EMI TEST REPORT

Test Report No. 13980531H-R1

Customer	**MITSUBISHI ELECTRIC CORPORATION SANDA WORKS**
Description of EUT	**HEADUNIT A-ENTRY**
Model Number of EUT	**NTG5.5HUE**
FCC ID	**UJHNTG55HUEB**
Test Regulation	**FCC Part 15 Subpart B: 2021 Class B**
Test Result	**Complied (Refer to SECTION 3)**
Issue Date	**March 11, 2022**
Remarks	**-**

Representative Test Engineer	Approved By
Kiyoshiro Okazaki Engineer	Tsubasa Takayama Leader

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".

Report Cover Page - Form-ULID-003532 (DCS:13-EM-F0429) Issue# 21.0

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- The information provided from the customer for this report is identified in SECTION 1.

REVISION HISTORY

Original Test Report No.: 13980531H

This report is a revised version of 13980531H. 13980531H is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	13980531H	March 11, 2022	-
1	13980531H-R1	August 31, 2022	Cover page Updated Issue No. for the Form-ULID-003532; Issue# 20.0 ↓ Issue# 21.0
1	13980531H-R1	August 31, 2022	Radio Specification in Clause 2.2 Corrected Frequency of operation for IEEE802.11b/g/n-20 (2.4 GHz part); 2412 MHz - 2472 MHz ↓ 2412 MHz - 2462 MHz
1	13980531H-R1	August 31, 2022	Clause 6.4 Corrected VBW value of IF Bandwidth (Below 1 GHz); 100 kHz ↓ 300 kHz

Reference: Abbreviations (Including words undescribed in this report)

A2LA	The American Association for Laboratory Accreditation	GPS	Global Positioning System
AAN	Asymmetric Artificial Network	Hori.	Horizontal
AC	Alternating Current	ICES	Interference-Causing Equipment Standard
AM	Amplitude Modulation	I/O	Input/Output
AMN	Artificial Mains Network	IEC	International Electrotechnical Commission
Amp, AMP	Amplifier	IEEE	Institute of Electrical and Electronics Engineers
ANSI	American National Standards Institute	IF	Intermediate Frequency
Ant, ANT	Antenna	ILAC	International Laboratory Accreditation Conference
AP	Access Point	ISED	Innovation, Science and Economic Development Canada
ASK	Amplitude Shift Keying	ISN	Impedance Stabilization Network
Atten., ATT	Attenuator	ISO	International Organization for Standardization
AV	Average	JAB	Japan Accreditation Board
BPSK	Binary Phase-Shift Keying	LAN	Local Area Network
BR	Bluetooth Basic Rate	LCL	Longitudinal Conversion Loss
BT	Bluetooth	LIMS	Laboratory Information Management System
BT LE	Bluetooth Low Energy	LISN	Line Impedance Stabilization Network
BW	BandWidth	MRA	Mutual Recognition Arrangement
C.F	Correction Factor	N/A	Not Applicable
Cal Int	Calibration Interval	NIST	National Institute of Standards and Technology
CAV	CISPR AV	NS	No signal detect.
CCK	Complementary Code Keying	NSA	Normalized Site Attenuation
CDN	Coupling Decoupling Network	OBW	Occupied BandWidth
Ch., CH	Channel	OFDM	Orthogonal Frequency Division Multiplexing
CISPR	Comite International Special des Perturbations Radioelectriques	PER	Packet Error Rate
Corr.	Correction	PK	Peak
CPE	Customer premise equipment	P_{LT}	long-term flicker severity
CW	Continuous Wave	POHC(A)	Partial Odd Harmonic Current
DBPSK	Differential BPSK	Pol., Pola.	Polarization
DC	Direct Current	PR-ASK	Phase Reversal ASK
DET	Detector	P_{ST}	short-term flicker severity
D-factor	Distance factor	QAM	Quadrature Amplitude Modulation
Dmax	maximum absolute voltage change during an observation period	QP	Quasi-Peak
DQPSK	Differential QPSK	QPSK	Quadrature Phase Shift Keying
DSSS	Direct Sequence Spread Spectrum	r.m.s., RMS	Root Mean Square
DUT	Device Under Test	RBW	Resolution BandWidth
EDR	Enhanced Data Rate	RE	Radio Equipment
e.i.r.p., EIRP	Equivalent Isotropically Radiated Power	REV	Reverse
EM clamp	Electromagnetic clamp	RF	Radio Frequency
EMC	ElectroMagnetic Compatibility	RFID	Radio Frequency Identifier
EMI	ElectroMagnetic Interference	RNSS	Radio Navigation Satellite Service
EMS	ElectroMagnetic Susceptibility	RSS	Radio Standards Specifications
EN	European Norm	Rx	Receiving
e.r.p., ERP	Effective Radiated Power	SINAD	Ratio of (Signal + Noise + Distortion) to (Noise + Distortion)
ETSI	European Telecommunications Standards Institute	S/N	Signal to Noise ratio
EU	European Union	SA, S/A	Spectrum Analyzer
EUT	Equipment Under Test	SG	Signal Generator
Fac.	Factor	SVSWR	Site-Voltage Standing Wave Ratio
FCC	Federal Communications Commission	THC(A)	Total Harmonic Current
FHSS	Frequency Hopping Spread Spectrum	THD(%)	Total Harmonic Distortion
FM	Frequency Modulation	TR, T/R	Test Receiver
Freq.	Frequency	Tx	Transmitting
FSK	Frequency Shift Keying	VBW	Video BandWidth
Fund	Fundamental	Vert.	Vertical
FWD	Forward	WLAN	Wireless LAN
GFSK	Gaussian Frequency-Shift Keying	xDSL	Generic term for all types of DSL technology
GNSS	Global Navigation Satellite System		(DSL: Digital Subscriber Line)

CONTENTS PAGE

SECTION 1: Customer information

Company Name	MITSUBISHI ELECTRIC CORPORATION SANDA WORKS
Address	2-3-33, Miwa, Sanda-city, Hyogo, 669-1513, Japan
Telephone Number	+81-79-559-3600
Contact Person	Kazuhito Funae

The information provided from 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

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

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT

Description	HEADUNIT A-ENTRY
Model Number	NTG5.5HUE
Serial Number	Refer to SECTION 4.2
Condition	Production model
Modification	No Modification by the test lab
Receipt Date	August 23, 2021 (for Mode 7) September 21, 2021 (for other than Mode 7)
Test Date	August 24, 2021 to February 20, 2022

2.2 Product Description

General Specification

Rating	DC 12 V
Clock frequency(ies) in the system	1.4 GHz

Radio Specification

	IEEE802.11b	**IEEE802.11g/n (20 M band)**	**Bluetooth Ver.3.0 with EDR function**
Frequency of operation	2412 MHz to 2462 MHz	2412 MHz to 2462 MHz	2402 MHz to 2480 MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	FHSS (GFSK, π/4-DQPSK, 8-DPSK)
Channel spacing	5MHz		1MHz
Antenna type	Printed patch Antenna		Dipole Pattern Antenna
Antenna Connector type	FAKRA		PSE-LP2
Antenna Gain	3.3 dBi		2.32 dBi

	GPS
Frequency of operation	See table below.
Type of modulation	GPS: BPSK GLONASS: BPSK
Antenna type	Active antenna
Antenna Connector type	FAKRA
Antenna Gain	25 dBi

Supported GNSS and GNSS signals

GNSS	**RNSS Frequency Band / Frequency [MHz]**					
	1559 to 1610		**1215 to 1300**		**1164 to 1215**	
BDS	☐B11	1561.098	-		-	
Galileo	☐E1	1575.42	☐E6	1278.75	☐E5a	1176.45
					☐E5b	1207.14
GLONASS	☒G1	1598.063 - 1605.375	☐G2	1242.9375 - 1248.625	-	
GPS	☒L1	1575.42	☐L2	1227.6	☐L5	1176.45
SBAS	☐L1	1575.42	-		☐L5	1176.45

☒ Supported GNSS signal

☐ Not supported GNSS signal

AM / FM

	AM / FM
Frequency of operation	AM: 535 kHz to 1710 kHz FM: 87.5 MHz to 107.9 MHz
Local frequency	Receiving frequency ± 25 kHz
Channel spacing	AM: 9 kHz FM: 100 kHz
Antenna connector type	FAKRA

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	FCC Part 15 Subpart B FCC Part 15 final revised on May 3, 2021 and effective July 2, 2021
Title	FCC 47CFR Part15 Radio Frequency Device Subpart B Unintentional Radiators

3.2 Procedures and results

Item	Test Procedure	Limits	Deviation	Worst margin	Result	Remarks
Conducted emission	**FCC:** ANSI C63.4: 2014 + C63.4a: 2017 7. AC power - line conducted emission measurements (IEEE Std 187-2003.)	**FCC:**Part 15 Subpart B 15.107(a)	N/A	N/A	N/A	*1)
Radiated emission	**FCC:** ANSI C63.4: 2014 + C63.4a: 2017 8. Radiated emission measurements (IEEE Std 187-2003.)	**FCC:** Part 15 Subpart B 15.109(a)	N/A	0.53 dB 106.004 MHz, Vertical, QP (Mode 2 (Other))	Complied# a)	-
Antenna Terminal	**FCC:** ANSI C63.4: 2014 + C63.4a: 2017 12. Measurement of unintentional radiators other than ITE (IEEE Std 187-2003.)	**FCC:** Part 15 Subpart B 15.111(a)	N/A	3.79 dB 70.239 MHz, (Mode 8)	Complied b)	-

* Note: UL Japan, Inc.'s EMI Work Procedure: Work Instructions-ULID-003591.
*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.

a) Refer to APPENDIX 1 (data of Radiated Emission)
b) Refer to APPENDIX 1 (data of Antenna Terminal Conducted Emission)

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

3.3 Addition to standard

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

3.4 Uncertainty

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

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

Radiated emission

Measurement distance	Frequency range		Uncertainty (+/-)
3 m	30 MHz to 200 MHz	Horizontal	4.8 dB
		Vertical	5.0 dB
	200 MHz to 1000 MHz	Horizontal	5.1 dB
		Vertical	6.2 dB
10 m	30 MHz to 200 MHz	Horizontal	4.8 dB
		Vertical	4.8 dB
	200 MHz to 1000 MHz	Horizontal	5.0 dB
		Vertical	5.0 dB
3 m	1 GHz to 6 GHz		5.1 dB
	6 GHz to 18 GHz		5.4 dB
1 m	10 GHz to 26.5 GHz		5.4 dB
	26.5 GHz to 40 GHz		5.4 dB
0.5 m	26.5 GHz to 40 GHz		5.4 dB
10 m	1 GHz to 18 GHz		5.4 dB

Antenna Terminal test

Test Item	Uncertainty (+/-)
Antenna terminal conducted emission	2.7 dB

3.5 Test Location

UL Japan, Inc. Ise EMC Lab.
*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919
ISED Lab Company Number: 2973C / CAB identifier: JP0002
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone: +81 596 24 8999, Facsimile: +81 596 24 8124

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	-	-

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

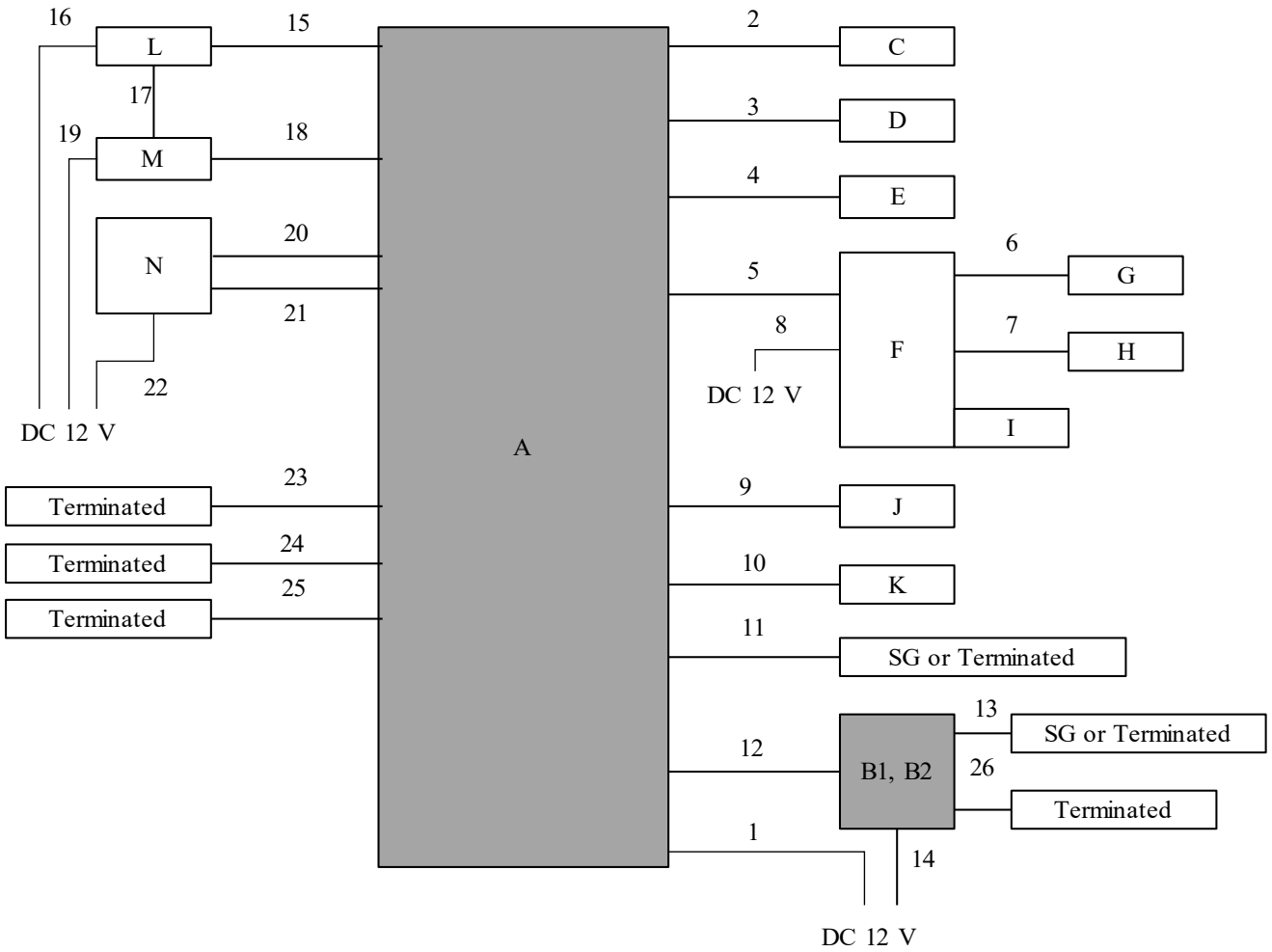
SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

Mode	Remarks
1. FM TUN1 Port Receiving mode (AMP1) (Local: Tuning mode / Other: 95.1 MHz reception)	Radiated Emission test
2. FM TUN1 Port Receiving mode (AMP2) (Local: Tuning mode / Other: 95.1 MHz reception)	Radiated Emission test
3. FM TUN2 Port Receiving mode (AMP1) (Local: Tuning mode / Other: 100.3 MHz reception)	Radiated Emission test
4. FM TUN2 Port Receiving mode (AMP2) (Local: Tuning mode / Other: 100.3 MHz reception)	Radiated Emission test
5. USB Memory Play mode (AMP1)	Radiated Emission test
6. USB Memory Play mode (AMP2)	Radiated Emission test
7. FM TUN1 Port Tuning mode	Antenna Terminal test
8. FM TUN2 Port Tuning mode (AMP1)	Antenna Terminal test
9. FM TUN2 Port Tuning mode (AMP2)	Antenna Terminal test

Software(s)	E480.0

4.2 Configuration and peripherals



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	HEADUNIT A-ENTRY	NTG5.5HUE	MEG970L274P003	MITSUBISHI ELECTRIC CORPORATION SANDA WORKS	EUT
B1	TUN2 (AM/FM)_AMP1	RKE2123U1	152346	Continental	EUT *1)
B2	TUN2 (AM/FM)_AMP2	RKE2123U1	002188	KATHREIN Automotive GmbH	EUT *2)
C	GPS Antenna	LHC	001	WiSi	-
D	WLAN Antenna	A2139058402	00015	MercedesBenz	-
E	BT Antenna	AG98	A2218205475	WiSi	-
F	Multimedia Box	A213820 04 01	-	MercedesBenz	-
G	USB Memory	USM4GRB	-	SONY	-
H	USB Memory	RUF3-K8GA-BK/N	P90611	BUFFALO	-
I	SD Card	AF32GSD3	E172913A	ATP	-
J	USB Memory	USM4GRB	-	SONY	-
K	Speaker dummy	-	-	-	-
L	Display	A2C93853702	0200151770029	Continental	-
M	CCU	A2059008018	0000166842	Continental	-
N	CANTOOL	CT2E1001-5HNLT	16C1431B	i-TEC	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	2.5	Unshielded	Unshielded	-
2	GNSS Antenna Cable	5.0	Shielded	Shielded	-
3	Antenna Cable	1.5	Shielded	Shielded	-
4	Antenna Cable	1.2	Shielded	Shielded	-
5	USB Cable	1.0	Shielded	Shielded	-
6	USB Cable	2.0	Shielded	Shielded	-
7	USB Cable	2.0	Shielded	Shielded	-
8	DC Cable	2.0	Unshielded	Unshielded	-
9	USB Cable	4.0	Shielded	Shielded	-
10	Speaker Cable	2.2	Unshielded	Unshielded	-
11	Tuner1 Cable	1.0	Shielded	Shielded	-
12	Tuner2 Cable	1.0	Shielded	Shielded	*3)
13	RF Cable	0.1	Shielded	Shielded	*3)
14	DC Cable	2.5	Unshielded	Unshielded	*3)
15	Display Cable	1.0	Shielded	Shielded	-
16	DC Cable	2.5	Unshielded	Unshielded	-
17	CAN Cable	1.8	Unshielded	Unshielded	-
18	CAN Cable	2.8	Unshielded	Unshielded	-
19	DC Cable	2.5	Unshielded	Unshielded	-
20	CAN Cable	3.0	Unshielded	Unshielded	-
21	CAN Cable	3.0	Unshielded	Unshielded	-
22	DC Cable	2.5	Unshielded	Unshielded	-
23	Signal Cable	1.0	Shielded	Shielded	-
24	Signal Cable	2.0	Shielded	Shielded	-
25	Signal Cable	1.0	Shielded	Shielded	-
26	Signal Cable	1.0	Shielded	Shielded	*2)

*1) Used on Mode 1, 3, 5, and 8 only
*2) Used on Mode 2, 4, 6, and 9 only
*3) Used on modes other than Mode 7

SECTION 5: Radiated Emission

5.1 Operating environment

Date	:	See data
Test place	:	See data
Temperature	:	See data
Humidity	:	See data
Test engineer	:	See data

5.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.
The EUT was set on the edge of the tabletop.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.
Photographs of the set up are shown in APPENDIX 3.

5.3 Test conditions

Frequency range	:	30 MHz - 200 MHz (Biconical antenna) / 200 MHz - 1000 MHz (Logperiodic antenna) 1000 MHz - 40000 MHz (Horn antenna)
Test distance	:	3 m
EUT position	:	Table top
EUT operation mode	:	See Clause 4.1

5.4 Test procedure

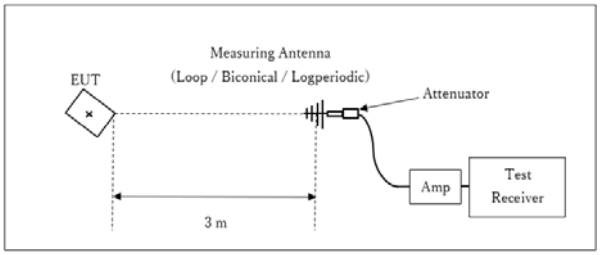
The height of the measuring antenna varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver.
The radiated emission measurements were made with the following detector function of the Test Receiver.
For the test of Local oscillator spurious, pre-scanning has been carried out with all frequencies including the highest / middle / lowest reception frequencies based on the results of the antenna terminal test, and the measurement values at the frequency in which the local oscillator emission became maximum were reported.
Emissions from other than the local oscillator (Other) were tested by receiving frequencies in which the local oscillator emission became maximum.
For above 1 GHz, 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.

Frequency	Below 1 GHz	Above 1 GHz *1)
Instrument used	Test Receiver	Test Receiver
IF Bandwidth	QP: BW 120 kHz	PK: BW 1 MHz, CAV: BW 1 MHz

*1) The measurement data was adjusted to a 3 m distance using the following Distance Factor.
Distance Factor: See Figure 2.

Figure 2: Test Setup

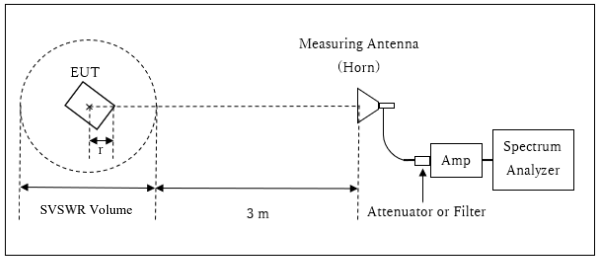
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz - 10 GHz

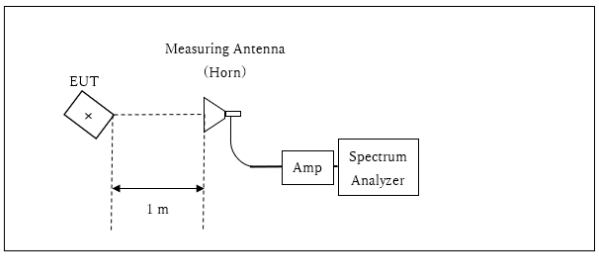


r : Radius of an outer periphery of EUT
× : Center of turn table

Distance Factor: 20 x log (3.10 m*/3.0 m) = 0.29 dB
* Test Distance: (3 + SVSWR Volume /2) - r = 3.10 m

SVSWR Volume: 2 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
r = 0.90 m

10 GHz - 40 GHz



× : Center of turn table

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

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

5.5 Test result

Summary of the test results: Pass

The limit is rounded down to one decimal place.
The test result is rounded off to one or two decimal places, so some differences might be observed.

SECTION 6: Antenna Terminal

6.1 Operating environment

Date	:	See data
Test place	:	See data
Temperature	:	See data
Humidity	:	See data
Test engineer	:	See data

6.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m from the ground.
Photographs of the set up are shown in Appendix 3.

6.3 Test conditions

Frequency range	:	30 MHz - 1000 MHz / 1000 MHz - 40000 MHz
Test distance	:	N/A
EUT position	:	Table top
EUT operation mode	:	See Clause 4.1

6.4 Test procedure

The Antenna Terminal was measured with a spectrum analyzer connected to the antenna port.

Frequency	Below 1 GHz	Above 1 GHz
Instrument used	Spectrum Analyzer	Spectrum Analyzer *1)
IF Bandwidth	PK: RBW: 100 kHz / VBW: 300 kHz	PK: RBW: 1 MHz / VBW: 3 MHz

*1) The Spectrum Analyzer was used in 3 dB resolution bandwidth.

6.5 Test result

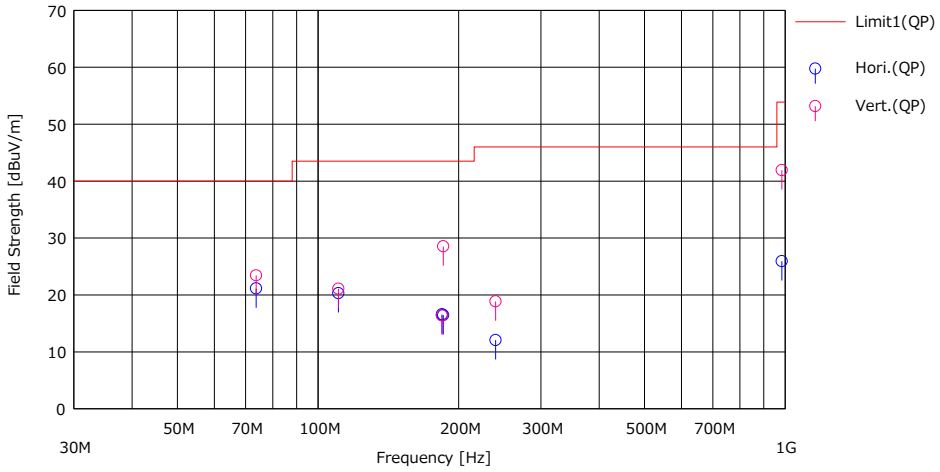
Summary of the test results: Pass

APPENDIX 1: Test data

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	January 23, 2022
Temperature / Humidity	23 deg. C / 36 % RH
Engineer	Masaya Minami (Below 1 GHz)
Mode	Mode 1 (Local)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



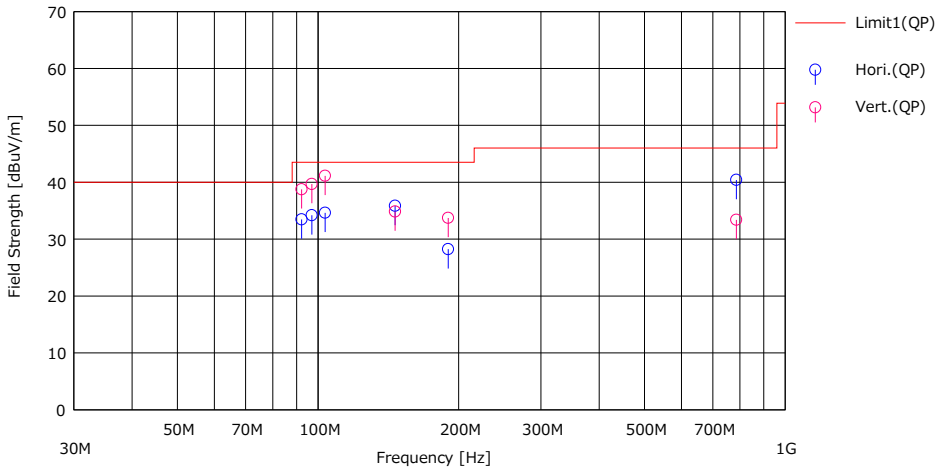
No.	Freq. [MHz]	Reading (QP) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP) [dBuV/m]	Limit (QP) [dBuV/m]	Margin (QP) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	73.728	45.30	6.46	8.15	38.78	21.13	40.00	18.8	Hori.	243	65	BA	
2	110.595	38.90	11.59	8.68	38.86	20.31	43.50	23.1	Hori.	149	79	BA	
3	184.320	29.70	16.21	9.56	38.89	16.58	43.50	26.9	Hori.	181	135	BA	
4	185.441	29.50	16.26	9.57	38.89	16.44	43.50	27.0	Hori.	166	140	BA	
5	240.014	28.00	12.72	10.12	38.78	12.06	46.00	33.9	Hori.	166	146	LA20	
6	983.983	26.10	22.24	15.06	37.48	25.92	53.90	27.9	Hori.	100	0	LA20	
7	73.728	47.60	6.46	8.15	38.78	23.43	40.00	16.5	Vert.	100	251	BA	
8	110.595	39.70	11.59	8.68	38.86	21.11	43.50	22.3	Vert.	100	272	BA	
9	184.320	29.50	16.21	9.56	38.89	16.38	43.50	27.1	Vert.	100	136	BA	
10	185.441	41.60	16.26	9.57	38.89	28.54	43.50	14.9	Vert.	100	278	BA	
11	240.014	34.80	12.72	10.12	38.78	18.86	46.00	27.1	Vert.	100	278	LA20	
12	983.983	42.10	22.24	15.06	37.48	41.92	53.90	11.9	Vert.	131	354	LA20	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	January 23, 2022
Temperature / Humidity	23 deg. C / 36 % RH
Engineer	Masaya Minami
	(Below 1 GHz)
Mode	Mode 1 (Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



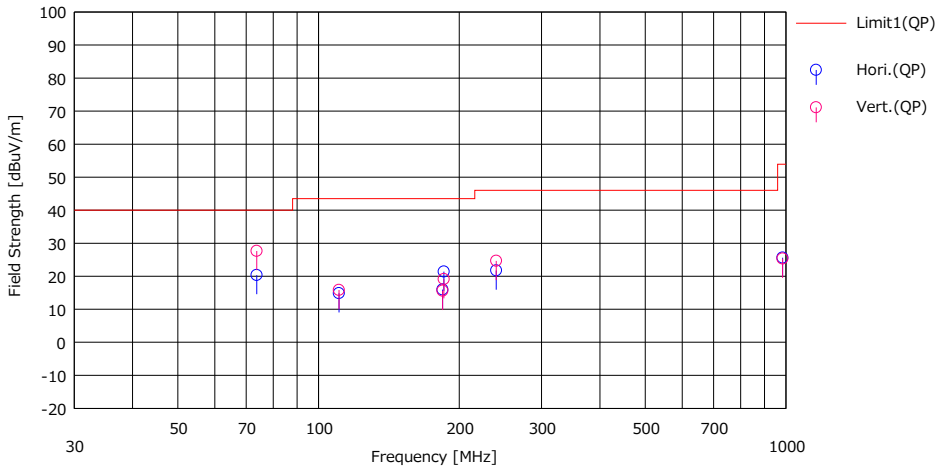
No.	Freq. [MHz]	Reading 〈QP〉 [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result 〈QP〉 [dBuV/m]	Limit 〈QP〉 [dBuV/m]	Margin 〈QP〉 [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	92.271	55.10	8.76	8.43	38.83	33.46	43.50	10.0	Hori.	339	130	BA	
2	97.019	55.00	9.52	8.51	38.84	34.19	43.50	9.3	Hori.	312	83	BA	
3	103.579	54.30	10.57	8.60	38.85	34.62	43.50	8.8	Hori.	183	114	BA	
4	146.248	50.90	14.68	9.14	38.88	35.84	43.50	7.6	Hori.	137	274	BA	
5	189.987	41.10	16.40	9.62	38.89	28.23	43.50	15.2	Hori.	203	233	BA	
6	786.445	43.80	20.70	13.98	38.08	40.40	46.00	5.6	Hori.	100	156	LA20	
7	92.271	60.40	8.76	8.43	38.83	38.76	43.50	4.7	Vert.	100	112	BA	
8	97.019	60.50	9.52	8.51	38.84	39.69	43.50	3.8	Vert.	100	347	BA	
9	103.579	60.80	10.57	8.60	38.85	41.12	43.50	2.3	Vert.	100	248	BA	
10	146.248	49.90	14.68	9.14	38.88	34.84	43.50	8.6	Vert.	100	304	BA	
11	189.987	46.60	16.40	9.62	38.89	33.73	43.50	9.7	Vert.	100	292	BA	
12	786.445	36.80	20.70	13.98	38.08	33.40	46.00	12.6	Vert.	100	206	LA20	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2022
Temperature / Humidity	21deg. C / 31 % RH
Engineer	Yuichiro Yamazaki
	(Below 1 GHz)
Mode	Mode 2 (Local)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



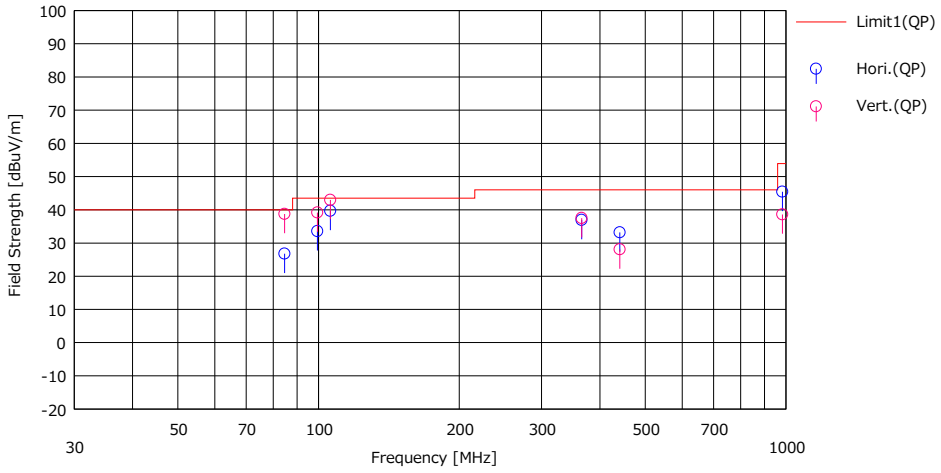
No.	Freq. [MHz]	Reading (QP) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP) [dBuV/m]	Limit (QP) [dBuV/m]	Margin (QP) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	73.728	38.40	6.42	7.79	32.26	20.35	40.00	19.65	Hori.	400	208	BA	
2	110.595	27.00	11.81	8.25	32.23	14.83	43.50	28.67	Hori.	139	244	BA	
3	184.320	22.90	16.25	9.01	32.18	15.98	43.50	27.52	Hori.	208	132	BA	
4	185.441	28.30	16.27	9.02	32.18	21.41	43.50	22.09	Hori.	243	112	BA	
5	240.014	32.30	12.09	9.51	32.14	21.76	46.00	24.24	Hori.	161	267	LA22	
6	983.983	19.90	22.26	13.99	30.52	25.63	53.90	28.27	Hori.	100	149	LA22	
7	73.728	45.70	6.42	7.79	32.26	27.65	40.00	12.35	Vert.	102	240	BA	
8	110.595	28.00	11.81	8.25	32.23	15.83	43.50	27.67	Vert.	100	309	BA	
9	184.320	22.50	16.25	9.01	32.18	15.58	43.50	27.92	Vert.	100	31	BA	
10	185.441	26.00	16.27	9.02	32.18	19.11	43.50	24.39	Vert.	100	135	BA	
11	240.014	35.20	12.09	9.51	32.14	24.66	46.00	21.34	Vert.	100	125	LA22	
12	983.983	19.60	22.26	13.99	30.52	25.33	53.90	28.57	Vert.	100	165	LA22	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2022
Temperature / Humidity	21deg. C / 31 % RH
Engineer	Yuichiro Yamazaki (Below 1 GHz)
Mode	Mode 2 (Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



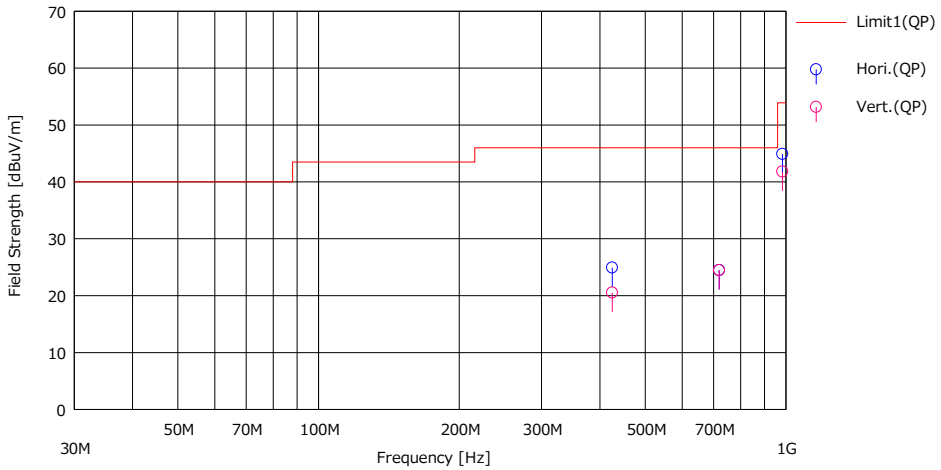
No.	Freq. [MHz]	Reading (QP) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP) [dBuV/m]	Limit (QP) [dBuV/m]	Margin (QP) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	84.577	43.50	7.58	7.94	32.26	26.76	40.00	13.24	Hori.	216	86	BA	
2	99.453	47.50	10.18	8.12	32.24	33.56	43.50	9.94	Hori.	298	55	BA	
3	106.004	52.50	11.21	8.20	32.24	39.67	43.50	3.83	Hori.	310	162	BA	
4	365.554	43.30	15.21	10.49	32.09	36.91	46.00	9.09	Hori.	100	192	LA22	
5	441.196	37.80	16.48	10.99	32.10	33.17	46.00	12.83	Hori.	100	83	LA22	
6	983.050	39.70	22.25	13.99	30.52	45.42	53.90	8.48	Hori.	115	170	LA22	
7	84.577	55.50	7.58	7.94	32.26	38.76	40.00	1.24	Vert.	125	243	BA	
8	99.453	53.10	10.18	8.12	32.24	39.16	43.50	4.34	Vert.	100	100	BA	
9	106.004	55.80	11.21	8.20	32.24	42.97	43.50	0.53	Vert.	100	93	BA	
10	365.554	43.90	15.21	10.49	32.09	37.51	46.00	8.49	Vert.	157	47	LA22	
11	441.196	32.70	16.48	10.99	32.10	28.07	46.00	17.93	Vert.	137	139	LA22	
12	983.050	32.90	22.25	13.99	30.52	38.62	53.90	15.28	Vert.	100	240	LA22	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	January 23, 2022
Temperature / Humidity	23 deg. C / 36 % RH
Engineer	Masaya Minami
	(Below 1 GHz)
Mode	Mode 3 (Local)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



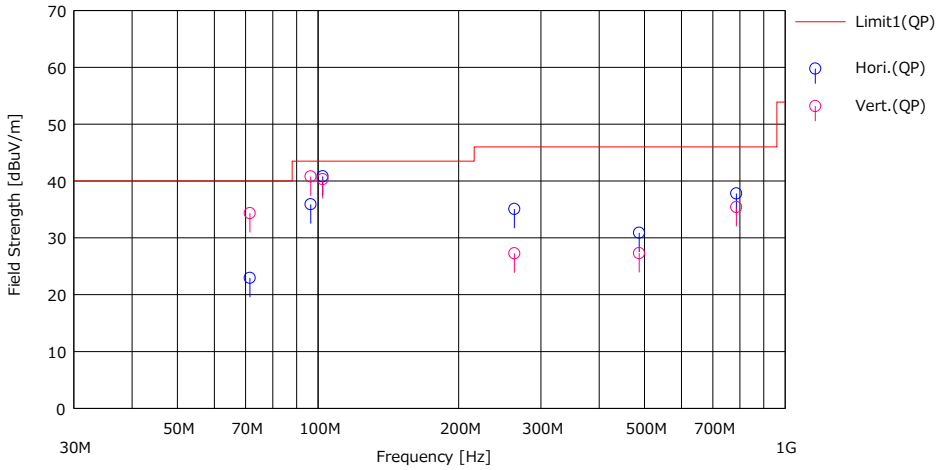
No.	Freq. [MHz]	Reading ⟨QP⟩ [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result ⟨QP⟩ [dBuV/m]	Limit ⟨QP⟩ [dBuV/m]	Margin ⟨QP⟩ [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	424.870	35.10	16.51	11.68	38.36	24.93	46.00	21.07	Hori.	100	133	LA20	
2	719.930	28.50	20.48	13.59	38.10	24.47	46.00	21.53	Hori.	101	145	LA20	
3	983.040	45.10	22.23	15.06	37.49	44.90	53.90	9.00	Hori.	210	209	LA20	
4	424.870	30.70	16.51	11.68	38.36	20.53	46.00	25.47	Vert.	100	58	LA20	
5	719.930	28.50	20.48	13.59	38.10	24.47	46.00	21.53	Vert.	100	146	LA20	
6	983.040	42.00	22.23	15.06	37.49	41.80	53.90	12.10	Vert.	210	209	LA20	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	January 23, 2022
Temperature / Humidity	23 deg. C / 36 % RH
Engineer	Masaya Minami
	(Below 1 GHz)
Mode	Mode 3 (Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



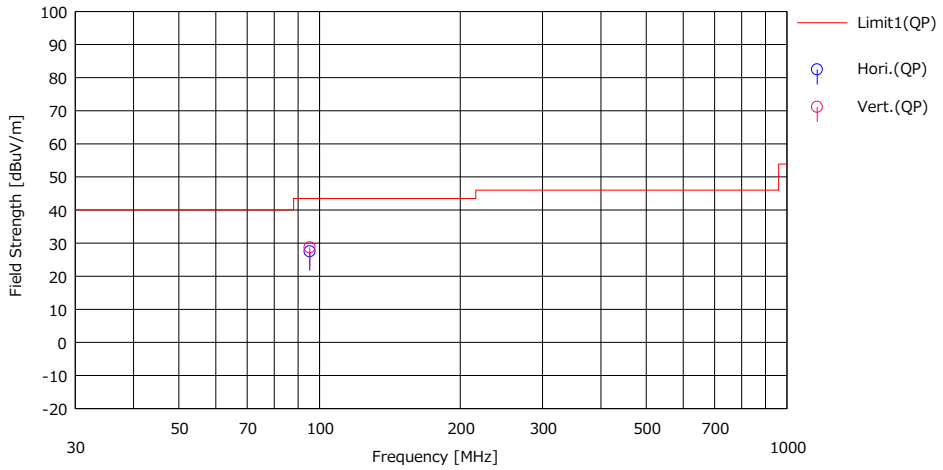
No.	Freq. [MHz]	Reading (QP) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP) [dBuV/m]	Limit (QP) [dBuV/m]	Margin (QP) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	71.461	47.20	6.41	8.11	38.78	22.94	40.00	17.0	Hori.	267	127	BA	
2	96.441	56.80	9.43	8.50	38.84	35.89	43.50	7.6	Hori.	172	77	BA	
3	102.370	60.70	10.38	8.58	38.85	40.81	43.50	2.6	Hori.	181	274	BA	
4	263.371	50.20	13.24	10.34	38.72	35.06	46.00	10.9	Hori.	117	72	LA20	
5	487.038	39.10	17.97	12.11	38.29	30.89	46.00	15.1	Hori.	164	174	LA20	
6	786.442	41.20	20.70	13.98	38.08	37.80	46.00	8.2	Hori.	175	176	LA20	
7	71.461	58.60	6.41	8.11	38.78	34.34	40.00	5.6	Vert.	100	90	BA	
8	96.441	61.70	9.43	8.50	38.84	40.79	43.50	2.7	Vert.	100	129	BA	
9	102.370	60.20	10.38	8.58	38.85	40.31	43.50	3.1	Vert.	100	278	BA	
10	263.371	42.40	13.24	10.34	38.72	27.26	46.00	18.7	Vert.	190	186	LA20	
11	487.038	35.50	17.97	12.11	38.29	27.29	46.00	18.7	Vert.	140	352	LA20	
12	786.442	38.80	20.70	13.98	38.08	35.40	46.00	10.6	Vert.	100	165	LA20	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2022
Temperature / Humidity	21deg. C / 31 % RH
Engineer	Yuichiro Yamazaki (Below 1 GHz)
Mode	Mode 4 (Local)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



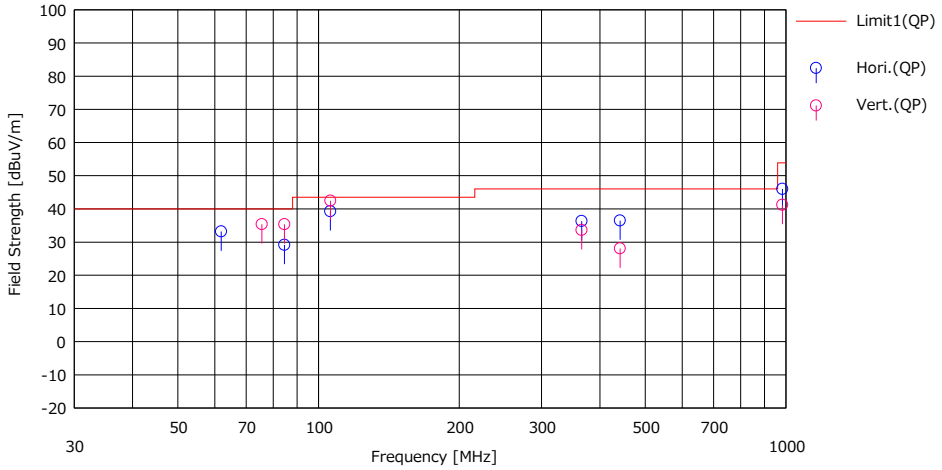
No.	Freq. [MHz]	Reading (QP) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP) [dBuV/m]	Limit (QP) [dBuV/m]	Margin (QP) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	95.260	42.20	9.47	8.07	32.24	27.50	43.50	16.00	Hori.	213	241	BA	
2	95.260	43.40	9.47	8.07	32.24	28.70	43.50	14.80	Vert.	100	114	BA	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2022
Temperature / Humidity	21deg. C / 31 % RH
Engineer	Yuichiro Yamazaki
	(Below 1 GHz)
Mode	Mode 4 (Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



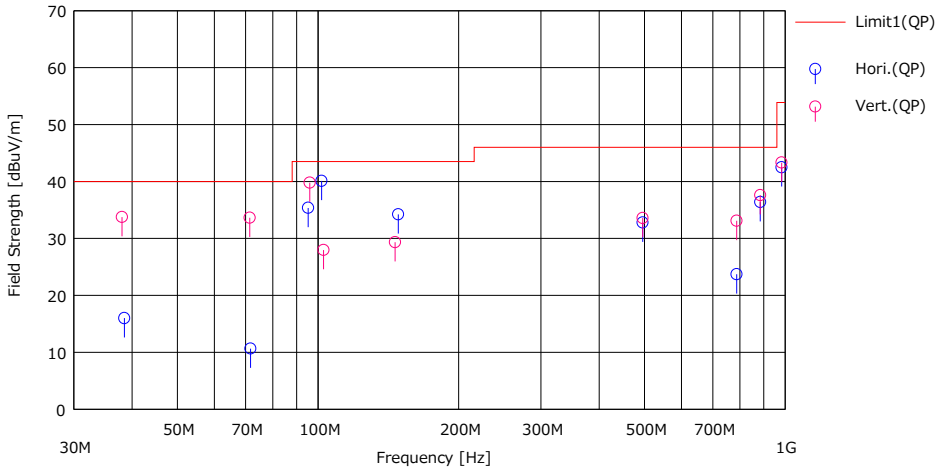
No.	Freq. [MHz]	Reading (QP) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP) [dBuV/m]	Limit (QP) [dBuV/m]	Margin (QP) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	61.933	50.40	7.44	7.61	32.27	33.18	40.00	6.82	Hori.	346	185	BA	
2	84.561	45.90	7.57	7.94	32.26	29.15	40.00	10.85	Hori.	214	345	BA	
3	106.004	52.10	11.21	8.20	32.24	39.27	43.50	4.23	Hori.	170	249	BA	
4	365.585	42.70	15.21	10.49	32.09	36.31	46.00	9.69	Hori.	100	51	LA22	
5	441.575	41.10	16.49	10.99	32.10	36.48	46.00	9.52	Hori.	100	249	LA22	
6	983.043	40.30	22.25	13.99	30.52	46.02	53.90	7.88	Hori.	100	190	LA22	
7	75.624	53.30	6.53	7.82	32.26	35.39	40.00	4.61	Vert.	100	200	BA	
8	84.561	52.10	7.57	7.94	32.26	35.35	40.00	4.65	Vert.	100	113	BA	
9	106.044	55.30	11.22	8.20	32.24	42.48	43.50	1.02	Vert.	117	134	BA	
10	365.585	40.00	15.21	10.49	32.09	33.61	46.00	12.39	Vert.	133	45	LA22	
11	441.575	32.70	16.49	10.99	32.10	28.08	46.00	17.92	Vert.	100	173	LA22	
12	983.043	35.50	22.25	13.99	30.52	41.22	53.90	12.68	Vert.	116	163	LA22	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	January 23, 2022
Temperature / Humidity	23 deg. C / 36 % RH
Engineer	Masaya Minami
	(Below 1 GHz)
Mode	Mode 5

Limit : FCC_Part 15 Subpart B(15.109)_Class B



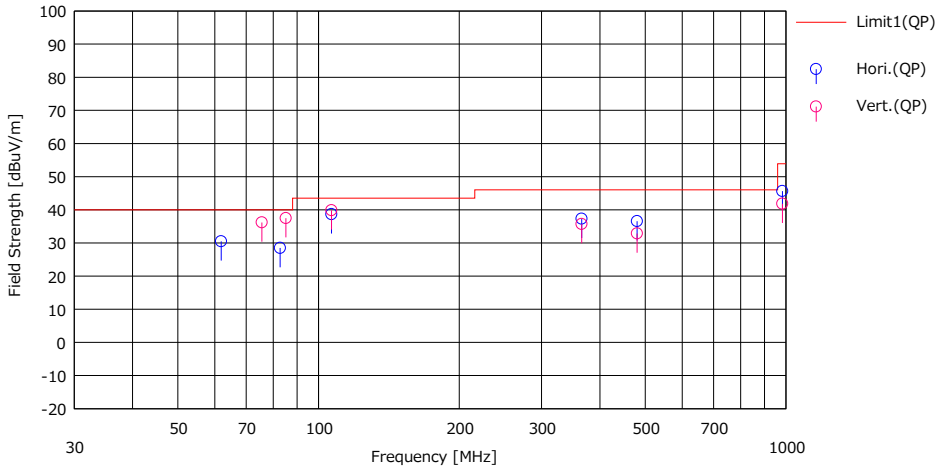
No.	Freq.	Reading (QP)	Ant.Fac	Loss	Gain	Result (QP)	Limit (QP)	Margin (QP)	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]		
1	38.502	31.90	15.34	7.49	38.73	16.00	40.00	24.0	Hori.	156	129	BA	
2	71.727	34.90	6.41	8.12	38.78	10.65	40.00	29.3	Hori.	253	146	BA	
3	95.261	56.50	9.24	8.48	38.84	35.38	43.50	8.1	Hori.	249	244	BA	
4	101.790	60.10	10.30	8.57	38.85	40.12	43.50	3.3	Hori.	208	288	BA	
5	148.542	49.10	14.85	9.17	38.88	34.24	43.50	9.2	Hori.	238	88	BA	
6	495.621	40.70	18.21	12.17	38.28	32.80	46.00	13.2	Hori.	158	35	LA20	
7	787.439	27.10	20.71	13.98	38.08	23.71	46.00	22.2	Hori.	100	4	LA20	
8	884.750	37.60	22.20	14.53	37.95	36.38	46.00	9.6	Hori.	195	351	LA20	
9	983.044	42.70	22.23	15.06	37.49	42.50	53.90	11.4	Hori.	116	98	LA20	
10	38.073	49.50	15.51	7.48	38.73	33.76	40.00	6.2	Vert.	100	112	BA	
11	71.451	57.90	6.41	8.11	38.78	33.64	40.00	6.3	Vert.	100	94	BA	
12	96.024	60.80	9.36	8.49	38.84	39.81	43.50	3.6	Vert.	100	191	BA	
13	102.782	47.80	10.44	8.59	38.85	27.98	43.50	15.5	Vert.	100	283	BA	
14	146.244	44.40	14.68	9.14	38.88	29.34	43.50	14.1	Vert.	100	133	BA	
15	495.621	41.50	18.21	12.17	38.28	33.60	46.00	12.4	Vert.	200	164	LA20	
16	787.439	36.50	20.71	13.98	38.08	33.11	46.00	12.8	Vert.	169	82	LA20	
17	884.750	38.83	22.20	14.53	37.95	37.61	46.00	8.3	Vert.	118	162	LA20	
18	983.044	43.53	22.23	15.06	37.49	43.33	53.90	10.5	Vert.	100	163	LA20	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2022
Temperature / Humidity	21deg. C / 31 % RH
Engineer	Yuichiro Yamazaki (Below 1 GHz)
Mode	Mode 6

Limit : FCC_Part 15 Subpart B(15.109)_Class B



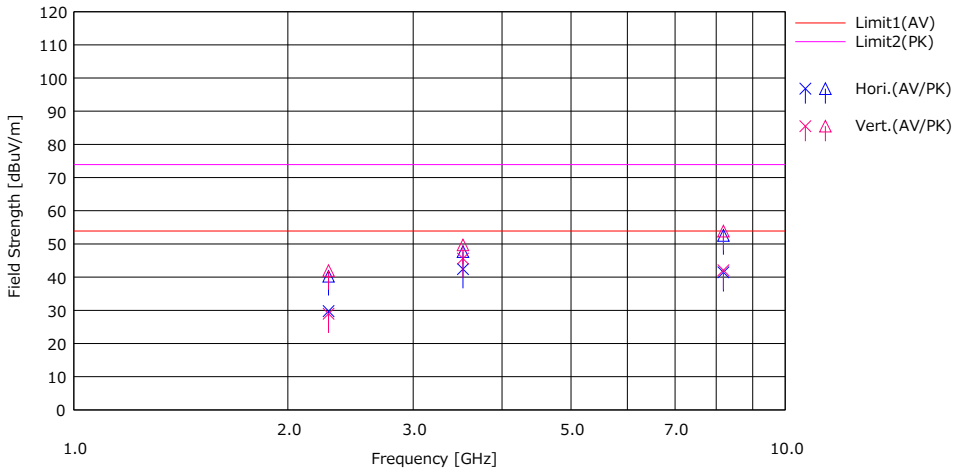
No.	Freq. [MHz]	Reading (QP) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP) [dBuV/m]	Limit (QP) [dBuV/m]	Margin (QP) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	61.891	47.70	7.45	7.61	32.27	30.49	40.00	9.51	Hori.	319	166	BA	
2	82.772	45.50	7.31	7.92	32.26	28.47	40.00	11.53	Hori.	224	350	BA	
3	106.615	51.40	11.30	8.20	32.24	38.66	43.50	4.84	Hori.	172	245	BA	
4	365.566	43.70	15.21	10.49	32.09	37.31	46.00	8.69	Hori.	100	46	LA22	
5	480.340	39.90	17.50	11.25	32.10	36.55	46.00	9.45	Hori.	100	136	LA22	
6	983.041	39.90	22.25	13.99	30.52	45.62	53.90	8.28	Hori.	100	188	LA22	
7	75.648	54.10	6.53	7.82	32.26	36.19	40.00	3.81	Vert.	100	196	BA	
8	85.153	54.10	7.67	7.95	32.25	37.47	40.00	2.53	Vert.	100	257	BA	
9	106.615	52.60	11.30	8.20	32.24	39.86	43.50	3.64	Vert.	100	104	BA	
10	365.566	42.10	15.21	10.49	32.09	35.71	46.00	10.29	Vert.	150	43	LA22	
11	480.340	36.20	17.50	11.25	32.10	32.85	46.00	13.15	Vert.	100	181	LA22	
12	983.041	36.10	22.25	13.99	30.52	41.82	53.90	12.08	Vert.	116	165	LA22	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	January 24, 2022
Temperature / Humidity	18 deg. C / 32 % RH
Engineer	Hiroyuki Furutaka
	(Above 1 GHz)
Mode	Mode 1 (Local & Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



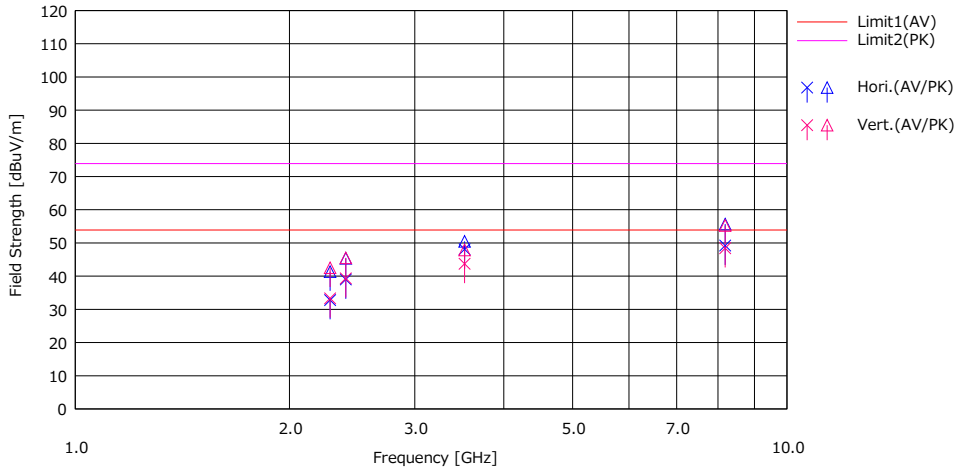
No.	Freq.	Reading		Ant.Fac	Loss	Gain	Result		Limit		Margin		Pola.	Height	Angle	Ant. Type	Comment
		〈AV〉	〈PK〉				〈AV〉	〈PK〉	〈AV〉	〈PK〉	〈AV〉	〈PK〉					
	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	[H/V]	[cm]	[deg]		
1	2281.761	34.80	45.30	28.12	2.74	35.89	29.77	40.27	53.90	73.90	24.1	33.6	Hori.	100	167	HA5	
2	3523.900	46.00	51.30	28.70	3.36	35.66	42.40	47.70	53.90	73.90	11.5	26.2	Hori.	100	134	HA5	
3	8189.600	35.40	46.50	36.48	5.08	35.49	41.47	52.57	53.90	73.90	12.4	21.3	Hori.	100	123	HA5	
4	2281.761	34.00	47.00	28.12	2.74	35.89	28.97	41.97	53.90	73.90	24.9	31.9	Vert.	100	167	HA5	
5	3523.900	49.20	53.30	28.70	3.36	35.66	45.60	49.70	53.90	73.90	8.3	24.2	Vert.	100	188	HA5	
6	8189.600	36.00	47.80	36.48	5.08	35.49	42.07	53.87	53.90	73.90	11.8	20.0	Vert.	100	8	HA5	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.
* No signal was detected above 10 GHz.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2022
Temperature / Humidity	21deg. C / 31 % RH
Engineer	Yuichiro Yamazaki
	(Above 1 GHz)
Mode	Mode 2 (Local & Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



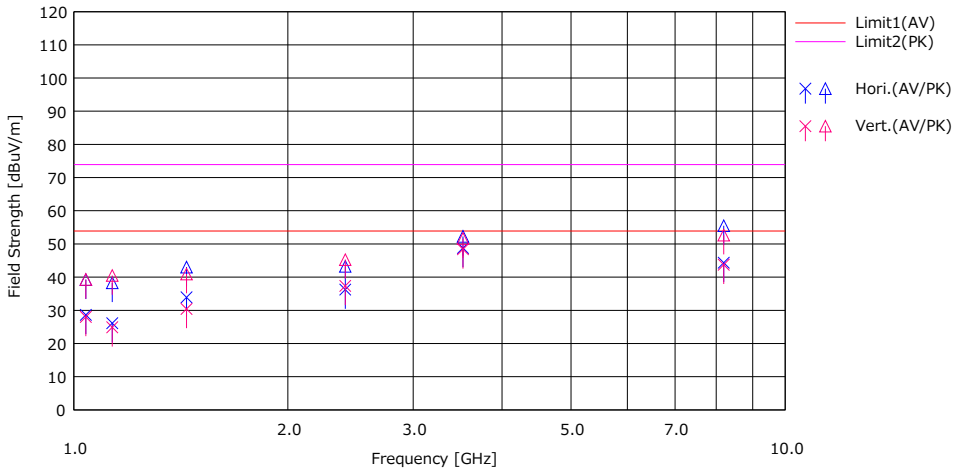
No.	Freq.	Reading (AV)	Reading (PK)	Ant.Fac	Loss	Gain	Result (AV)	Result (PK)	Limit (AV)	Limit (PK)	Margin (AV)	Margin (PK)	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	[H/V]	[cm]	[deg]		
1	2281.761	34.56	43.15	28.10	2.74	32.62	32.78	41.37	53.90	73.90	21.12	32.53	Hori.	113	166	H20	
2	2400.075	41.21	47.58	27.54	2.81	32.57	38.99	45.36	53.90	73.90	14.91	28.54	Hori.	119	141	H20	
3	3523.900	47.96	50.32	28.86	3.38	32.09	48.11	50.47	53.90	73.90	5.79	23.43	Hori.	125	164	H20	
4	8189.600	40.38	46.84	36.42	5.24	32.83	49.21	55.67	53.90	73.90	4.69	18.23	Hori.	100	231	H20	
5	2281.761	35.09	44.31	28.10	2.74	32.62	33.31	42.53	53.90	73.90	20.59	31.37	Vert.	100	171	H20	
6	2400.075	41.56	47.73	27.54	2.81	32.57	39.34	45.51	53.90	73.90	14.56	28.39	Vert.	100	177	H20	
7	3523.900	43.58	47.75	28.86	3.38	32.09	43.73	47.90	53.90	73.90	10.17	26.00	Vert.	100	359	H20	
8	8189.600	39.59	46.45	36.42	5.24	32.83	48.42	55.28	53.90	73.90	5.48	18.62	Vert.	100	159	H20	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.
* No signal was detected above 10 GHz.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	January 24, 2022
Temperature / Humidity	18 deg. C / 32 % RH
Engineer	Hiroyuki Furutaka
	(Above 1 GHz)
Mode	Mode 3 (Local & Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



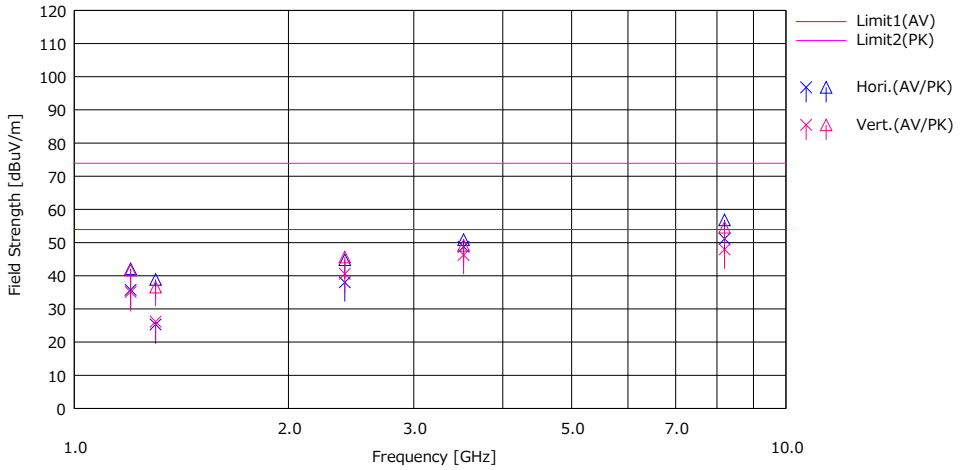
No.	Freq.	Reading ⟨AV⟩	Reading ⟨PK⟩	Ant.Fac	Loss	Gain	Result ⟨AV⟩	Result ⟨PK⟩	Limit ⟨AV⟩	Limit ⟨PK⟩	Margin ⟨AV⟩	Margin ⟨PK⟩	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	[H/V]	[cm]	[deg]		
1	1040.053	38.60	49.20	24.71	1.94	36.63	28.62	39.22	53.90	73.90	25.2	34.6	Hori.	100	198	HA5	
2	1132.340	35.60	47.80	25.05	2.00	36.56	26.09	38.29	53.90	73.90	27.8	35.6	Hori.	100	0	HA5	
3	1440.531	42.00	51.10	26.03	2.21	36.32	33.92	43.02	53.90	73.90	19.9	30.8	Hori.	100	234	HA5	
4	2407.881	41.70	48.70	27.63	2.81	35.89	36.25	43.25	53.90	73.90	17.6	30.6	Hori.	100	145	HA5	
5	3523.900	52.40	55.87	28.70	3.36	35.66	48.80	52.27	53.90	73.90	5.1	21.6	Hori.	100	155	HA5	
6	8196.050	38.30	49.40	36.46	5.09	35.49	44.36	55.46	53.90	73.90	9.5	18.4	Hori.	100	123	HA5	
7	1040.053	38.00	49.30	24.71	1.94	36.63	28.02	39.32	53.90	73.90	25.8	34.5	Vert.	100	50	HA5	
8	1132.340	34.40	50.00	25.05	2.00	36.56	24.89	40.49	53.90	73.90	29.0	33.4	Vert.	100	0	HA5	
9	1440.531	38.50	49.00	26.03	2.21	36.32	30.42	40.92	53.90	73.90	23.4	32.9	Vert.	100	123	HA5	
10	2407.881	42.80	50.70	27.63	2.81	35.89	37.35	45.25	53.90	73.90	16.5	28.6	Vert.	100	167	HA5	
11	3523.900	52.00	55.20	28.70	3.36	35.66	48.40	51.60	53.90	73.90	5.5	22.3	Vert.	113	191	HA5	
12	8196.050	37.70	46.60	36.46	5.09	35.49	43.76	52.66	53.90	73.90	10.1	21.2	Vert.	100	134	HA5	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.
* No signal was detected above 10 GHz.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2022
Temperature / Humidity	21deg. C / 31 % RH
Engineer	Yuichiro Yamazaki
	(Above 1 GHz)
Mode	Mode 4 (Local & Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



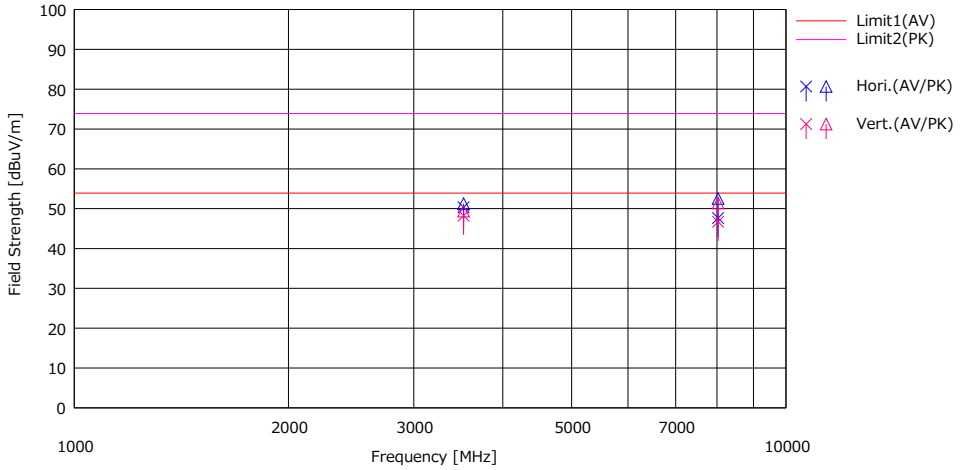
No.	Freq.	Reading (AV)	Reading (PK)	Ant.Fac	Loss	Gain	Result (AV)	Result (PK)	Limit (AV)	Limit (PK)	Margin (AV)	Margin (PK)	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	[H/V]	[cm]	[deg.]		
1	1200.011	43.19	49.53	25.20	2.04	34.68	35.75	42.09	53.90	73.90	18.15	31.81	Hori.	100	119	H20	
2	1301.257	31.97	45.53	25.67	2.10	34.43	25.31	38.87	53.90	73.90	28.59	35.03	Hori.	100	216	H20	
3	2400.000	40.21	47.00	27.54	2.81	32.57	37.99	44.78	53.90	73.90	15.91	29.12	Hori.	111	169	H20	
4	3523.936	48.55	50.75	28.86	3.38	32.09	48.70	50.90	53.90	73.90	5.20	23.00	Hori.	115	161	H20	
5	8199.150	42.33	47.99	36.39	5.25	32.83	51.14	56.80	53.90	73.90	2.76	17.10	Hori.	100	190	H20	
6	1200.011	42.55	49.09	25.20	2.04	34.68	35.11	41.65	53.90	73.90	18.79	32.25	Vert.	124	118	H20	
7	1301.257	32.82	43.21	25.67	2.10	34.43	26.16	36.55	53.90	73.90	27.74	37.35	Vert.	100	119	H20	
8	2400.000	42.80	47.85	27.54	2.81	32.57	40.58	45.63	53.90	73.90	13.32	28.27	Vert.	100	177	H20	
9	3523.936	46.12	49.01	28.86	3.38	32.09	46.27	49.16	53.90	73.90	7.63	24.74	Vert.	100	183	H20	
10	8199.150	39.12	45.80	36.39	5.25	32.83	47.93	54.61	53.90	73.90	5.97	19.29	Vert.	100	183	H20	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.
* No signal was detected above 10 GHz.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 13, 2022
Temperature / Humidity	24 deg. C / 41 % RH
Engineer	Junya Okuno
	(Above 1 GHz)
Mode	Mode 5

Limit : FCC_Part 15 Subpart B(15.109)_Class B



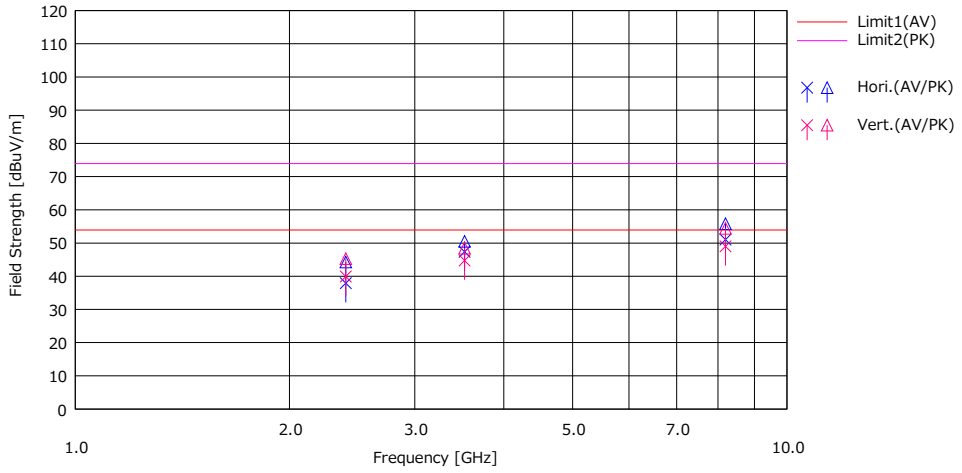
No.	Freq.	Reading		Ant.Fac	Loss	Gain	Result		Limit		Margin		Pola.	Height	Angle	Ant. Type	Comment
		(AV)	(PK)				(AV)	(PK)	(AV)	(PK)	(AV)	(PK)					
	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	[H/V]	[cm]	[deg]		
1	3523.925	50.20	51.10	28.86	3.38	32.09	50.35	51.25	53.90	73.90	3.55	22.65	Hori.	100	172	H20	
2	8029.136	38.54	43.42	36.76	5.20	32.85	47.65	52.53	53.90	73.90	6.25	21.37	Hori.	112	163	H20	
3	3523.925	48.12	49.21	28.86	3.38	32.09	48.27	49.36	53.90	73.90	5.63	24.54	Vert.	111	238	H20	
4	8029.136	37.63	42.31	36.76	5.20	32.85	46.74	51.42	53.90	73.90	7.16	22.48	Vert.	103	141	H20	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.
* No signal was detected above 10 GHz.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2022
Temperature / Humidity	21deg. C / 31 % RH
Engineer	Yuichiro Yamazaki (Above 1 GHz)
Mode	Mode 6

Limit : FCC_Part 15 Subpart B(15.109)_Class B



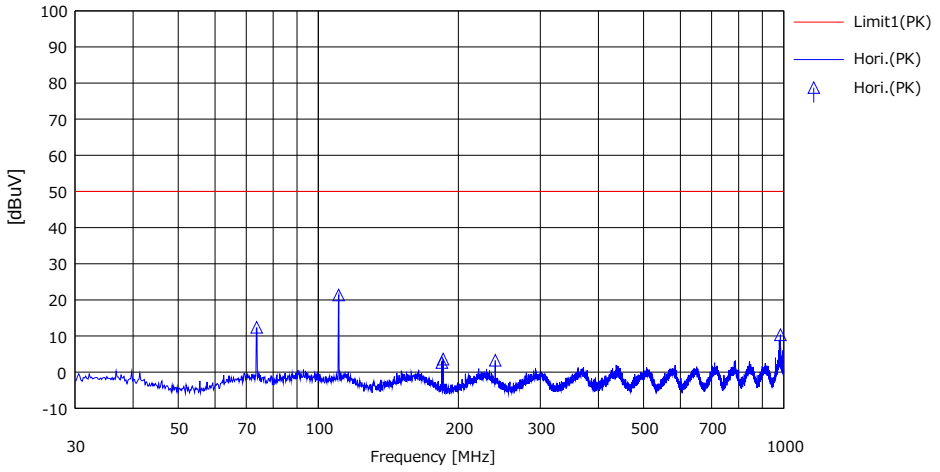
No.	Freq.	Reading (AV)	Reading (PK)	Ant.Fac	Loss	Gain	Result (AV)	Result (PK)	Limit (AV)	Limit (PK)	Margin (AV)	Margin (PK)	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	[H/V]	[cm]	[deg]		
1	2400.100	40.14	46.50	27.54	2.81	32.57	37.92	44.28	53.90	73.90	15.98	29.62	Hori.	118	167	H20	
2	3523.930	47.23	50.34	28.86	3.38	32.09	47.38	50.49	53.90	73.90	6.52	23.41	Hori.	109	153	H20	
3	8196.060	42.23	47.00	36.40	5.24	32.83	51.04	55.81	53.90	73.90	2.86	18.09	Hori.	100	189	H20	
4	2400.100	42.15	47.51	27.54	2.81	32.57	39.93	45.29	53.90	73.90	13.97	28.61	Vert.	100	180	H20	
5	3523.930	44.59	48.31	28.86	3.38	32.09	44.74	48.46	53.90	73.90	9.16	25.44	Vert.	100	216	H20	
6	8196.060	40.20	45.58	36.40	5.24	32.83	49.01	54.39	53.90	73.90	4.89	19.51	Vert.	100	187	H20	

CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.
* No signal was detected above 10 GHz.

Antenna Terminal Conducted Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	August 24, 2021
Temperature / Humidity	25 deg. C / 60 % RH
Engineer	Junya Okuno
Mode	Mode 7

Limit : FCC15.111 Antenna terminal measurement



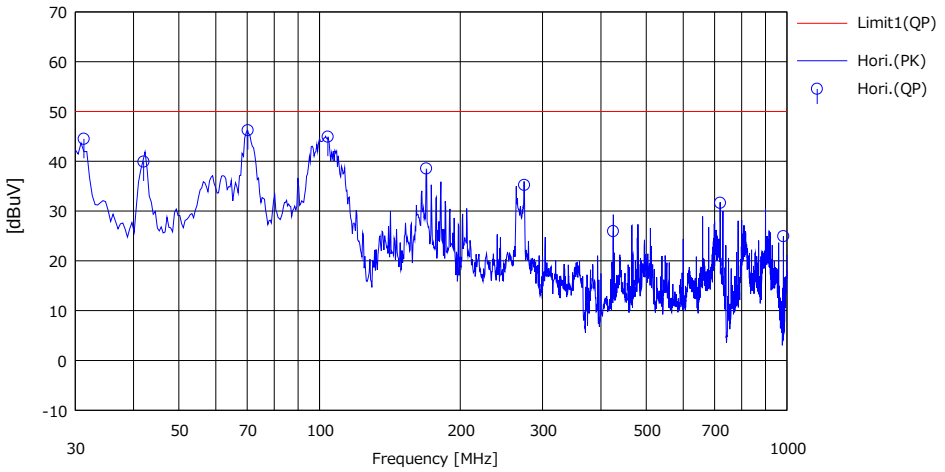
No.	Freq. [MHz]	Reading (PK) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (PK) [dBuV]	Limit * (PK) [dBuV]	Margin (PK) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	73.728	42.57	0.00	1.87	32.02	12.42	50.00	37.58				---	
2	110.595	51.45	0.00	1.89	31.98	21.36	50.00	28.64				---	
3	184.320	32.63	0.00	1.94	31.93	2.64	50.00	47.36				---	
4	185.441	33.60	0.00	1.94	31.93	3.61	50.00	46.39				---	
5	240.014	33.16	0.00	1.98	31.89	3.25	50.00	46.75				---	
6	983.983	38.85	0.00	2.24	30.76	10.33	50.00	39.67				---	

* 2 nW = -57 dBm = 50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE + DC Block) - GAIN
Except for the above table: adequate margin data below the limits.

Antenna Terminal Conducted Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 14, 2022
Temperature / Humidity	21 deg. C / 30 % RH
Engineer	Yuichiro Yamazaki
Mode	Mode 8

Limit : FCC15.111 Antenna terminal measurement



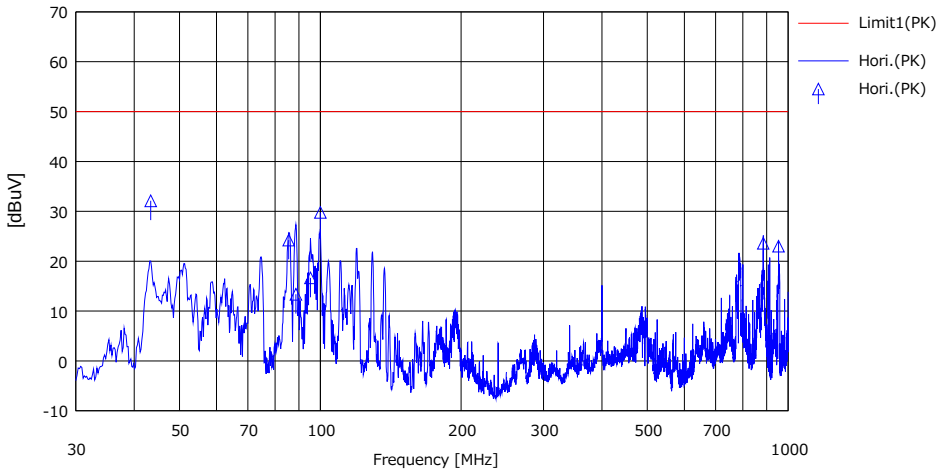
No.	Freq. [MHz]	Reading ⟨QP⟩ [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result ⟨QP⟩ [dBuV]	Limit * ⟨QP⟩ [dBuV]	Margin ⟨QP⟩ [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	31.316	75.48	0.00	1.28	32.27	44.49	50.00	5.51				---	
2	42.023	70.86	0.00	1.31	32.27	39.90	50.00	10.10				---	
3	70.239	77.10	0.00	1.37	32.26	46.21	50.00	3.79				---	
4	104.140	75.73	0.00	1.42	32.24	44.91	50.00	5.09				---	
5	169.184	69.19	0.00	1.53	32.19	38.53	50.00	11.47				---	
6	274.259	65.66	0.00	1.67	32.11	35.22	50.00	14.78				---	
7	424.870	56.21	0.00	1.83	32.10	25.94	50.00	24.06				---	
8	719.930	61.53	0.00	2.07	31.98	31.62	50.00	18.38				---	
9	983.040	53.18	0.00	2.28	30.52	24.94	50.00	25.06				---	

* 2 nW = -57 dBm = 50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE + DC Block) - GAIN
Except for the above table: adequate margin data below the limits.

Antenna Terminal Conducted Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 28, 2022
Temperature / Humidity	21 deg. C / 30 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 9

Limit : FCC15.111 Antenna terminal measurement



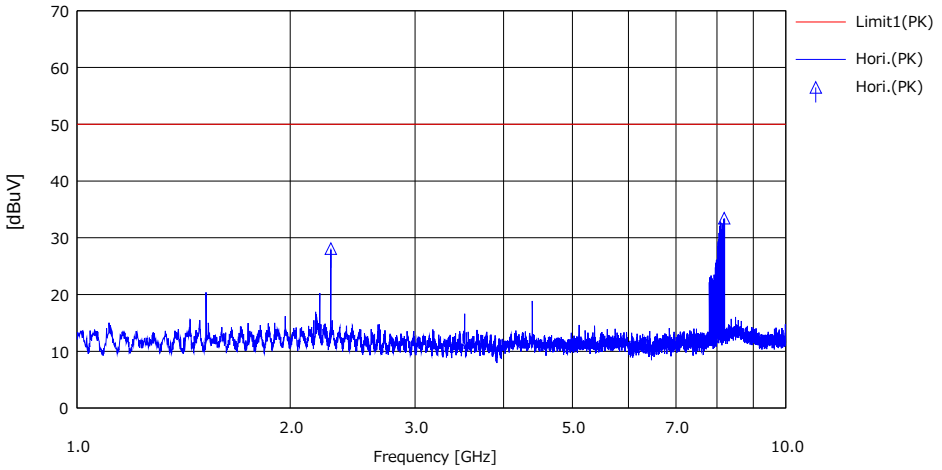
No.	Freq.	Reading (PK)	Ant.Fac	Loss	Gain	Result (PK)	Limit * (PK)	Margin (PK)	Pola.	Ant. Type	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV]	[dBuV]	[dB]	[H/V]		
1	43.385	62.98	0.00	1.16	32.03	32.11	50.00	17.8			
2	85.602	55.02	0.00	1.22	32.01	24.23	50.00	25.7			
3	88.679	44.15	0.00	1.23	32.01	13.37	50.00	36.6			
4	95.260	47.41	0.00	1.24	32.00	16.65	50.00	33.3			
5	100.033	60.54	0.00	1.24	31.99	29.79	50.00	20.2			
6	884.806	52.93	0.00	1.91	31.25	23.59	50.00	26.4			
7	954.073	51.98	0.00	1.95	30.91	23.02	50.00	26.9			

* 2 nW = -57 dBm = 50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE + DC Block) - GAIN
Except for the above table: adequate margin data below the limits.

Antenna Terminal Conducted Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	August 24, 2021
Temperature / Humidity	25 deg. C / 60 % RH
Engineer	Junya Okuno
Mode	Mode 7

Limit : FCC15.111 Antenna terminal measurement



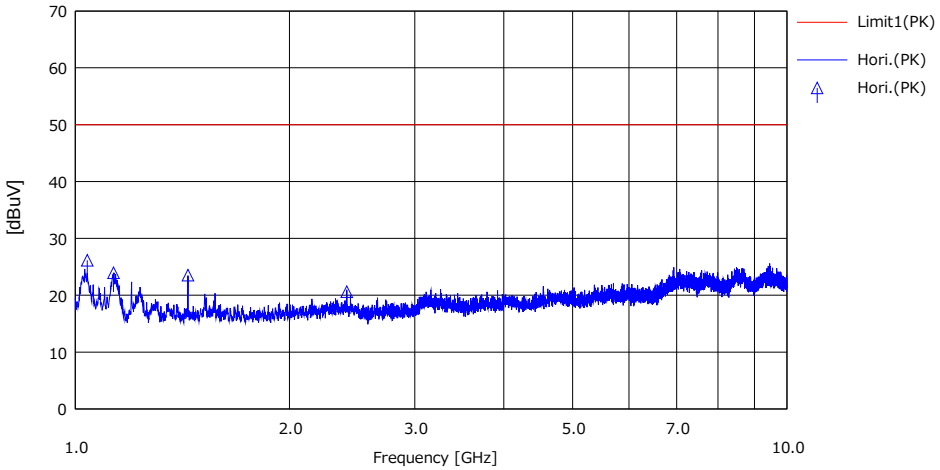
No.	Freq.	Reading (PK)	Ant.Fac	Loss	Gain	Result (PK)	Limit * (PK)	Margin (PK)	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV]	[dBuV]	[dB]	[H/V]	[cm]	[deg]		
1	2281.762	57.55	0.00	2.41	31.88	28.08	50.00	21.92				---	
2	8189.600	63.02	0.00	3.09	32.66	33.45	50.00	16.55				---	

* 2 nW = -57 dBm = 50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE + DC Block) - GAIN
Except for the above table: adequate margin data below the limits.
* No signal was detected above 10 GHz.

Antenna Terminal Conducted Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 14, 2022
Temperature / Humidity	21 deg. C / 30 % RH
Engineer	Yuichiro Yamazaki
Mode	Mode 8

Limit : FCC15.111 Antenna terminal measurement



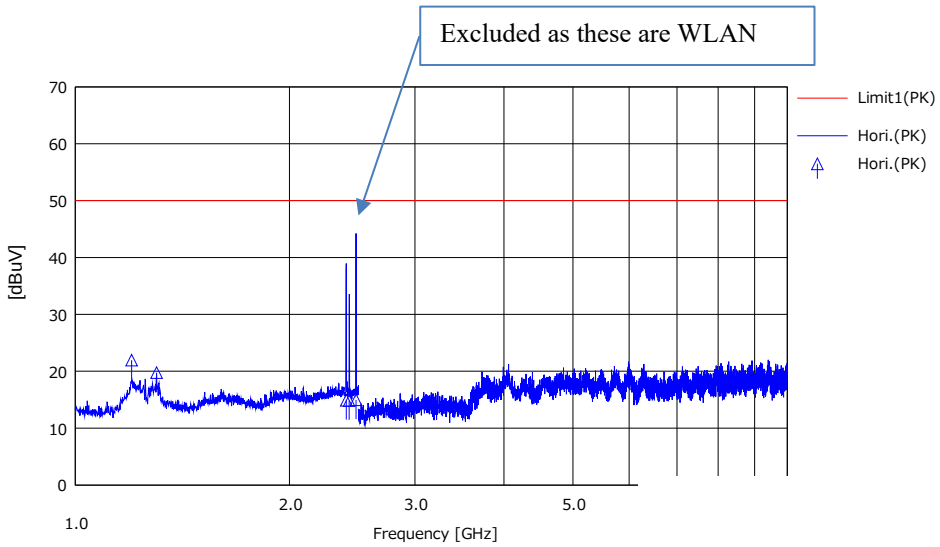
No.	Freq. [MHz]	Reading (PK) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (PK) [dBuV]	Limit * (PK) [dBuV]	Margin (PK) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	1040.053	49.47	0.00	3.89	27.22	26.14	50.00	23.86				---	
2	1132.240	47.08	0.00	4.00	27.14	23.94	50.00	26.06				---	
3	1440.531	46.01	0.00	4.38	26.86	23.53	50.00	26.47				---	
4	2407.881	41.40	0.00	5.43	26.20	20.63	50.00	29.37				---	

* 2 nW = -57 dBm = 50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE + DC Block) - GAIN
Except for the above table: adequate margin data below the limits.
* No signal was detected above 10 GHz.

Antenna Terminal Conducted Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 28, 2022
Temperature / Humidity	21 deg. C / 30 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 9

Limit : FCC15.111 Antenna terminal measurement



No.	Freq. [MHz]	Reading (PK) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (PK) [dBuV]	Limit * (PK) [dBuV]	Margin (PK) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	1200.011	45.63	0.00	3.42	27.08	21.97	50.00	28.03				---	
2	1301.257	43.25	0.00	3.51	26.99	19.77	50.00	30.23				---	
3	2402.452	36.62	0.00	4.49	26.20	14.91	50.00	35.09				---	
4	2426.149	36.51	0.00	4.51	26.19	14.83	50.00	35.17				---	
5	2479.910	36.59	0.00	4.55	26.17	14.97	50.00	35.03				---	

* 2 nW = -57 dBm = 50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE + DC Block) - GAIN
Except for the above table: adequate margin data below the limits.
* No signal was detected above 10 GHz.

APPENDIX 2: Test instruments

Test equipment(1/2)

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	MSA-03	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	03/10/2021	12
RE	MTR-10	141951	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	03/09/2021	12
RE	MCC-54	141325	Microwave Cable	Suhner	SUCOFLEX101	2873(1m) / 2876(5m)	03/02/2021	12
RE	MPA-03	141577	Microwave System Power Amplifier	Keysight Technologies Inc	83050A	MY39500610	10/28/2021	12
RE	MCC-231	177964	Microwave Cable	Junkosha INC.	MMX221	1901S329(1m)/ 1902S579(5m)	03/04/2021	12
RE	MPA-11	141580	MicroWave System Amplifier	Keysight Technologies Inc	83017A	MY39500779	03/03/2021	12
RE	MHA-20	141507	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	258	11/09/2021	12
RE	MHA-16	141513	Horn Antenna 15-40GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9170	BBHA9170306	06/07/2021	12
RE	MAEC-03	142008	AC3_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/22/2020	24
RE	MOS-13	141554	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	1301	01/10/2022	12
RE	MMM-08	141532	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	51201197	01/16/2022	12
RE	MJM-16	142183	Measure	KOMELON	KMC-36	-	-	-
RE	COTS-MEMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	MAEC-03-SVSWR	142013	AC3_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	04/01/2021	24
RE	MAEC-01	141998	AC1_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	06/08/2020	24
RE	MOS-27	141566	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	A08Q26	01/10/2022	12
RE	MMM-03	141530	Digital Tester	Fluke Corporation	FLUKE 26-3	78030621	08/10/2021	12
RE	MJM-25	142226	Measure	KOMELON	KMC-36	-	-	-
RE	COTS-MEMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	KBA-05	141198	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+BBA9106	2513	04/10/2021	12
RE	MLA-20	141264	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	189	04/10/2021	12
RE	MAT-08	141213	Attenuator(6dB)	Weinschel Corp	2	BK7971	11/09/2021	12
RE	MCC-02	141350	Coaxial Cable	Suhner/storm/Agilent/ TSJ	-	-	06/02/2021	12
RE	MPA-19	141585	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	02/18/2021	12
RE	MTR-10	141951	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	03/09/2021	12
RE	MAEC-01-SVSWR	141994	AC1_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 10m	DA-06881	04/05/2021	24
RE	MSA-21	212971	Signal Analyzer	Keysight Technologies Inc	N9030B	MY61330380	12/22/2021	12
RE	MHA-05	141511	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	253	09/24/2021	12
RE	MCC-217	141393	Microwave Cable	Junkosha	MWX221	1604S254(1 m) / 1608S088(5 m)	08/04/2021	12
RE	MPA-01	141576	Pre Amplifier	Keysight Technologies Inc	8449B	3008A01671	02/18/2021	12
RE	MHA-03	141504	Horn Antenna 26.5-40GHz	EMCO	3160-10	1150	09/03/2021	12
RE	MHA-02	141503	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	06/28/2021	12
RE	MCC-54	141325	Microwave Cable	Suhner	SUCOFLEX101	2873(1m) / 2876(5m)	03/02/2021	12
RE	MPA-03	141577	Microwave System Power Amplifier	Keysight Technologies Inc	83050A	MY39500610	10/28/2021	12
RE	MAEC-03	142008	AC3_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/22/2020	24
RE	MOS-13	141554	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	1301	01/10/2022	12
RE	MMM-08	141532	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	51201197	01/16/2022	12

Test equipment(2/2)

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	MJM-16	142183	Measure	KOMELON	KMC-36	-	-	-
RE	MAEC-03-SVSWR	142013	AC3_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	04/01/2021	24
RE	MAT-95	142314	Attenuator	Pasternack Enterprises	PE7390-6	D/C 1504	06/09/2021	12
RE	MBA-05	141425	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+BBA9106	VHA 91031302	08/28/2021	12
RE	MCC-51	141323	Coaxial cable	UL Japan	-	-	07/19/2021	12
RE	MLA-22	141266	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-191	08/21/2021	12
RE	MPA-13	141582	Pre Amplifier	SONOMA INSTRUMENT	310	260834	02/18/2021	12
RE	MTR-08	141949	Test Receiver	Rohde & Schwarz	ESCI	100767	08/05/2021	12
RE	MHA-20	141507	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	258	11/09/2021	12
RE	MPA-11	141580	MicroWave System Amplifier	Keysight Technologies Inc	83017A	MY39500779	03/03/2021	12
RE	MCC-231	177964	Microwave Cable	Junkosha INC.	MMX221	1901S329(1m)/ 1902S579(5m)	03/04/2021	12
RE	MHA-16	141513	Horn Antenna 15-40GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9170	BBHA9170306	06/07/2021	12
RE	MCC-220	151897	Microwave Cable	Huber+Suhner	SF101EA/11PC24/ 11PC24/2.5M	SN MY1726/1EA	04/12/2021	12
AT	MAEC-04	142011	AC4_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/25/2020	24
AT	MOS-15	141562	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	0010	01/10/2022	12
AT	MMM-10	141545	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	51201148	01/16/2022	12
AT	MDCB-04	156190	DC Block	EMC Instruments Corporation	N9398C	MY46457635	07/08/2021	12
AT	MPA-14	141583	Pre Amplifier	SONOMA INSTRUMENT	310	260833	02/08/2022	12
AT	MCC-38	141395	Coaxial Cable	UL Japan	-	-	11/19/2021	12
AT	MCC-178	141227	Microwave Cable	Junkosha	MMX221-00500DMSDMS	1502S305	03/01/2021	12
AT	MRENT-130	141855	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46187750	11/28/2021	12
AT	COTS-MEMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
AT	MAEC-03	142008	AC3_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/22/2020	24
AT	MOS-13	141554	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	1301	01/10/2022	12
AT	MMM-08	141532	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	51201197	01/16/2022	12
AT	MJM-16	142183	Measure	KOMELON	KMC-36	-	-	-
AT	MSA-03	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	03/10/2021	12
AT	MPA-03	141577	Microwave System Power Amplifier	Keysight Technologies Inc	83050A	MY39500610	10/28/2021	12
AT	MCC-54	141325	Microwave Cable	Suhner	SUCOFLEX101	2873(1m) / 2876(5m)	03/02/2021	12
AT	MDCB-02	141485	DC Block Filter	Keysight Technologies Inc	N9398C	51053	11/19/2021	12
AT	MCC-220	151897	Microwave Cable	Huber+Suhner	SF101EA/11PC24/ 11PC24/2.5M	SN MY1726/1EA	04/12/2021	12

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

The expiration date of the calibration is the end of the expired month.
As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

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

Test item:

RE: Radiated emission
AT: Antenna Terminal Conducted