





EMI TEST REPORT

Test Report No. 15735479H-A-R1

Customer	Panasonic Automotive Systems Co., Ltd.
Description of EUT	Wireless Charger
Model Number of EUT	AH2302
FCC ID	ACJ932AH2302
Test Regulation	FCC Part 18
Test Result	Complied
Issue Date	April 23, 2025
Remarks	-

Representative test engineer	Approved by
	
Junki Nagatomi Engineer	Akihiko Maeda Leader
 	
CERTIFICATE 5107.02	
<input type="checkbox"/> The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan, Inc.	
<input checked="" type="checkbox"/> There is no testing item of "Non-accreditation".	

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REVISION HISTORY

Original Test Report No. 15735479H-A

This report is a revised version of 15735479H-A. 15735479H-A is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15735479H-A	March 24, 2025	-
1	15735479H-A-R1	April 23, 2025	Correction of the Extrapolation Factor value of the test data; P.16) 0.3738 MHz: -84.1 → -97.5 P.17) 0.3834 MHz: -85.7 → -103.3 P.18) 0.3885 MHz: -86.4 → -98.7 P.19) 88.011 MHz: -40.0 → -10.3 P.20) 88.012 MHz: -40.0 → -10.3 P.21) 88.011 MHz: -40.0 → -6.1 P.23) 95.348 MHz: -40.0 → -39.8

Reference: Abbreviations (Including words undescribed in this report)

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

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SECTION 1: Customer Information

Company Name	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	Yasuo Miura

*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	Wireless Charger
Model Number	AH2302
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	November 25, 2024
Test Date	December 2 to 19, 2024

2.2. Product Description

General Specification

Rating	DC +9 V to +16 V (Typ: +13.2 V)
Feature of EUT	Use the ACC KEY of the car to turn the Wireless charger power ON/OFF. Charging will begin when you place the portable device (etc. mobile phone) with the charging side facing down. If charging is not occurring, try placing the portable device as close to the center of the charging area as possible.

Radio Specification

Frequency Band	124.6 kHz / 127.8 kHz / 129.5 kHz / 120.4 kHz to 134.3 kHz
Rated Output Power	5 W / 15 W
Coil system	Single Coil
Charging distance	Contact

SECTION 3: Test Specification, Procedures & Results

3.1 Test specification

Test Specification	FCC Part 18 The latest version on the first day of the testing period
Title	FCC 47CFR Part18 Industrial, scientific, and medical equipment

3.2 Procedures and results

Item	Test Procedure & Limits	Worst margin	Result	Remarks
Radiated Emission	Section 18.305 FCC/OET MP-5	13.2 dB 98.313 MHz, Horizontal	Complied	-
Conducted Emission	Section 18.307 FCC/OET MP-5	-	N/A	*1)

* 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.

3.3 Addition to standard

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

3.4 Uncertainty

EMI

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	5.0
		Vertical	dB	5.0
	200 MHz to 1000 MHz	Horizontal	dB	5.2
		Vertical	dB	6.2
10 m	30 MHz to 200 MHz	Horizontal	dB	5.5
		Vertical	dB	5.4
	200 MHz to 1000 MHz	Horizontal	dB	5.5
		Vertical	dB	5.5

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)

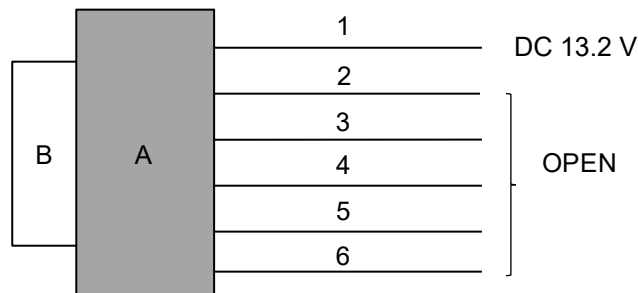
Test mode	Remarks
1) Normal Charging mode (CW+FSK, 124.6 kHz / EPP 15 W) *3)	Used for Receiver JIG *1)
2) Normal Charging mode (CW+FSK, 127.8 kHz / EPP 15 W) *3)	Used for Receiver JIG *1)
3) Normal Charging mode (CW+FSK, 129.5 kHz / EPP 15 W) *3)	Used for Receiver JIG *1)
4) Normal Charging mode (FSK, 120.4 kHz Neg 3 / EPP 15 W)	Used for Receiver *2)
5) Normal Charging mode (FSK, 128.6 kHz Pos 0 / EPP 15 W)	Used for Receiver *2)
6) Normal Charging mode (FSK, 134.3 kHz Pos 3 / EPP 15 W)	Used for Receiver *2)

Justification: The system was configured in typical fashion (as a user would normally use it) for testing.

- *1) For Mode 1 to 3, after the output level between 5 W and 15 W were compared at pre-check, the test was performed only with 15 W as representative, which had the worst result.
- *2) For Mode 4 to 6, after the output level of 8 types of modulation (Neg 0 to 3, Pos 0 to 3) was compared at pre-check, the test was performed with worst case.
- *3) The 15 W transmission also outputs CW and FSK transmissions. The frequency listed for the mode is the CW transmission frequency.

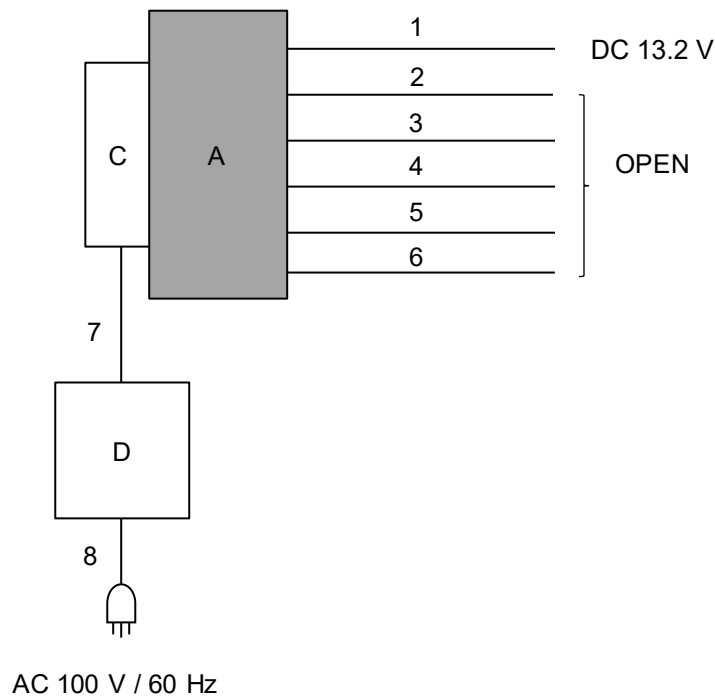
4.2. Configuration and peripherals

Mode 1 to 3



*A and B communicate and charge via air interface.

Mode 4 to 6



*A and C communicate and charge via air interface.

*Cabling and setup 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	Remark
A	Wireless Charger	AH2302	2S_100	Panasonic Automotive Systems Co., Ltd.	EUT
B	Receiver JIG	GEN5S 15W Load JIG	RS-No.028	Panasonic Automotive Systems Co., Ltd.	-
C	Reference Receiver	TRP#MP1B	1	Nok9	-
D	Qi Reference Tester	LP/MP/FOD	200134-1807	Nok9	-

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	DC Cable	4.2	Unshielded	Unshielded	-
2	CAN Cable	2.0	Unshielded	Unshielded	-
3	Signal Cable	2.0	Unshielded	Unshielded	-
4	Signal Cable	2.0	Unshielded	Unshielded	-
5	Signal Cable	2.0	Unshielded	Unshielded	-
6	Signal Cable	2.0	Unshielded	Unshielded	-
7	Communication Cable	0.6	Unshielded	Unshielded	-
8	AC Cable	1.5	Unshielded	Unshielded	-

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
Mode	See data

5.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 1.0 m above the conducting ground plane.

The EUT was set on the edge of the tabletop.

Test was made with the antenna positioned in 0 deg., 45 deg., 90 deg., 135 deg., 180 deg., and Horizontal. 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.

*Refer to Figure 1 about Direction of the Loop Antenna.

5.3 Test conditions

Frequency range	9 kHz to 30 MHz (Loop antenna)
	30 MHz to 200 MHz (Biconical antenna)
	200 MHz to 400 MHz (Logperiodic antenna)
Test distance	3 m / 10 m
EUT position	Table top
EUT operation mode	See Clause 4.1

5.4 Test procedure

[Below 30 MHz]

The height of antenna was fixed in 2 m.

EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed in 0 deg., 45 deg., 90 deg., 135deg., 180 deg., and Horizontal with the Test Receiver.

0 deg. of antenna position was made as the representative position for the tests since noise level was equivalent in all three positions.

The electric field intensity at a distance of 300 m was calculated from the measurement results at distances of 3 m and 10 m.

[Above 30 MHz]

Maximum electric field intensity was confirmed with the measurements at distances of 3 m and 10 m. The electric field intensity at a distance of 300 m was calculated from the measurement results at distances of 3 m and 10 m.

The radiated emission measurements were made with the following detector function of the test receiver.

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

Frequency	9 kHz to 150 kHz	150 kHz to 30 MHz	30 MHz to 400 MHz
Instrument used	Test Receiver		
IF Bandwidth	AV: 200 Hz	AV: 9 kHz	AV: 120 kHz

The measurement result was calculated by the following formula:

[Frequency at which the signal was confirmed at both 10 m and 3 m]

Result = Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain

Extrapolation Factor = decade * Log (Test distance (3 m) / Separate distance (300 m))

decade = (10 m reading - 3 m reading) / (log 3 m - log 10 m)

*Refer to Part 18 Section 305 Notes 2 and KDB 629601.

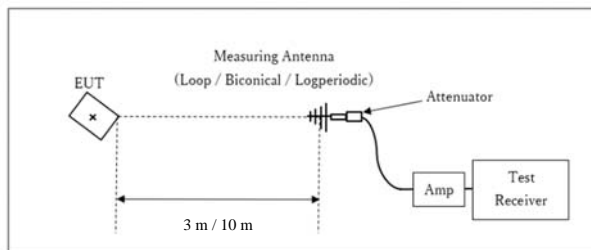
[Other Frequency]

Result = Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain

Extrapolation Factor = 20 * Log (Test distance (3 m) / Separate distance (300 m))

<Test Setup>

Below 1 GHz



× : Center of turn table

Test Distance: 3 m / 10 m

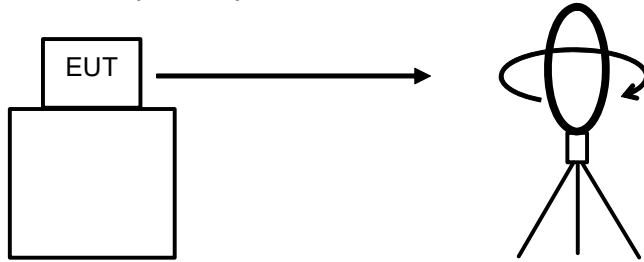
The test results and limit are rounded off to one decimal place, so some differences might be observed.

5.5 Test result

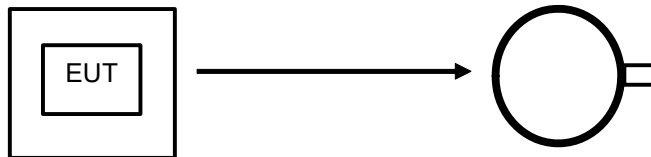
Summary of the test results: Pass

Figure 1: Direction of the Loop Antenna

Side View (Vertical)

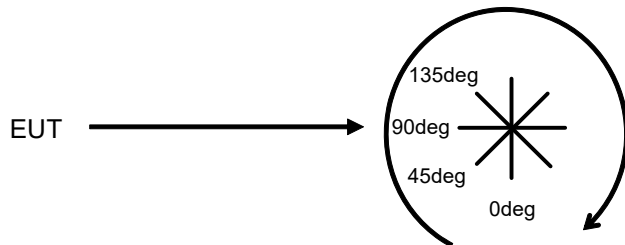


.....
Top View (Horizontal)



Antenna was not rotated.

.....
Top View (Vertical)



Front side: 0 deg.
Forward direction: clockwise

APPENDIX 1: Test Data

Radiated Emission

Test place Ise EMC Lab.
Semi Anechoic Chamber No.1
Date December 17, 2024
Temperature / Humidity 20 deg. C / 40 % RH
Engineer Junki Nagatomi
(Below 30 MHz)
Mode Mode 1

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	Atten + Cable loss [dB]	AMP Gain [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna [deg]	Remarks
0.1246	79.4	52.9	19.2	6.0	32.3	-101.4	-29.0	23.5	52.5	0	
0.1246	78.1	52.0	19.2	6.0	32.3	-99.8	-28.8	23.5	52.3	45	
0.1246	75.1	49.7	19.2	6.0	32.3	-97.2	-29.1	23.5	52.6	90	
0.1246	77.4	52.2	19.2	6.0	32.3	-96.4	-26.1	23.5	49.6	135	
0.1246	79.3	52.0	19.2	6.0	32.3	-104.4	-32.2	23.5	55.7	180	
0.1246	82.4	43.6	19.2	6.0	32.3	-148.4	-73.1	23.5	96.6	Horizontal	
0.2492	40.9	NS	19.4	6.0	32.3	-40.0	-5.9	23.5	29.4	0	Reading(10 m) is Floor Noise *1)
0.3738	38.9	NS	19.5	6.1	32.3	-40.0	-7.8	23.5	31.3	0	Reading(10 m) is Floor Noise *1)
0.4984	28.4	NS	19.5	6.1	32.3	-40.0	-18.3	23.5	41.8	0	Reading(10 m) is Floor Noise *1)
0.6230	36.5	NS	19.5	6.1	32.3	-40.0	-10.2	23.5	33.7	0	Reading(10 m) is Floor Noise *1)
0.7476	31.5	NS	19.5	6.1	32.3	-40.0	-15.2	23.5	38.7	0	Reading(10 m) is Floor Noise *1)
0.8722	31.2	NS	19.5	6.2	32.3	-40.0	-15.4	23.5	38.9	0	Reading(10 m) is Floor Noise *1)
0.9968	26.0	NS	19.5	6.2	32.3	-40.0	-20.6	23.5	44.1	0	Reading(10 m) is Floor Noise *1)
1.1214	27.8	NS	19.5	6.2	32.3	-40.0	-18.8	25.5	44.3	0	Reading(10 m) is Floor Noise *1)
1.2460	25.5	NS	19.6	6.2	32.3	-40.0	-21.0	23.5	44.5	0	Reading(10 m) is Floor Noise *1)

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
Extrapolation Factor = decade * Log (Test distance(3 m) / Separate distance(300 m))
decade = (10 m reading - 3 m reading) / (log 3 m - log 10 m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
Except for the above table : adequate margin data below the limits.

10 m Reading of Extrapolation Factor is used the value of 0 deg.
Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 17, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Junki Nagatomi
	(Below 30 MHz)
Mode	Mode 2

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	Atten + Cable loss [dB]	AMP Gain [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna [deg]	Remarks
0.1278	79.6	52.3	19.2	6.0	32.3	-104.4	-31.9	23.5	55.4	0	
0.1278	78.7	50.8	19.2	6.0	32.3	-106.7	-35.1	23.5	58.6	45	
0.1278	75.4	47.9	19.2	6.0	32.3	-105.2	-36.8	23.5	60.3	90	
0.1278	77.0	51.3	19.2	6.0	32.3	-98.3	-28.4	23.5	51.9	135	
0.1278	79.5	52.2	19.2	6.0	32.3	-104.4	-32.0	23.5	55.5	180	
0.1278	83.2	46.3	19.2	6.0	32.3	-141.1	-65.0	23.5	88.5	Horizontal	
0.2556	34.4	NS	19.5	6.0	32.3	-40.0	-12.4	23.5	35.9	0	Reading(10 m) is Floor Noise *1)
0.3834	44.7	NS	19.5	6.1	32.3	-40.0	-2.0	23.5	25.5	0	Reading(10 m) is Floor Noise *1)
0.5112	29.1	NS	19.5	6.1	32.3	-40.0	-17.6	23.5	41.1	0	Reading(10 m) is Floor Noise *1)
0.6390	37.4	NS	19.5	6.1	32.3	-40.0	-9.3	23.5	32.8	0	Reading(10 m) is Floor Noise *1)
0.7668	34.2	NS	19.5	6.2	32.3	-40.0	-12.5	23.5	36.0	0	Reading(10 m) is Floor Noise *1)
0.8946	31.8	NS	19.5	6.2	32.3	-40.0	-14.8	23.5	38.3	0	Reading(10 m) is Floor Noise *1)
1.0224	26.3	NS	19.5	6.2	32.3	-40.0	-20.3	23.5	43.8	0	Reading(10 m) is Floor Noise *1)
1.1502	28.5	NS	19.5	6.2	32.3	-40.0	-18.1	25.5	43.6	0	Reading(10 m) is Floor Noise *1)
1.2780	25.5	NS	19.6	6.2	32.3	-40.0	-21.0	23.5	44.5	0	Reading(10 m) is Floor Noise *1)

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3 m) / Separate distance(300 m))
 decade = (10 m reading - 3 m reading) / (log 3 m - log 10 m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

10 m Reading of Extrapolation Factor is used the value of 0 deg.
 Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 17, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Junki Nagatomi
	(Below 30 MHz)
Mode	Mode 3

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	Atten + Cable loss [dB]	AMP Gain [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m)		Margin [dB]	Antenna [deg]	Remarks
								[dBμV/m]	[dBμV/m]			
0.1295	82.4	55.1	19.2	6.0	32.3	-104.4	-29.1	23.5	52.6	0		
0.1295	80.2	53.7	19.2	6.0	32.3	-101.4	-28.2	23.5	51.7	45		
0.1295	77.1	50.5	19.2	6.0	32.3	-101.7	-31.7	23.5	55.2	90		
0.1295	81.4	54.1	19.2	6.0	32.3	-104.4	-30.1	23.5	53.6	135		
0.1295	83.3	55.0	19.2	6.0	32.3	-108.2	-32.0	23.5	55.5	180		
0.1295	87.5	48.5	19.2	6.0	32.3	-149.2	-68.7	23.5	92.2	Horizontal		
0.2590	37.1	NS	19.5	6.0	32.3	-40.0	-9.7	23.5	33.2	0	Reading(10 m) is Floor Noise *1)	
0.3885	48.7	NS	19.5	6.1	32.3	-40.0	2.0	23.5	21.5	0	Reading(10 m) is Floor Noise *1)	
0.5180	29.0	NS	19.5	6.1	32.3	-40.0	-17.7	23.5	41.2	0	Reading(10 m) is Floor Noise *1)	
0.6475	38.5	NS	19.5	6.1	32.3	-40.0	-8.2	23.5	31.7	0	Reading(10 m) is Floor Noise *1)	
0.7770	32.5	NS	19.5	6.2	32.3	-40.0	-14.2	23.5	37.7	0	Reading(10 m) is Floor Noise *1)	
0.9065	31.8	NS	19.5	6.2	32.3	-40.0	-14.8	23.5	38.3	0	Reading(10 m) is Floor Noise *1)	
1.0360	25.8	NS	19.5	6.2	32.3	-40.0	-20.8	23.5	44.3	0	Reading(10 m) is Floor Noise *1)	
1.1655	27.9	NS	19.5	6.2	32.3	-40.0	-18.7	25.5	44.2	0	Reading(10 m) is Floor Noise *1)	
1.2950	25.5	NS	19.6	6.2	32.3	-40.0	-21.0	23.5	44.5	0	Reading(10 m) is Floor Noise *1)	

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3 m) / Separate distance(300 m))
 decade = (10 m reading - 3 m reading) / (log 3 m - log 10 m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

10 m Reading of Extrapolation Factor is used the value of 0 deg.
 Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 2, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Masaya Minami (Below 30 MHz)
Mode	Mode 4

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	Atten + Cable loss [dB]	AMP Gain [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna [deg]	Remarks
0.1246	90.8	63.6	19.2	6.0	32.3	-104.0	-20.3	23.5	43.8	0	
0.1246	89.4	63.0	19.2	6.0	32.3	-101.0	-18.6	23.5	42.1	45	
0.1246	88.2	62.9	19.2	6.0	32.3	-96.8	-15.6	23.5	39.1	90	
0.1246	89.8	63.4	19.2	6.0	32.3	-101.0	-18.2	23.5	41.7	135	
0.1246	90.6	63.5	19.2	6.0	32.3	-103.7	-20.1	23.5	43.6	180	
0.1246	90.0	55.5	19.2	6.0	32.3	-132.0	-49.0	23.5	72.5	Horizontal	
0.2492	47.2	NS	19.4	6.0	32.3	-40.0	0.4	23.5	23.1	0	Reading(10 m) is Floor Noise *1)
0.3738	58.9	33.4	19.5	6.1	32.3	-97.5	-45.3	23.5	68.8	0	
0.4984	35.8	NS	19.5	6.1	32.3	-40.0	-10.9	23.5	34.4	0	Reading(10 m) is Floor Noise *1)
0.6230	50.4	28.4	19.5	6.1	32.3	-84.1	-40.4	23.5	63.9	0	
0.7476	29.9	NS	19.5	6.1	32.3	-40.0	-16.8	23.5	40.3	0	Reading(10 m) is Floor Noise *1)
0.8722	44.1	NS	19.5	6.2	32.3	-40.0	-2.5	23.5	26.0	0	Reading(10 m) is Floor Noise *1)
0.9968	27.2	NS	19.5	6.2	32.3	-40.0	-19.4	23.5	42.9	0	Reading(10 m) is Floor Noise *1)
1.1214	40.1	NS	19.5	6.2	32.3	-40.0	-6.5	25.5	32.0	0	Reading(10 m) is Floor Noise *1)
1.2460	26.3	NS	19.6	6.2	32.3	-40.0	-20.2	23.5	43.7	0	Reading(10 m) is Floor Noise *1)

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3 m) / Separate distance(300 m))
 decade = (10 m reading - 3 m reading) / (log 3 m - log 10 m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

10 m Reading of Extrapolation Factor is used the value of 0 deg.
 Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 2, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Masaya Minami (Below 30 MHz)
Mode	Mode 5

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	Atten + Cable loss [dB]	AMP Gain [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna [deg]	Remarks
0.1278	89.9	63.4	19.2	6.0	32.3	-101.4	-18.5	23.5	42.0	0	
0.1278	88.5	62.5	19.2	6.0	32.3	-99.4	-18.0	23.5	41.5	45	
0.1278	87.0	62.3	19.2	6.0	32.3	-94.5	-14.5	23.5	38.0	90	
0.1278	88.8	62.9	19.2	6.0	32.3	-99.1	-17.3	23.5	40.8	135	
0.1278	89.7	63.1	19.2	6.0	32.3	-101.7	-19.1	23.5	42.6	180	
0.1278	87.5	54.4	19.2	6.0	32.3	-126.6	-46.2	23.5	69.7	Horizontal	
0.2556	48.8	NS	19.5	6.0	32.3	-40.0	2.0	23.5	21.5	0	Reading(10 m) is Floor Noise *1)
0.3834	59.8	32.8	19.5	6.1	32.3	-103.3	-50.2	23.5	73.7	0	
0.5112	36.6	NS	19.5	6.1	32.3	-40.0	-10.1	23.5	33.6	0	Reading(10 m) is Floor Noise *1)
0.6390	50.6	28.2	19.5	6.1	32.3	-85.7	-41.7	23.5	65.2	0	
0.7668	29.6	NS	19.5	6.2	32.3	-40.0	-17.1	23.5	40.6	0	Reading(10 m) is Floor Noise *1)
0.8946	44.1	NS	19.5	6.2	32.3	-40.0	-2.5	23.5	26.0	0	Reading(10 m) is Floor Noise *1)
1.0224	27.5	NS	19.5	6.2	32.3	-40.0	-19.1	23.5	42.6	0	Reading(10 m) is Floor Noise *1)
1.1502	40.0	NS	19.5	6.2	32.3	-40.0	-6.6	25.5	32.1	0	Reading(10 m) is Floor Noise *1)
1.2780	26.5	NS	19.6	6.2	32.3	-40.0	-20.0	23.5	43.5	0	Reading(10 m) is Floor Noise *1)

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3 m) / Separate distance(300 m))
 decade = (10 m reading - 3 m reading) / (log 3 m - log 10 m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

10 m Reading of Extrapolation Factor is used the value of 0 deg.
 Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 2, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Masaya Minami (Below 30 MHz)
Mode	Mode 6

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	Atten + Cable loss [dB]	AMP Gain [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna [deg]	Remarks
0.1295	89.6	62.6	19.2	6.0	32.3	-103.3	-20.7	23.5	44.2	0	
0.1295	88.5	62.0	19.2	6.0	32.3	-101.4	-19.9	23.5	43.4	45	
0.1295	86.7	61.6	19.2	6.0	32.3	-96.0	-16.3	23.5	39.8	90	
0.1295	88.6	62.4	19.2	6.0	32.3	-100.2	-18.7	23.5	42.2	135	
0.1295	86.7	62.4	19.2	6.0	32.3	-92.9	-13.3	23.5	36.8	180	
0.1295	87.3	54.4	19.2	6.0	32.3	-125.8	-45.6	23.5	69.1	Horizontal	
0.2590	48.2	NS	19.5	6.0	32.3	-40.0	1.4	23.5	22.1	0	Reading(10 m) is Floor Noise *1)
0.3885	59.8	34.0	19.5	6.1	32.3	-98.7	-45.6	23.5	69.1	0	
0.5180	36.3	NS	19.5	6.1	32.3	-40.0	-10.4	23.5	33.9	0	Reading(10 m) is Floor Noise *1)
0.6475	50.7	28.1	19.5	6.1	32.3	-86.4	-42.4	23.5	65.9	0	
0.7770	36.7	NS	19.5	6.2	32.3	-40.0	-10.0	23.5	33.5	0	Reading(10 m) is Floor Noise *1)
0.9065	44.1	NS	19.5	6.2	32.3	-40.0	-2.5	23.5	26.0	0	Reading(10 m) is Floor Noise *1)
1.0360	27.9	NS	19.5	6.2	32.3	-40.0	-18.7	23.5	42.2	0	Reading(10 m) is Floor Noise *1)
1.1655	40.0	NS	19.5	6.2	32.3	-40.0	-6.6	25.5	32.1	0	Reading(10 m) is Floor Noise *1)
1.2950	26.8	NS	19.6	6.2	32.3	-40.0	-19.7	23.5	43.2	0	Reading(10 m) is Floor Noise *1)

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3 m) / Separate distance(300 m))
 decade = (10 m reading - 3 m reading) / (log 3 m - log 10 m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

10 m Reading of Extrapolation Factor is used the value of 0 deg.
 Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2024
Temperature / Humidity	20 deg. C / 32 % RH
Engineer	Junki Nagatomi
	(Above 30 MHz)
Mode	Mode 1

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna Polarization	Remarks
48.002	21.2	NS	11.8	38.9	7.6	-40.0	-38.3	23.5	61.8	Horizontal	Reading(10 m) is Floor Noise *1)
49.991	22.1	NS	11.1	38.9	7.7	-40.0	-38.1	23.5	61.6	Horizontal	Reading(10 m) is Floor Noise *1)
88.011	24.2	21.5	8.2	38.9	8.3	-10.3	-8.6	23.5	32.1	Horizontal	
98.325	29.4	28.5	9.8	38.9	8.4	-3.4	5.2	23.5	18.3	Horizontal	
118.005	21.8	NS	12.5	39.0	8.7	-40.0	-36.0	23.5	59.6	Horizontal	Reading(10 m) is Floor Noise *1)
120.012	21.4	NS	12.7	39.0	8.7	-40.0	-36.2	23.5	59.7	Horizontal	Reading(10 m) is Floor Noise *1)
48.003	39.8	31.5	11.8	38.9	7.6	-31.7	-11.4	23.5	35.0	Vertical	
50.002	38.4	27.8	11.1	38.9	7.7	-40.5	-22.3	23.5	45.8	Vertical	
58.965	36.9	31.5	8.0	38.9	7.8	-20.7	-6.8	23.5	30.4	Vertical	
88.335	38.9	29.9	8.2	38.9	8.3	-34.4	-17.9	23.5	41.5	Vertical	
118.005	33.9	22.6	12.5	39.0	8.7	-43.2	-27.2	23.5	50.7	Vertical	
120.003	34.3	24.6	12.7	39.0	8.7	-37.1	-20.4	23.5	43.9	Vertical	

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
 decade = (10m reading - 3m reading) / (log 3m - log 10m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2024
Temperature / Humidity	20 deg. C / 32 % RH
Engineer	Junki Nagatomi (Above 30 MHz)
Mode	Mode 2

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna Polarization	Remarks
48.002	21.2	NS	11.8	38.9	7.6	-40.0	-38.3	23.5	61.8	Horizontal	Reading(10 m) is Floor Noise *1)
49.991	22.1	NS	11.1	38.9	7.7	-40.0	-38.1	23.5	61.6	Horizontal	Reading(10 m) is Floor Noise *1)
88.012	25.2	22.5	8.2	38.9	8.3	-10.3	-7.6	23.5	31.1	Horizontal	
98.313	28.4	29.1	9.8	38.9	8.4	2.7	10.3	23.5	13.2	Horizontal	
118.005	21.8	NS	12.5	39.0	8.7	-40.0	-36.0	23.5	59.6	Horizontal	Reading(10 m) is Floor Noise *1)
120.012	21.4	NS	12.7	39.0	8.7	-40.0	-36.2	23.5	59.7	Horizontal	Reading(10 m) is Floor Noise *1)
48.001	40.8	30.0	11.8	38.9	7.6	-41.3	-20.0	23.5	43.5	Vertical	
50.003	36.0	26.7	11.1	38.9	7.7	-35.6	-19.8	23.5	43.3	Vertical	
58.965	40.5	27.6	8.0	38.9	7.8	-49.3	-31.9	23.5	55.4	Vertical	
88.658	40.2	31.8	8.3	38.9	8.3	-32.1	-14.3	23.5	37.8	Vertical	
117.998	29.0	23.7	12.5	39.0	8.7	-20.3	-9.1	23.5	32.6	Vertical	
120.002	32.8	26.3	12.7	39.0	8.7	-24.9	-9.7	23.5	33.2	Vertical	

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
 decade = (10m reading - 3m reading) / (log 3m - log 10m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2024
Temperature / Humidity	20 deg. C / 32 % RH
Engineer	Junki Nagatomi (Above 30 MHz)
Mode	Mode 3

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna Polarization	Remarks
48.001	21.2	NS	11.8	38.9	7.6	-40.0	-38.3	23.5	61.8	Horizontal	Reading(10 m) is Floor Noise *1)
49.999	22.1	NS	11.1	38.9	7.7	-40.0	-38.1	23.5	61.6	Horizontal	Reading(10 m) is Floor Noise *1)
88.011	24.2	22.6	8.2	38.9	8.3	-6.1	-4.4	23.5	27.9	Horizontal	
98.312	28.7	28.5	9.8	38.9	8.4	-0.8	7.2	23.5	16.3	Horizontal	
118.006	21.8	NS	12.5	39.0	8.7	-40.0	-36.0	23.5	59.6	Horizontal	Reading(10 m) is Floor Noise *1)
120.022	21.4	NS	12.7	39.0	8.7	-40.0	-36.2	23.5	59.7	Horizontal	Reading(10 m) is Floor Noise *1)
48.002	40.1	30.0	11.8	38.9	7.6	-38.6	-18.0	23.5	41.5	Vertical	
50.011	38.2	26.7	11.1	38.9	7.7	-44.0	-26.0	23.5	49.5	Vertical	
58.966	36.9	28.1	8.0	38.9	7.8	-33.7	-19.8	23.5	43.4	Vertical	
88.008	42.4	35.8	8.2	38.9	8.3	-25.2	-5.3	23.5	28.8	Vertical	
118.014	33.9	23.7	12.5	39.0	8.7	-39.0	-23.0	23.5	46.5	Vertical	
120.003	33.4	25.4	12.7	39.0	8.7	-30.6	-14.8	23.5	38.3	Vertical	

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
 decade = (10m reading - 3m reading) / (log 3m - log 10m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 4, 2024
Temperature / Humidity	20 deg. C / 45 % RH
Engineer	Masaya Minami (Above 30 MHz)
Mode	Mode 4

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna Polarization	Remarks
30.522	22.8	NS	18.4	38.9	7.3	-40.0	-30.4	23.5	53.9	Horizontal	Reading(10 m) is Floor Noise *1)
97.890	31.7	NS	9.7	38.9	8.4	-40.0	-29.1	23.5	52.7	Horizontal	Reading(10 m) is Floor Noise *1)
112.227	38.5	27.7	11.8	39.0	8.6	-41.3	-21.4	23.5	44.9	Horizontal	
123.089	28.2	NS	13.0	39.0	8.7	-40.0	-29.0	23.5	52.6	Horizontal	Reading(10 m) is Floor Noise *1)
187.210	31.6	NS	16.3	39.0	9.4	-40.0	-21.6	23.5	45.2	Horizontal	Reading(10 m) is Floor Noise *1)
213.968	24.6	NS	11.3	38.9	9.7	-40.0	-33.4	23.5	56.9	Horizontal	Reading(10 m) is Floor Noise *1)
30.522	38.4	29.9	18.4	38.9	7.3	-32.4	-7.3	23.5	30.8	Vertical	
97.890	32.1	26.1	9.7	38.9	8.4	-22.9	-11.7	23.5	35.2	Vertical	
112.227	41.6	32.3	11.8	39.0	8.6	-35.6	-12.6	23.5	36.1	Vertical	
123.089	29.6	25.1	13.0	39.0	8.7	-17.2	-4.8	23.5	28.4	Vertical	
187.210	29.9	23.1	16.3	39.0	9.4	-26.0	-9.3	23.5	32.9	Vertical	
213.968	24.5	NS	11.3	38.9	9.7	-40.0	-33.5	23.5	57.0	Vertical	Reading(10 m) is Floor Noise *1)

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
 decade = (10m reading - 3m reading) / (log 3m - log 10m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 4, 2024
Temperature / Humidity	20 deg. C / 45 % RH
Engineer	Masaya Minami (Above 30 MHz)
Mode	Mode 5

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna Polarization	Remarks
30.685	23.2	NS	18.3	38.9	7.3	-40.0	-30.1	23.5	53.6	Horizontal	Reading(10 m) is Floor Noise *1)
95.348	34.6	24.2	9.3	38.9	8.4	-39.8	-26.4	23.5	49.9	Horizontal	
112.876	40.6	27.6	11.8	39.0	8.6	-49.7	-27.7	23.5	51.2	Horizontal	
121.814	28.8	22.7	12.9	39.0	8.7	-23.3	-11.9	23.5	35.5	Horizontal	
187.910	35.3	25.0	16.3	39.0	9.4	-39.5	-17.4	23.5	40.9	Horizontal	
213.968	24.4	NS	11.3	38.9	9.7	-40.0	-33.6	23.5	57.1	Horizontal	Reading(10 m) is Floor Noise *1)
30.685	39.9	31.2	18.3	38.9	7.3	-33.3	-6.7	23.5	30.2	Vertical	
95.348	31.2	25.9	9.3	38.9	8.4	-20.3	-10.3	23.5	33.8	Vertical	
112.876	39.6	30.1	11.8	39.0	8.6	-36.3	-15.3	23.5	38.8	Vertical	
121.814	30.9	24.5	12.9	39.0	8.7	-24.5	-11.0	23.5	34.5	Vertical	
187.910	32.9	26.6	16.3	39.0	9.4	-24.1	-4.4	23.5	27.9	Vertical	
213.968	24.5	NS	11.3	38.9	9.7	-40.0	-33.5	23.5	57.0	Vertical	Reading(10 m) is Floor Noise *1)

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
 decade = (10m reading - 3m reading) / (log 3m - log 10m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 4, 2024
Temperature / Humidity	20 deg. C / 45 % RH
Engineer	Masaya Minami (Above 30 MHz)
Mode	Mode 6

FREQ [MHz]	Reading (3 m) [dBμV]	Reading (10 m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna Polarization	Remarks
30.213	23.5	NS	18.5	38.9	7.3	-40.0	-29.6	23.5	53.1	Horizontal	Reading(10 m) is Floor Noise *1)
97.950	35.1	31.7	9.7	38.9	8.4	-13.0	1.3	23.5	22.2	Horizontal	
112.234	40.3	28.8	11.8	39.0	8.6	-44.0	-22.3	23.5	45.8	Horizontal	
123.413	29.1	22.9	13.1	39.0	8.7	-23.7	-11.8	23.5	35.3	Horizontal	
187.870	35.5	31.6	16.3	39.0	9.4	-14.9	7.4	23.5	16.1	Horizontal	
213.968	23.6	NS	11.3	38.9	9.7	-40.0	-34.4	23.5	57.9	Horizontal	Reading(10 m) is Floor Noise *1)
30.213	38.7	30.9	18.5	38.9	7.3	-29.8	-4.2	23.5	27.8	Vertical	
97.950	32.3	23.6	9.7	38.9	8.4	-33.3	-21.8	23.5	45.3	Vertical	
112.234	40.1	30.5	11.8	39.0	8.6	-36.7	-15.2	23.5	38.8	Vertical	
123.413	32.4	29.6	13.1	39.0	8.7	-10.7	4.5	23.5	19.0	Vertical	
187.870	33.5	29.9	16.3	39.0	9.4	-13.8	6.5	23.5	17.0	Vertical	
213.968	23.6	NS	11.3	38.9	9.7	-40.0	-34.4	23.5	57.9	Vertical	Reading(10 m) is Floor Noise *1)

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
 Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
 decade = (10m reading - 3m reading) / (log 3m - log 10m)

*1) Used for the square of an inverse linear distance extrapolation factor (20 dB/decade)
 Except for the above table : adequate margin data below the limits.

Worst direction of EUT was decided by test result performed on test distance at 3 m, and test distance at 10 m was performed worst direction.

APPENDIX 2: Test Instruments

Test equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	141198	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+ BBA9106	2513	07/10/2024	12
RE	141213	Attenuator (6dB)	Weinschel Corp	2	BK7971	11/11/2024	12
RE	141215	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W/3D-2W/ RG400u/ RFM-E421(SW)	-/ 01068(Switcher)	06/24/2024	12
RE	141265	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-190	07/10/2024	12
RE	141266	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-191	08/23/2024	12
RE	141350	Coaxial Cable	Suhner/storm/Agilent/TSJ	-	-	03/05/2024	12
RE	141530	Digital Tester	Fluke Corporation	FLUKE 26-3	78030621	02/01/2024	12
RE	141568	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	2901	01/10/2024	12
RE	141582	Pre Amplifier	SONOMA INSTRUMENT	310	260834	02/17/2024	12
RE	141585	Pre Amplifier	L3 Narda-MITEQ	MLA-10K01-B01-35	1237616	02/17/2024	12
RE	141949	Test Receiver	Rohde & Schwarz	ESCI	100767	06/05/2024	12
RE	141950	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	11/28/2024	12
RE	141951	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	05/17/2024	12
RE	141998	AC1_Semi Anechoic Chamber (NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	12/06/2023	24
RE	142226	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-
RE	146613	Loop Antenna	Rohde & Schwarz	HFH2-Z2	842906/011	09/02/2024	12
RE	159670	Coaxial Cable	UL-ISE	-	-	11/11/2024	12
RE	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	159670	Coaxial Cable	UL-ISE	-	-	11/11/2024	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