EMI TEST REPORT

Test Report No. : 13980589H-B

Applicant	:	**DENSO TEN Limited**
Type of EUT	:	**Car Audio**
Model Number of EUT	:	**TN0035A**
FCC ID	:	**BABTN0035A**
Test regulation	:	**FCC Part 15 Subpart B: 2021**
Test Result	:	**Complied (Refer to SECTION 3)**

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7. The all test items in this test report are conducted by UL Japan, Inc. Ise EMC Lab.
8. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan, Inc. has been accredited.
9. The information provided from the customer for this report is identified in SECTION 1.

Date of test: October 5 and 6, 2021

Representative test engineer:
Kiyoshiro Okazaki
Engineer

Approved by:
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".

REVISION HISTORY

Original Test Report No.: 13980589H-B

Revision	Test report No.	Date	Page revised	Contents
- (Original)	13980589H-B	November 18, 2021	-	-

Reference: Abbreviations (Including words undescribed in this report)

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

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SECTION 1: Customer information

Company Name	:	DENSO TEN Limited
Address	:	2-28, Gosho-dori 1-Chome, Hyogo-ku, KOBE 652-8510 JAPAN
Telephone Number	:	+81 78 682 2159
Contact Person	:	Daisuke Fukii

The information provided from the customer is as follows;
- Applicant, Type of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer information
- SECTION 2: Equipment under test (EUT) other than the Receipt Date
- SECTION 4: Operation of EUT during testing

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

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT

Type	:	Car Audio
Model Number	:	TN0035A
Serial Number	:	Refer to SECTION 4.2
Receipt Date	:	September 5, 2021
Condition	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	:	No Modification by the test lab

2.2 Product Description

Model: TN0035A (referred to as the EUT in this report) is a Car Audio.

General Specification

Rating	:	DC 12 V
Clock frequency (ies)in the system	:	2.64 GHz (MAX)

Radio Specification

	Bluetooth Ver.5.0 with EDR function
Radio Type	Transceiver
Frequency of operation	2402 MHz - 2480 MHz
Type of modulation	FHSS (GFSK, π/4-DQPSK, 8-DPSK)
Channel spacing	1 MHz
Antenna type	Inverted F PCB Antenna
Antenna Connector type	None
Antenna Gain	-1.08 dBi (Peak)

	Broadcast Receiver
Radio Type	Receiver
Frequency of Operation	AM: 531 kHz - 1602 kHz FM, RDS: 87.5 MHz - 108.0 MHz DAB:174.928 MHz - 229.072 MHz
Type of modulation	AM: AM FM(RDS): FM DAB: OFDM
Antenna connector type	HFC IV

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	ANSI C63.4: 2014 +C63.4a:2017 7. AC power - line conducted emission measurements IEEE 187:2003	Part 15 Subpart B 15.107(a)	N/A	-	N/A	*1)
Radiated emission	ANSI C63.4: 2014 +C63.4a:2017 8. Radiated emission measurements IEEE 187:2003	Part 15 Subpart B 15.109(a)	N/A	16.36 dB (87.994 MHz, Vertical, QP, Mode 2 Other)	Complied a)	-
Antenna Terminal	ANSI C63.4: 2014 +C63.4a:2017 12. Measurement of unintentional radiators other than ITE IEEE 187:2003	Part 15 Subpart B 15.111(a)	N/A	10.98 dB 1980.008 MHz	Complied b)	-

*Note: UL Japan, Inc's EMI Work Procedure 13-EM-W0420.

*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)	5.2 dB
		(Vertical)	6.3 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		4.9 dB
	6 GHz to 18 GHz		5.2 dB
1 m	10 GHz to 26.5 GHz		5.5 dB
	26.5 GHz to 40 GHz		5.5 dB
0.5 m	26.5 GHz to 40 GHz		5.5 dB
10 m	1 GHz to 18 GHz		5.2 dB

Antenna Terminal test

Test Item	Uncertainty (+/-)
Antenna terminal conducted emission / Power density / Burst power	2.6 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)

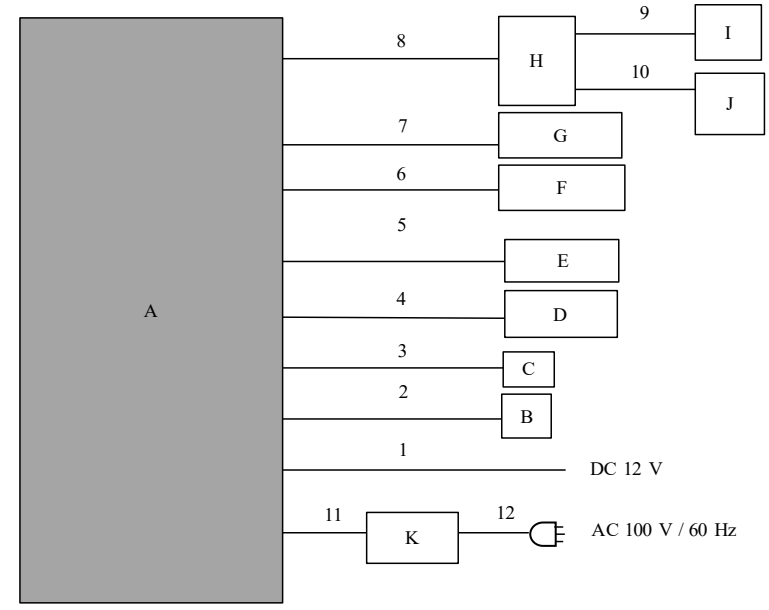
Mode 1: FM Main Port Receiving mode (Local / Other) (Radiated Emission test)
Mode 2: FM Sub Port Receiving mode (Local / Other) (Radiated Emission test)
Mode 3: USB Memory Play mode (Radiated Emission test)
Mode 4: FM Main Port Tuning mode (Antenna Terminal test)
Mode 5: FM Sub Port Tuning mode (Antenna Terminal test)

Software : E-DA2M software V1.0.0

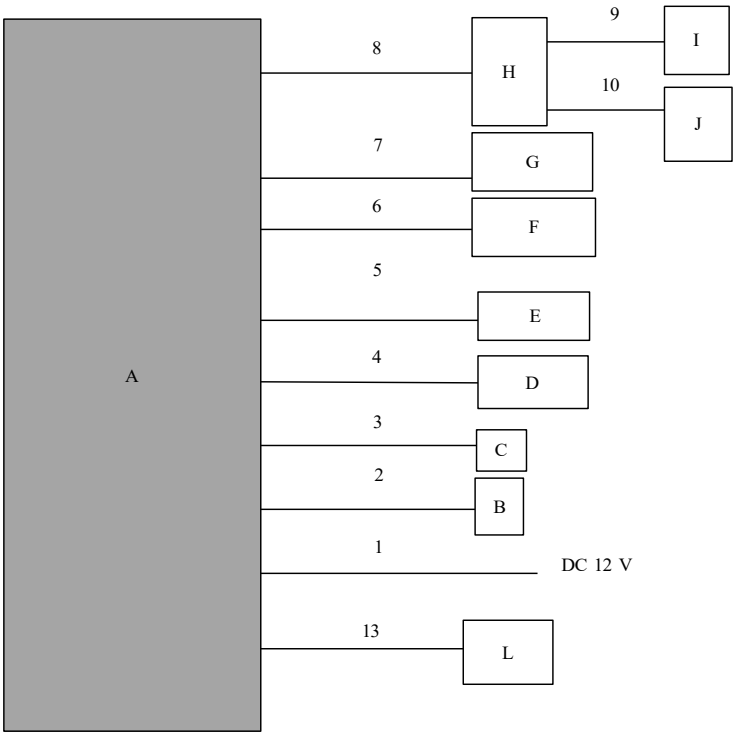
4.3 Configuration and peripherals

Radiated Emission test

[Mode 1, 2]



[Mode 3]



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

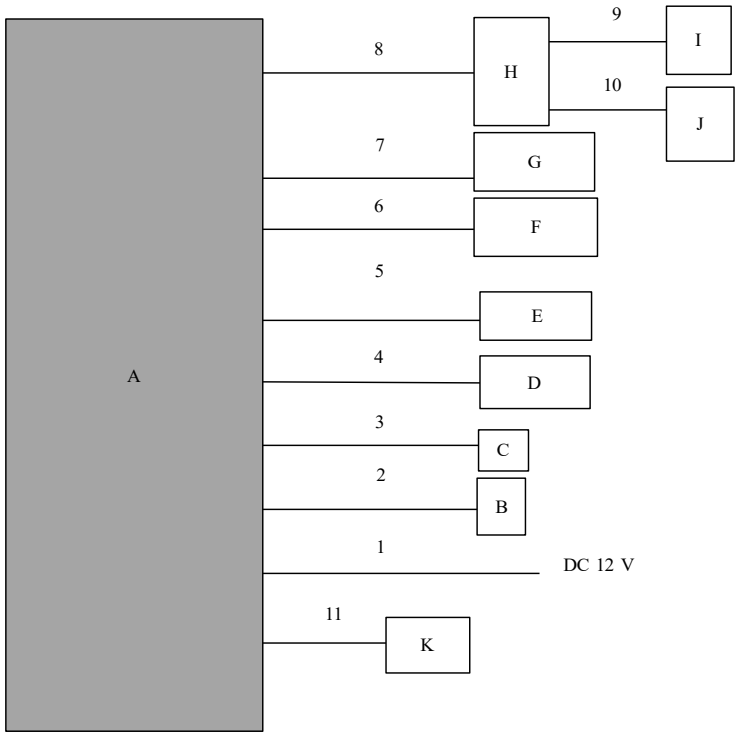
Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Car Audio	TN0035A	100174648-0004	DENSO TEN Limited	EUT
B	Microphone	86730-78010 (SDD303)	0LC000059	Panasonic	-
C	Camera	86790-62010 (GP-KD63B1RC)	8ZC300213	Panasonic	-
D	Steering Switch	84250-58150-BO	884-6191	-	-
E	Speaker Dummy	EDA2(MID) SP Dummy	DUMMY-210906 -002	DENSO TEN Limited	-
F	DAB Antenna AMP	863C0-60050	PQB02907	DENSO TEN Limited	-
G	GNSS Antenna	86880-78010	UI 034339	HARADA	-
H	USB I/F BOX	86190-78020	500864	Panasonic	-
I	USB memory	RUF3-K8GA-BK/N	P90611	Buffalo	-
J	iPhone	MD297B/A	C34JJ55EDTWD	Apple	-
K	Signal Generator	SMC100A	1411.4002k02	Rohde & Schwarz	-
L	AM/FM SharkFin Antenna	86760-K0010	AM/FM ANT-210906-001	YOKOWO	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	3.5	Unshielded	Unshielded	-
2	MiC Cable	3.5	Unshielded	Unshielded	-
3	Camera Cable	3.5	Unshielded	Unshielded	-
4	System Cable	3.5	Unshielded	Unshielded	-
5	Speaker Cable	3.5	Unshielded	Unshielded	-
6	Antenna Cable	2.6	Shielded	Shielded	-
7	Antenna Cable	1.0	Shielded	Shielded	-
8	Antenna Cable	0.5	Shielded	Shielded	-
9	USB Cable	2.0	Shielded	Shielded	-
10	USB Cable	1.0	Shielded	Shielded	-
11	Signal Cable	1.2	Unshielded	Unshielded	-
12	AC Cable	2.0	Unshielded	Unshielded	-
13	Antenna Cable	1.0	Shielded	Shielded	-

Antenna Terminal Conducted test



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Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
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B	Microphone	86730-78010 (SDD303)	0LC000059	Panasonic	-
C	Camera	86790-62010 (GP-KD63B1RC)	8ZC300213	Panasonic	-
D	Steering Switch	84250-58150-BO	884-6191	-	-
E	Speaker Dummy	EDA2(MID) SP Dummy	DUMMY-210906 -002	DENSO TEN Limited	-
F	DAB Antenna AMP	863C0-60050	PQB02907	DENSO TEN Limited	-
G	GNSS Antenna	86880-78010	UI 034339	HARADA	-
H	USB I/F BOX	86190-78020	500864	Panasonic	-
I	USB memory	RUF3-K8GA-BK/N	P90611	Buffalo	-
J	iPhone	MD297B/A	C34JJ55EDTWD	Apple	-
K	FM Matching Pad	828-00064-D5KAI	-	DENSO TEN Limited	-

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	3.5	Unshielded	Unshielded	-
2	MiC Cable	3.5	Unshielded	Unshielded	-
3	Camera Cable	3.5	Unshielded	Unshielded	-
4	System Cable	3.5	Unshielded	Unshielded	-
5	Speaker Cable	3.5	Unshielded	Unshielded	-
6	Antenna Cable	2.6	Shielded	Shielded	-
7	Antenna Cable	1.0	Shielded	Shielded	-
8	Antenna Cable	0.5	Shielded	Shielded	-
9	USB Cable	2.0	Shielded	Shielded	-
10	USB Cable	1.0	Shielded	Shielded	-
11	Signal Cable	1.2	Shielded	Shielded	-

SECTION 5: Radiated Emission

5.1 Operating environment

Test place : No.3 semi anechoic chamber
Temperature : See data
Humidity : 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

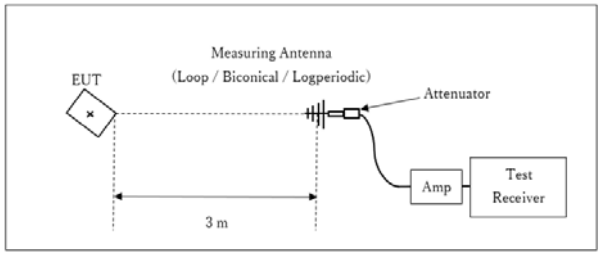
The height of the measuring antenna varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver.
The radiated emission measurements were made with the following detector function of the Test Receiver.
The test of Local oscillator spurious has been measured up to appropriate frequency based on the result of the antenna terminal test.
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 1GHz	Above 1GHz *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 1.

Figure 1: Test Setup

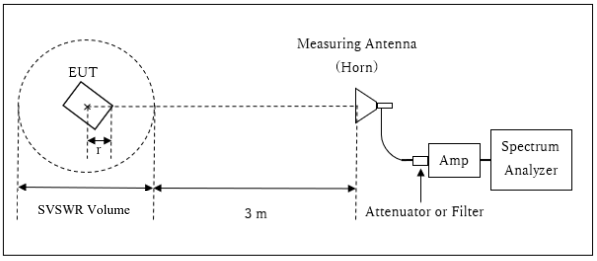
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz - 13 GHz

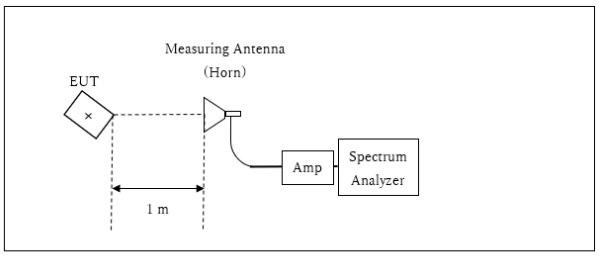


r : Radius of an outer periphery of EUT
× : Center of turn table

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

13 GHz - 26.5 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.

Date: October 6, 2021 Test engineer: Junki Nagatomi

SECTION 6: Antenna Terminal

6.1 Operating environment

Test place : No.4 Measurement room
Temperature : See data
Humidity : See data

6.2 Test configuration

EUT was placed on a wooden table 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: 100 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

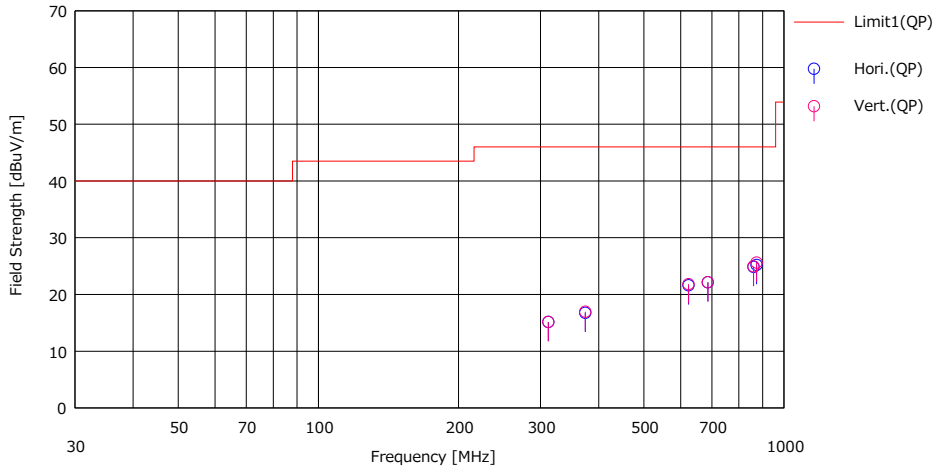
Date: October 5, 2021 Test engineer: Kiyoshiro Okazaki

APPENDIX 1: Test data

Radiated Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi (Below 1 GHz)
Mode	Mode 1 (Local)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



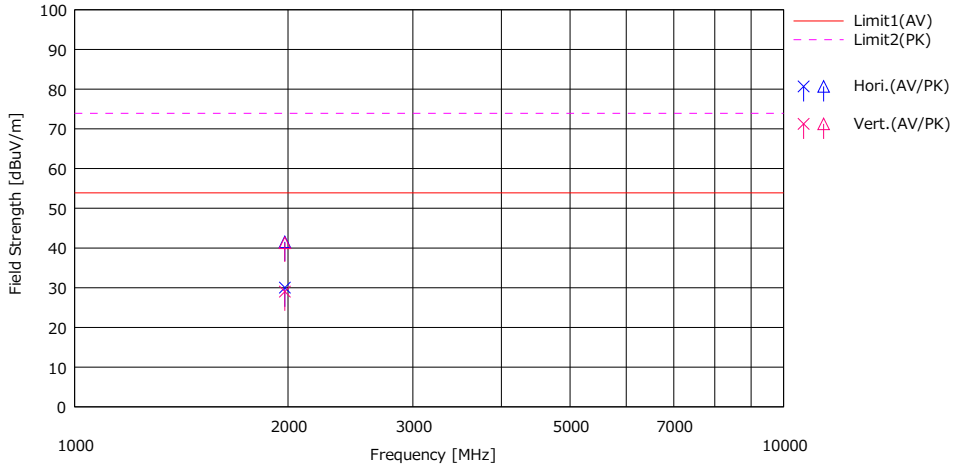
No.	Freq. [MHz]	Reading (QP) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP) [dBuV/m]	Limit (QP) [dBuV/m]	Margin (QP) [dB]	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
1	311.914	19.20	14.02	9.64	27.71	15.15	46.00	30.85	Hori.	100	0	LA23	
2	374.434	19.70	15.20	10.02	28.17	16.75	46.00	29.25	Hori.	100	0	LA23	
3	624.012	20.00	19.55	11.30	29.24	21.61	46.00	24.39	Hori.	100	0	LA23	
4	686.481	20.10	19.70	11.54	29.20	22.14	46.00	23.86	Hori.	100	0	LA23	
5	860.620	19.70	21.84	12.19	28.88	24.85	46.00	21.15	Hori.	100	0	LA23	
6	873.494	19.70	22.10	12.25	28.85	25.20	46.00	20.80	Hori.	100	0	LA23	
7	311.914	19.20	14.02	9.64	27.71	15.15	46.00	30.85	Vert.	100	0	LA23	
8	374.434	19.90	15.20	10.02	28.17	16.95	46.00	29.05	Vert.	100	0	LA23	
9	624.012	20.20	19.55	11.30	29.24	21.81	46.00	24.19	Vert.	100	0	LA23	
10	686.481	20.10	19.70	11.54	29.20	22.14	46.00	23.86	Vert.	100	0	LA23	
11	860.620	19.80	21.84	12.19	28.88	24.95	46.00	21.05	Vert.	100	0	LA23	
12	873.494	20.10	22.10	12.25	28.85	25.60	46.00	20.40	Vert.	100	0	LA23	

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

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi
	(Above 1 GHz)
Mode	Mode 1 (Local)

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	1980.008	33.60	45.10	26.01	2.45	32.03	30.03	41.53	53.90	73.90	23.87	32.37	Hori.	214	125	H21	
2	1980.008	32.60	44.90	26.01	2.45	32.03	29.03	41.33	53.90	73.90	24.87	32.57	Vert.	145	127	H21	

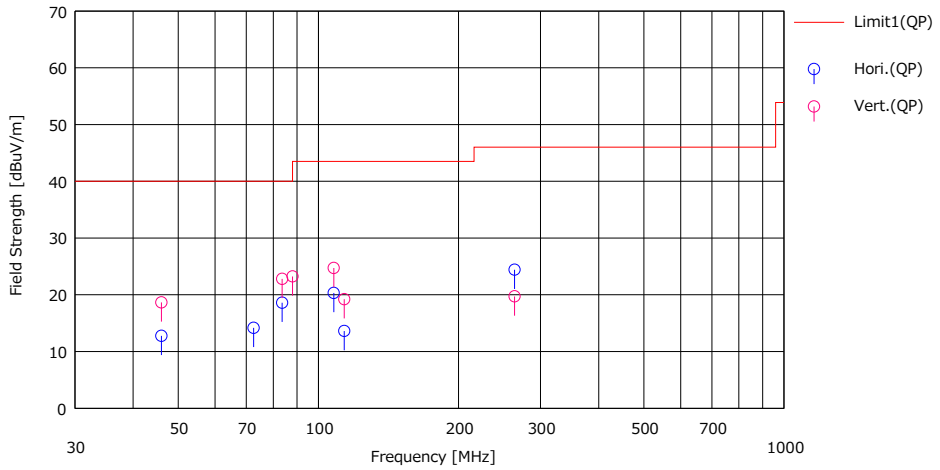
CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

* No signal was detected above 10 GHz.

Radiated Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi
	(Below 1 GHz)
Mode	Mode 1 (Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



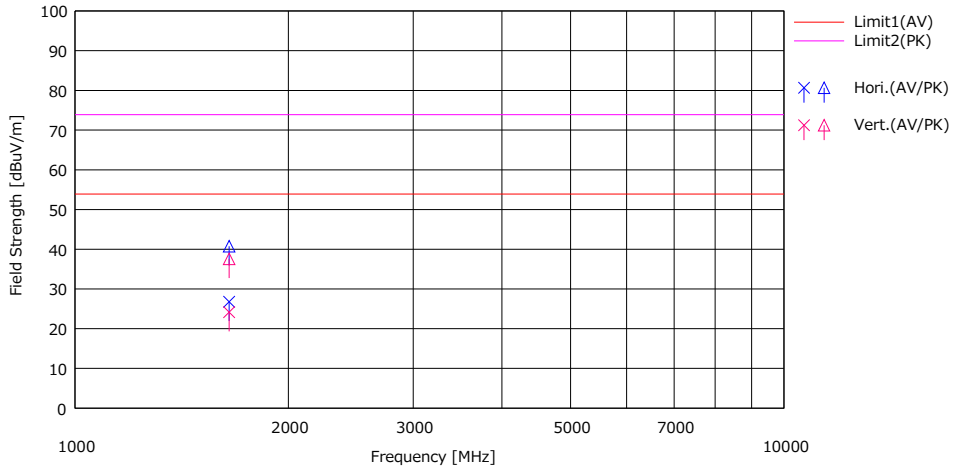
No.	Freq.	Reading (QP)	Ant.Fac	Loss	Gain	Result (QP)	Limit (QP)	Margin (QP)	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]		
1	46.021	21.20	12.63	7.36	28.44	12.75	40.00	27.25	Hori.	100	0	BA	
2	72.592	28.50	6.34	7.70	28.38	14.16	40.00	25.84	Hori.	400	20	BA	
3	83.606	31.70	7.44	7.82	28.36	18.60	40.00	21.40	Hori.	100	66	BA	
4	107.934	29.10	11.47	8.04	28.29	20.32	43.50	23.18	Hori.	298	12	BA	
5	113.692	21.60	12.20	8.10	28.28	13.62	43.50	29.88	Hori.	400	308	BA	
6	263.985	30.10	12.65	9.32	27.65	24.42	46.00	21.58	Hori.	179	293	LA23	
7	46.021	27.10	12.63	7.36	28.44	18.65	40.00	21.35	Vert.	100	288	BA	
8	83.606	35.90	7.44	7.82	28.36	22.80	40.00	17.20	Vert.	100	353	BA	
9	88.012	35.50	8.23	7.86	28.35	23.24	43.50	20.26	Vert.	100	12	BA	
10	107.934	33.50	11.47	8.04	28.29	24.72	43.50	18.78	Vert.	100	73	BA	
11	113.692	27.20	12.20	8.10	28.28	19.22	43.50	24.28	Vert.	100	40	BA	
12	263.967	25.40	12.65	9.32	27.65	19.72	46.00	26.28	Vert.	100	298	LA23	

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

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi
	(Above 1 GHz)
Mode	Mode 1 (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	1649.980	32.50	46.50	24.87	2.23	32.84	26.76	40.76	53.90	73.90	27.14	33.14	Hori.	100	232	H21	
2	1649.997	29.90	43.30	24.87	2.23	32.84	24.16	37.56	53.90	73.90	29.74	36.34	Vert.	134	153	H21	

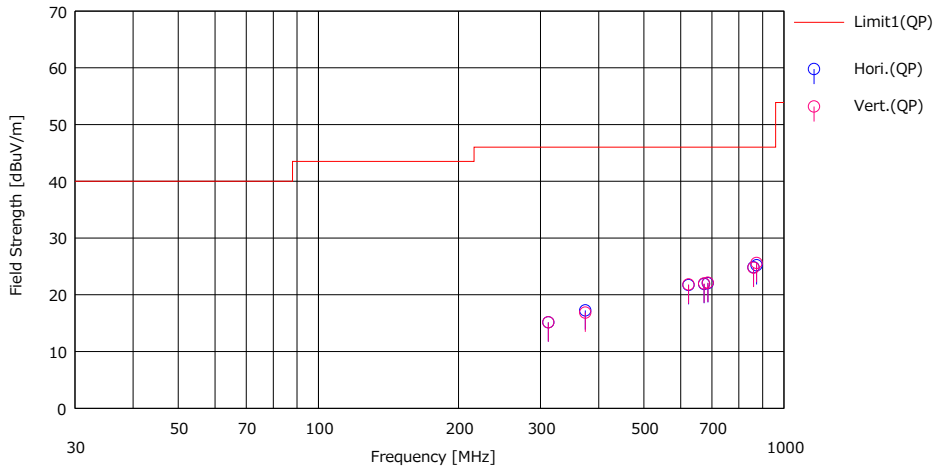
CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

* No signal was detected above 10 GHz.

Radiated Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi
	(Below 1 GHz)
Mode	Mode 2 (Local)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



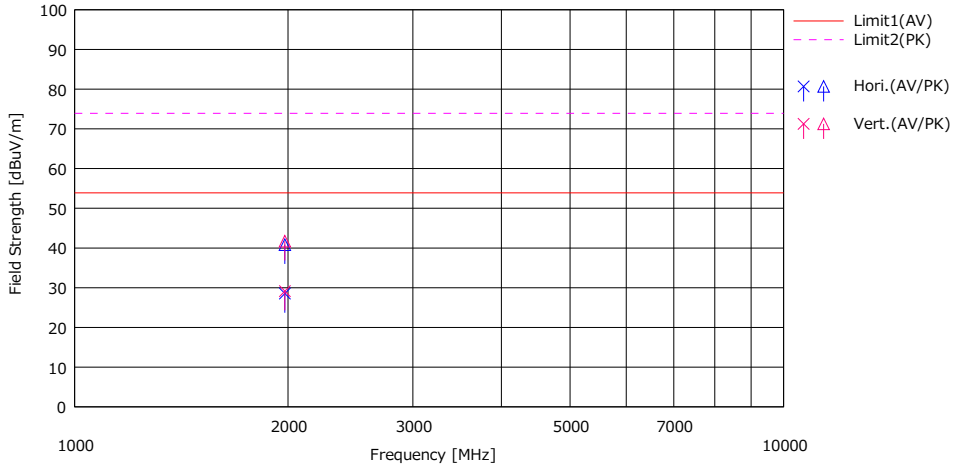
No.	Freq.	Reading (QP)	Ant.Fac	Loss	Gain	Result (QP)	Limit (QP)	Margin (QP)	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]		
1	311.990	19.20	14.02	9.64	27.71	15.15	46.00	30.85	Hori.	100	0	LA23	
2	374.403	20.20	15.20	10.02	28.17	17.25	46.00	28.75	Hori.	100	181	LA23	
3	624.061	20.10	19.55	11.30	29.24	21.71	46.00	24.29	Hori.	100	0	LA23	
4	673.902	20.00	19.60	11.50	29.21	21.89	46.00	24.11	Hori.	100	0	LA23	
5	686.398	20.00	19.70	11.54	29.20	22.04	46.00	23.96	Hori.	100	0	LA23	
6	860.620	19.70	21.84	12.19	28.88	24.85	46.00	21.15	Hori.	100	0	LA23	
7	873.519	19.70	22.10	12.25	28.85	25.20	46.00	20.80	Hori.	100	0	LA23	
8	311.990	19.20	14.02	9.64	27.71	15.15	46.00	30.85	Vert.	100	0	LA23	
9	374.403	19.80	15.20	10.02	28.17	16.85	46.00	29.15	Vert.	100	0	LA23	
10	624.061	20.20	19.55	11.30	29.24	21.81	46.00	24.19	Vert.	100	0	LA23	
11	673.902	20.10	19.60	11.50	29.21	21.99	46.00	24.01	Vert.	100	0	LA23	
12	686.398	20.10	19.70	11.54	29.20	22.14	46.00	23.86	Vert.	100	0	LA23	
13	860.620	19.60	21.84	12.19	28.88	24.75	46.00	21.25	Vert.	100	0	LA23	
14	873.519	20.10	22.10	12.25	28.85	25.60	46.00	20.40	Vert.	100	0	LA23	

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

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi
	(Above 1 GHz)
Mode	Mode 2 (Local)

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	1980.022	32.10	44.40	26.01	2.45	32.03	28.53	40.83	53.90	73.90	25.37	33.07	Hori.	230	126	H21	
2	1980.022	32.70	45.30	26.01	2.45	32.03	29.13	41.73	53.90	73.90	24.77	32.17	Vert.	181	180	H21	

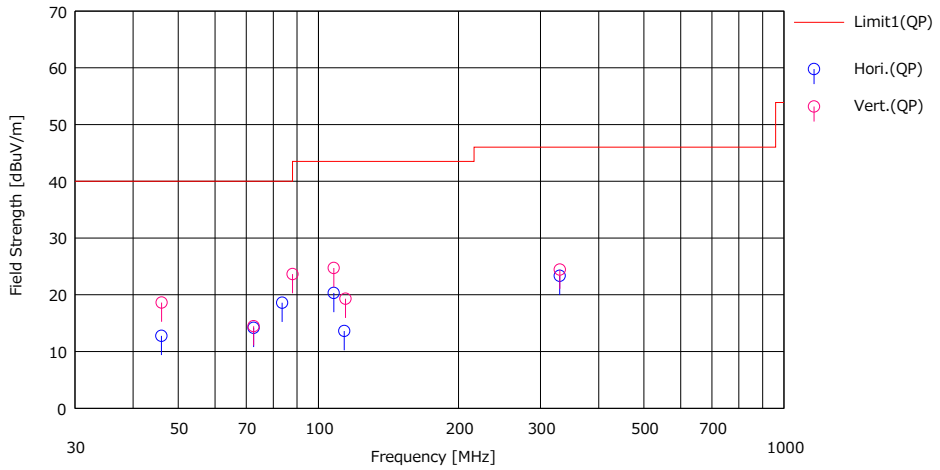
CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

* No signal was detected above 10 GHz.

Radiated Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi
	(Below 1 GHz)
Mode	Mode 2 (Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



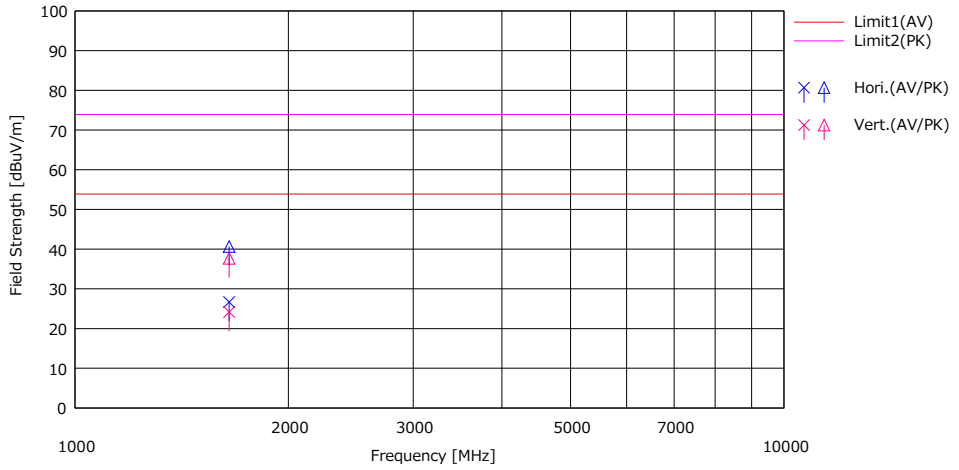
No.	Freq.	Reading (QP)	Ant.Fac	Loss	Gain	Result (QP)	Limit (QP)	Margin (QP)	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]		
1	46.021	21.20	12.63	7.36	28.44	12.75	40.00	27.25	Hori.	100	0	BA	
2	72.592	28.50	6.34	7.70	28.38	14.16	40.00	25.84	Hori.	400	21	BA	
3	83.606	31.70	7.44	7.82	28.36	18.60	40.00	21.40	Hori.	100	63	BA	
4	107.934	29.10	11.47	8.04	28.29	20.32	43.50	23.18	Hori.	298	13	BA	
5	113.692	21.60	12.20	8.10	28.28	13.62	43.50	29.88	Hori.	400	312	BA	
6	330.007	26.60	14.79	9.75	27.81	23.33	46.00	22.67	Hori.	100	60	LA23	
7	46.070	27.10	12.61	7.36	28.44	18.63	40.00	21.37	Vert.	100	288	BA	
8	72.590	28.80	6.34	7.70	28.38	14.46	40.00	25.54	Vert.	100	72	BA	
9	87.994	35.90	8.23	7.86	28.35	23.64	40.00	16.36	Vert.	100	354	BA	
10	107.933	33.50	11.47	8.04	28.29	24.72	43.50	18.78	Vert.	100	71	BA	
11	114.373	27.20	12.27	8.10	28.27	19.30	43.50	24.20	Vert.	100	32	BA	
12	330.123	27.70	14.79	9.75	27.81	24.43	46.00	21.57	Vert.	224	12	LA23	

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

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi
	(Above 1 GHz)
Mode	Mode 2 (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	1649.978	32.40	46.40	24.87	2.23	32.84	26.66	40.66	53.90	73.90	27.24	33.24	Hori.	100	226	H21	
2	1649.983	29.90	43.40	24.87	2.23	32.84	24.16	37.66	53.90	73.90	29.74	36.24	Vert.	132	162	H21	

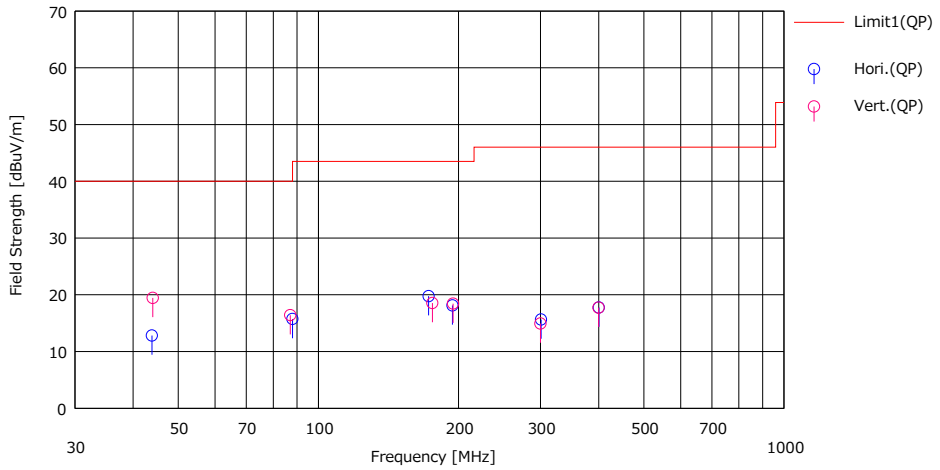
CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

* No signal was detected above 10 GHz.

Radiated Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi
	(Below 1 GHz)
Mode	Mode 3

Limit : FCC_Part 15 Subpart B(15.109)_Class B



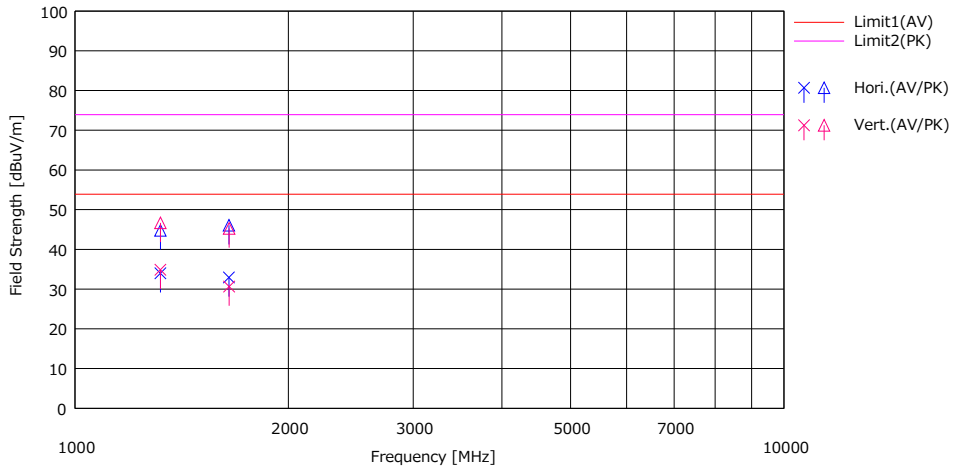
No.	Freq.	Reading (QP)	Ant.Fac	Loss	Gain	Result (QP)	Limit (QP)	Margin (QP)	Pola.	Height	Angle	Ant. Type	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]		
1	43.898	20.50	13.42	7.33	28.45	12.80	40.00	27.20	Hori.	100	0	BA	
2	87.978	28.00	8.23	7.86	28.35	15.74	40.00	24.26	Hori.	243	230	BA	
3	172.518	23.20	15.99	8.61	28.04	19.76	43.50	23.74	Hori.	172	238	BA	
4	194.123	20.80	16.46	8.78	27.92	18.12	43.50	25.38	Hori.	100	0	BA	
5	300.792	20.00	13.71	9.57	27.64	15.64	46.00	30.36	Hori.	150	351	LA23	
6	400.321	20.00	16.00	10.18	28.43	17.75	46.00	28.25	Hori.	100	4	LA23	
7	44.075	27.20	13.35	7.34	28.44	19.45	40.00	20.55	Vert.	100	352	BA	
8	87.001	28.90	8.02	7.85	28.35	16.42	40.00	23.58	Vert.	100	6	BA	
9	175.696	21.90	16.02	8.64	28.02	18.54	43.50	24.96	Vert.	100	31	BA	
10	194.669	21.10	16.48	8.79	27.92	18.45	43.50	25.05	Vert.	100	2	BA	
11	300.010	19.30	13.70	9.57	27.64	14.93	46.00	31.07	Vert.	100	0	LA23	
12	399.897	20.00	15.99	10.17	28.43	17.73	46.00	28.27	Vert.	100	355	LA23	

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

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	October 6, 2021
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Junki Nagatomi
	(Above 1 GHz)
Mode	Mode 3

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	1319.993	40.20	51.00	25.43	2.01	33.65	33.99	44.79	53.90	73.90	19.91	29.11	Hori.	100	126	H21	
2	1648.915	38.70	51.80	24.87	2.23	32.84	32.96	46.06	53.90	73.90	20.94	27.84	Hori.	100	113	H21	
3	1319.918	41.10	52.90	25.43	2.01	33.65	34.89	46.69	53.90	73.90	19.01	27.21	Vert.	119	208	H21	
4	1649.916	36.40	51.00	24.87	2.23	32.84	30.66	45.26	53.90	73.90	23.24	28.64	Vert.	178	76	H21	

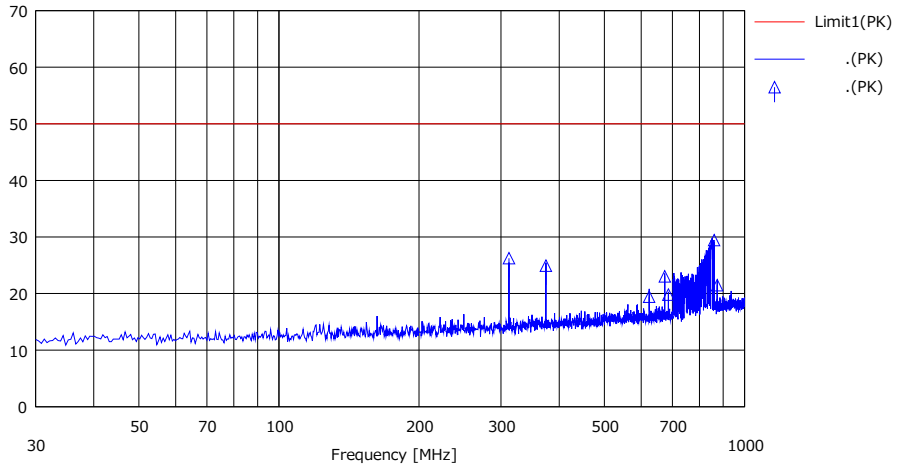
CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

* No signal was detected above 10 GHz.

Antenna Terminal Conducted Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	October 5, 2021
Temperature / Humidity	24 deg. C / 50 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 4

Limit : FCC15.111 Antenna terminal measurement



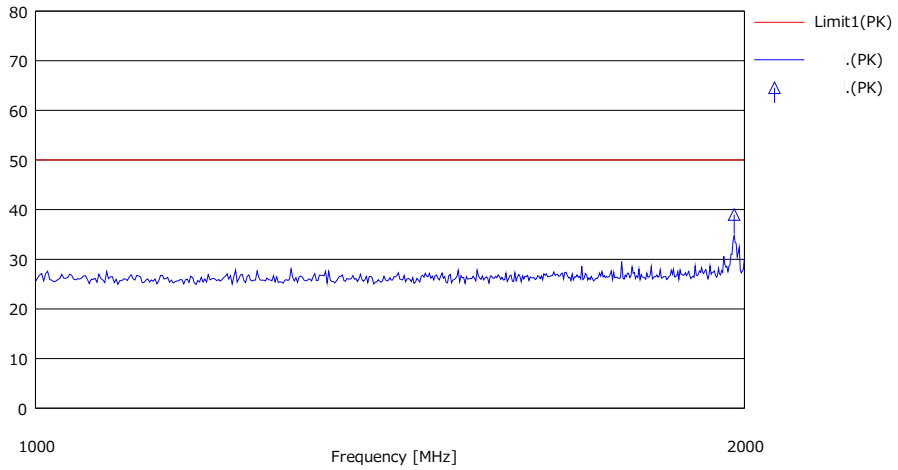
No.	Freq. [MHz]	Reading (PK) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (PK) [dBuV]	Limit *1) (PK) [dBuV]	Margin (PK) [dB]	Pola. [H/V]	Ant. Type	Comment
1	311.914	40.37	0.00	17.73	31.86	26.24	50.00	23.76			
2	374.434	38.71	0.00	18.12	31.90	24.93	50.00	25.07			
3	624.028	32.13	0.00	19.43	32.10	19.46	50.00	30.54			
4	674.012	35.54	0.00	19.64	32.14	23.04	50.00	26.96			
5	686.481	32.29	0.00	19.68	32.15	19.82	50.00	30.18			
6	860.620	40.46	0.00	20.35	31.37	29.44	50.00	20.56			Local 107.9 MHz
7	873.494	32.37	0.00	20.41	31.30	21.48	50.00	28.52			

*1) 2 nW = -57 dBm -=50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + LOSS (CABLE +ATT) - GAIN
Except for the above table: adequate margin data below the limits.

Antenna Terminal Conducted Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	October 5, 2021
Temperature / Humidity	24 deg. C / 50 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 4

Limit : FCC15.111 Antenna terminal measurement



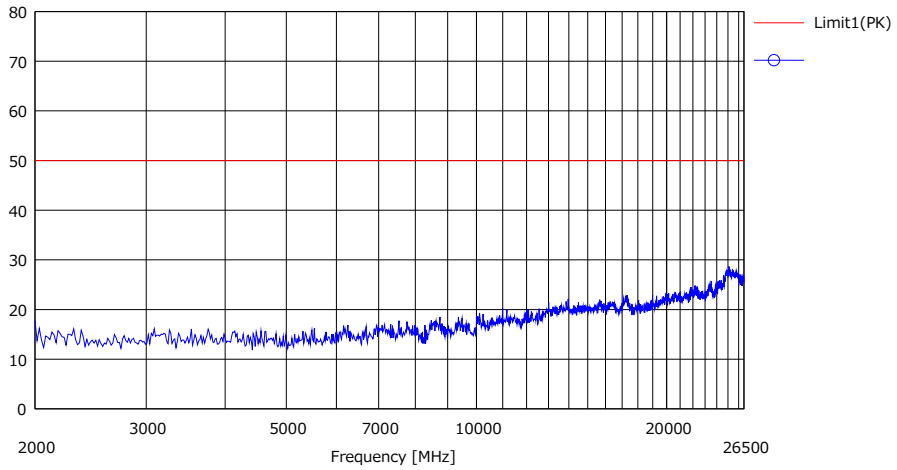
No.	Freq. [MHz]	Reading (PK) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (PK) [dBuV]	Limit *1) (PK) [dBuV]	Margin (PK) [dB]	Pola. [H/V]	Ant. Type	Comment
1	1980.008	54.59	0.00	16.42	31.99	39.02	50.00	10.98			

*1) 2 nW = -57 dBm -=50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + LOSS (CABLE +ATT) - GAIN
Except for the above table: adequate margin data below the limits.

Antenna Terminal Conducted Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	October 5, 2021
Temperature / Humidity	24 deg. C / 50 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 4

Limit : FCC15.111 Antenna terminal measurement



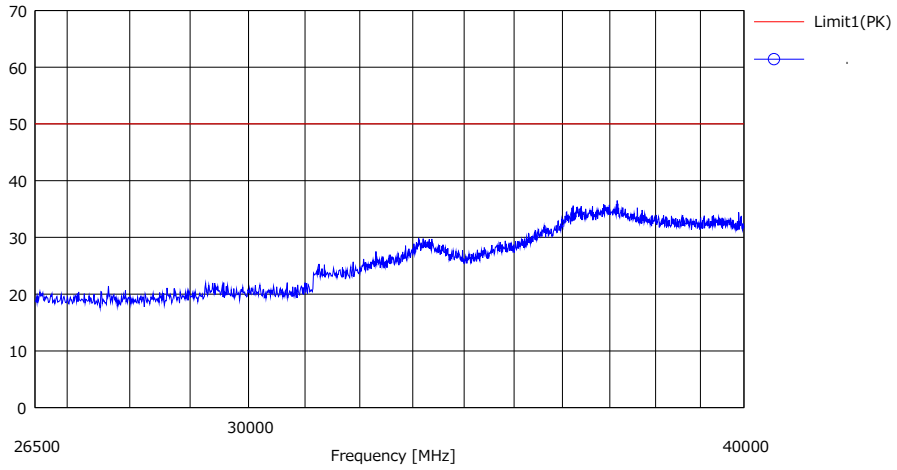
No.	Freq. [MHz]	Reading [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV]	Limit *1) <PK> [dBuV]	Margin <PK> [dB]	Pola. [H/V]	Ant. Type	Comment

*1) 2 nW = -57 dBm -=50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + LOSS (CABLE +ATT) - GAIN
No signal detected

Antenna Terminal Conducted Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	October 5, 2021
Temperature / Humidity	24 deg. C / 50 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 4

Limit : FCC15.111 Antenna terminal measurement



No.	Freq. [MHz]	Reading [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV]	Limit *1) <PK> [dBuV]	Margin <PK> [dB]	Pola. [H/V]	Ant. Type	Comment

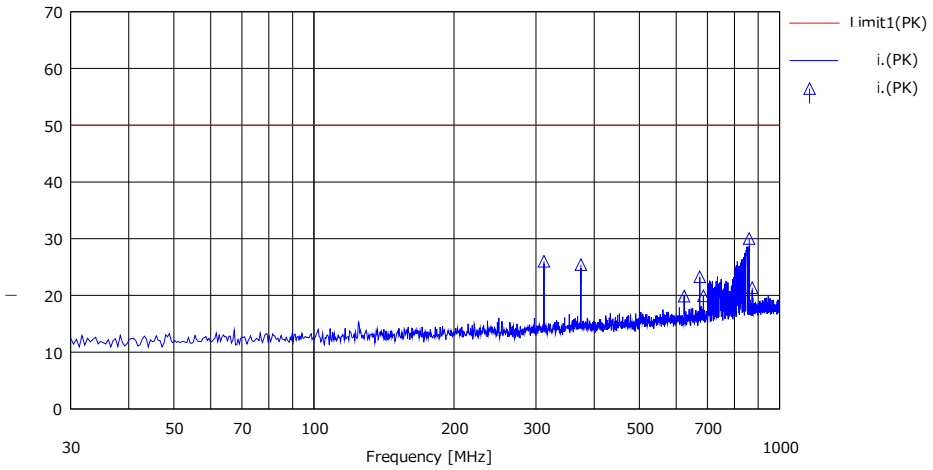
*1) 2 nW = -57 dBm -=50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + LOSS (CABLE +ATT) - GAIN
No signal detected

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Antenna Terminal Conducted Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	October 5, 2021
Temperature / Humidity	24 deg. C / 50 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 5

Limit : FCC15.111 Antenna terminal measurement



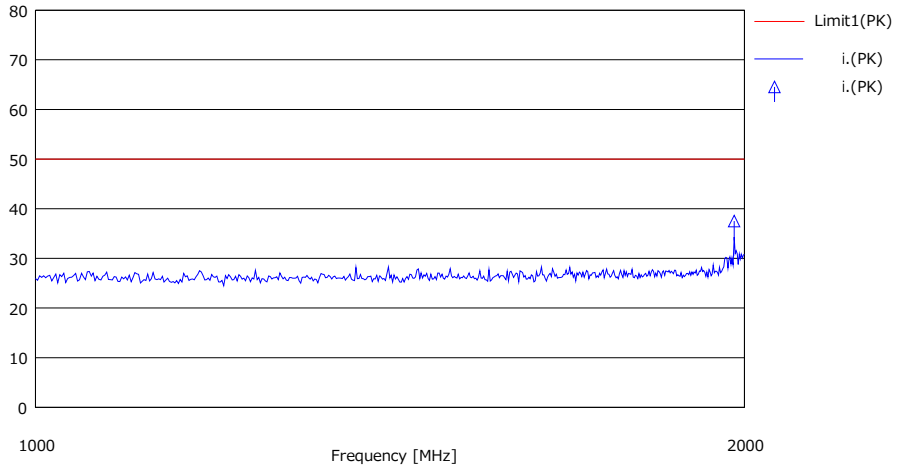
No.	Freq. [MHz]	Reading (PK) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (PK) [dBuV]	Limit *1) (PK) [dBuV]	Margin (PK) [dB]	Pola. [H/V]	Ant. Type	Comment
1	311.990	40.14	0.00	17.73	31.86	26.01	50.00	23.99			
2	374.403	39.20	0.00	18.12	31.90	25.42	50.00	24.58			
3	624.061	32.56	0.00	19.43	32.10	19.89	50.00	30.11			
4	673.902	35.78	0.00	19.64	32.14	23.28	50.00	26.72			
5	686.398	32.40	0.00	19.68	32.15	19.93	50.00	30.07			
6	860.620	41.05	0.00	20.35	31.37	30.03	50.00	19.97			Local 107.9 MHz
7	873.519	32.24	0.00	20.41	31.30	21.35	50.00	28.65			

*1) 2 nW = -57 dBm -=50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + LOSS (CABLE +ATT) - GAIN
Except for the above table: adequate margin data below the limits.

Antenna Terminal Conducted Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	October 5, 2021
Temperature / Humidity	24 deg. C / 50 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 5

Limit : FCC15.111 Antenna terminal measurement



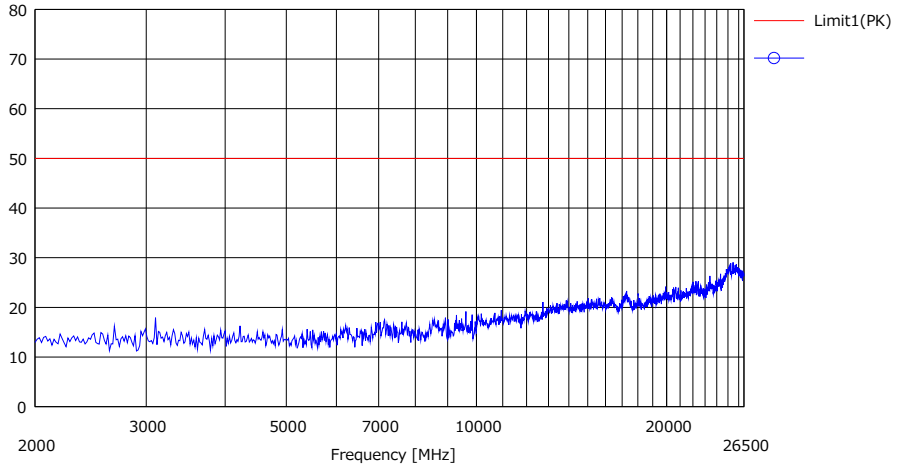
No.	Freq. [MHz]	Reading (PK) [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (PK) [dBuV]	Limit *1) (PK) [dBuV]	Margin (PK) [dB]	Pola. [H/V]	Ant. Type	Comment
1	1980.022	53.09	0.00	16.42	31.99	37.52	50.00	12.48			

*1) 2 nW = -57 dBm -=50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + LOSS (CABLE +ATT) - GAIN
Except for the above table: adequate margin data below the limits.

Antenna Terminal Conducted Emission

Report No.	13980589H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	October 5, 2021
Temperature / Humidity	24 deg. C / 50 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 5

Limit : FCC15.111 Antenna terminal measurement



No.	Freq. [MHz]	Reading [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV]	Limit *1) <PK> [dBuV]	Margin <PK> [dB]	Pola. [H/V]	Ant. Type	Comment

*1) 2 nW = -57 dBm -=50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + LOSS (CABLE +ATT) - GAIN
No signal detected

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Antenna Terminal Conducted Emission

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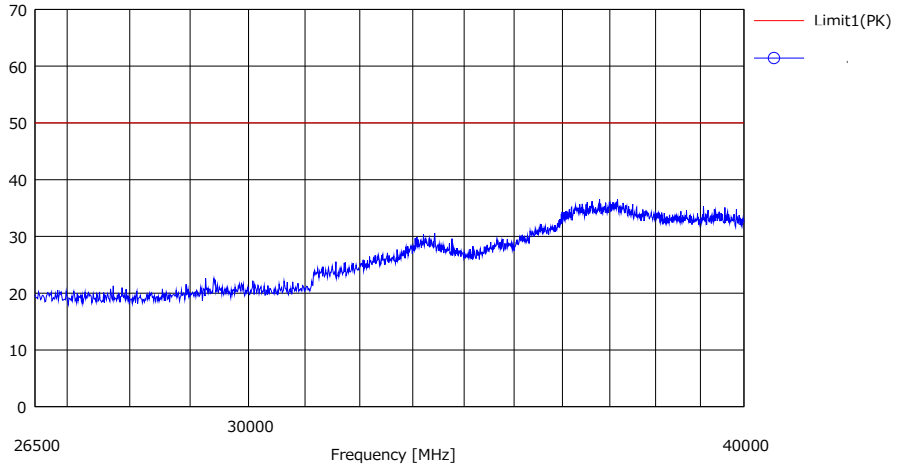
Limit : FCC15.111 Antenna terminal measurement



No.	Freq. [MHz]	Reading [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV]	Limit *1) (PK) [dBuV]	Margin (PK) [dB]	Pola. [H/V]	Ant. Type	Comment

*1) 2 nW = -57 dBm -=50 dBuV
CHART: WITH FACTOR
CALCULATION: RESULT = READING + LOSS (CABLE +ATT) - GAIN
No signal detected

APPENDIX 2: Test instruments

Test equipment

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	MAEC-04	142011	AC4_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/25/2020	24
RE	MOS-15	141562	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	0010	01/15/2021	12
RE	MMM-10	141545	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	51201148	01/07/2021	12
RE	MJM-29	142230	Measure	KOMELON	KMC-36	-	-	-
RE	COTS-M EMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	MAEC-04 -SVSWR	142017	AC4_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	04/12/2021	24
RE	MTR-10	141951	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	03/09/2021	12
RE	MSA-04	141885	Spectrum Analyzer	Keysight Technologies Inc	E4448A	US44300523	11/09/2020	12
RE	MAT-34	141331	Attenuator(6dB)	TME	UFA-01	-	02/02/2021	12
RE	MBA-05	141425	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+BBA9106	VHA 91031302	08/28/2021	12
RE	MCC-50	141397	Coaxial Cable	UL Japan	-	-	11/06/2020	12
RE	MLA-23	141267	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-192	08/28/2021	12
RE	MPA-14	141583	Pre Amplifier	SONOMA INSTRUMENT	310	260833	02/18/2021	12
RE	MHA-21	141508	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	557	05/10/2021	12
RE	MPA-12	141581	MicroWave System Amplifier	Keysight Technologies Inc	83017A	00650	10/19/2020	12
RE	MCC-246	199563	Microwave Cable	Huber+Suhner	SF126E/11PC35/ 11PC35/1000M,5000M	537061/126E / 537072/126E	-	-
RE	MHA-17	141506	Horn Antenna 15-40GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9170	BBHA9170307	07/20/2021	12
RE	MHA-29	141517	Horn Antenna 26.5-40GHz	ETS-Lindgren	3160-10	152399	08/27/2021	12
RE	MCC-224	160324	Coaxial Cable	Huber+Suhner	SUCOFLEX 102A	MY009/2A	11/17/2020	12
RE	MPA-22	141588	Pre Amplifier	MITEQ, Inc	AMF-6F-2600400-33-8P / AMF-4F-2600400-33-8P	1871355 /1871328	09/30/2021	12
RE	MSG-14	141894	Signal Generator	Rohde & Schwarz	SMC100A	1411.4002k02	10/16/2020	12
RE	MDCB-02	141485	DC Block Filter	Keysight Technologies Inc	N9398C	51053	11/06/2020	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	01/15/2021	12
AT	MMM-10	141545	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	51201148	01/07/2021	12
AT	MJM-29	142230	Measure	KOMELON	KMC-36	-	-	-
AT	COTS-M EMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
AT	MSA-03	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	03/10/2021	12
AT	MCC-50	141397	Coaxial Cable	UL Japan	-	-	11/06/2020	12
AT	MMP-01	141550	Matching Pad Anritsu	Anritsu Corporation	MB-009	40063	07/19/2021	12
AT	MDCB-02	141485	DC Block Filter	Keysight Technologies Inc	N9398C	51053	11/06/2020	12
AT	MPA-14	141583	Pre Amplifier	SONOMA INSTRUMENT	310	260833	02/18/2021	12
AT	MPA-12	141581	MicroWave System Amplifier	Keysight Technologies Inc	83017A	00650	10/19/2020	12
AT	MPA-03	141577	Microwave System Power Amplifier	Keysight Technologies Inc	83050A	MY39500610	10/19/2020	12
AT	MCC-54	141325	Microwave Cable	Suhner	SUCOFLEX101	2873(1m) / 2876(5m)	03/02/2021	12
AT	MCC-257	208936	Microwave Cable	Huber+Suhner	SF126E/11PC35/ 11PC35/1000M,5000M	537061/126E / 537076/126E	07/18/2021	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 test