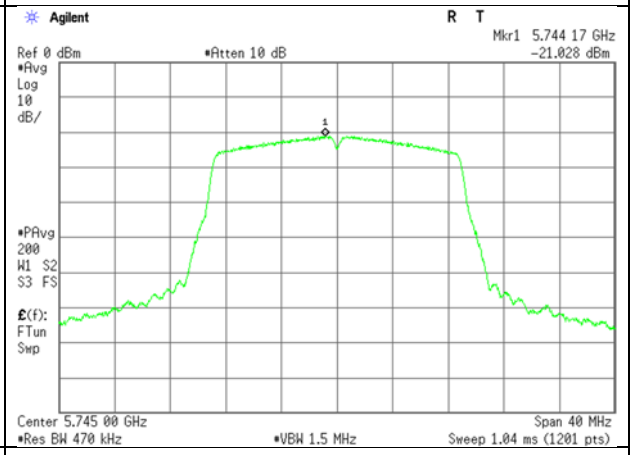
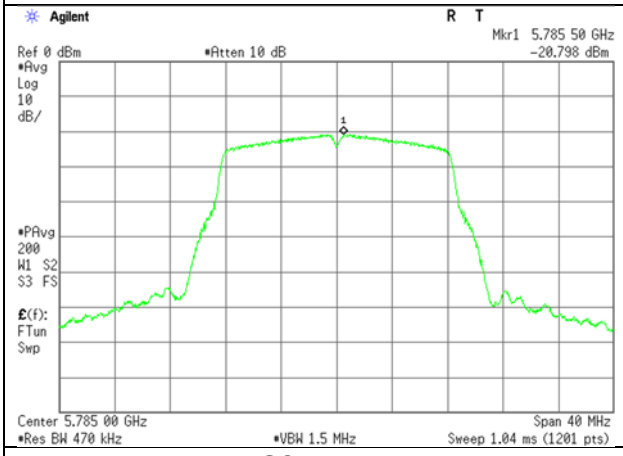
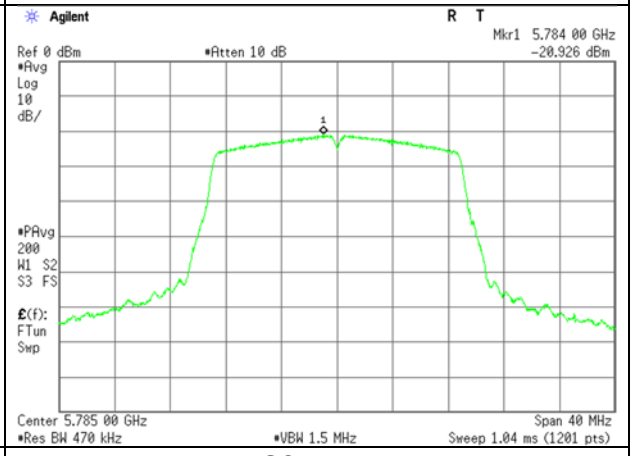
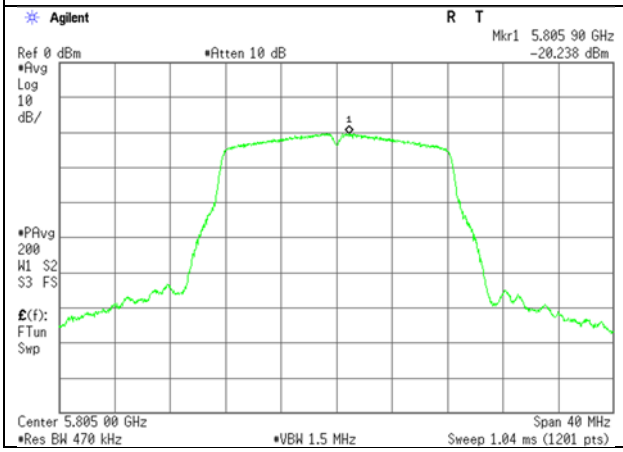
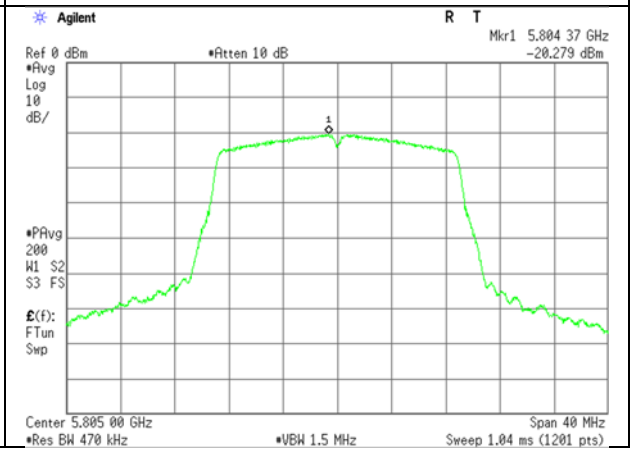
Test place	Ise EMC Lab. No.8 Measurement Room
Date	September 27, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Shousei Hamaguchi
Mode	Tx 11ac-80

Tested Frequency	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	RBW Correction Factor	PSD (Conducted) Result	FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin	PSD (e.i.r.p.) Result	FCC 15.407 Limit	FCC 15.407 Margin	RSS-247 Limit	RSS-247 Margin
[MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBm/MHz]	[dB]
5775	-27.30	2.03	9.85	3.00	0.27	-15.15	30.00	45.15	30.00	45.15	-12.15	36.00	48.15	36.00	48.15

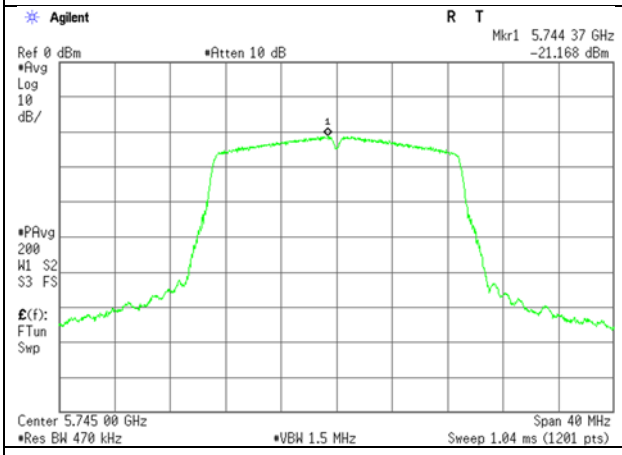
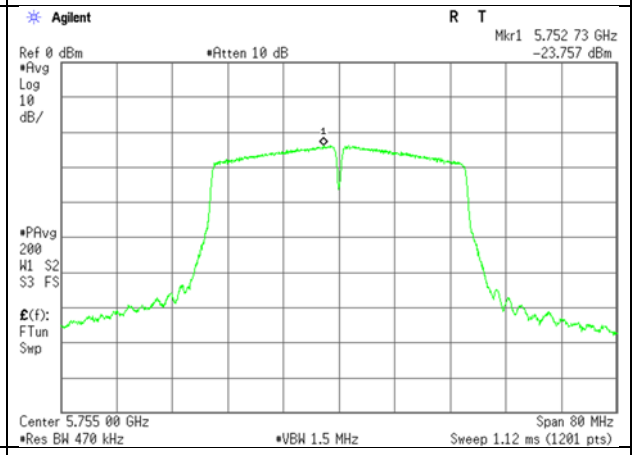
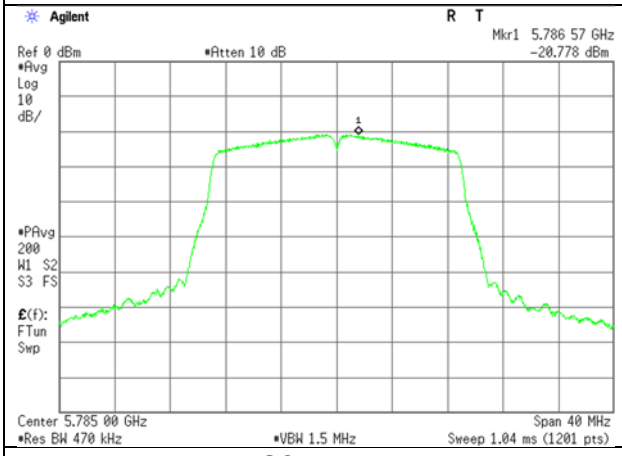
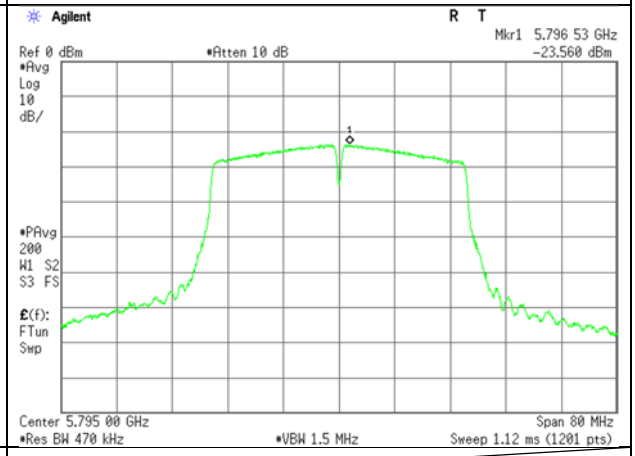
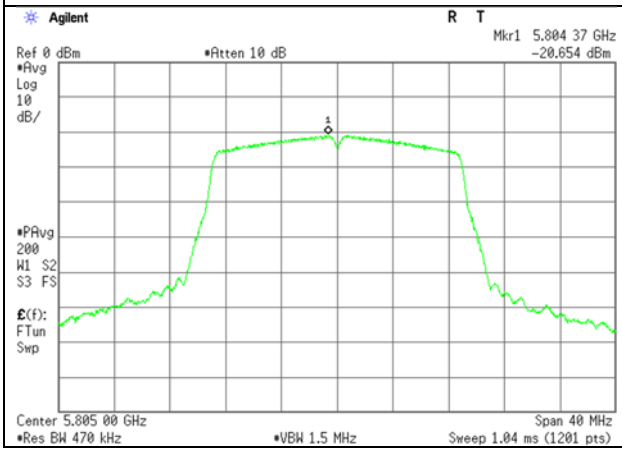
Sample Calculation:
PSD: Power Spectral Density
The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.
RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)
PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + RBW Correction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

The conducted PSD limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. (All frequencies for FCC, 5725 MHz-5850 MHz for IC

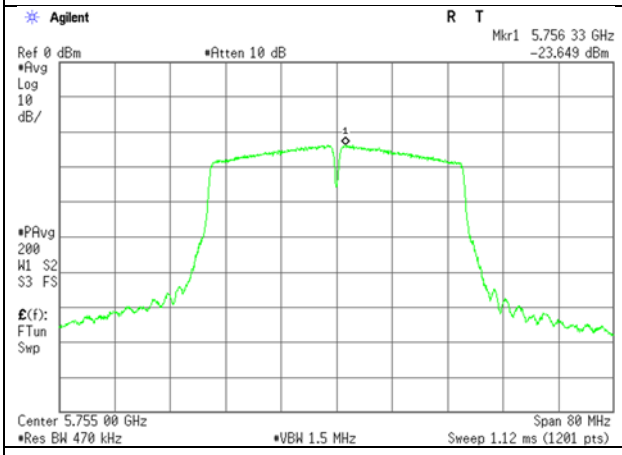
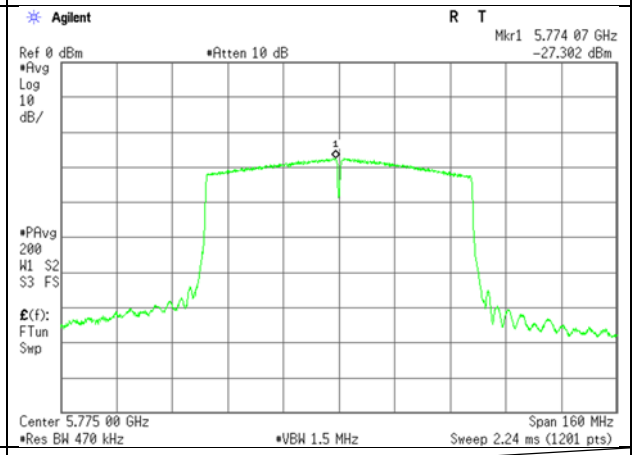
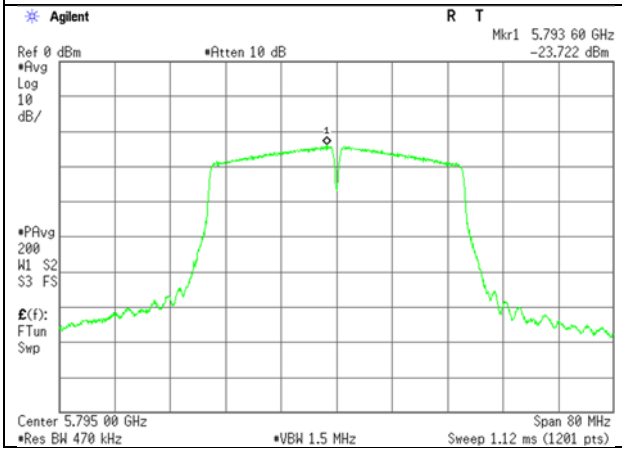
Maximum Power Spectral Density

11a	11n-20
5745 MHz	**5745 MHz**
	
5785 MHz	**5785 MHz**
	
5805 MHz	**5805 MHz**
	

Maximum Power Spectral Density

11ac-20	11n-40
5745 MHz	**5755 MHz**
	
5785 MHz	**5795 MHz**
	
5805 MHz	
	

Maximum Power Spectral Density

11ac-40	11ac-80
5755 MHz	**5775 MHz**
	
5795 MHz	
	

Radiated Spurious Emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	September 30, 2024	October 3, 2024
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 69 % RH
Engineer	Hiroki Numata	Tomoya Sone
	(1 GHz to 6 GHz)	(Above 6 GHz)
Mode	Tx 11a 5745 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	5650.0	44.7	-	31.8	6.6	35.5	-	47.6	-	68.2	-	20.6	-	
Hori.	5700.0	44.8	-	31.8	6.6	35.5	-	47.8	-	105.2	-	57.4	-	
Hori.	5720.0	45.2	-	31.9	6.6	35.5	-	48.3	-	110.8	-	62.6	-	
Hori.	5725.0	46.9	-	31.9	6.6	35.5	-	50.0	-	122.2	-	72.2	-	
Hori.	11490.0	43.4	35.5	37.5	-1.8	32.8	-	46.4	38.4	73.9	53.9	27.5	15.5	
Hori.	17235.0	44.1	-	39.7	0.1	31.9	-	52.1	-	68.2	-	16.1	-	Floor noise
Vert.	5650.0	43.9	-	31.8	6.6	35.5	-	46.8	-	68.2	-	21.4	-	
Vert.	5700.0	44.8	-	31.8	6.6	35.5	-	47.8	-	105.2	-	57.4	-	
Vert.	5720.0	45.1	-	31.9	6.6	35.5	-	48.1	-	110.8	-	62.7	-	
Vert.	5725.0	49.6	-	31.9	6.6	35.5	-	52.7	-	122.2	-	69.5	-	
Vert.	11490.0	44.1	35.3	37.5	-1.8	32.8	-	47.1	38.3	73.9	53.9	26.8	15.6	
Vert.	17235.0	44.1	-	39.7	0.1	31.9	-	52.1	-	68.2	-	16.1	-	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

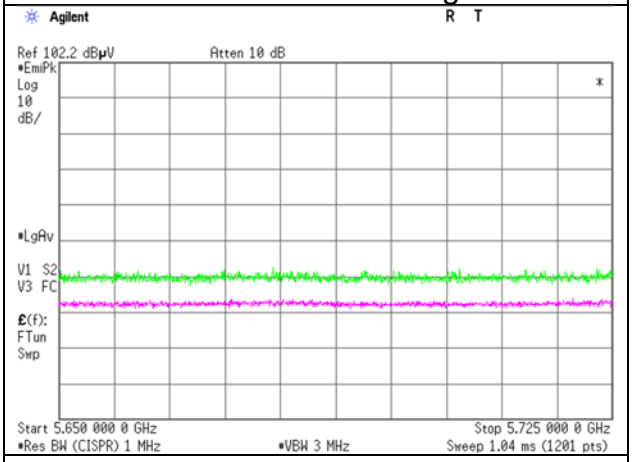
Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	September 30, 2024
Temperature / Humidity	23 deg. C / 58 % RH
Engineer	Hiroki Numata
Mode	Tx 11a 5745 MHz

Horizontal

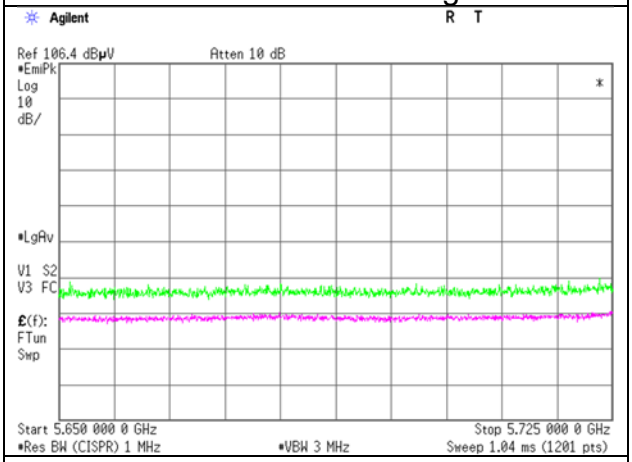
Restricted-band band-edge Plot



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

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	September 30, 2024	October 3, 2024
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 69 % RH
Engineer	Hiroki Numata	Tomoya Sone
	(1 GHz to 6 GHz)	(Above 6 GHz)
Mode	Tx 11a 5785 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	11570.0	44.7	36.6	37.5	-1.7	32.8	-	47.8	39.7	73.9	53.9	26.1	14.3	
Hori.	17355.0	43.5	-	39.8	0.1	31.9	-	51.6	-	68.2	-	16.7	-	Floor noise
Vert.	11570.0	43.3	35.1	37.5	-1.7	32.8	-	46.4	38.2	73.9	53.9	27.5	15.7	
Vert.	17355.0	43.5	-	39.8	0.1	31.9	-	51.6	-	68.2	-	16.7	-	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 16, 2025
Temperature / Humidity	22 deg. C / 42 % RH
Engineer	Ken Fujita
Mode	Tx 11a 5805 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	5850.0	39.2	-	32.8	6.5	31.2	-	47.4	-	122.2	-	74.9	-	
Hori.	5855.0	39.7	-	32.8	6.5	31.2	-	47.8	-	110.8	-	63.0	-	
Hori.	5875.0	40.1	-	32.8	6.6	31.2	-	48.3	-	105.2	-	56.9	-	
Hori.	5925.0	40.5	-	32.8	6.6	31.2	-	48.7	-	68.2	-	19.5	-	
Hori.	11610.0	41.9	33.5	37.5	0.2	32.8	-	46.8	38.4	73.9	53.9	27.1	15.5	
Hori.	17415.0	42.7	-	39.8	1.5	32.4	-	51.6	-	68.2	-	16.6	-	Floor noise
Vert.	5850.0	40.7	-	32.8	6.5	31.2	-	48.8	-	122.2	-	73.4	-	
Vert.	5855.0	39.4	-	32.8	6.5	31.2	-	47.6	-	110.8	-	63.3	-	
Vert.	5875.0	41.1	-	32.8	6.6	31.2	-	49.3	-	105.2	-	56.0	-	
Vert.	5925.0	39.2	-	32.8	6.6	31.2	-	47.4	-	68.2	-	20.9	-	
Vert.	11610.0	43.3	35.2	37.5	0.2	32.8	-	48.2	40.1	73.9	53.9	25.7	13.8	
Vert.	17415.0	42.4	-	39.8	1.5	32.4	-	51.3	-	68.2	-	16.9	-	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

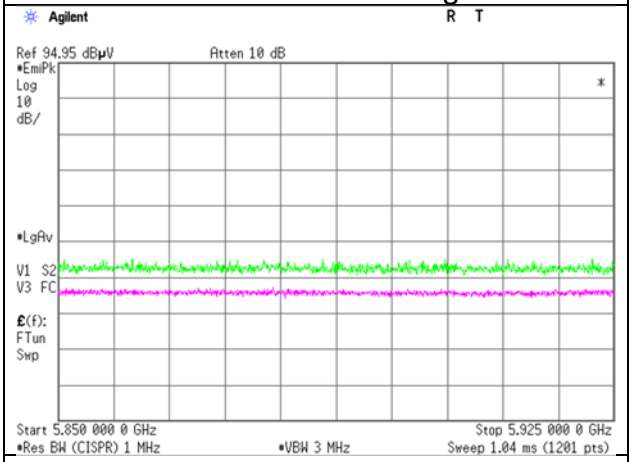
Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 16, 2025
Temperature / Humidity	22 deg. C / 42 % RH
Engineer	Ken Fujita
Mode	Tx 11a 5805 MHz

Horizontal

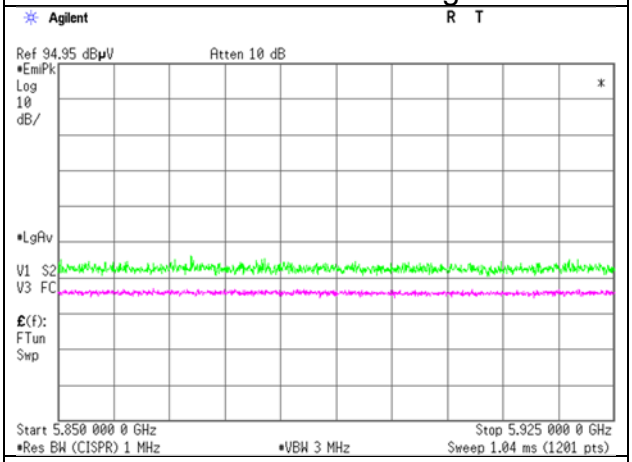
Restricted-band band-edge Plot



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

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	September 30, 2024	October 3, 2024
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 69 % RH
Engineer	Hiroki Numata	Tomoya Sone
	(1 GHz to 6 GHz)	(Above 6 GHz)
Mode	Tx 11ac-20 5745 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	5650.0	45.6	-	31.8	6.6	35.5	-	48.5	-	68.2	-	19.7	-	
Hori.	5700.0	44.1	-	31.8	6.6	35.5	-	47.1	-	105.2	-	58.1	-	
Hori.	5720.0	44.7	-	31.9	6.6	35.5	-	47.8	-	110.8	-	63.0	-	
Hori.	5725.0	45.7	-	31.9	6.6	35.5	-	48.7	-	122.2	-	73.5	-	
Hori.	11490.0	44.0	36.2	37.5	-1.8	32.8	-	47.0	39.2	73.9	53.9	26.9	14.7	
Hori.	17235.0	44.6	-	39.7	0.1	31.9	-	52.6	-	68.2	-	15.6	-	Floor noise
Vert.	5650.0	45.0	-	31.8	6.6	35.5	-	47.9	-	68.2	-	20.3	-	
Vert.	5700.0	45.5	-	31.8	6.6	35.5	-	48.5	-	105.2	-	56.7	-	
Vert.	5720.0	45.7	-	31.9	6.6	35.5	-	48.7	-	110.8	-	62.1	-	
Vert.	5725.0	48.2	-	31.9	6.6	35.5	-	51.3	-	122.2	-	70.9	-	
Vert.	11490.0	44.3	35.3	37.5	-1.8	32.8	-	47.3	38.3	73.9	53.9	26.6	15.6	
Vert.	17235.0	44.6	-	39.7	0.1	31.9	-	52.6	-	68.2	-	15.6	-	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

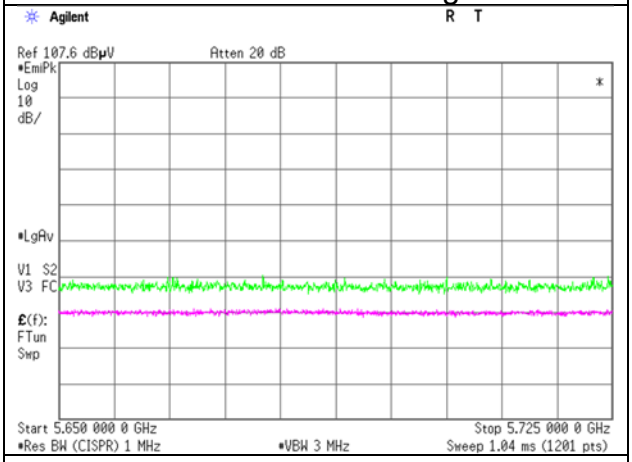
Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	September 30, 2024
Temperature / Humidity	23 deg. C / 58 % RH
Engineer	Hiroki Numata
Mode	Tx 11ac-20 5745 MHz

Horizontal

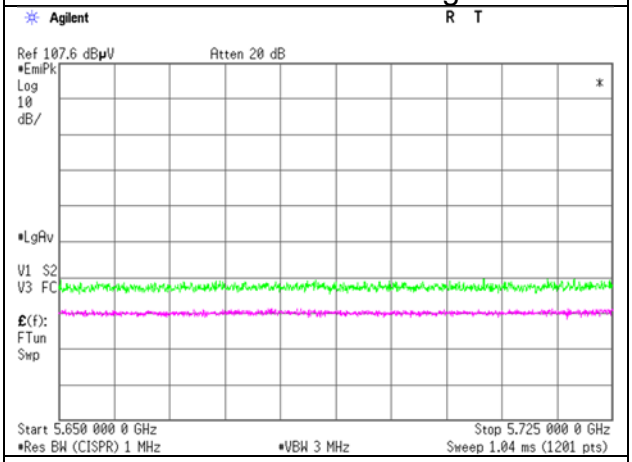
Restricted-band band-edge Plot



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

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	September 30, 2024	October 3, 2024
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 69 % RH
Engineer	Hiroki Numata	Tomoya Sone
	(1 GHz to 6 GHz)	(Above 6 GHz)
Mode	Tx 11ac-20 5785 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	11570.0	44.1	36.6	37.5	-1.7	32.8	-	47.1	39.6	73.9	53.9	26.8	14.3	
Hori.	17355.0	43.8	-	39.8	0.1	31.9	-	51.8	-	68.2	-	16.4	-	Floor noise
Vert.	11570.0	43.7	36.0	37.5	-1.7	32.8	-	46.8	39.1	73.9	53.9	27.1	14.8	
Vert.	17355.0	43.8	-	39.8	0.1	31.9	-	51.8	-	68.2	-	16.4	-	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 16, 2025
Temperature / Humidity	22 deg. C / 42 % RH
Engineer	Ken Fujita
Mode	Tx 11ac-20 5805 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	5850.0	39.7	-	32.8	6.5	31.2	-	47.8	-	122.2	-	74.4	-	
Hori.	5855.0	39.5	-	32.8	6.5	31.2	-	47.7	-	110.8	-	63.2	-	
Hori.	5875.0	40.0	-	32.8	6.6	31.2	-	48.2	-	105.2	-	57.0	-	
Hori.	5925.0	40.6	-	32.8	6.6	31.2	-	48.7	-	68.2	-	19.5	-	
Hori.	11610.0	42.7	36.2	37.5	0.2	32.8	-	47.6	41.1	73.9	53.9	26.3	12.8	
Hori.	17415.0	42.5	-	39.8	1.5	32.4	-	51.4	-	68.2	-	16.8	-	Floor noise
Vert.	5850.0	39.1	-	32.8	6.5	31.2	-	47.2	-	122.2	-	75.0	-	
Vert.	5855.0	39.5	-	32.8	6.5	31.2	-	47.6	-	110.8	-	63.2	-	
Vert.	5875.0	39.4	-	32.8	6.6	31.2	-	47.6	-	105.2	-	57.6	-	
Vert.	5925.0	39.4	-	32.8	6.6	31.2	-	47.6	-	68.2	-	20.6	-	
Vert.	11610.0	42.5	36.0	37.5	0.2	32.8	-	47.4	40.9	73.9	53.9	26.5	13.0	
Vert.	17415.0	43.2	-	39.8	1.5	32.4	-	52.2	-	68.2	-	16.0	-	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

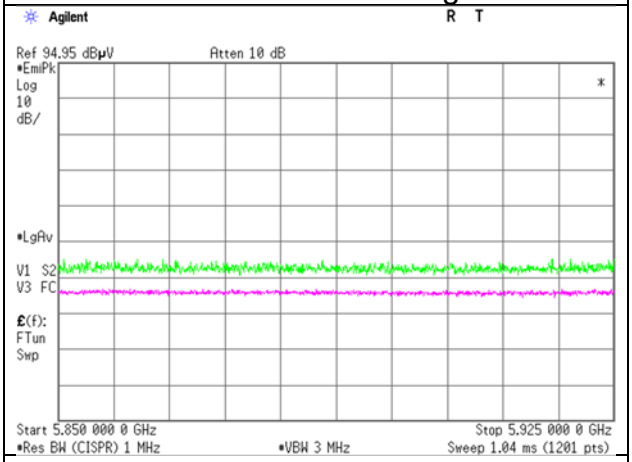
Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 16, 2025
Temperature / Humidity	22 deg. C / 42 % RH
Engineer	Ken Fujita
Mode	Tx 11ac-20 5805 MHz

Horizontal

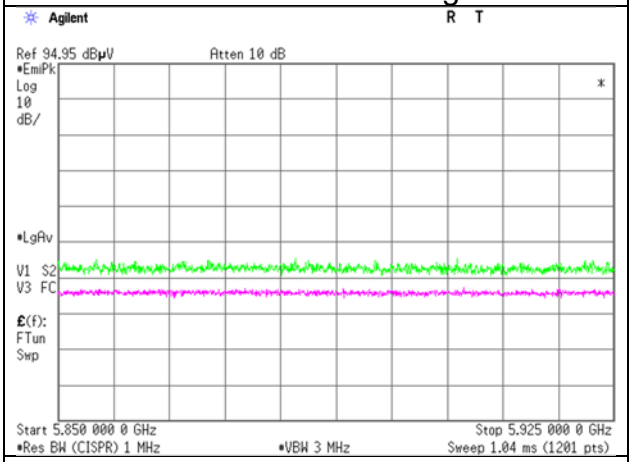
Restricted-band band-edge Plot



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

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.1	No.3	No.2
Date	September 30, 2024	October 3, 2024	October 7, 2024
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 69 % RH	21 deg. C / 71 % RH
Engineer	Hiroki Numata (1 GHz to 6 GHz)	Tomoya Sone (Above 6 GHz)	Tomoya Sone (Below 1 GHz)
Mode	Tx 11ac-40 5755 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	83.9	33.8	-	7.5	7.7	32.1	-	16.9	-	40.0	-	23.1	-	
Hori.	105.0	32.7	-	11.1	7.9	32.1	-	19.6	-	43.5	-	23.9	-	
Hori.	183.7	35.2	-	16.2	8.6	32.0	-	28.0	-	43.5	-	15.5	-	
Hori.	218.4	38.8	-	11.2	8.9	32.0	-	26.9	-	46.0	-	19.1	-	
Hori.	227.2	40.2	-	11.4	9.0	32.0	-	28.5	-	46.0	-	17.5	-	
Hori.	780.0	29.5	-	20.8	11.9	31.8	-	30.3	-	46.0	-	15.7	-	
Hori.	5650.0	44.2	-	31.8	6.6	35.5	-	47.1	-	68.2	-	21.1	-	
Hori.	5700.0	44.3	-	31.8	6.6	35.5	-	47.3	-	105.2	-	57.9	-	
Hori.	5720.0	46.2	-	31.9	6.6	35.5	-	49.2	-	110.8	-	61.6	-	
Hori.	5725.0	48.6	-	31.9	6.6	35.5	-	51.7	-	122.2	-	70.5	-	
Hori.	11510.0	43.7	35.7	37.5	-1.7	32.8	-	46.7	38.8	73.9	53.9	27.2	15.2	
Hori.	17265.0	44.3	-	39.7	0.1	31.9	-	52.3	-	68.2	-	15.9	-	Floor noise
Vert.	83.9	30.7	-	7.5	7.7	32.1	-	13.8	-	40.0	-	26.2	-	
Vert.	105.0	34.3	-	11.1	7.9	32.1	-	21.2	-	43.5	-	22.3	-	
Vert.	183.7	35.6	-	16.2	8.6	32.0	-	28.4	-	43.5	-	15.1	-	
Vert.	218.4	32.4	-	11.2	8.9	32.0	-	20.5	-	46.0	-	25.5	-	
Vert.	227.2	29.7	-	11.4	9.0	32.0	-	18.0	-	46.0	-	28.0	-	
Vert.	780.0	28.5	-	20.8	11.9	31.8	-	29.3	-	46.0	-	16.7	-	
Vert.	5650.0	44.0	-	31.8	6.6	35.5	-	46.8	-	68.2	-	21.4	-	
Vert.	5700.0	44.7	-	31.8	6.6	35.5	-	47.6	-	105.2	-	57.6	-	
Vert.	5720.0	47.8	-	31.9	6.6	35.5	-	50.8	-	110.8	-	60.0	-	
Vert.	5725.0	52.0	-	31.9	6.6	35.5	-	55.0	-	122.2	-	67.2	-	
Vert.	11510.0	44.3	35.8	37.5	-1.7	32.8	-	47.3	38.8	73.9	53.9	26.6	15.1	
Vert.	17265.0	44.3	-	39.7	0.1	31.9	-	52.3	-	68.2	-	15.9	-	Floor noise

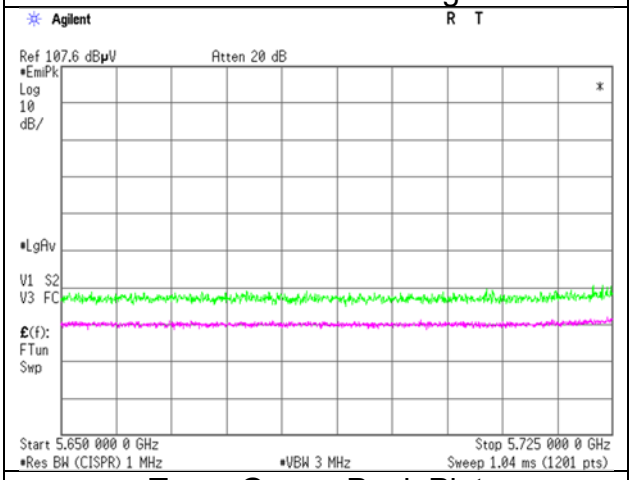
Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

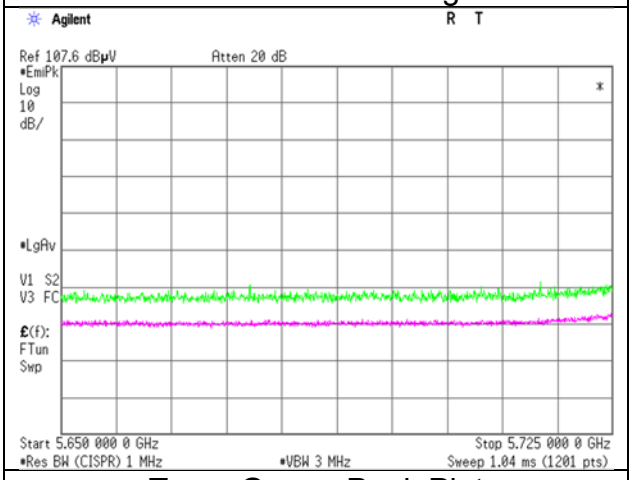
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	September 30, 2024
Temperature / Humidity	23 deg. C / 58 % RH
Engineer	Hiroki Numata
Mode	Tx 11ac-40 5755 MHz

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

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	September 30, 2024	October 3, 2024
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 69 % RH
Engineer	Hiroki Numata	Tomoya Sone
	(1 GHz to 6 GHz)	(Above 6 GHz)
Mode	Tx 11ac-40 5795 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	5850.0	44.3	-	32.2	6.7	35.5	-	47.7	-	122.2	-	74.5	-	
Hori.	5855.0	44.6	-	32.3	6.7	35.5	-	48.0	-	110.8	-	62.8	-	
Hori.	5875.0	44.1	-	32.3	6.7	35.5	-	47.6	-	105.2	-	57.6	-	
Hori.	5925.0	44.6	-	32.4	6.7	35.5	-	48.2	-	68.2	-	20.0	-	
Hori.	11590.0	44.1	37.2	37.5	-1.7	32.8	-	47.2	40.3	73.9	53.9	26.8	13.6	
Hori.	17385.0	43.9	-	39.8	0.1	31.9	-	51.9	-	68.2	-	16.3	-	Floor noise
Vert.	5850.0	45.4	-	32.2	6.7	35.5	-	48.9	-	122.2	-	73.3	-	
Vert.	5855.0	45.5	-	32.3	6.7	35.5	-	48.9	-	110.8	-	61.9	-	
Vert.	5875.0	45.4	-	32.3	6.7	35.5	-	48.9	-	105.2	-	56.3	-	
Vert.	5925.0	45.1	-	32.4	6.7	35.5	-	48.7	-	68.2	-	19.5	-	
Vert.	11590.0	43.2	35.7	37.5	-1.7	32.8	-	46.3	38.8	73.9	53.9	27.6	15.1	
Vert.	17385.0	43.9	-	39.8	0.1	31.9	-	51.9	-	68.2	-	16.3	-	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

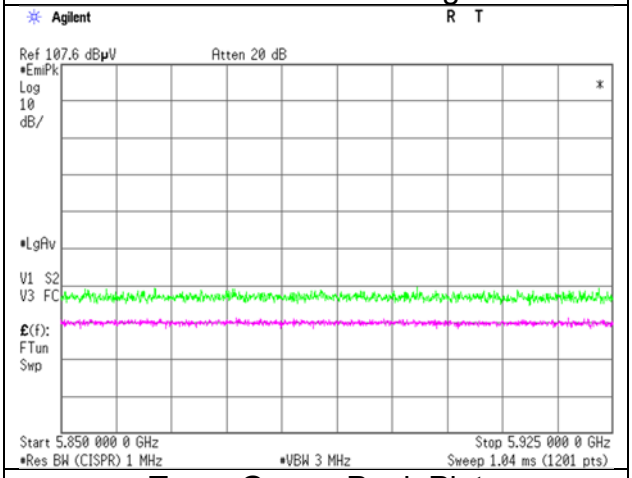
Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	September 30, 2024
Temperature / Humidity	23 deg. C / 58 % RH
Engineer	Hiroki Numata
Mode	Tx 11ac-40 5795 MHz

Horizontal

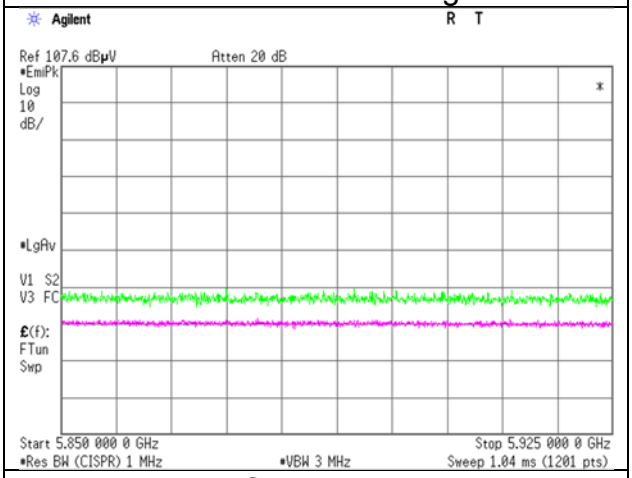
Restricted-band band-edge Plot



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

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	September 30, 2024	October 3, 2024
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 69 % RH
Engineer	Hiroki Numata	Tomoya Sone
	(1 GHz to 6 GHz)	(Above 6 GHz)
Mode	Tx 11ac-80 5775 MHz	

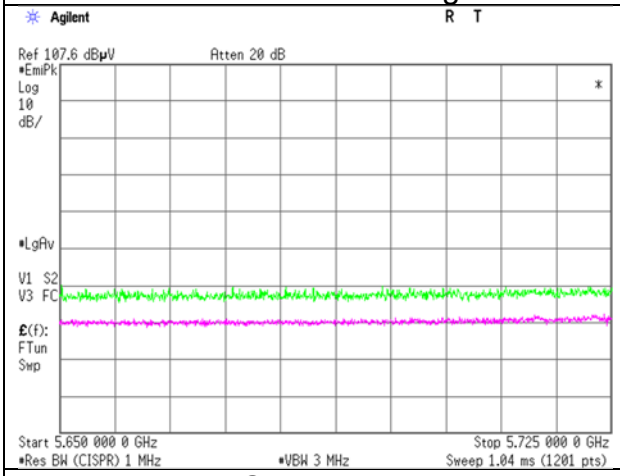
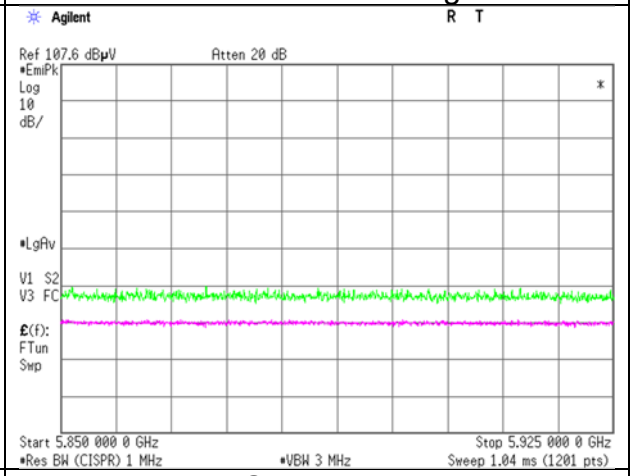
Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	5650.0	44.2	-	31.8	6.6	35.5	-	47.1	-	68.2	-	21.2	-	
Hori.	5700.0	45.0	-	31.8	6.6	35.5	-	48.0	-	105.2	-	57.3	-	
Hori.	5720.0	45.9	-	31.9	6.6	35.5	-	48.9	-	110.8	-	61.9	-	
Hori.	5725.0	46.6	-	31.9	6.6	35.5	-	49.7	-	122.2	-	72.5	-	
Hori.	5850.0	44.3	-	32.2	6.7	35.5	-	47.8	-	122.2	-	74.4	-	
Hori.	5855.0	44.0	-	32.3	6.7	35.5	-	47.4	-	110.8	-	63.4	-	
Hori.	5875.0	43.5	-	32.3	6.7	35.5	-	47.0	-	105.2	-	58.2	-	
Hori.	5925.0	44.4	-	32.4	6.7	35.5	-	48.0	-	68.2	-	20.2	-	
Hori.	11550.0	43.3	35.8	37.5	-1.7	32.8	-	46.4	38.9	73.9	53.9	27.5	15.0	
Hori.	17325.0	44.2	-	39.8	0.1	31.9	-	52.2	-	68.2	-	16.0	-	Floor noise
Vert.	5650.0	44.8	-	31.8	6.6	35.5	-	47.7	-	68.2	-	20.5	-	
Vert.	5700.0	46.8	-	31.8	6.6	35.5	-	49.8	-	105.2	-	55.4	-	
Vert.	5720.0	49.6	-	31.9	6.6	35.5	-	52.6	-	110.8	-	58.2	-	
Vert.	5725.0	50.7	-	31.9	6.6	35.5	-	53.7	-	122.2	-	68.5	-	
Vert.	5850.0	45.6	-	32.2	6.7	35.5	-	49.1	-	122.2	-	73.1	-	
Vert.	5855.0	45.1	-	32.3	6.7	35.5	-	48.6	-	110.8	-	62.2	-	
Vert.	5875.0	44.6	-	32.3	6.7	35.5	-	48.1	-	105.2	-	57.2	-	
Vert.	5925.0	44.7	-	32.4	6.7	35.5	-	48.3	-	68.2	-	19.9	-	
Vert.	11550.0	43.2	35.0	37.5	-1.7	32.8	-	46.3	38.1	73.9	53.9	27.7	15.8	
Vert.	17325.0	44.2	-	39.8	0.1	31.9	-	52.2	-	68.2	-	16.0	-	Floor noise

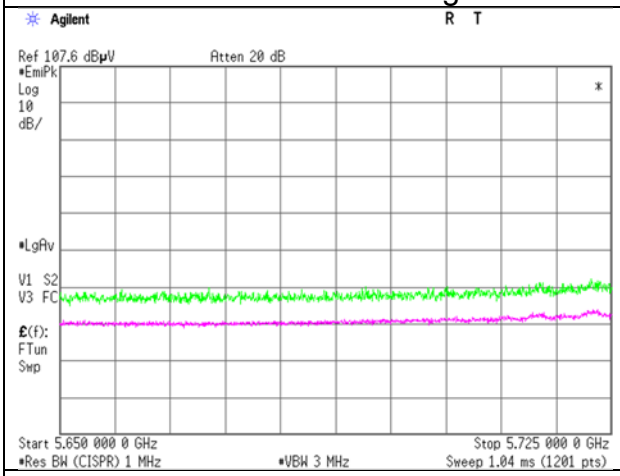
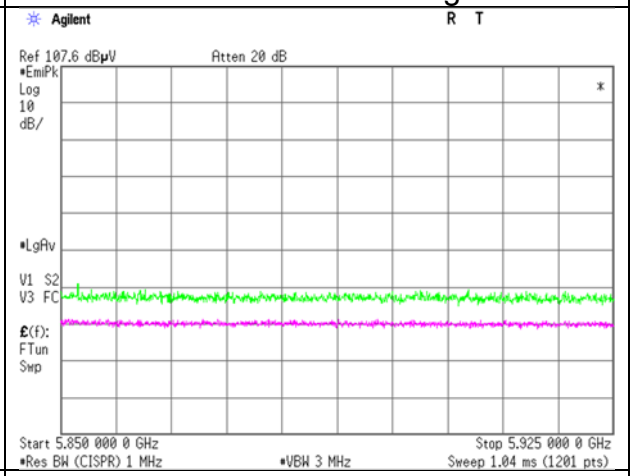
Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	September 30, 2024
Temperature / Humidity	23 deg. C / 58 % RH
Engineer	Hiroki Numata
Mode	Tx 11ac-80 5775 MHz

Horizontal	Horizontal
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

Vertical	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average 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

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.4
Date	March 16, 2025	March 17, 2025
Temperature / Humidity	22 deg. C / 42 % RH	20 deg. C / 40 % RH
Engineer	Ken Fujita	Tetsuro Yoshida
	(Above 1 GHz)	(Below 1 GHz)
Mode	Tx 11ac-20 5805 MHz + 3DH5 Hopping	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	70.5	35.4	-	6.4	7.4	32.1	-	17.1	-	40.0	-	22.9	-	
Hori.	107.9	32.1	-	11.2	7.7	32.1	-	18.9	-	43.5	-	24.6	-	
Hori.	173.7	30.8	-	15.9	8.3	32.0	-	23.0	-	43.5	-	20.5	-	
Hori.	200.0	23.3	-	16.6	8.5	32.0	-	16.4	-	43.5	-	27.1	-	
Hori.	294.9	33.2	-	13.7	9.4	32.0	-	24.3	-	46.0	-	21.7	-	
Hori.	943.8	21.6	-	22.1	12.4	30.9	-	25.2	-	46.0	-	20.8	-	
Hori.	5850.0	40.0	-	32.8	6.5	31.2	-	48.1	-	122.2	-	74.1	-	
Hori.	5855.0	41.0	-	32.8	6.5	31.2	-	49.1	-	110.8	-	61.7	-	
Hori.	5875.0	40.2	-	32.8	6.6	31.2	-	48.4	-	105.2	-	56.8	-	
Hori.	5925.0	40.5	-	32.8	6.6	31.2	-	48.7	-	68.2	-	19.5	-	
Hori.	11610.0	43.1	36.3	37.5	0.2	32.8	-	48.0	41.2	73.9	53.9	25.9	12.7	
Hori.	17415.0	42.3	-	39.8	1.5	32.4	-	51.2	-	68.2	-	17.0	-	Floor noise
Vert.	80.4	37.0	-	7.0	7.5	32.1	-	19.4	-	40.0	-	20.6	-	
Vert.	95.8	39.1	-	9.4	7.6	32.1	-	24.1	-	43.5	-	19.5	-	
Vert.	140.0	30.0	-	14.4	8.1	32.0	-	20.4	-	43.5	-	23.1	-	
Vert.	162.2	29.6	-	15.5	8.2	32.0	-	21.3	-	43.5	-	22.2	-	
Vert.	200.0	32.6	-	16.6	8.5	32.0	-	25.7	-	43.5	-	17.8	-	
Vert.	294.9	29.1	-	13.7	9.4	32.0	-	20.2	-	46.0	-	25.8	-	
Vert.	5850.0	40.4	-	32.8	6.5	31.2	-	48.5	-	122.2	-	73.7	-	
Vert.	5855.0	40.8	-	32.8	6.5	31.2	-	49.0	-	110.8	-	61.9	-	
Vert.	5875.0	40.0	-	32.8	6.6	31.2	-	48.2	-	105.2	-	57.0	-	
Vert.	5925.0	40.0	-	32.8	6.6	31.2	-	48.2	-	68.2	-	20.0	-	
Vert.	11610.0	41.3	37.4	37.5	0.2	32.8	-	46.2	42.3	73.9	53.9	27.7	11.6	
Vert.	17415.0	42.5	-	39.8	1.5	32.4	-	51.4	-	68.2	-	16.8	-	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

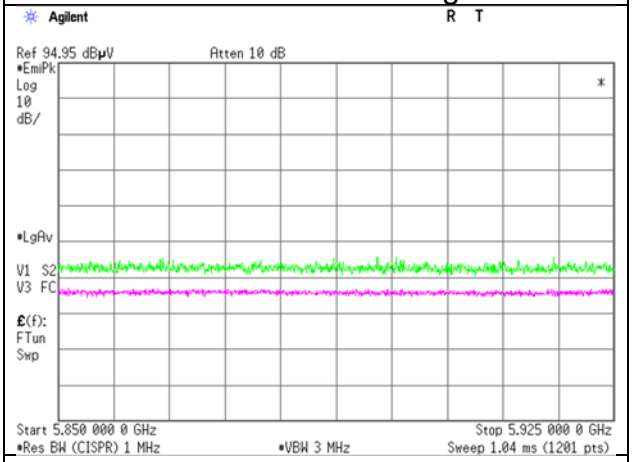
Distance factor:	1 GHz - 6 GHz	20log (3.9 m / 3.0 m) = 2.28 dB
	6 GHz - 10 GHz	20log (4.9 m / 3.0 m) = 4.27 dB
	10 GHz - 40 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 16, 2025
Temperature / Humidity	22 deg. C / 42 % RH
Engineer	Ken Fujita
Mode	Tx 11ac-20 5805 MHz + 3DH5 Hopping

Horizontal

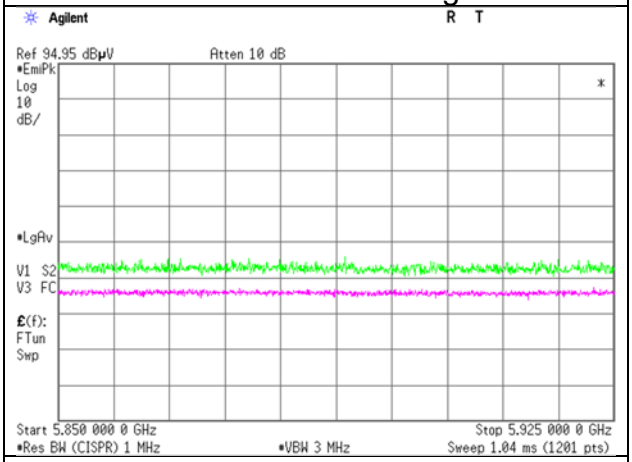
Restricted-band band-edge Plot



Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot

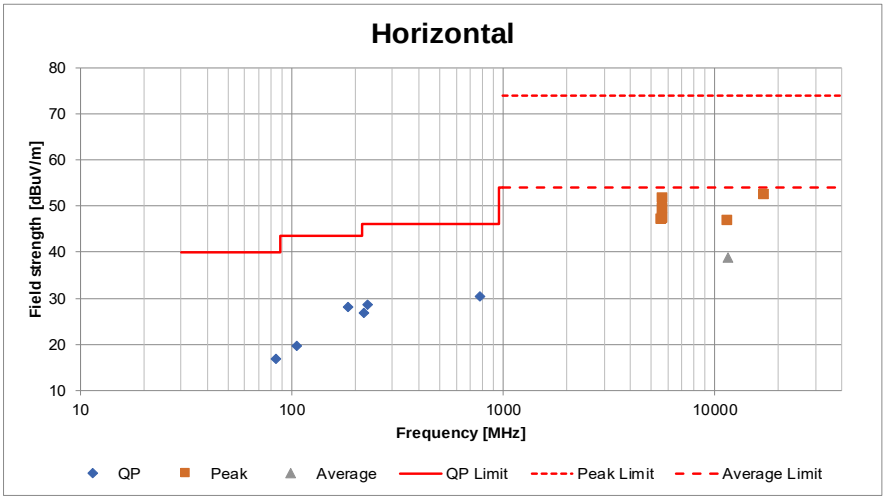


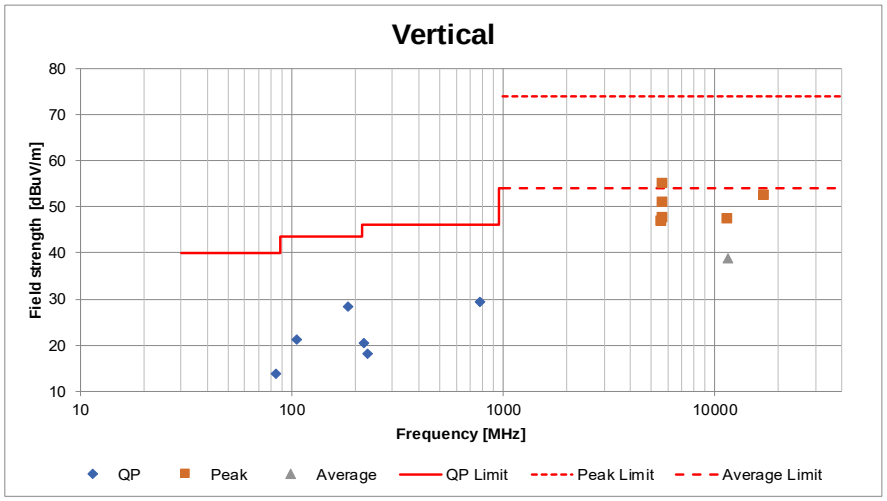
Trace Green: Peak Plot
Trace Purple: Average Plot

* 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)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.1	No.3	No.2
Date	September 30, 2024	October 3, 2024	October 7, 2024
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 69 % RH	21 deg. C / 71 % RH
Engineer	Hiroki Numata	Tomoya Sone	Tomoya Sone
	(1 GHz to 6 GHz)	(Above 6 GHz)	(Below 1 GHz)
Mode	Tx 11ac-40 5755 MHz		



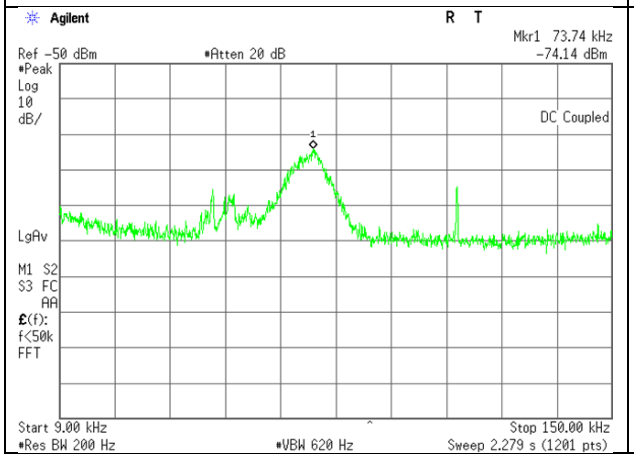


*These plots data contains sufficient number to show the trend of characteristic features for EUT.

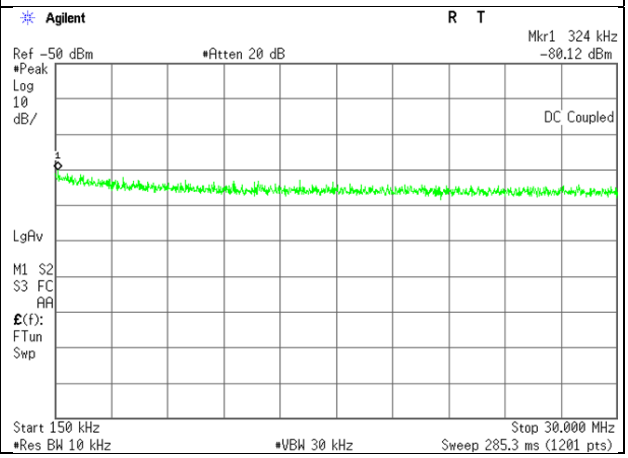
Conducted Spurious Emission

Test place	Ise EMC Lab. No.8 Measurement Room
Date	September 27, 2024
Temperature / Humidity	23 deg. C / 59 % RH
Engineer	Shousei Hamaguchi
Mode	Tx 11ac-40 5755 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator [dB]	Antenna Gain [dBi]	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
73.74	-74.1	0.40	9.7	3.00	-61.1	300	6.0	0.2	30.2	30.0
324.00	-80.1	0.40	9.7	3.00	-67.0	300	6.0	-5.8	17.3	23.1

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

APPENDIX 2: Test Instruments

Test Equipment used from September 18 to October 7, 2024 (1/2)

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	141244	Attenuator(10dB)	Weinschel - API Technologies Corp	WA8-10-34	A198	02/17/2024	12
AT	141327	Coaxial Cable	UL Japan	-	-	02/09/2024	12
AT	141414	Microwave Cable	Junkosha	MWX221	1207S407	07/06/2024	12
AT	141419	Attenuator	Weinschel Associates	WA56-10	56100305	05/22/2024	12
AT	141420	Attenuator	Weinschel Associates	WA56-10	56100307	05/22/2024	12
AT	141557	DIGIITAL HiTESTER	HIOKI E.E. CORPORATION	3805	070900530	01/31/2024	12
AT	141558	Digital Tester(TRUE RMS MULTIMETER)	Fluke Corporation	115	17930030	05/17/2024	12
AT	141813	Power Meter	Raditeq (Formerly DARE!! Instruments)	RPR3006W	14I00048SNO081	10/04/2023	12
AT	141901	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY48250080	01/26/2024	12
AT	197220	Microwave cable	Huber+Suhner	SF126E/11PC35/11PC35/2000MM	537003/126E	03/14/2024	12
AT	244711	Thermo-Hygrometer	HIOKI E.E. CORPORATION	LR5001	231202105	01/25/2024	12
AT	244712	Thermo-Hygrometer	HIOKI E.E. CORPORATION	LR5001	231202106	01/25/2024	12
RE	141293	High Pass Filter 7-20GHz	TOKIMEC	TF37NCCB	602	02/15/2024	12
RE	141317	Coaxial Cable	UL Japan	-	-	09/11/2024	12
RE	141393	Microwave Cable	Junkosha	MWX221	1604S254(1 m) / 1608S088(5 m)	07/06/2024	12
RE	141427	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103B+BBA9106	08031	07/30/2024	12
RE	141507	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	258	11/20/2023	12
RE	141511	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	253	09/09/2024	12
RE	141513	Horn Antenna 15-40GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9170	BBHA9170306	07/19/2024	12
RE	141517	Horn Antenna 26.5-40GHz	ETS-Lindgren	3160-10	152399	11/20/2023	12
RE	141530	Digital Tester	Fluke Corporation	FLUKE 26-3	78030621	02/01/2024	12
RE	141532	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	051201197	01/31/2024	12
RE	141542	Digital Tester	Fluke Corporation	FLUKE 26-3	78030611	08/06/2024	12
RE	141568	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	2901	01/10/2024	12
RE	141576	Pre Amplifier	Keysight Technologies Inc	8449B	3008A01671	02/17/2024	12
RE	141580	MicroWave System Amplifier	Keysight Technologies Inc	83017A	MY39500779	03/08/2024	12
RE	141588	Pre Amplifier	L3 Narda-MITEQ	AMF-6F-2600400-33-8P / AMF-4F-2600400-33-8P	1871355 /1871328	01/22/2024	12
RE	141594	Pre Amplifier	Keysight Technologies Inc	8447D	2944A10150	02/17/2024	12
RE	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	05/09/2024	12
RE	141899	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY46180655	05/09/2024	12
RE	141949	Test Receiver	Rohde & Schwarz	ESCI	100767	06/05/2024	12
RE	141994	AC1_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 10m	DA-06881	04/20/2023	24
RE	142004	AC2_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	12/12/2023	24
RE	142013	AC3_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	04/12/2023	24
RE	142183	Measure	KOMELON	KMC-36	-	10/20/2023	12
RE	142226	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-
RE	142228	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-

Test Equipment used from September 18 to October 7, 2024 (2/2)

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	160324	Coaxial Cable	Huber+Suhner	SUCOFLEX 102A	MY009/2A	10/05/2023	12
RE	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	220646	Attenuator	Huber+Suhner	6806_N-50-1	-	03/12/2024	12
RE	242170	Logperiodic Antenna	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	00728	11/29/2023	12
RE	244707	Thermo-Hygrometer	HIOKI E.E. CORPORATION	LR5001	231202102	01/25/2024	12
RE	244709	Thermo-Hygrometer	HIOKI E.E. CORPORATION	LR5001	231202103	01/25/2024	12
RE	245787	Double Ridge Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA 9120 C	689	03/06/2024	12
RE	246001	Microwave Cable	Huber+Suhner	SF103/11PC35/11PC35/1000mm / SF126E/5000mm	800673(1m) / 610204(5m)	03/06/2024	12
RE	248911	Microwave Cable	Huber+Suhner	SF126E/11PC35/11PC35/1000MM	537060/126E	05/29/2024	12

Test Equipment used from March 14 to 17, 2025 (1/2)

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	244711	Thermo-Hygrometer	HIOKI E. E. CORPORATION	LR5001	231202105	01/19/2025	12
AT	141557	DIGITAL HiTESTER	HIOKI E. E. CORPORATION	3805	070900530	01/15/2025	12
AT	141901	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY48250080	02/04/2025/	12
AT	197220	Microwave cable	Huber+Suhner	SF126E/11PC35/11PC35/2000MM	537003/126E	03/14/2024	12
AT	141419	Attenuator	Weinschel Associates	WA56-10	56100305	05/22/2024	12
AT	141813	Power Meter	Raditeq (Formerly DARE!! Instruments)	RPR3006W	14I00048SNO081	10/24/2024	12
RE	141198	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+BBA9106	2513	07/10/2024	12
RE	141227	Microwave Cable	Junkosha	MMX221-00500DMSDMS	1502S305	03/03/2025	12
RE	141267	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-192	09/18/2024	12
RE	141397	Coaxial Cable	UL-ISE_EMC	-	-	11/29/2024	12
RE	141406	High Pass Filter 7-20GHz	TOKIMEC	TF37NCCA	7001	09/11/2024	12
RE	141425	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+BBA9106	VHA 91031302	08/23/2024	12
RE	141506	Horn Antenna 15-40GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9170	BBHA9170307	08/07/2024	12
RE	141508	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	557	05/17/2024	12
RE	141517	Horn Antenna 26.5-40GHz	ETS-Lindgren	3160-10	152399	11/11/2024	12
RE	141545	DIGITAL HiTESTER	HIOKI E. E. CORPORATION	3805	51201148	02/25/2025	12
RE	141581	MicroWave System Amplifier	Keysight Technologies Inc	83017A	00650	10/30/2024	12
RE	141583	Pre Amplifier	SONOMA INSTRUMENT	310	260833	04/04/2024	12
RE	141588	Pre Amplifier	L3 Narda-MITEQ	AMF-6F-2600400-33-8P / AMF-4F-2600400-33-8P	1871355 /1871328	01/23/2025	12

Test Equipment used from March 14 to 17, 2025 (2/2)

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	141894	Signal Generator	Rohde & Schwarz	SMC100A	103408	10/28/2024	12
RE	141899	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY46180655	05/09/2024	12
RE	141951	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	05/17/2024	12
RE	142011	AC4_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	12/13/2023	24
RE	142017	AC4_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	04/14/2023	24
RE	142230	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-
RE	160324	Coaxial Cable	Huber+Suhner	SUCOFLEX 102A	MY009/2A	10/25/2024	12
RE	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	220646	Attenuator	Huber+Suhner	6806_N-50-1	-	03/06/2025	12
RE	234602	Microwave Cable	Huber+Suhner	SF126E/11PC35/11 PC35/1000M,5000M	537063/126E / 537074/126E	03/08/2024	12
RE	238713	Double Ridge Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA 9120 C	688	09/02/2024	12
RE	244710	Thermo-Hygrometer	HIOKI E. E. CORPORATION	LR5001	231202104	01/19/2025	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:

AT: Antenna Terminal Conducted test
RE: Radiated Emission