

EMI TEST REPORT

Test Report No. 15398805H-D

Customer	DENSO TEN Limited
Description of EUT	Car Audio
Model Number of EUT	TN0047A
FCC ID	BABTN0047A
Test Regulation	FCC Part 15 Subpart B
Test Result	Complied
Issue Date	October 15, 2024
Remarks	-

Representative test engineerNachi Konegawa
Engineer**Approved by**Ryota Yamanaka
Engineer

CERTIFICATE 5107.02

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

Report Cover Page - Form-ULID-003532 (DCS:13-EM-F0429) Issue# 23.0

ANNOUNCEMENT

- This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
- The results in this report apply only to the sample tested. (Laboratory was not involved in sampling.)
- This sample tested is in compliance with the limits of the above regulation.
- The test results in this test report are traceable to the national or international standards.
- This test report must not be used by the customer to claim product certification, approval, or endorsement by the A2LA accreditation body.
- This test report covers EMC technical requirements. It does not cover administrative issues such as Manual or non-EMC test related Requirements. (if applicable)
- The all test items in this test report are conducted by UL Japan, Inc. Ise EMC Lab.
- The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan, Inc. has been accredited.
- The information provided by the customer for this report is identified in SECTION 1.
- The laboratory is not responsible for information provided by the customer which can impact the validity of the results.
- For test report(s) referred in this report, the latest version (including any revisions) is always referred.

REVISION HISTORY

Original Test Report No. 15398805H-D

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15398805H-D	October 15, 2024	-

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 Low Energy	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 specification, procedures & results	7
SECTION 4: Operation of EUT during testing	10
SECTION 5: Radiated Emission	14
SECTION 6: Antenna Terminal	16
APPENDIX 1: Test data	17
Radiated Emission	17
Antenna Terminal Conducted Emission.....	27
APPENDIX 2: Test instruments	29
APPENDIX 3: Photographs of test setup.....	31
Radiated Emission	31
Worst Case Position	35
Antenna Terminal Conducted Tests	36

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	Kaoru Abe

The information provided by the customer is as follows;

- Customer, Description of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer Information
- SECTION 2: Equipment Under Test (EUT) other than the Receipt Date and Test Date
- SECTION 4: Operation of EUT during testing

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT

Description	Car Audio
Model Number	TN0047A
Serial Number	Refer to SECTION 4.2
Condition	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	August 9, 2024
Test Date	September 3, to 6, 2024

2.2 Product Description

General Specification

Rating	DC 12 V
Clock frequency (ies) in the system	1.716 GHz (Max)

Radio Specification-1/2

[WLAN (IEEE802.11b/11g/11n-20)]

Equipment Type	Transceiver
Frequency of Operation	2437 MHz
Type of Modulation	DSSS, OFDM
Antenna Gain	-0.57 dBi

[Bluetooth (BR/EDR)]

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	FHSS (GFSK, $\pi/4$ DQPSK, 8 DPSK)
Antenna Gain	-0.49 dBi

Radio Specification-2/2

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

Equipment Type	Transceiver	
Frequency of Operation	20 MHz Band	5765 MHz
	40 MHz Band	5755 MHz
	80 MHz Band	5775 MHz
Type of Modulation	OFDM	
Antenna Gain	0.31 dBi	

[AM/FM/DAB]

Equipment Type	Receiver
Frequency of Operation	AM: 530 kHz to 1625 kHz FM: Band II: 87.5 MHz to 108.0 MHz DAB (Band III): 174.928 MHz to 239.200 MHz
Type of Modulation	AM FM DAB: OFDM
Antenna Connector Type	HFC IV
Impedance	AM, FM: 75 ohm DAB: 50 ohm

2.3 Variant models

There has five types; A, B, C, D, E and H. Tests were performed to Type A (base model) as representative model.

Frequency of Operation for WLAN is as following table.

	Type A (EUT)	Type B	Type C		Type D		Type E	Type H
	A-1	B-1	C-1 C-2	C-3 C-4	D-1 D-2	D-3 D-4	E-1 E-2	H-1, H-2
5735 MHz to 5815 MHz	Y	Y	Y	-	Y	-	Y	Y
2426 MHz to 2448 MHz	Y	-	-	Y	-	Y	-	-

*Wireless block hardware is the same as Type A.

Wifi frequency can be selected between 2.4 GHz or 5 GHz by the product's built-in software.

SECTION 3: Test specification, procedures & results

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 Procedures and results

Item	Test Procedure	Limits	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	*1)
Radiated emission	ANSI C63.4: 2014 + C63.4a: 2017 8. Radiated emission measurements IEEE 187: 2003	Part 15 Subpart B 15.109(a)	6.92 dB 1300.000 MHz, Vertical, Mode 2 (Other)	Complied	-
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)	24.29 dB 1300.053 MHz, Mode 3	Complied	-

* 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

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 m	1 GHz to 6 GHz		dB	5.1
	6 GHz to 18 GHz		dB	5.4
1 m	10 GHz to 18 GHz		dB	5.4
	18 GHz to 26.5 GHz		dB	5.3
	26.5 GHz to 40 GHz		dB	4.8
0.5 m	26.5 GHz to 40 GHz		dB	5.0

Antenna Terminal test

Item	Unit	Calculated Uncertainty (+/-)
Antenna terminal conducted emission	dB	3.1

3.5 Test Location

UL Japan, Inc. Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 Japan

Telephone: +81-596-24-8999

A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919

ISED Lab Company Number: 2973C / CAB identifier: JP0002

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

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

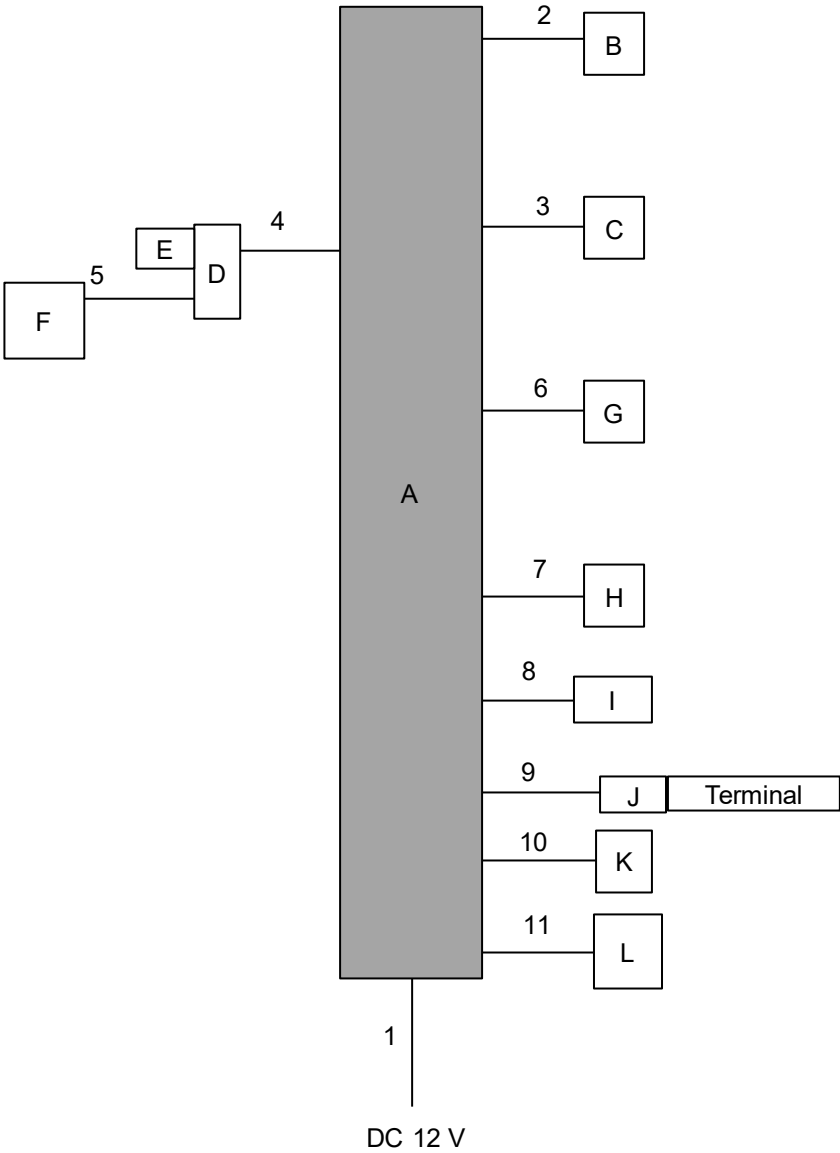
SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

Mode	1. USB Play mode:
	2. FM Receiving mode (Local / Other)
	3. FM Seek mode (Local/Other)
Software(s)	E-DA3 software Version: V1.0.0

4.2 Configuration and peripherals

Mode1



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

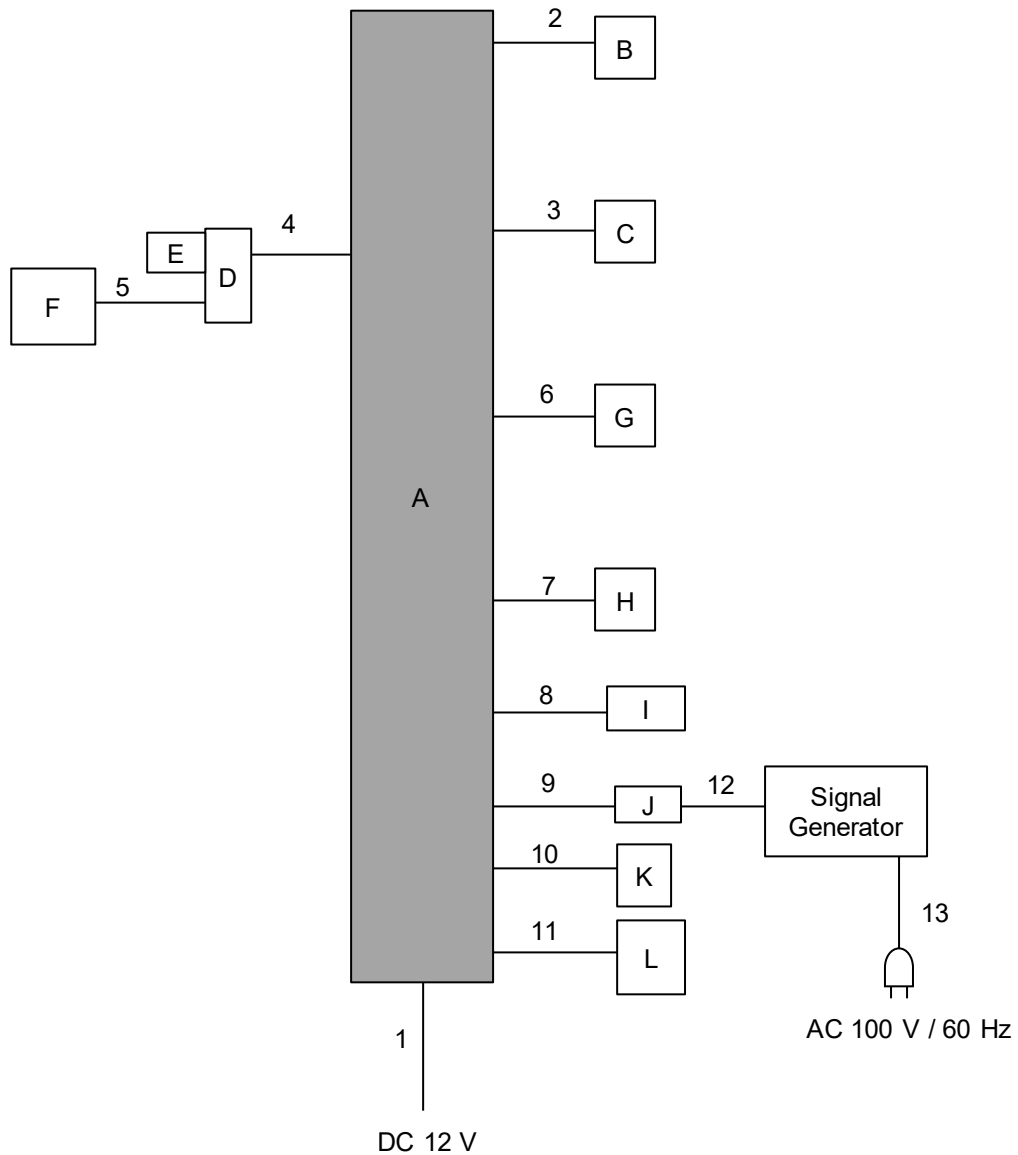
Description of EUT and Support Equipment

No.	Item	Model number	Serial Number	Manufacturer	Remarks
A	Car Audio	TN0047A	100292248-0007	DENSO TEN Limited	EUT
B	Micro Phone	86730-78010	31C043761	Panasonic	-
C	Digital Camera	867B0-78070	THX4235Q05385	Panasonic	-
D	USB I/F BOX	86190-78020	500870	Panasonic	-
E	USB Memory	RUF3-K16GB	P10416	Buffalo Inc.	-
F	iPhone	MD297B/A	C34JJ55EDTWD	Apple	-
G	Steering Switch	84250-58150-BO	NO2	-	-
H	GNSS Antenna	86880-78010	34347	Harada Industry Co., Ltd.	-
I	Speaker Dummy	SP Dummy	DUMMY -210810-001	DENSO TEN Limited	-
J	AM / FM Dummy	AM / FM Dummy	NO1	DENSO TEN Limited	-
K	Analog Camera	86790-60670	D310026	Panasonic	-
L	DAB Antenna AMP	863C0-60050	PS603296	DENSO TEN Limited	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	5.0	Unshielded	Unshielded	-
2	Signal Cable	3.0	Unshielded	Unshielded	-
3	Signal Cable	5.0	Unshielded	Unshielded	-
4	Signal Cable	3.0	Unshielded	Unshielded	-
5	USB Cable	1.0	Shielded	Shielded	-
6	Signal Cable	3.0	Unshielded	Unshielded	-
7	GNSS Antenna Cable	3.0	Shielded	Shielded	-
8	Speaker Cable	3.0	Unshielded	Unshielded	-
9	AM / FM Cable	0.2	Shielded	Shielded	-
10	Signal Cable	3.0	Unshielded	Unshielded	-
11	DAB Cable	3.5	Unshielded	Unshielded	-

Mode 2 and 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	TN0047A	100292248-0007	DENSO TEN Limited	EUT
B	Micro Phone	86730-78010	31C043761	Panasonic	-
C	Digital Camera	867B0-78070	THX4235Q05385	Panasonic	-
D	USB I/F BOX	86190-78020	500870	Panasonic	-
E	USB Memory	RUF3-K16GB	P10416	Buffalo Inc.	-
F	iPhone	MD297B/A	C34JJ55EDTWD	Apple	-
G	Steering Switch	84250-58150-BO	NO2	-	-
H	GNSS Antenna	86880-78010	34347	Harada Industry Co., Ltd.	-
I	Speaker Dummy	SP Dummy	DUMMY -210810-001	DENSO TEN Limited	-
J	AM / FM Dummy	AM / FM Dummy	NO1	DENSO TEN Limited	-
K	Analog Camera	86790-60670	D310026	Panasonic	-
L	DAB Antenna AMP	863C0-60050	PS603296	DENSO TEN Limited	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	5.0	Unshielded	Unshielded	-
2	Signal Cable	3.0	Unshielded	Unshielded	-
3	Signal Cable	5.0	Unshielded	Unshielded	-
4	Signal Cable	3.0	Unshielded	Unshielded	-
5	USB Cable	1.0	Shielded	Shielded	-
6	Signal Cable	3.0	Unshielded	Unshielded	-
7	GNSS Antenna Cable	3.0	Shielded	Shielded	-
8	Speaker Cable	3.0	Unshielded	Unshielded	-
9	AM / FM Cable	0.2	Shielded	Shielded	-
10	Signal Cable	3.0	Unshielded	Unshielded	-
11	DAB Cable	3.5	Unshielded	Unshielded	-
12	AM / FM Cable	1.0	Shielded	Shielded	-
13	AC Cable	1.0	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

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 to 200 MHz (Biconical antenna)
200 MHz to 1000 MHz (Logperiodic antenna)
1000 MHz to 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, or the Spectrum Analyzer.

The radiated emission measurements were made with the following detector function of the Test Receiver and the Spectrum Analyzer.

The test of Local oscillator spurious has been measured up to appropriate frequency based on the result of the antenna terminal test.

Test antenna was aimed at the emission source for receiving the maximum signal and always kept. (Above 1 GHz)

Frequency	Below 1 GHz	Above 1 GHz *1)
Instrument used	Test Receiver	Spectrum Analyzer
IF Bandwidth	QP: BW 120 kHz	PK: RBW: 1 MHz / VBW: 3 MHz AV *2): RBW: 1 MHz / VBW: 10 Hz

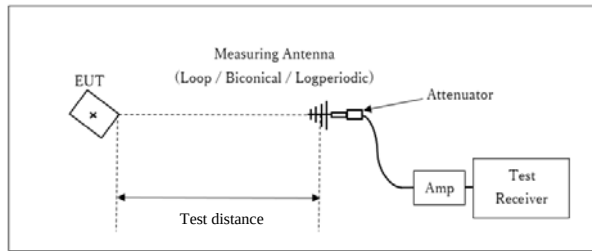
*1) The measurement data was adjusted to a 3 m distance using the following Distance Factor.

Distance Factor: See Figure 1.

*2) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Figure 1: Test Setup

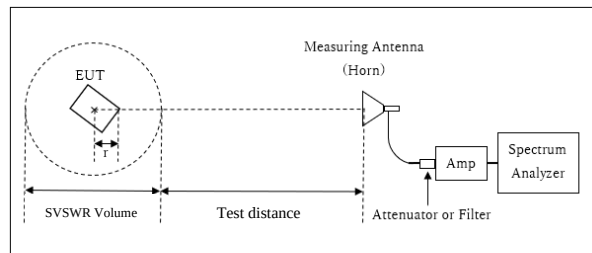
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz



r : Radius of an outer periphery of EUT

× : Center of turn table

[1 GHz to 6 GHz]

Distance Factor: $20 \times \log (3.30 \text{ m}^*/{3.0 \text{ m}}) = 0.83 \text{ dB}$

* $(\text{Test Distance} + \text{SVSWR Volume} / 2) - r = 3.30 \text{ m}$

Test Distance: 3 m

SVSWR Volume: 2 m

(SVSWR Volume has been calibrated based on CISPR 16-1-4.)

r: 0.70 m

[6 GHz to 10 GHz]

Distance Factor: $20 \times \log (4.30 \text{ m}^*/{3.0 \text{ m}}) = 3.13 \text{ dB}$

* $(\text{Test Distance} + \text{SVSWR Volume} / 2) - r = 4.30 \text{ m}$

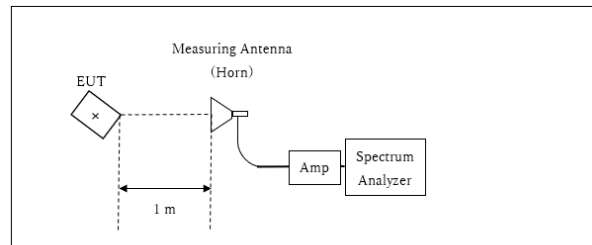
Test Distance: 4.3 m

SVSWR Volume: 1.4 m

(SVSWR Volume has been calibrated based on CISPR 16-1-4.)

r: 0.70 m

10 GHz to 40 GHz



× : Center of turn table

Distance Factor: $20 \times \log (1.0 \text{ m}^* / {3.0 \text{ m}}) = -9.54 \text{ dB}$

*Test Distance: 1 m

The carrier level and 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 the position that has the maximum noise.

6.5 Test result

Summary of the test results: Pass

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

SECTION 6: Antenna Terminal

6.1 Operating environment

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

6.2 Test configuration

EUT was placed on a 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 to 1000 MHz / 1000 MHz to 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

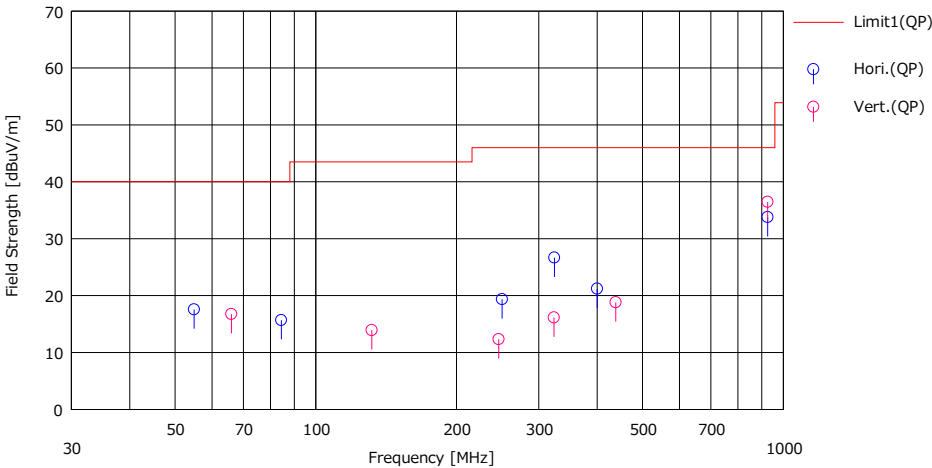
Summary of the test results: Pass

APPENDIX 1: Test data

Radiated Emission

Test place Ise EMC Lab.
Semi Anechoic Chamber No.3
Date September 4, 2024
Temperature / Humidity 22 deg. C / 65 % RH
Engineer Nachi Konegawa
 (Below 1 GHz)
Mode Mode 1

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)	Pda. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		[dBuV]				[dBuV/m]	[dBuV/m]	[dB]					
1	54.918	32.90	9.56	7.30	32.19	17.57	40.00	22.43	Hori.	400	243	BA	
2	84.388	32.80	7.35	7.71	32.17	15.69	40.00	24.31	Hori.	230	272	BA	
3	250.429	30.30	11.81	9.26	32.02	19.35	46.00	26.65	Hori.	140	214	LA22	
4	324.000	34.60	14.26	9.81	32.00	26.67	46.00	19.33	Hori.	100	86	LA22	
5	400.000	27.20	15.68	10.34	32.02	21.20	46.00	24.80	Hori.	100	105	LA22	
6	926.250	29.30	22.23	13.07	30.82	33.78	46.00	12.22	Hori.	100	150	LA22	
7	65.985	34.70	6.76	7.47	32.18	16.75	40.00	23.25	Vert.	100	260	BA	
8	131.770	24.10	13.73	8.21	32.12	13.92	43.50	29.58	Vert.	100	16	BA	
9	246.234	23.40	11.72	9.23	32.02	12.33	46.00	33.67	Vert.	100	43	LA22	
10	323.303	24.10	14.23	9.81	32.00	16.14	46.00	29.86	Vert.	100	286	LA22	
11	438.148	24.00	16.27	10.56	32.02	18.81	46.00	27.19	Vert.	100	230	LA22	
12	926.250	32.00	22.23	13.07	30.82	36.48	46.00	9.52	Vert.	100	207	LA22	

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

Radiated Emission

Test place
Semi Anechoic Chamber
Date
Temperature / Humidity
Engineer

Mode

Ise EMC Lab.
No.3
September 3, 2024
22 deg. C / 70 % RH
Hiroki Numata
(Below 1 GHz)
Mode 2 (Local 87.5 MHz)

Limit : FCC_Part 15 Subpart B(15.109)_Class B

<< QP DATA >>													
No.	Freq.	Reading	Ant.Fac	Loss	Gain	Result	Limit	Margin	Pola.	Height	Angle	Ant.	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type	
1	87.796	31.10	8.01	7.75	32.16	14.70	40.00	25.30	Hori.	254	301	BA	
2	175.592	22.20	16.02	8.64	32.07	14.79	43.50	28.71	Hori.	100	11	BA	
3	263.387	27.90	12.43	9.36	32.01	17.68	46.00	28.32	Hori.	114	211	LA22	
4	351.183	24.40	15.07	10.01	32.00	17.48	46.00	28.52	Hori.	120	214	LA22	
5	438.979	22.90	16.29	10.57	32.02	17.74	46.00	28.26	Hori.	133	132	LA22	
6	526.775	22.10	17.67	11.06	32.05	18.78	46.00	27.22	Hori.	154	37	LA22	
7	614.570	21.80	19.39	11.55	32.06	20.68	46.00	25.32	Hori.	100	60	LA22	
8	702.366	21.40	19.77	11.98	32.07	21.08	46.00	24.92	Hori.	100	0	LA22	
9	790.162	21.60	20.95	12.41	31.58	23.38	46.00	22.62	Hori.	100	0	LA22	
10	877.958	21.50	22.03	12.83	31.09	25.27	46.00	20.73	Hori.	100	0	LA22	
11	965.753	21.00	22.18	13.25	30.60	25.83	53.90	28.07	Hori.	100	0	LA22	
12	87.796	31.60	8.01	7.75	32.16	15.20	40.00	24.80	Vert.	100	291	BA	
13	175.592	22.30	16.02	8.64	32.07	14.89	43.50	28.61	Vert.	100	7	BA	
14	263.387	23.40	12.43	9.36	32.01	13.18	46.00	32.82	Vert.	204	153	LA22	
15	351.183	22.60	15.07	10.01	32.00	15.68	46.00	30.32	Vert.	143	298	LA22	
16	438.979	22.00	16.29	10.57	32.02	16.84	46.00	29.16	Vert.	115	138	LA22	
17	526.775	21.90	17.67	11.06	32.05	18.58	46.00	27.42	Vert.	100	222	LA22	
18	614.570	21.70	19.39	11.55	32.06	20.58	46.00	25.42	Vert.	100	150	LA22	
19	702.366	21.40	19.77	11.98	32.07	21.08	46.00	24.92	Vert.	100	0	LA22	
20	790.162	21.60	20.95	12.41	31.58	23.38	46.00	22.62	Vert.	100	0	LA22	
21	877.958	21.50	22.03	12.83	31.09	25.27	46.00	20.73	Vert.	100	0	LA22	
22	965.753	21.00	22.18	13.25	30.60	25.83	53.90	28.07	Vert.	100	0	LA22	

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

Radiated Emission

Test place
Semi Anechoic Chamber
Date
Temperature / Humidity
Engineer

Mode

Ise EMC Lab.
No.3
September 4, 2024
22 deg. C / 65 % RH
Nachi Konegawa
(Below 1 GHz)
Mode 2 (Local 98 MHz)

Limit : FCC_Part 15 Subpart B(15.109)_Class B

<< QP DATA >>													
No.	Freq.	Reading	Ant.Fac	Loss	Gain	Result	Limit	Margin	Pola	Height	Angle	Ant. Type	Comment
		(QP)				(QP)	(QP)	(QP)					
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]		
1	98.301	24.30	10.03	7.87	32.15	10.06	43.50	33.45	Hori.	282	231	BA	
2	196.602	22.20	16.53	8.82	32.05	15.50	43.50	28.00	Hori.	100	95	BA	
3	294.903	25.00	13.60	9.61	31.99	16.22	46.00	29.78	Hori.	100	69	LA22	
4	393.204	22.20	15.47	10.29	32.01	15.95	46.00	30.05	Hori.	100	123	LA22	
5	491.504	22.60	17.59	10.87	32.04	19.02	46.00	26.98	Hori.	100	354	LA22	
6	589.805	21.90	19.01	11.40	32.06	20.25	46.00	25.75	Hori.	100	0	LA22	
7	688.106	21.30	19.59	11.91	32.08	20.72	46.00	25.28	Hori.	100	3	LA22	
8	786.407	21.40	20.92	12.40	31.60	23.12	46.00	22.88	Hori.	100	108	LA22	
9	884.708	21.30	22.12	12.87	31.05	25.24	46.00	20.76	Hori.	100	0	LA22	
10	983.009	21.40	22.45	13.33	30.50	26.68	53.90	27.22	Hori.	100	159	LA22	
11	98.301	29.30	10.03	7.87	32.15	15.05	43.50	28.45	Vert.	100	307	BA	
12	196.602	22.00	16.53	8.82	32.05	15.30	43.50	28.20	Vert.	100	228	BA	
13	294.903	23.00	13.60	9.61	31.99	14.22	46.00	31.78	Vert.	100	0	LA22	
14	393.204	21.80	15.47	10.29	32.01	15.55	46.00	30.45	Vert.	100	0	LA22	
15	491.504	21.50	17.59	10.87	32.04	17.92	46.00	28.08	Vert.	100	0	LA22	
16	589.805	22.30	19.01	11.40	32.06	20.65	46.00	25.35	Vert.	100	0	LA22	
17	688.106	21.20	19.59	11.91	32.08	20.62	46.00	25.38	Vert.	100	0	LA22	
18	786.407	21.50	20.92	12.40	31.60	23.22	46.00	22.78	Vert.	100	0	LA22	
19	884.708	21.20	22.12	12.87	31.05	25.14	46.00	20.86	Vert.	100	0	LA22	
20	983.009	20.70	22.45	13.33	30.50	25.98	53.90	27.92	Vert.	100	190	LA22	

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

Radiated Emission

Test place
Semi Anechoic Chamber
Date
Temperature / Humidity
Engineer

Mode

Ise EMC Lab.
No.3
September 4, 2024
22 deg. C / 65 % RH
Nachi Konegawa
(Below 1 GHz)
Mode 2 (Local 108 MHz)

Limit : FCC_Part 15 Subpart B(15.109)_Class B

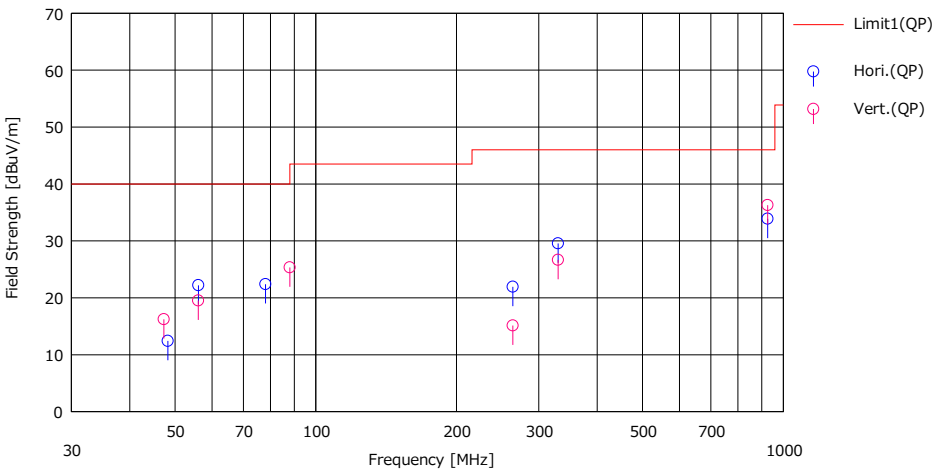
<< QP DATA >>													
No.	Freq.	Reading	Ant.Fac	Loss	Gain	Result	Limit	Margin	Pola	Height	Angle	Ant. Type	Comment
		(QP)				(QP)	(QP)	(QP)					
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]		
1	107.703	23.20	11.53	7.97	32.14	10.56	43.50	32.94	Hori.	157	67	BA	
2	215.405	25.00	11.24	8.98	32.04	13.18	43.50	30.32	Hori.	100	59	LA22	
3	323.108	22.50	14.22	9.81	32.00	14.53	46.00	31.47	Hori.	100	0	LA22	
4	430.811	22.60	16.15	10.52	32.02	17.25	46.00	28.75	Hori.	100	283	LA22	
5	538.513	22.70	17.81	11.12	32.05	19.58	46.00	26.42	Hori.	100	317	LA22	
6	646.216	22.50	19.32	11.71	32.07	21.46	46.00	24.54	Hori.	100	308	LA22	
7	753.918	21.20	20.28	12.24	31.78	21.94	46.00	24.06	Hori.	100	0	LA22	
8	861.621	21.40	21.83	12.76	31.18	24.81	46.00	21.19	Hori.	100	87	LA22	
9	969.324	20.60	22.24	13.27	30.58	25.53	53.90	28.37	Hori.	100	175	LA22	
10	107.703	24.20	11.53	7.97	32.14	11.56	43.50	31.94	Vert.	100	257	BA	
11	215.405	24.50	11.24	8.98	32.04	12.68	43.50	30.82	Vert.	100	0	LA22	
12	323.108	22.40	14.22	9.81	32.00	14.43	46.00	31.57	Vert.	100	0	LA22	
13	430.811	21.50	16.15	10.52	32.02	16.15	46.00	29.85	Vert.	100	0	LA22	
14	538.513	22.30	17.81	11.12	32.05	19.18	46.00	26.82	Vert.	100	207	LA22	
15	646.216	22.40	19.32	11.71	32.07	21.36	46.00	24.64	Vert.	100	0	LA22	
16	753.918	21.20	20.28	12.24	31.78	21.94	46.00	24.06	Vert.	100	0	LA22	
17	861.621	21.20	21.83	12.76	31.18	24.61	46.00	21.39	Vert.	100	0	LA22	
18	969.324	20.80	22.24	13.27	30.58	25.73	53.90	28.17	Vert.	100	190	LA22	

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

Radiated Emission

Test place Ise EMC Lab.
Semi Anechoic Chamber No.3
Date September 4, 2024
Temperature / Humidity 22 deg. C / 65 % RH
Engineer Nachi Konegawa
Mode (Below 1 GHz)
Mode 2 (Other)

Limit : FCC_Part 15 Subpart B(15.109)_Class B



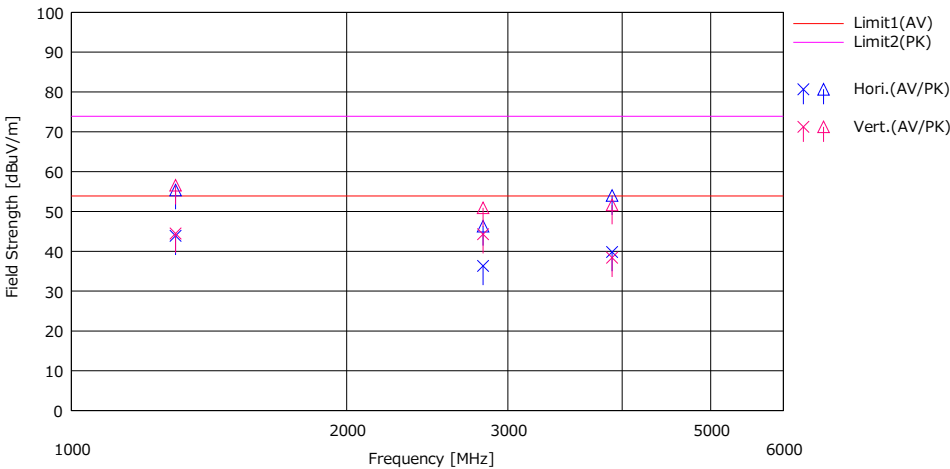
No.	Freq. [MHz]	Reading (QP)	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (QP)	Limit (QP)	Margn (QP)	Pola (H/V)	Height [cm]	Angle [deg]	Ant. Type	Comment
		[dBuV]				[dBuV/m]	[dBuV/m]	[dB]					
1	48.256	25.60	11.80	7.20	32.19	12.41	40.00	27.59	Hori.	400	9	BA	
2	56.109	37.90	9.17	7.32	32.19	22.20	40.00	17.80	Hori.	400	261	BA	
3	78.097	40.30	6.63	7.63	32.17	22.39	40.00	17.61	Hori.	400	263	BA	
4	264.000	32.10	12.47	9.37	32.01	21.93	46.00	24.07	Hori.	100	80	LA22	
5	330.000	37.20	14.50	9.85	32.00	29.55	46.00	16.45	Hori.	100	78	LA22	
6	926.250	29.40	22.23	13.07	30.82	33.88	46.00	12.12	Hori.	100	151	LA22	
7	47.330	29.10	12.13	7.19	32.19	16.23	40.00	23.77	Vert.	100	267	BA	
8	56.070	35.20	9.18	7.32	32.19	19.51	40.00	20.49	Vert.	100	353	BA	
9	88.022	41.70	8.05	7.75	32.16	25.34	43.50	18.16	Vert.	100	36	BA	
10	264.000	25.30	12.47	9.37	32.01	15.13	46.00	30.87	Vert.	100	311	LA22	
11	330.000	34.30	14.50	9.85	32.00	26.65	46.00	19.35	Vert.	175	181	LA22	
12	926.250	31.80	22.23	13.07	30.82	36.28	46.00	9.72	Vert.	100	210	LA22	

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

Radiated Emission

Test place Ise EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2024
Temperature / Humidity 23 deg. C / 69 % RH
Engineer Nachi Konegawa
Mode (Above 1 GHz)
Mode 1

Limit : FCC_Part 15 Subpart B(15.109)_Class B



No.	Freq. [MHz]	Reading		Ant Foc [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	1300.000	49.78	61.26	25.61	2.54	34.05	43.88	55.36	53.90	73.90	10.02	18.54	Hori.	100	183	H20	
2	2818.650	37.05	46.98	28.45	2.88	32.04	36.34	46.27	53.90	73.90	17.56	27.63	Hori.	195	134	H20	
3	3900.000	38.31	52.48	29.65	3.37	31.52	39.81	53.98	53.90	73.90	14.09	19.92	Hori.	100	168	H20	
4	1300.000	50.35	62.47	25.61	2.54	34.05	44.45	56.57	53.90	73.90	9.45	17.33	Vert.	100	208	H20	
5	2818.650	45.00	51.62	28.45	2.88	32.04	44.29	50.91	53.90	73.90	9.61	22.99	Vert.	109	192	H20	
6	3900.000	36.88	50.11	29.65	3.37	31.52	38.38	51.61	53.90	73.90	15.52	22.29	Vert.	193	163	H20	

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

* No signal was detected above 6 GHz.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	September 6, 2024
Temperature / Humidity	23 deg. C / 69 % RH
Engineer	Nachi Konegawa (Above 1 GHz)
Mode	Mode 2 (Local 87.5 MHz)

Limit : FCC_Part 15 Subpart B(15.109)_Class B

<< AV/PK DATA >>

No.	Freq. [MHz]	Reading		Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result		Limit		Margin		Pda [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		(AV)	(PK)				(AV)	(PK)	(AV)	(PK)	(AV)	(PK)					
		[dBuV]	[dBuV]				[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]					
1	1053.549	32.54	49.87	24.50	2.37	34.64	24.77	42.10	53.90	73.90	29.13	31.80	Hori.	100	0	H2O	
2	1053.549	32.38	49.51	24.50	2.37	34.64	24.61	41.74	53.90	73.90	29.29	32.16	Vert.	100	0	H2O	

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 6 GHz.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	September 6, 2024
Temperature / Humidity	23 deg. C / 69 % RH
Engineer	Nachi Konegawa (Above 1 GHz)
Mode	Mode 2 (Local 98 MHz)

Limit : FCC_Part 15 Subpart B(15.109)_Class B

[illegible]

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 6 GHz.

Radiated Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	September 6, 2024
Temperature / Humidity	23 deg. C / 69 % RH
Engineer	Nachi Konegawa (Above 1 GHz)
Mode	Mode 2 (Local 108 MHz)

Limit : FCC_Part 15 Subpart B(15.109)_Class B

<< AV/PK DATA >>

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	1077.026	32.11	46.91	24.62	2.39	34.58	24.54	39.34	53.90	73.90	29.36	34.56	Hori.	100	0	H2O	
2	1077.026	32.48	48.14	24.62	2.39	34.58	24.91	40.57	53.90	73.90	28.99	33.33	Vert.	100	0	H2O	
							</										

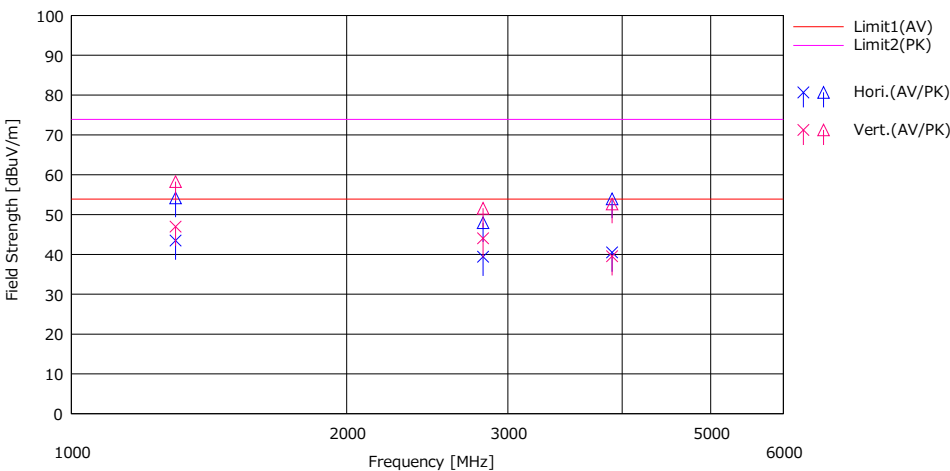
CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS(CABLE + D-factor) - GAIN(AMP)
Except for the above table: adequate margin data below the limits.

* No signal was detected above 6 GHz.

Radiated Emission

Test place Ise EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2024
Temperature / Humidity 23 deg. C / 69 % RH
Engineer Nachi Konegawa
Mode (Above 1 GHz)
Mode 2 (Other)

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	1300.000	49.38	60.05	25.61	2.54	34.05	43.48	54.15	53.90	73.90	10.42	19.75	Hori.	130	302	H20	
2	2818.650	39.60	48.11	28.45	3.42	32.04	39.43	47.94	53.90	73.90	14.47	25.96	Hori.	183	134	H20	
3	3900.000	38.45	51.89	29.65	3.91	31.52	40.49	53.93	53.90	73.90	13.41	19.97	Hori.	100	168	H20	
4	1300.000	52.88	64.17	25.61	2.54	34.05	46.98	58.27	53.90	73.90	6.92	15.63	Vert.	104	207	H20	
5	2818.650	44.20	51.73	28.45	3.42	32.04	44.03	51.56	53.90	73.90	9.87	22.34	Vert.	100	158	H20	
6	3900.000	37.52	50.59	29.65	3.91	31.52	39.56	52.63	53.90	73.90	14.34	21.27	Vert.	167	167	H20	

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

* No signal was detected above 6 GHz.

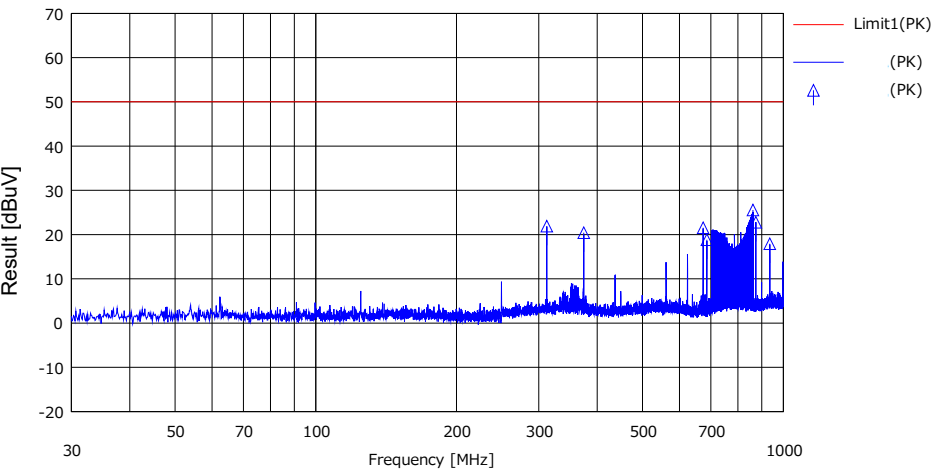
Antenna Terminal Conducted Emission

Test place
Semi Anechoic Chamber
Date
Temperature / Humidity
Engineer

Mode

Ise EMC Lab.
No.3
September 3, 2024
22 deg. C / 70 % RH
Hiroki Numata
(Below 1 GHz)
Mode 3

Limit : FCC15.111 Antenna terminal measurement



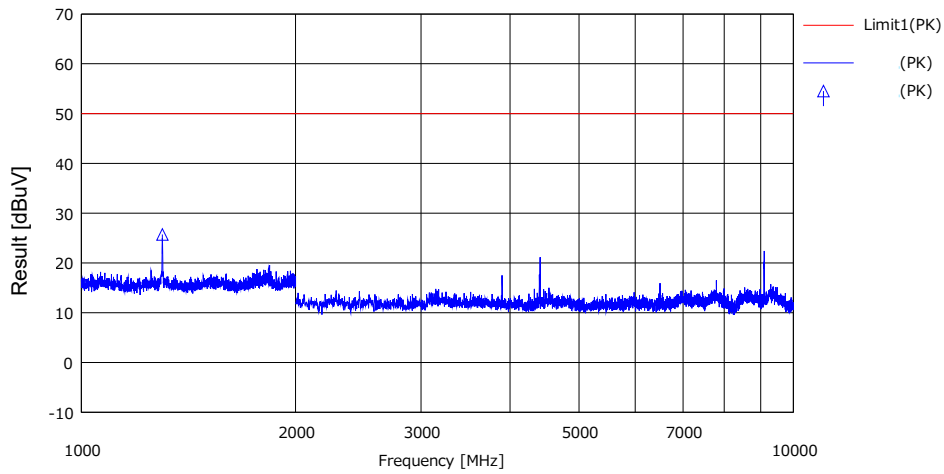
No.	Freq. [MHz]	Reading (PK)	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result (PK)	Limit *1) (PK)	Margn (PK)	Pola (H/V)	Height (cm)	Angle (deg)	Ant. Type	Comment
		[dBuV]				[dBuV]	[dBuV]	[dB]					
1	311.989	47.41	0.00	6.50	31.99	21.92	50.00	28.08					
2	374.391	45.84	0.00	6.61	32.01	20.44	50.00	29.56					
3	673.908	46.78	0.00	6.82	32.07	21.53	50.00	28.47					
4	686.386	44.07	0.00	6.82	32.08	18.81	50.00	31.19					
5	861.472	49.79	0.00	6.94	31.18	25.55	50.00	24.45					Local 108 MHz
6	873.588	46.94	0.00	6.94	31.11	22.77	50.00	27.23					
7	935.982	41.71	0.00	6.98	30.77	17.92	50.00	32.08					

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

Antenna Terminal Conducted Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	September 3, 2024
Temperature / Humidity	22 deg. C / 70 % RH
Engineer	Hiroki Numata (Above 1 GHz)
Mode	Mode 3

Limit : FCC15.111 Antenna terminal measurement



No.	Freq.	Reading	Ant.Fac	Loss	Gain	Result	Limit **1)	Margin	Pola	Height	Angle	Ant. Type	Comment
		(PK)				(PK)	(PK)						
	(MHz)	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV)	(dB)	(H/ V)	(cm)	(deg)		
1	1300.053	53.33	0.00	6.43	34.05	25.71	50.00	24.29					

* 2 nW = -57 dBm = 50 dBuV

CHART: WITH FACTOR

CALCULATION: RESULT = READING + LOSS (CABLE + Matching Pad) – GAIN (AMP)

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

* No signal was detected above 10 GHz.

APPENDIX 2: Test instruments

Test equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	141266	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-191	08/23/2024	12
RE	141323	Coaxial cable	UL Japan	-	-	09/10/2023	12
RE	141424	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+ BBA9106	1915	03/15/2024	12
RE	141507	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	258	11/20/2023	12
RE	141513	Horn Antenna 15-40GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9170	BBHA9170306	07/19/2024	12
RE	141517	Horn Antenna 26.5-40GHz	ETS-Lindgren	3160-10	152399	11/20/2023	12
RE	141532	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	051201197	01/31/2024	12
RE	141580	Microwave System Amplifier	Keysight Technologies Inc	83017A	MY39500779	03/08/2024	12
RE	141582	Pre Amplifier	SONOMA INSTRUMENT	310	260834	02/17/2024	12
RE	141588	Pre Amplifier	L3 Narda-MITEQ	AMF-6F-2600400- 33-8P / AMF-4F- 2600400-33-8P	1871355 / 1871328	01/22/2024	12
RE	141949	Test Receiver	Rohde & Schwarz	ESCI	100767	06/05/2024	12
RE	141978	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY46180899	05/09/2024	12
RE	142008	AC3 Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	12/11/2023	24
RE	142013	AC3 Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	04/12/2023	24
RE	142183	Measure	KOMELON	KMC-36	-	10/20/2023	12
RE	142314	Attenuator	Pasternack Enterprises	PE7390-6	D/C 1504	06/06/2024	12
RE	160324	Coaxial Cable	Huber+Suhner	SUCOFLEX 102A	MY009/2A	10/05/2023	12
RE	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	244709	Thermo-Hygrometer	HIOKI E.E. CORPORATION	LR5001	231202103	01/25/2024	12
RE	245787	Double Ridge Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA 9120 C	689	03/06/2024	12
RE	246001	Microwave Cable	Huber+Suhner	SF103/11PC35/ 11PC35/1000mm / SF126E/5000mm	800673(1m) / 610204(5m)	03/06/2024	12
AT	141327	Coaxial Cable	UL Japan	-	-	02/09/2024	12
AT	141532	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	051201197	01/31/2024	12
AT	141550	Matching Pad Anritsu	Anritsu Corporation	MB-009	40063	07/04/2024	12
AT	141580	Microwave System Amplifier	Keysight Technologies Inc	83017A	MY39500779	03/08/2024	12
AT	141582	Pre Amplifier	SONOMA INSTRUMENT	310	260834	02/17/2024	12
AT	141588	Pre Amplifier	L3 Narda-MITEQ	AMF-6F-2600400- 33-8P / AMF-4F- 2600400-33-8P	1871355 / 1871328	01/22/2024	12
AT	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	05/09/2024	12
AT	160324	Coaxial Cable	Huber+Suhner	SUCOFLEX 102A	MY009/2A	10/05/2023	12
AT	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
AT	244709	Thermo-Hygrometer	HIOKI E.E. CORPORATION	LR5001	231202103	01/25/2024	12
AT	248911	Microwave Cable	Huber+Suhner	SF126E/11PC35/ 11PC35/1000MM	537060/126E	05/29/2024	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

AT: Antenna Terminal Conducted