

EMI TEST REPORT

Test Report No. 16415658H-B

Customer	ALPS ALPINE CO., LTD.
Description of EUT	DK ECU
Model Number of EUT	T1AEB0001
FCC ID	CWT1AEB0001
Test Regulation	FCC Part 15 Subpart B
Test Result	Complied
Issue Date	October 8, 2026
Remarks	-

Representative test engineerHiroki Numata
Engineer**Approved by**Shinichi Miyazono
Test report signatory

CERTIFICATE 5107.02

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

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- For any test report referred in this report, the latest version (including any revisions) is always referred to.
- If the latest version is a revision, it replaces the previous version. See the table below for revisions and versions.

REVISION HISTORY

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	16415658H-B	October 8, 2026	-

Reference: Abbreviations (Including words undescribed in this report)

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

CONTENTS	PAGE
SECTION 1: Customer information	5
SECTION 2: Equipment under test (EUT)	5
SECTION 3: Test Summary	6
SECTION 4: Operation of EUT during testing	9
SECTION 5: Radiated Emission	12
APPENDIX 1: Test data	14
Radiated Emission	14
APPENDIX 2: Test instruments	24
APPENDIX 3: Photographs of test setup.....	25
Radiated Emission	25
Worst Case Position	29

SECTION 1: Customer information

Company Name	ALPS ALPINE CO., LTD.
Address	6-3-36, Furukawanakazato, Osaki-City, Miyagi Pref., Japan
Telephone Number	+81-229-23-5111
Contact Person	Yuji Ouchi

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	DK ECU
Model Number	T1AEB0001
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	July 8, 2026
Test Date	September 6 and 27, 2026

2.2 Product Description

General Specification

Rating	DC 12.0 V
Clock frequency (ies) in the system	240 MHz

Radio Specification

LF

Equipment Type	Transmitter
Frequency of Operation	125 kHz
Type of Modulation	ASK

UHF

Equipment Type	Receiver
Frequency of Operation	433.92 MHz

SECTION 3: Test Summary

3.1 Test Specification

Test Specification	FCC Part 15 Subpart B The latest version on the first day of the testing period
Title	FCC 47CFR Part15 Radio Frequency Device Subpart B Unintentional Radiators

3.2 Reference Standards

ANSI/USEMCSC C63.2-2023
ANSI C63.4-2014+C63.4a-2017
ANSI C63.5-2017
ANSI C63.25.1-2018

3.3 Summary of Test Results

Item	Limits	Result	Remarks
Conducted emission	FCC: Part 15 Subpart B 15.107(a)	N/A	*1)
Radiated emission	FCC: Part 15 Subpart B 15.109(a)	Complied	-
Antenna Terminal	FCC: Part 15 Subpart B 15.111(a)	N/A	*2)
* 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. *2) The receiving antenna (of this EUT) is installed inside the EUT and cannot be removed (permanently attached). Therefore, Radiated emission test was performed.			

3.4 Addition to standard

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

3.5 Uncertainty

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

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

Radiated emission

Measurement distance	Frequency range		Unit	Calculated Uncertainty (+/-)
3 m	9 kHz to 30 MHz		dB	4.8
	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	9 kHz to 30 MHz		dB	4.7
	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 m	1 GHz to 6 GHz		dB	5.1
	6 GHz to 18 GHz		dB	5.4
1 m	10 GHz to 18 GHz		dB	5.4
	18 GHz to 26.5 GHz		dB	5.3
	26.5 GHz to 40 GHz		dB	4.8
0.5 m	26.5 GHz to 40 GHz		dB	5.0

3.6 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 (SAC1)	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 (SAC2)	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber (SAC3)	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room (PR3)	3 m
No.3 shielded room (SR3)	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber (SAC4)	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room (PR4)	3 m
No.4 shielded room (SR4)	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber (SAC5)	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.5 measurement room (MR5)	6.4 x 6.4 x 3.0	6.4 x 6.4	-	-
No.6 shielded room (SR6)	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room (MR6)	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room (SR7)	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room (MR8)	3.1 x 5.0 x 2.7	3.1 x 5.0	-	-
No.9 measurement room (MR9)	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.10 shielded room (SR10)	3.8 x 2.8 x 2.8	3.8 x 2.8	-	-
No.11 measurement room (MR11)	4.0 x 3.4 x 2.5	N/A	-	-
No.12 measurement room (MR12)	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	-	-

3.7 Test data, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

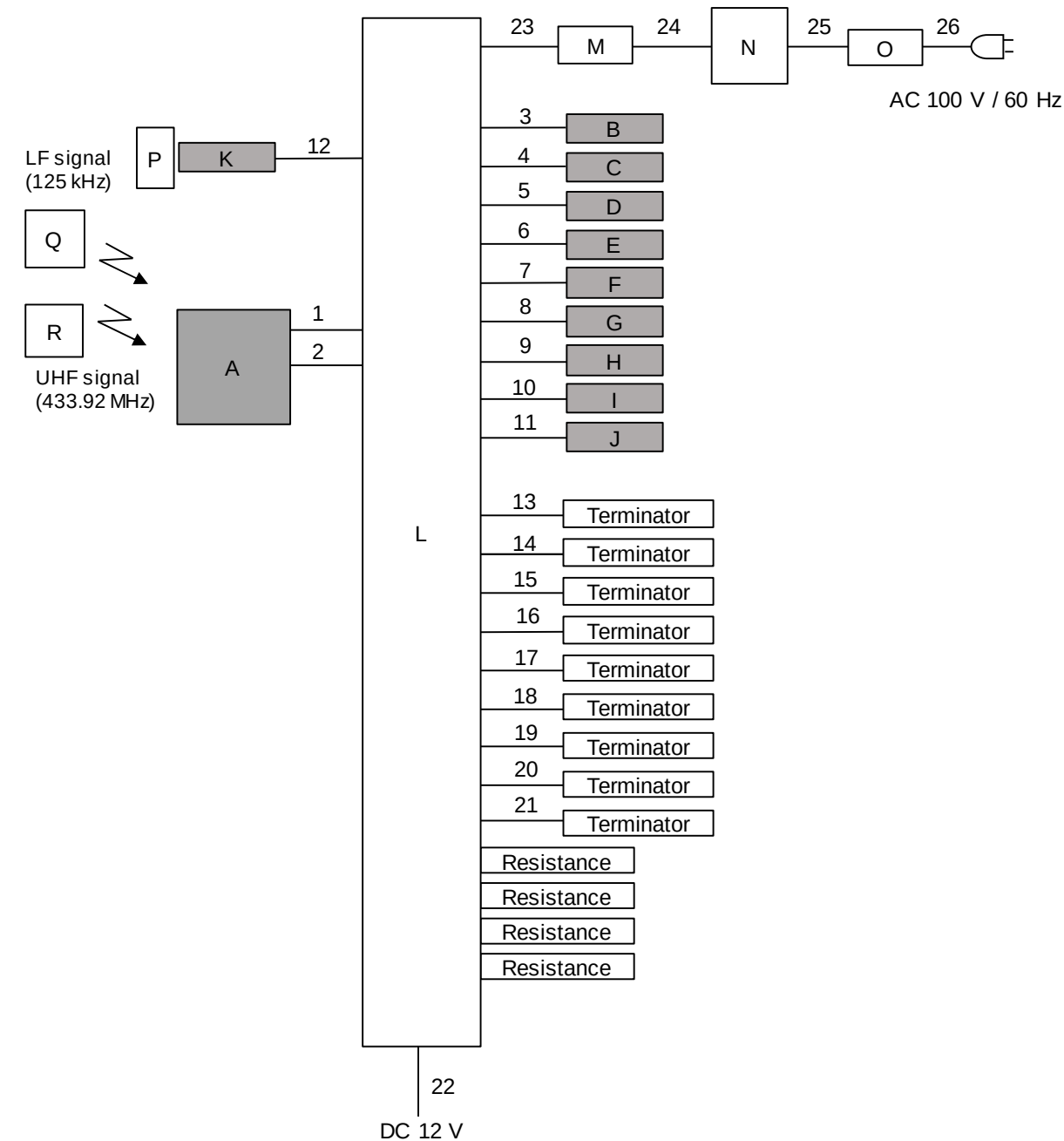
4.1 Operating Mode(s)

Mode	1. TPMS Receiving mode 2. Immobilizer Communication mode 3. Welcome mode (High Output) 4. LF Transmitting + RF Receiving mode 5. LF Transmitting + RF Receiving mode for including FR AS ANT (34A-ANT))
Software(s)	M26EntryPreDvApp Ver1.12.1

*The test signal level was confirmed to be sufficient to stabilize the local oscillator of the EUT.

* It was confirmed by using checker that the EUT receives the signal from the transmitter (pair of EUT).

4.2 Configuration and peripherals



*Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.
*Item No. A includes Receiver Antenna.
*The system configuration for Item H (34A-ANT) normally consists of seven LF antennas. However, because the system was unable to operate with seven LF antennas connected, testing was performed using a nine-LF-antenna configuration. The output characteristics of each LF antenna are identical for the seven-antenna and nine-antenna configurations.

Description of EUT and Support Equipment

No.	Item	Model Number	Serial Number	Manufacturer	Remarks
A	DK ECU	T1AEB0001	FA11 No 072 *1) FA11 No 074 *2) *7)	ALPS ALPINE CO., LTD.	EUT
B	LF ANT (F)	A0_prototype	ANT BOARD No.1	SUMIDA CORPORATION	EUT
C	LF ANT (C)	T0_prototype	ANT BOARD No.1	SUMIDA CORPORATION	EUT
D	LF ANT (B)	T0_prototype	ANT BOARD No.1	SUMIDA CORPORATION	EUT
E	LF ANT (TI)	T0_prototype	ANT BOARD No.1	SUMIDA CORPORATION	EUT
F	LF ANT (RES)	T0_prototype	ANT BOARD No.1	SUMIDA CORPORATION	EUT
G	LF ANT (FRDR)	T0_prototype	ANT BOARD No.1	SUMIDA CORPORATION	EUT
H	LF ANT (FRAS)	T0_prototype	ANT BOARD No.1	SUMIDA CORPORATION	EUT *6)
	LF ANT (FRAS)	34A-ANT	No.1	SUMIDA CORPORATION	EUT *7)
I	LF ANT (RRDR)	T0_prototype	ANT BOARD No.1	SUMIDA CORPORATION	EUT
J	LF ANT (RRAS)	T0_prototype	ANT BOARD No.1	SUMIDA CORPORATION	EUT
K	Immobi Antenna	4SW29265	No.3	TOYODENSO	EUT
L	CHECKER BOX	Ver.3-2	No.8	ALPS ALPINE CO., LTD.	-
M	CAN/LIN Interface	VN1630A	No.406	Vector Informatik GmbH	-
N	Laptop PC	PC-VKT13HZG4	94036721A	NEC Corporation	-
O	AC Adapter	ADLX45YCC2C	8SSA10E75842C1G9 2GG2SA	NEC Corporation	-
P	Electrical Key	72147-3MA	No.1	ALPS ALPINE CO., LTD.	*3)
Q	Electrical Key	72147 TZA-H0	No.2	ALPS ALPINE CO., LTD.	*4)
R	Electrical Key	72147 3DC-Z0	No.2	ALPS ALPINE CO., LTD.	*5)

List of Cables Used

No.	Name	Length (m)	Shield Cable	Connector	Remarks
1	DC & Signal Cable	2.4	Unshielded	Unshielded	-
2	DC & Signal Cable	4.0	Unshielded	Unshielded	-
3	Antenna Cable	1.3	Unshielded	Unshielded	-
4	Antenna Cable	1.3	Unshielded	Unshielded	-
5	Antenna Cable	1.3	Unshielded	Unshielded	-
6	Antenna Cable	1.3	Unshielded	Unshielded	-
7	Antenna Cable	1.3	Unshielded	Unshielded	-
8	Antenna Cable	1.3	Unshielded	Unshielded	-
9	Antenna Cable	1.3	Unshielded	Unshielded	*6)
	Antenna Cable	2.4	Unshielded	Unshielded	*7)
10	Antenna Cable	1.3	Unshielded	Unshielded	-
11	Antenna Cable	1.3	Unshielded	Unshielded	-
12	Antenna Cable	0.3	Unshielded	Unshielded	-
13	Signal Cable	1.2	Unshielded	Unshielded	-
14	Signal Cable	1.2	Unshielded	Unshielded	-
15	Signal Cable	1.4	Unshielded	Unshielded	-
16	Signal Cable	1.6	Unshielded	Unshielded	-
17	Signal Cable	1.8	Unshielded	Unshielded	-
18	Signal Cable	1.8	Unshielded	Unshielded	-
19	Signal Cable	2.6	Unshielded	Unshielded	-
20	Signal Cable	2.6	Unshielded	Unshielded	-
21	Signal Cable	2.6	Unshielded	Unshielded	-
22	DC Cable	2.0	Unshielded	Unshielded	-
23	RS232C Cable	0.9	Shielded	Shielded	-
24	USB Cable	1.7	Shielded	Shielded	-
25	DC Cable	1.8	Unshielded	Unshielded	-
26	AC Cable	0.9	Unshielded	Unshielded	-

- *1) Used for Mode 1 to 3
*2) Used for Mode 4
*3) Used for Mode 2
*4) Used for Mode 1
*5) Used for Mode 4
*6) Used for Mode 1 to 4
*7) Used for Mode 5

SECTION 5: Radiated Emission

5.1. Operating environment

Date	Test site	Temperature	Humidity	Engineer	Mode
See data	See data	See data	See data	See data	See data

5.2. Test configuration

EUT was placed on the 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 platform.

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.

5.3. Test conditions

Frequency range : 30 MHz to 200 MHz (Biconical antenna)
200 MHz to 1000 MHz (Logperiodic antenna)
1000 MHz to 3000 MHz (Horn antenna)

Test distance : See Figure 1

EUT position : Table top

EUT operation mode : See Clause 4.1

5.4. Test procedure

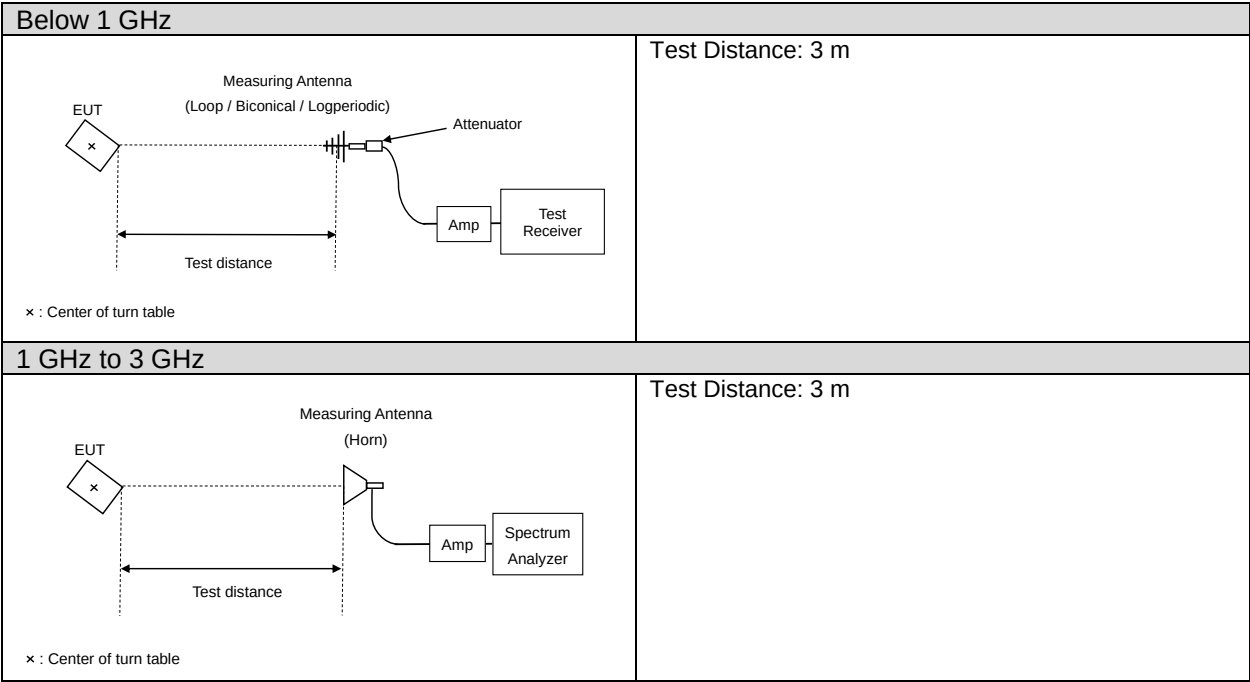
The height of the measuring antenna varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

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.

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

Figure 1: Test Setup



The noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at representative X-axis since no difference was found among each position.

5.5. Test result

Summary of the test results: Pass

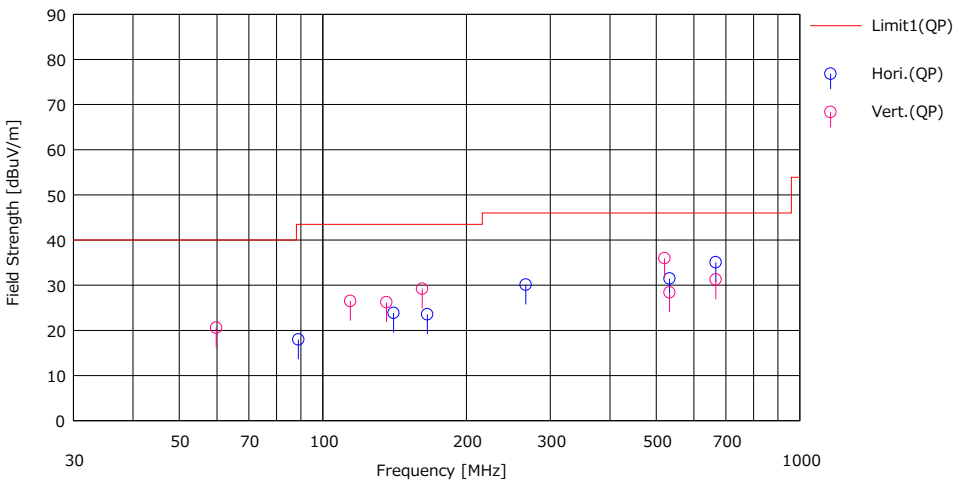
Test results are rounded off and limit are rounded down, so some differences might be observed.

APPENDIX 1: Test data

Radiated Emission

Mode	1				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 6, 2026	SAC1	23 deg. C	61 % RH	Hiroki Numata	Below 1 GHz

Limit : FCC_Part 15 Subpart B(15.109)_Class B



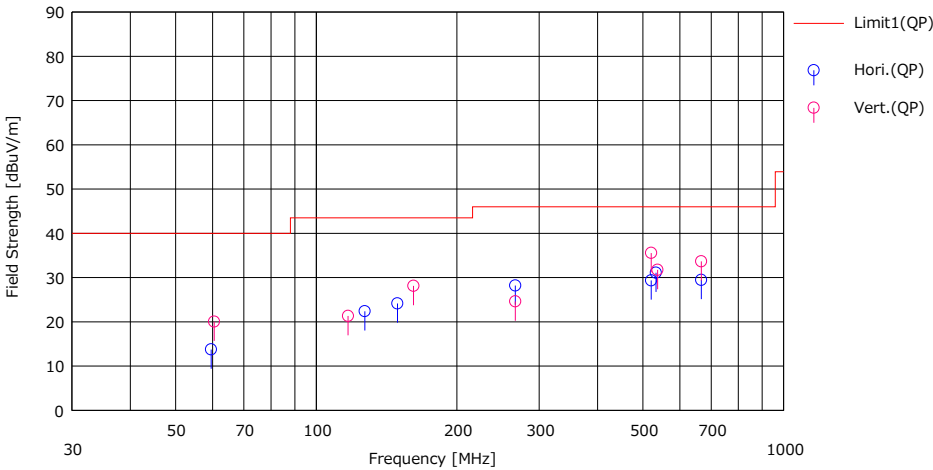
No.	Freq. [MHz]	Reading <QP> [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result <QP> [dBuV/m]	Limit <QP> [dBuV/m]	Margin <QP> [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	88.896	40.50	8.25	8.26	39.05	17.96	43.50	25.54	Hori.	198	359	BA	
2	140.744	39.80	14.26	8.92	39.11	23.87	43.50	19.63	Hori.	191	271	BA	
3	165.629	37.80	15.68	9.19	39.11	23.56	43.50	19.94	Hori.	189	253	BA	
4	266.406	46.20	12.72	10.16	38.97	30.11	46.00	15.89	Hori.	150	167	LA	
5	533.322	40.20	17.69	12.12	38.52	31.49	46.00	14.51	Hori.	100	157	LA	
6	666.653	41.10	19.46	12.93	38.42	35.07	46.00	10.93	Hori.	145	282	LA	
7	59.807	43.80	8.01	7.81	39.03	20.59	40.00	19.41	Vert.	118	244	BA	
8	114.184	44.60	12.40	8.59	39.08	26.51	43.50	16.99	Vert.	110	202	BA	
9	136.000	42.50	13.97	8.86	39.10	26.23	43.50	17.27	Vert.	100	5	BA	
10	161.557	43.70	15.48	9.15	39.11	29.22	43.50	14.28	Vert.	100	243	BA	
11	520.615	44.60	17.86	12.04	38.54	35.96	46.00	10.04	Vert.	100	179	LA	
12	533.322	37.10	17.69	12.12	38.52	28.39	46.00	17.61	Vert.	119	67	LA	
13	666.653	37.30	19.46	12.93	38.42	31.27	46.00	14.73	Vert.	172	209	LA	

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

Mode	2				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 6, 2026	SAC1	23 deg. C	61 % RH	Junki Nagatomi	Below 1 GHz

Limit : FCC_Part 15 Subpart B(15.109)_Class B



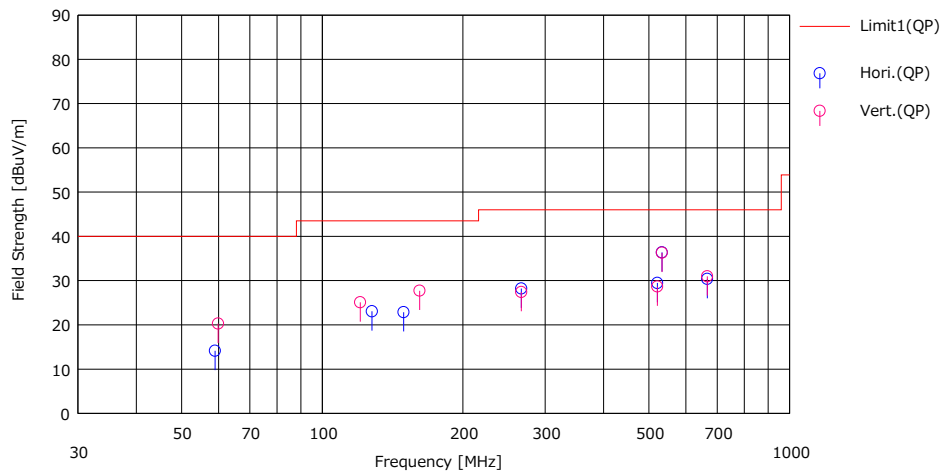
No.	Freq. [MHz]	Reading <QP> [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result <QP> [dBuV/m]	Limit <QP> [dBuV/m]	Margin <QP> [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]		
1	59.583	36.90	8.08	7.80	39.03	13.75	40.00	26.25	Hori	338	155	BA	
2	127.017	39.30	13.43	8.74	39.09	22.38	43.50	21.12	Hori	151	96	BA	
3	149.171	39.50	14.75	9.02	39.12	24.15	43.50	19.35	Hori	209	256	BA	
4	266.660	44.30	12.71	10.16	38.97	28.20	46.00	17.80	Hori	100	180	LA	
5	521.052	38.00	17.85	12.04	38.54	29.35	46.00	16.65	Hori	118	152	LA	
6	533.311	39.80	17.69	12.12	38.52	31.09	46.00	14.91	Hori	100	339	LA	
7	666.664	35.50	19.46	12.93	38.42	29.47	46.00	16.53	Hori	100	188	LA	
8	60.491	43.40	7.84	7.82	39.03	20.03	40.00	19.97	Vert.	100	280	BA	
9	117.004	39.10	12.68	8.62	39.08	21.32	43.50	22.18	Vert.	100	172	BA	
10	161.492	42.60	15.47	9.15	39.11	28.11	43.50	15.39	Vert.	100	248	BA	
11	266.668	40.70	12.71	10.17	38.97	24.61	46.00	21.39	Vert.	156	232	LA	
12	521.051	44.20	17.85	12.04	38.54	35.55	46.00	10.45	Vert.	100	184	LA	
13	537.376	40.50	17.60	12.14	38.51	31.73	46.00	14.27	Vert.	100	177	LA	
14	666.653	39.70	19.46	12.93	38.42	33.67	46.00	12.33	Vert.	100	131	LA	

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

Mode	3				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 6, 2026	SAC1	23 deg. C	61 % RH	Junki Nagatomi	Below 1 GHz

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	58.944	37.10	8.28	7.79	39.03	14.14	40.00	25.86	Hori.	326	282	BA	
2	127.753	39.90	13.49	8.75	39.09	23.05	43.50	20.45	Hori.	151	102	BA	
3	149.344	38.20	14.77	9.02	39.12	22.87	43.50	20.63	Hori.	211	255	BA	
4	266.660	44.30	12.71	10.16	38.97	28.20	46.00	17.80	Hori.	100	180	LA	
5	521.233	38.10	17.85	12.04	38.54	29.45	46.00	16.55	Hori.	127	167	LA	
6	533.319	45.10	17.69	12.12	38.52	36.39	46.00	9.61	Hori.	100	358	LA	
7	666.645	36.40	19.46	12.93	38.42	30.37	46.00	15.63	Hori.	100	187	LA	
8	59.875	43.50	7.99	7.81	39.03	20.27	40.00	19.73	Vert.	100	273	BA	
9	120.577	42.50	12.99	8.67	39.08	25.08	43.50	18.42	Vert.	100	100	BA	
10	161.553	42.20	15.48	9.15	39.11	27.72	43.50	15.78	Vert.	100	257	BA	
11	266.667	43.50	12.71	10.17	38.97	27.41	46.00	18.59	Vert.	173	163	LA	
12	521.346	37.30	17.85	12.04	38.54	28.65	46.00	17.35	Vert.	100	165	LA	
13	533.318	45.00	17.69	12.12	38.52	36.29	46.00	9.71	Vert.	100	1	LA	
14	666.643	37.00	19.46	12.93	38.42	30.97	46.00	15.03	Vert.	124	120	LA	

CHART: WITH FACTOR

ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN

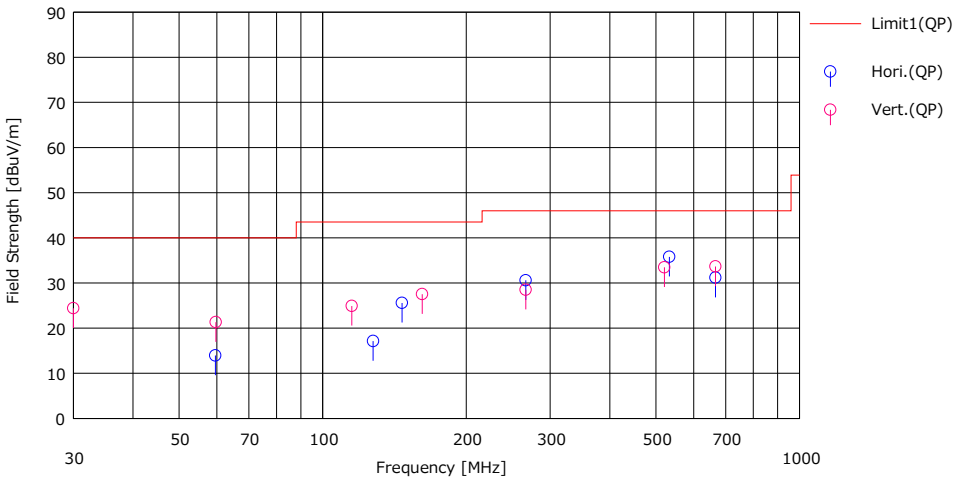
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + ATT) - GAIN(AMP)

Except for the above table: adequate margin data below the limits.

Radiated Emission

Mode	4				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 6, 2026	SAC1	23 deg. C	61 % RH	Hiroki Numata	Below 1 GHz

Limit : FCC_Part 15 Subpart B(15.109)_Class B



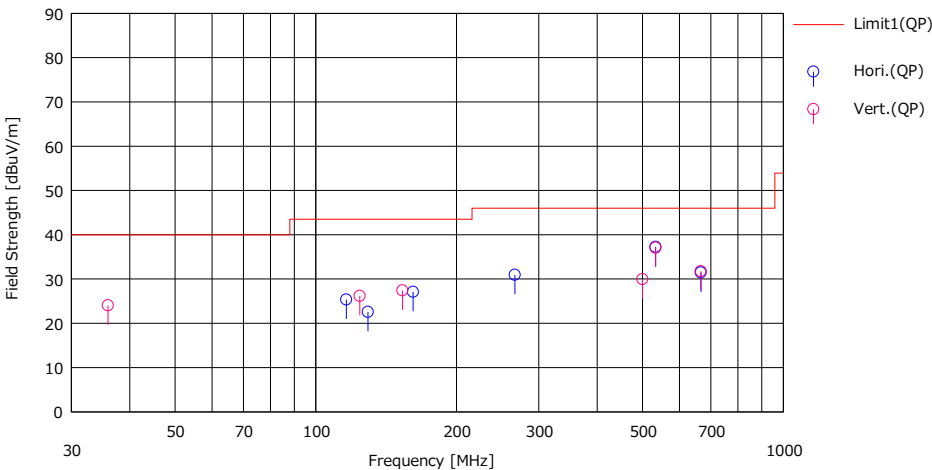
No.	Freq. [MHz]	Reading <QP>	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result <QP>	Limit <QP>	Margn <QP>	Pola.	Height [cm]	Angle [deg]	Ant. Type	Comment
		[dBuV]				[dBuV/m]	[dBuV/m]	[dB]					
1	59.581	37.10	8.08	7.80	39.03	13.95	40.00	26.05	Hori.	336	159	BA	
2	127.622	34.00	13.48	8.75	39.09	17.14	43.50	26.36	Hori.	331	124	BA	
3	146.711	41.10	14.62	8.99	39.12	25.59	43.50	17.91	Hori.	225	272	BA	
4	266.661	46.70	12.71	10.16	38.97	30.60	46.00	15.40	Hori.	100	161	LA	
5	533.323	44.50	17.69	12.12	38.52	35.79	46.00	10.21	Hori.	100	159	LA	
6	666.653	37.20	19.46	12.93	38.42	31.17	46.00	14.83	Hori.	117	197	LA	
7	30.008	37.50	18.67	7.24	39.00	24.41	40.00	15.59	Vert.	100	359	BA	
8	59.700	44.50	8.04	7.80	39.03	21.31	40.00	18.69	Vert.	100	241	BA	
9	115.107	42.90	12.49	8.60	39.08	24.91	43.50	18.59	Vert.	100	213	BA	
10	161.673	42.00	15.49	9.15	39.11	27.53	43.50	15.97	Vert.	100	141	BA	
11	266.661	44.60	12.71	10.16	38.97	28.50	46.00	17.50	Vert.	149	232	LA	
12	520.660	42.10	17.86	12.04	38.54	33.46	46.00	12.54	Vert.	105	202	LA	
13	666.653	39.70	19.46	12.93	38.42	33.67	46.00	12.33	Vert.	100	131	LA	

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

Mode	5				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 27, 2026	SAC4	23 deg. C	62 % RH	Hiroki Numata	Below 1 GHz

Limit : FCC_Part 15 Subpart B(15.109)_Class B



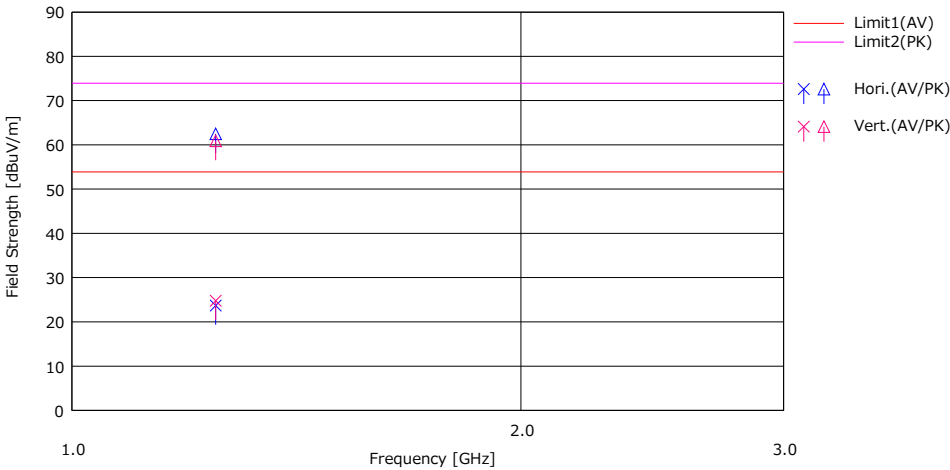
No.	Freq. [MHz]	Reading (QP)	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP)	Limit (QP)	Margn (QP)	Pola [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		[dBuV]				[dBuV/m]	[dBuV/m]	[dB]					
1	116.275	36.80	12.61	8.00	32.06	25.35	43.50	18.15	Hori.	283	142	BA	
2	129.278	32.90	13.59	8.14	32.06	22.57	43.50	20.93	Hori.	289	162	BA	
3	161.651	35.20	15.48	8.44	32.04	27.08	43.50	16.42	Hori.	201	267	BA	
4	266.662	41.10	12.49	9.39	32.03	30.95	46.00	15.05	Hori.	116	242	LA22	
5	533.322	40.60	17.92	10.98	32.24	37.26	46.00	8.74	Hori.	116	135	LA22	
6	666.653	32.30	19.79	11.67	32.29	31.47	46.00	14.53	Hori.	139	106	LA22	
7	35.950	32.80	16.35	7.02	32.12	24.05	40.00	15.95	Vert.	100	165	BA	
8	124.238	36.90	13.26	8.08	32.06	26.18	43.50	17.32	Vert.	100	258	BA	
9	153.305	36.10	14.98	8.37	32.04	27.41	43.50	16.09	Vert.	100	144	BA	
10	500.003	33.30	18.09	10.80	32.22	29.97	46.00	16.03	Vert.	100	184	LA22	
11	533.322	40.40	17.92	10.98	32.24	37.06	46.00	8.94	Vert.	100	220	LA22	
12	666.653	32.60	19.79	11.67	32.29	31.77	46.00	14.23	Vert.	109	325	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

Mode	1				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 6, 2026	SAC1	23 deg. C	61 % RH	Junki Nagatomi	Above 1 GHz

Limit : FCC_Part 15 Subpart B(15.109)_Class B



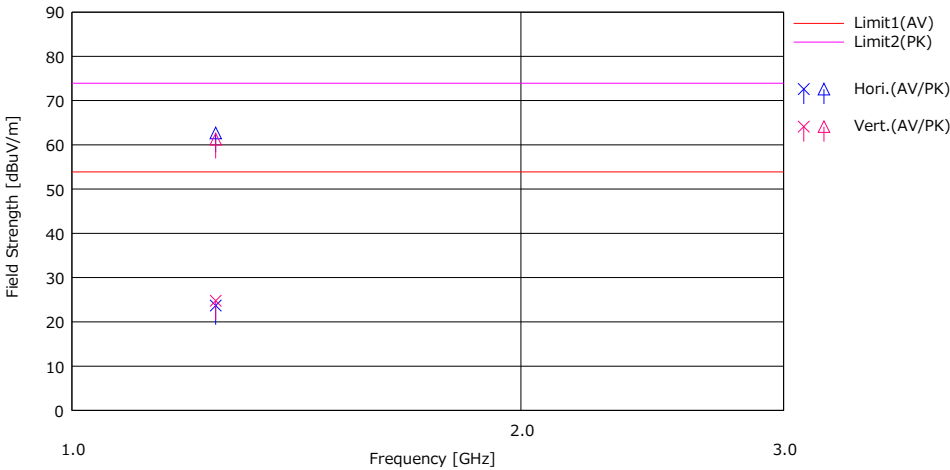
No.	Freq. [MHz]	Reading		Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result		Limit		Margin		Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<AV> [dBuV]	<PK> [dBuV]				<AV> dBuV/m	<PK> dBuV/m	<AV> dBuV/m	<PK> dBuV/m	<AV> [dB]	<PK> [dB]					
1	1248.567	33.60	72.40	25.64	1.72	37.27	23.69	62.49	53.90	73.90	30.21	11.41	Hori.	150	57	HA5	
2	1248.564	34.70	70.80	25.64	1.72	37.27	24.79	60.89	53.90	73.90	29.11	13.01	Vert.	350	45	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) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Mode	2				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 6, 2026	SAC1	23 deg. C	61 % RH	Junki Nagatomi	Above 1 GHz

Limit : FCC_Part 15 Subpart B(15.109)_Class B



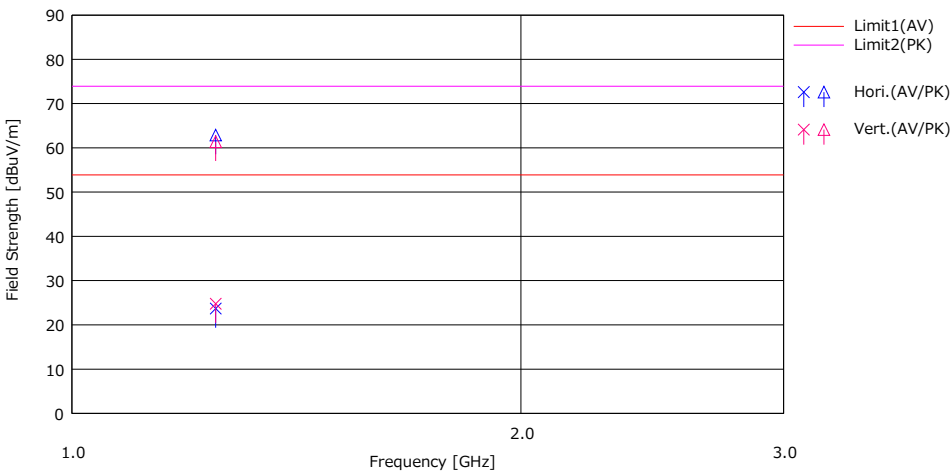
No.	Freq. [MHz]	Reading		Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result		Limit		Margin		Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<AV> [dBuV]	<PK> [dBuV]				<AV> dBuV/m	<PK> dBuV/m	<AV> dBuV/m	<PK> dBuV/m	<AV> [dB]	<PK> [dB]					
1	1248.567	33.60	72.60	25.64	1.72	37.27	23.69	62.69	53.90	73.90	30.21	11.21	Hori.	150	56	HA5	
2	1248.564	34.70	71.20	25.64	1.72	37.27	24.79	61.29	53.90	73.90	29.11	12.61	Vert.	350	43	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) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Mode	3				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 6, 2026	SAC1	23 deg. C	61 % RH	Junki Nagatomi	Above 1 GHz

Limit : FCC_Part 15 Subpart B(15.109)_Class B



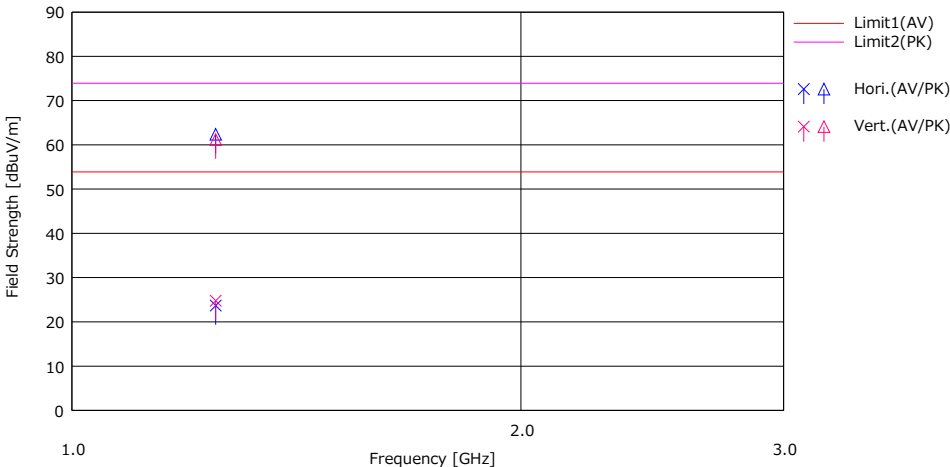
No.	Freq. [MHz]	Reading		Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result		Limit		Margin		Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<AV> [dBuV]	<PK> [dBuV]				<AV> dBuV/m	<PK> dBuV/m	<AV> dBuV/m	<PK> dBuV/m	<AV> [dB]	<PK> [dB]					
1	1248.576	33.60	72.80	25.64	1.72	37.27	23.69	62.89	53.90	73.90	30.21	11.01	Hori.	150	54	HA5	
2	1248.561	34.70	71.30	25.64	1.72	37.27	24.79	61.39	53.90	73.90	29.11	12.51	Vert.	350	42	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) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Mode	4				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 6, 2026	SAC1	23 deg. C	61 % RH	Junki Nagatomi	Above 1 GHz

Limit : FCC_Part 15 Subpart B(15.109)_Class B



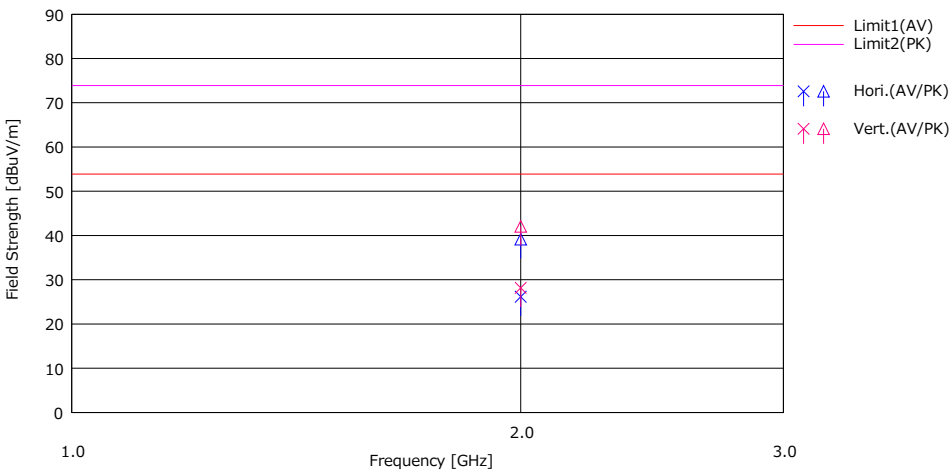
No.	Freq. [MHz]	Reading		Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result		Limit		Margin		Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<AV> [dBuV]	<PK> [dBuV]				<AV> dBuV/m	<PK> dBuV/m	<AV> dBuV/m	<PK> dBuV/m	<AV> [dB]	<PK> [dB]					
1	1248.567	33.60	72.30	25.64	1.72	37.27	23.69	62.39	53.90	73.90	30.21	11.51	Hori.	149	54	HA5	
2	1248.564	34.70	71.10	25.64	1.72	37.27	24.79	61.19	53.90	73.90	29.11	12.71	Vert.	351	45	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) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

Radiated Emission

Mode	5				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
September 27, 2026	SAC4	23 deg. C	62 % RH	Hiroki Numata	Above 1 GHz

Limit : FCC_Part 15 Subpart B(15.109)_Class B



No.	Freq. [MHz]	Reading		Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result		Limit		Margin		Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		(AV) [dBuV]	(PK) [dBuV]				(AV) [dBuV/m]	(PK) [dBuV/m]	(AV) [dBuV/m]	(PK) [dBuV/m]	(AV) [dB]	(PK) [dB]					
1	1999.954	30.00	43.00	26.20	2.14	32.18	26.16	39.16	53.90	73.90	27.74	34.74	Hori.	100	325	H21	
2	1999.954	32.00	45.90	26.20	2.14	32.18	28.16	42.06	53.90	73.90	25.74	31.84	Vert.	100	357	H21	

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) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

APPENDIX 2: Test instruments

Test equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	141213	Attenuator(6dB)	Weinschel Corp	2	BK7971	11/11/2025	12
RE	141266	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-191	04/22/2026	12
RE	141350	Coaxial Cable	Suhner/storm/Agilent/TSJ	-	-	03/17/2026	12
RE	141397	Coaxial Cable	UL-ISE EMC	-	-	09/07/2026	12
RE	141425	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+BBA9106	VHA 91031302	08/13/2026	12
RE	141508	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	557	05/19/2026	12
RE	141511	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	253	09/17/2025	12
RE	141530	Digital Tester	Fluke Corporation	FLUKE 26-3	78030621	02/05/2026	12
RE	141568	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	2901	01/14/2026	12
RE	141576	Pre Amplifier	Keysight Technologies Inc	8449B	3008A01671	02/10/2026	12
RE	141581	MicroWave System Amplifier	Keysight Technologies Inc	83017A	00650	09/11/2026	12
RE	141583	Pre Amplifier	SONOMA INSTRUMENT	310	260833	04/16/2026	12
RE	141585	Pre Amplifier	L3 Narda-MITEQ	MLA-10K01-B01-35	1237616	02/09/2026	12
RE	141950	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	01/05/2026	12
RE	141951	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	06/11/2026	12
RE	141994	AC1_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 10m	DA-06881	05/26/2025	24
RE	141998	AC1_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	07/07/2025	24
RE	142011	AC4_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	07/10/2025	24
RE	142017	AC4_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	04/17/2025	24
RE	142226	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-
RE	142230	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-
RE	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	220646	Attenuator	Huber+Suhner	6806 N-50-1	-	03/06/2026	12
RE	242170	Logperiodic Antenna	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	00728	01/15/2026	12
RE	244710	Thermo-Hygrometer	HIOKI E. E. CORPORATION	LR5001	231202104	01/14/2026	12
RE	245788	Double Ridge Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA 9120 C	690	04/01/2026	12
RE	263274	Microwave Cable	Junkosha	MWX221-05000DMSDMS+ MWX221-01000DMSDMS	2505S042+ 2503S144	04/21/2026	12
RE	272098	DIGITAL MULTIMETER	HIOKI E. E. CORPORATION	DT4255	250902199	11/27/2025	12
RE	276744	Microwave cable	Huber+Suhner	SF103/11PC35/11PC35/1000mm / SF126E/11PC35/5000mm	800674 /3(1m) / 616530/ 126E(5m)	03/17/2026	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