



RADIO TEST REPORT

Test Report No. : 13762991H

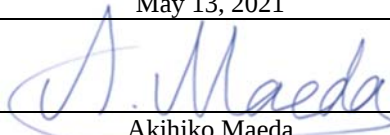
Applicant : Panasonic Corporation
Type of EUT : Wireless Charger
Model Number of EUT : AF2201
FCC ID : ACJ932AF2201
Test regulation : FCC Part 15 Subpart C: 2021
Test Result : Complied (Refer to SECTION 3)

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
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6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
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 has been accredited.
9. The information provided from the customer for this report is identified in Section 1.

Date of test:

May 13, 2021

Representative test engineer:


Akihiko Maeda
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.
☒ There is no testing item of "Non-accreditation".

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REVISION HISTORY

Original Test Report No.: 13762991H

Revision	Test report No.	Date	Page revised	Contents
- (Original)	13762991H	July 1, 2021	-	-

Reference: Abbreviations (Including words undescribed in this report)

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

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SECTION 1: Customer information

Company Name	:	Panasonic Corporation
Address	:	4261, Ikonobe-cho, Tsuzuki-ku, Yokohama-shi, Kanagawa-ken, 224-8520, Japan
Telephone Number	:	+81-80-3444-7148
Facsimile Number	:	+81-45-931-0806
Contact Person	:	Takahisa Sakai

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)
- 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	:	Wireless Charger
Model Number	:	AF2201
Serial Number	:	Refer to SECTION 4.2
Rating	:	DC 10.5 V to 16.0 V (Typ. DC 12.0 V)
Receipt Date	:	April 16, 2021
Country of Mass-production	:	China and Thailand
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: AF2201 (referred to as the EUT in this report) is a Wireless Charger.

Feature of EUT	:	Press the supply switch of the wireless charger. Each press the power supply switch it on/off. When turned the hybrid system off, the state of the power supply for wireless charger is memorized. Place the charging side of the portable device (etc. mobile phone) down. When charging, the operation indicator light (orange) comes on. If charging is not occurring, try placing the portable device as close to the center of the charging area as possible. When charging is complete, the operation indicator light (green) comes on.
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Radio Specification

Operating Frequency	:	120.3 kHz / 127.0 kHz / 127.5 kHz / 126.515 kHz to 128.549 kHz
Rated Output Power	:	5 W / 10 W
Coil system	:	Single Coil
Charging distance	:	Contact
Clock frequency (maximum)	:	8 MHz

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C
FCC Part 15 final revised on May 3, 2021 and effective July 2, 2021

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.209 Radiated emission limits; general requirements.

* The revision does not affect the test result conducted before its effective date.

3.2 Procedures and results

Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
Conducted Emission	<FCC> ANSI C63.10:2013 6 Standard test methods <ISED> RSS-Gen 8.8	<FCC> Section 15.207 <ISED> RSS-Gen 8.8	-	N/A	N/A	N/A *1)
Electric Field Strength of Fundamental Emission	<FCC> ANSI C63.10:2013 6 Standard test methods <ISED> RSS-Gen 6.5, 6.12	<FCC> Section 15.209 <ISED> RSS-210 7.2 RSS-Gen 8.9	Radiated	N/A	17.9 dB 127.373 kHz, 0 deg. Peak with Duty factor <Mode 8>	Complied a)
Electric Field Strength of Spurious Emission	<FCC> ANSI C63.10:2013 6 Standard test methods <ISED> RSS-Gen 6.5, 6.6, 6.13	<FCC> Section 15.209 <ISED> RSS-210 7.3 RSS-Gen 8.9	Radiated	N/A	13.0 dB 47.515 MHz, Vertical, QP <Mode 4>	Complied a)
-26 dB Bandwidth	<FCC> ANSI C63.10:2013 6 Standard test methods <ISED> -	<FCC> Reference data <ISED> -	Radiated	N/A	N/A	Complied b)

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.

*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 -26 dB Bandwidth)

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.

FCC Part 15.31 (e)

This EUT provides stable voltage constantly to RF part through the regulator regardless of input voltage.
Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT.
Therefore, the equipment complies with the antenna requirement of Section 15.203 .

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3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
99 % Occupied Band Width	RSS-Gen 6.7	-	Radiated	N/A	N/A	-

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.

Other than above, 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 $k=2$.

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Radiated emission

Measurement distance	Frequency range	Uncertainty (+/-)
3 m	9 kHz to 30 MHz	3.3 dB
10 m		3.2 dB
3 m	30 MHz to 200 MHz (Horizontal)	4.8 dB
		5.0 dB
	200 MHz to 1000 MHz (Horizontal)	5.2 dB
		6.3 dB
10 m	30 MHz to 200 MHz (Horizontal)	4.8 dB
		4.8 dB
	200 MHz to 1000 MHz (Horizontal)	5.0 dB
		5.0 dB

Antenna Terminal test

Test Item	Uncertainty (+/-)
-26 dB Bandwidth / 99 % Occupied Bandwidth	0.96 %

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3.5 Test Location

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*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 199967

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

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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

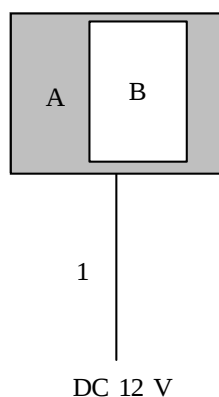
4.1. Operating Mode(s)

Test mode	Remarks
1) Normal Operating mode (120.3 kHz / 5 W)	Mode 1
2) Normal Operating mode (127.5 kHz / 10 W)	Mode 2
3) Normal Operating mode (127.0 kHz / 5 W)	Mode 3
4) Normal Operating mode (127.627 kHz / 10 W)	Mode 4
5) Normal Operating mode (127.756 kHz / 10 W)	Mode 5
6) Normal Operating mode (128.016 kHz / 10 W)	Mode 6
7) Normal Operating mode (128.549 kHz / 10 W)	Mode 7
8) Normal Operating mode (127.373 kHz / 10 W)	Mode 8
9) Normal Operating mode (127.248 kHz / 10 W)	Mode 9
10) Normal Operating mode (126.999 kHz / 10 W)	Mode 10
11) Normal Operating mode (126.515 kHz / 10 W)	Mode 11
* EUT was set by the software as follows; Software: WC2_0302.hex Version0302 (Date: 2021.02.12, Storage location: EUT memory) *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

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

4.2. Configuration and peripherals

[Mode 1 to 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	Wireless Charger	AF2201	500051	Panasonic Corporation	EUT
B	Test Jig	PAS-JS100	103	Panasonic Corporation	-

*A and B communicates and charges via air interface.

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	DC Cable	2.2	Unshielded	Unshielded	-

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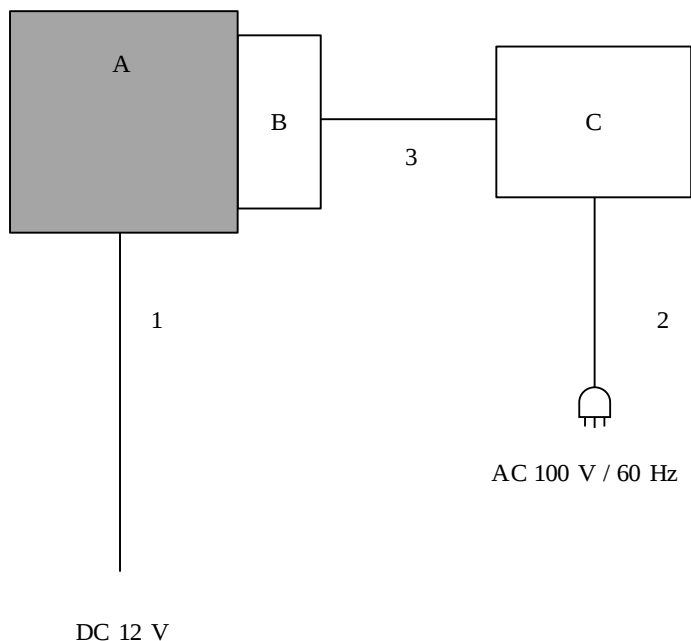
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[Mode 4 to 11]



* 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	Wireless Charger	AF2201	500051	Panasonic Corporation	EUT
B	Communication probe	-	-	nok9	-
C	Qi Reference Tester	LP/MP/FOD	200134-1807	nok9	-

*A and B communicates and charges via air interface.

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	DC Cable	2.2	Unshielded	Unshielded	-
2	AC Cable	1.0	Unshielded	Unshielded	-
3	Communication Cable	0.6	Shielded	Shielded	-

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SECTION 5: Radiated emission (Fundamental and Spurious Emission)

Test Procedure

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 Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

Frequency: From 9 kHz to 30 MHz

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

The measurements were performed for vertical polarization (antenna angle: 0 deg., 45 deg., 90 deg., and 135 deg.) and horizontal polarization.

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

Frequency: From 30 MHz to 1 GHz

The measuring antenna height 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.

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

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

Test Antennas are used as below;

Frequency	Below 30 MHz	30 MHz to 200 MHz	200 MHz to 1 GHz
Antenna Type	Loop	Biconical	Logperiodic

Frequency	From 9 kHz to 90 kHz and From 110 kHz to 150 kHz	From 90 kHz to 110 kHz	From 150 kHz to 490 kHz	From 490 kHz to 30 MHz	From 30 MHz to 1 GHz
Instrument used	Test Receiver				
Detector	PK / AV	QP	PK / AV	QP	QP
IF Bandwidth	200 Hz	200 Hz	9 kHz	9 kHz	120 kHz
Test Distance	3 m *1)	3 m *1)	3 m *1)	3 m *2)	3 m

*1) Distance Factor: $40 \times \log(3 \text{ m} / 300 \text{ m}) = -80 \text{ dB}$

*2) Distance Factor: $40 \times \log(3 \text{ m} / 30 \text{ m}) = -40 \text{ dB}$

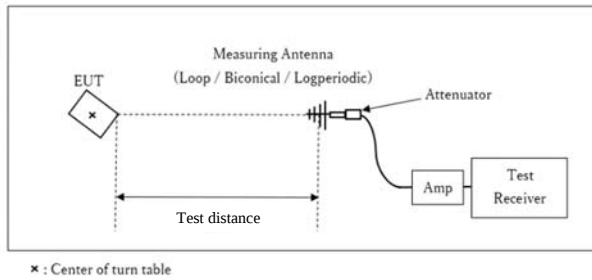
Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open field test site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

These tests were performed in semi anechoic chamber. Therefore, the measured level of emissions may be higher than if measurements were made without a ground plane.

However, test results were confirmed to pass against standard limit.

The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 Ohms. For example, the measurement at frequency 9 kHz resulted in a level of 45.5 dBuV/m, which is equivalent to $45.5 - 51.5 = -6.0 \text{ dBuA/m}$, which has the same margin, 3 dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

[Test Setup]
Below 1 GHz



Test Distance: 3 m

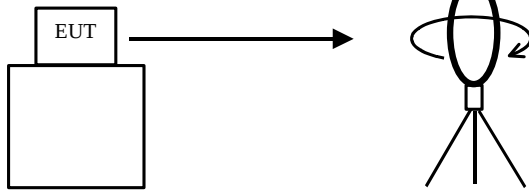
- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

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

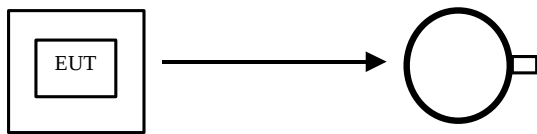
Measurement range : 9 kHz - 1 GHz
Test data : APPENDIX
Test result : Pass

Figure 1: Direction of the Loop Antenna

Side View (Vertical)

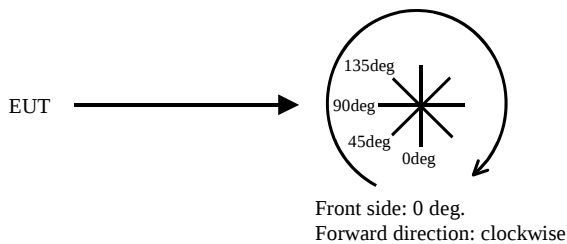


Top View (Horizontal)



Antenna was not rotated.

Top View (Vertical)



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SECTION 6: -26 dB Bandwidth

Test Procedure

The test was measured with a spectrum analyzer using a test fixture.

Test	Span	RBW	VBW	Sweep	Detector	Trace	Instrument used
-26 dB Bandwidth	Enough width to display emission skirts	1 to 5 % of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer

Test data : APPENDIX 1

Test result : Pass

SECTION 7: 99% Bandwidth

Test Procedure

The test was measured with a spectrum analyzer using a test fixture.

Test	Span	RBW	VBW	Sweep	Detector	Trace	Instrument used
99 % Occupied Bandwidth	Enough width to display emission skirts	1 to 5 % of OBW	Three times of RBW	Auto	Peak *)	Max Hold *)	Spectrum Analyzer

*) The measurement was performed with Peak detector, Max Hold since the duty cycle was not 100 %.
Peak hold was applied as Worst-case measurement.

Test data : APPENDIX

Test result : Pass

APPENDIX 1: Test data

Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	21 deg. C / 59 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 1(5W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12030	PK	88.6	18.9	-74.0	32.2	-	1.3	45.9	44.6	Fundamental
0deg	0.24060	PK	48.8	18.9	-74.0	32.2	-	-38.5	39.9	78.4	
0deg	0.36090	PK	65.8	18.8	-73.9	32.2	-	-21.5	36.4	57.9	
0deg	0.48120	PK	41.2	18.8	-73.9	32.2	-	-46.1	34.0	80.1	
0deg	0.60150	QP	55.9	18.8	-33.9	32.3	-	8.5	32.0	23.5	
0deg	0.72180	QP	32.5	18.8	-33.9	32.3	-	-14.9	30.4	45.3	
0deg	0.84210	QP	49.9	18.8	-33.9	32.3	-	2.5	29.1	26.6	
0deg	0.96240	QP	32.1	18.8	-33.9	32.3	-	-15.3	27.9	43.2	
0deg	1.08270	QP	45.8	18.8	-33.9	32.3	-	-1.6	26.9	28.5	
0deg	1.20300	QP	31.6	18.8	-33.9	32.3	-	-15.8	26.0	41.8	
Hori.	47.360	QP	22.2	12.2	7.4	32.2	-	9.6	40.0	30.4	
Hori.	59.230	QP	23.7	7.9	7.6	32.2	-	7.0	40.0	33.0	
Hori.	178.600	QP	25.3	16.1	9.0	32.1	-	18.3	43.5	25.2	
Hori.	239.761	QP	25.0	11.5	9.6	32.1	-	14.0	46.0	32.0	
Hori.	497.685	QP	22.0	17.7	11.4	32.0	-	19.1	46.0	26.9	
Hori.	760.790	QP	21.9	20.3	12.9	31.7	-	23.4	46.0	22.6	
Vert.	47.360	QP	27.9	12.2	7.4	32.2	-	15.3	40.0	24.7	
Vert.	59.230	QP	33.8	7.9	7.6	32.2	-	17.1	40.0	22.9	
Vert.	178.600	QP	25.8	16.1	9.0	32.1	-	18.8	43.5	24.7	
Vert.	239.761	QP	27.1	11.5	9.6	32.1	-	16.1	46.0	29.9	
Vert.	497.685	QP	22.1	17.7	11.4	32.0	-	19.2	46.0	26.8	
Vert.	760.790	QP	21.8	20.3	12.9	31.7	-	23.3	46.0	22.7	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12030	PK	88.6	18.9	-74.0	32.2	0.0	1.3	25.9	24.6	Fundamental
0deg	0.24060	PK	48.8	18.9	-74.0	32.2	0.0	-38.5	19.9	58.4	
0deg	0.36090	PK	65.8	18.8	-73.9	32.2	0.0	-21.5	16.4	37.9	
0deg	0.48120	PK	41.2	18.8	-73.9	32.2	0.0	-46.1	14.0	60.1	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12030	PK	88.6	18.9	6.0	32.2	-	81.3	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	21 deg. C / 59 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 2(10W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12750	PK	90.3	18.9	-74.0	32.2	-	3.0	45.4	42.4	Fundamental
0deg	0.25500	PK	46.8	18.9	-74.0	32.2	-	-40.5	39.4	79.9	
0deg	0.38250	PK	66.7	18.8	-73.9	32.2	-	-20.6	35.9	56.5	
0deg	0.51000	QP	34.8	18.8	-33.9	32.2	-	-12.5	33.5	46.0	
0deg	0.63750	QP	56.1	18.8	-33.9	32.3	-	8.7	31.5	22.8	
0deg	0.76500	QP	33.2	18.8	-33.9	32.3	-	-14.2	29.9	44.1	
0deg	0.89250	QP	48.9	18.8	-33.9	32.3	-	1.5	28.6	27.1	
0deg	1.02000	QP	32.2	18.8	-33.9	32.3	-	-15.2	27.4	42.6	
0deg	1.14750	QP	43.5	18.8	-33.9	32.3	-	-3.9	26.4	30.3	
0deg	1.27500	QP	31.7	18.8	-33.8	32.3	-	-15.6	25.4	41.0	
Hori.	47.320	QP	22.4	12.2	7.4	32.2	-	9.8	40.0	30.2	
Hori.	59.184	QP	27.7	7.9	7.6	32.2	-	11.0	40.0	29.0	
Hori.	178.700	QP	27.4	16.1	9.0	32.1	-	20.4	43.5	23.1	
Hori.	239.400	QP	26.9	11.5	9.6	32.1	-	15.9	46.0	30.1	
Hori.	482.967	QP	22.6	17.3	11.3	32.0	-	19.2	46.0	26.8	
Hori.	732.684	QP	21.9	20.1	12.7	31.9	-	22.8	46.0	23.2	
Vert.	47.320	QP	29.9	12.2	7.4	32.2	-	17.3	40.0	22.7	
Vert.	59.184	QP	38.9	7.9	7.6	32.2	-	22.2	40.0	17.8	
Vert.	178.700	QP	27.7	16.1	9.0	32.1	-	20.7	43.5	22.8	
Vert.	242.100	QP	28.6	11.6	9.6	32.1	-	17.7	46.0	28.3	
Vert.	482.967	QP	24.1	17.3	11.3	32.0	-	20.7	46.0	25.3	
Vert.	732.684	QP	21.9	20.1	12.7	31.9	-	22.8	46.0	23.2	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12750	PK	90.3	18.9	-74.0	32.2	0.0	3.0	25.4	22.4	Fundamental
0deg	0.25500	PK	46.8	18.9	-74.0	32.2	0.0	-40.5	19.4	59.9	
0deg	0.38250	PK	66.7	18.8	-73.9	32.2	0.0	-20.6	15.9	36.5	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12750	PK	90.3	18.9	6.0	32.2	-	83.0	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	21 deg. C / 59 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 3(5W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12700	PK	88.4	18.9	-74.0	32.2	-	1.1	45.5	44.4	Fundamental
0deg	0.25400	PK	50.9	18.9	-74.0	32.2	-	-36.4	39.5	75.9	
0deg	0.38100	PK	65.8	18.8	-73.9	32.2	-	-21.5	36.0	57.5	
0deg	0.50800	QP	37.0	18.8	-33.9	32.2	-	-10.3	33.5	43.8	
0deg	0.63500	QP	56.0	18.8	-33.9	32.3	-	8.6	31.5	22.9	
0deg	0.76200	QP	33.3	18.8	-33.9	32.3	-	-14.1	29.9	44.0	
0deg	0.88900	QP	49.9	18.8	-33.9	32.3	-	2.5	28.6	26.1	
0deg	1.01600	QP	32.4	18.8	-33.9	32.3	-	-15.0	27.4	42.4	
0deg	1.14300	QP	45.6	18.8	-33.9	32.3	-	-1.8	26.4	28.2	
0deg	1.27000	QP	32.1	18.8	-33.8	32.3	-	-15.2	25.5	40.7	
Hori.	39.720	QP	22.3	14.9	7.3	32.2	-	12.3	40.0	27.7	
Hori.	59.280	QP	24.9	7.9	7.6	32.2	-	8.2	40.0	31.8	
Hori.	178.240	QP	25.5	16.1	9.0	32.1	-	18.5	43.5	25.0	
Hori.	240.600	QP	24.0	11.6	9.6	32.1	-	13.1	46.0	32.9	
Hori.	461.200	QP	22.2	16.8	11.2	32.0	-	18.2	46.0	27.8	
Hori.	740.400	QP	21.8	20.2	12.8	31.8	-	23.0	46.0	23.0	
Vert.	39.720	QP	31.3	14.9	7.3	32.2	-	21.3	40.0	18.7	
Vert.	59.280	QP	28.8	7.9	7.6	32.2	-	12.1	40.0	27.9	
Vert.	178.240	QP	24.5	16.1	9.0	32.1	-	17.5	43.5	26.0	
Vert.	240.600	QP	25.8	11.6	9.6	32.1	-	14.9	46.0	31.1	
Vert.	461.200	QP	22.1	16.8	11.2	32.0	-	18.1	46.0	27.9	
Vert.	740.400	QP	21.9	20.2	12.8	31.8	-	23.1	46.0	22.9	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12700	PK	88.4	18.9	-74.0	32.2	0.0	1.1	25.5	24.4	Fundamental
0deg	0.25400	PK	50.9	18.9	-74.0	32.2	0.0	-36.4	19.5	55.9	
0deg	0.38100	PK	65.8	18.8	-73.9	32.2	0.0	-21.5	16.0	37.5	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12700	PK	88.4	18.9	6.0	32.2	-	81.1	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	21 deg. C / 59 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 4(10W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12763	PK	94.3	18.9	-74.0	32.2	-	7.0	45.4	38.4	Fundamental
0deg	0.25525	PK	54.0	18.9	-74.0	32.2	-	-33.3	39.4	72.7	
0deg	0.38288	PK	70.9	18.8	-73.9	32.2	-	-16.4	35.9	52.3	
0deg	0.51051	QP	42.0	18.8	-33.9	32.2	-	-5.3	33.4	38.7	
0deg	0.63814	QP	61.4	18.8	-33.9	32.3	-	14.0	31.5	17.5	
0deg	0.76576	QP	37.3	18.8	-33.9	32.3	-	-10.1	29.9	40.0	
0deg	0.89339	QP	55.2	18.8	-33.9	32.3	-	7.8	28.6	20.8	
0deg	1.02102	QP	34.8	18.8	-33.9	32.3	-	-12.6	27.4	40.0	
0deg	1.14864	QP	50.9	18.8	-33.9	32.3	-	3.5	26.4	22.9	
0deg	1.27627	QP	32.8	18.8	-33.8	32.3	-	-14.5	25.4	39.9	
Hori.	33.394	QP	21.2	17.2	7.2	32.2	-	13.4	40.0	26.6	
Hori.	47.515	QP	25.2	12.1	7.4	32.2	-	12.5	40.0	27.5	
Hori.	68.882	QP	38.2	6.4	7.8	32.2	-	20.2	40.0	19.8	
Hori.	185.011	QP	24.6	16.3	9.1	32.1	-	17.9	43.5	25.6	
Hori.	211.855	QP	30.5	11.1	9.3	32.1	-	18.8	43.5	24.7	
Hori.	330.154	QP	29.9	14.5	10.3	32.0	-	22.7	46.0	23.3	
Vert.	33.394	QP	26.6	17.2	7.2	32.2	-	18.8	40.0	21.2	
Vert.	47.515	QP	39.7	12.1	7.4	32.2	-	27.0	40.0	13.0	
Vert.	68.882	QP	42.6	6.4	7.8	32.2	-	24.6	40.0	15.4	
Vert.	185.011	QP	24.5	16.3	9.1	32.1	-	17.8	43.5	25.7	
Vert.	211.855	QP	28.3	11.1	9.3	32.1	-	16.6	43.5	26.9	
Vert.	330.154	QP	26.1	14.5	10.3	32.0	-	18.9	46.0	27.1	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12763	PK	94.3	18.9	-74.0	32.2	0.0	7.0	25.4	18.4	Fundamental
0deg	0.25525	PK	54.0	18.9	-74.0	32.2	0.0	-33.3	19.4	52.7	
0deg	0.38288	PK	70.9	18.8	-73.9	32.2	0.0	-16.4	15.9	32.3	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12763	PK	94.3	18.9	6.0	32.2	-	87.0	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	21 deg. C / 59 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 5(10W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12776	PK	94.4	18.9	-74.0	32.2	-	7.1	45.4	38.3	Fundamental
0deg	0.25551	PK	53.4	18.9	-74.0	32.2	-	-33.9	39.4	73.3	
0deg	0.38327	PK	71.0	18.8	-73.9	32.2	-	-16.3	35.9	52.2	
0deg	0.51102	QP	42.0	18.8	-33.9	32.2	-	-5.3	33.4	38.7	
0deg	0.63878	QP	61.5	18.8	-33.9	32.3	-	14.1	31.5	17.4	
0deg	0.76654	QP	37.4	18.8	-33.9	32.3	-	-10.0	29.9	39.9	
0deg	0.89429	QP	55.2	18.8	-33.9	32.3	-	7.8	28.5	20.7	
0deg	1.02205	QP	34.5	18.8	-33.9	32.3	-	-12.9	27.4	40.3	
0deg	1.14980	QP	51.0	18.8	-33.9	32.3	-	3.6	26.3	22.7	
0deg	1.27756	QP	33.4	18.8	-33.8	32.3	-	-13.9	25.4	39.3	
Hori.	33.387	QP	22.1	17.2	7.2	32.2	-	14.3	40.0	25.7	
Hori.	47.385	QP	24.6	12.2	7.4	32.2	-	12.0	40.0	28.0	
Hori.	69.803	QP	39.1	6.4	7.8	32.2	-	21.1	40.0	18.9	
Hori.	185.457	QP	24.9	16.4	9.1	32.1	-	18.3	43.5	25.2	
Hori.	228.586	QP	29.2	11.3	9.5	32.1	-	17.9	46.0	28.1	
Hori.	317.397	QP	26.6	13.9	10.2	32.0	-	18.7	46.0	27.3	
Vert.	33.387	QP	26.2	17.2	7.2	32.2	-	18.4	40.0	21.6	
Vert.	47.385	QP	37.8	12.2	7.4	32.2	-	25.2	40.0	14.8	
Vert.	69.983	QP	41.0	6.4	7.8	32.2	-	23.0	40.0	17.0	
Vert.	185.457	QP	23.5	16.4	9.1	32.1	-	16.9	43.5	26.6	
Vert.	228.586	QP	25.6	11.3	9.5	32.1	-	14.3	46.0	31.7	
Vert.	317.397	QP	24.7	13.9	10.2	32.0	-	16.8	46.0	29.2	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12776	PK	94.4	18.9	-74.0	32.2	0.0	7.1	25.4	18.3	Fundamental
0deg	0.25551	PK	53.4	18.9	-74.0	32.2	0.0	-33.9	19.4	53.3	
0deg	0.38327	PK	71.0	18.8	-73.9	32.2	0.0	-16.3	15.9	32.2	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12776	PK	94.4	18.9	6.0	32.2	-	87.1	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 60 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Akihiko Maeda (Above 30 MHz)
Mode	Mode 6(10W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12802	PK	94.5	18.9	-74.0	32.2	-	7.2	45.4	38.2	Fundamental
0deg	0.25603	PK	53.3	18.9	-74.0	32.2	-	-34.0	39.4	73.4	
0deg	0.38405	PK	71.1	18.8	-73.9	32.2	-	-16.2	35.9	52.1	
0deg	0.51206	QP	41.9	18.8	-33.9	32.2	-	-5.4	33.4	38.8	
0deg	0.64008	QP	61.0	18.8	-33.9	32.3	-	13.6	31.5	17.9	
0deg	0.76810	QP	37.3	18.8	-33.9	32.3	-	-10.1	29.9	40.0	
0deg	0.89611	QP	55.1	18.8	-33.9	32.3	-	7.7	28.5	20.8	
0deg	1.02413	QP	36.2	18.8	-33.9	32.3	-	-11.2	27.4	38.6	
0deg	1.15214	QP	50.2	18.8	-33.9	32.3	-	2.8	26.3	23.5	
0deg	1.28016	QP	34.4	18.8	-33.8	32.3	-	-12.9	25.4	38.3	
Hori.	33.155	QP	22.2	17.3	7.2	32.2	-	14.5	40.0	25.5	
Hori.	47.387	QP	25.1	12.2	7.4	32.2	-	12.5	40.0	27.5	
Hori.	69.783	QP	36.3	6.4	7.8	32.2	-	18.3	40.0	21.7	
Hori.	185.130	QP	24.4	16.3	9.1	32.1	-	17.7	43.5	25.8	
Hori.	231.543	QP	29.2	11.3	9.5	32.1	-	17.9	46.0	28.1	
Hori.	316.947	QP	26.9	13.9	10.2	32.0	-	19.0	46.0	27.0	
Vert.	33.155	QP	28.1	17.3	7.2	32.2	-	20.4	40.0	19.6	
Vert.	47.387	QP	32.2	12.2	7.4	32.2	-	19.6	40.0	20.4	
Vert.	69.783	QP	36.9	6.4	7.8	32.2	-	18.9	40.0	21.1	
Vert.	185.130	QP	23.1	16.3	9.1	32.1	-	16.4	43.5	27.1	
Vert.	231.543	QP	25.4	11.3	9.5	32.1	-	14.1	46.0	31.9	
Vert.	316.947	QP	24.0	13.9	10.2	32.0	-	16.1	46.0	29.9	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12802	PK	94.5	18.9	-74.0	32.2	0.0	7.2	25.4	18.2	Fundamental
0deg	0.25603	PK	53.3	18.9	-74.0	32.2	0.0	-34.0	19.4	53.4	
0deg	0.38405	PK	71.1	18.8	-73.9	32.2	0.0	-16.2	15.9	32.1	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12802	PK	94.5	18.9	6.0	32.2	-	87.2	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No. 13762991H
Test place Ise EMC Lab.
Semi Anechoic Chamber No.3
Date May 13, 2021
Temperature / Humidity 23 deg. C / 51 % RH
Engineer Akihiko Maeda
(Below 30 MHz)
Mode Mode 7(10W)
No.3
May 13, 2021
23 deg. C / 60 % RH
Akihiko Maeda
(Above 30 MHz)

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12855	PK	93.6	18.9	-74.0	32.2	-	6.3	45.4	39.1	Fundamental
0deg	0.25710	PK	50.1	18.9	-74.0	32.2	-	-37.2	39.4	76.6	
0deg	0.38565	PK	69.3	18.8	-73.9	32.2	-	-18.0	35.9	53.9	
0deg	0.51420	QP	43.7	18.8	-33.9	32.2	-	-3.6	33.4	37.0	
0deg	0.64275	QP	58.9	18.8	-33.9	32.3	-	11.5	31.4	19.9	
0deg	0.77129	QP	39.1	18.8	-33.9	32.3	-	-8.3	29.8	38.1	
0deg	0.89984	QP	52.3	18.8	-33.9	32.3	-	4.9	28.5	23.6	
0deg	1.02839	QP	35.1	18.8	-33.9	32.3	-	-12.3	27.3	39.6	
0deg	1.15694	QP	45.1	18.8	-33.9	32.3	-	-2.3	26.3	28.6	
0deg	1.28549	QP	33.2	18.8	-33.8	32.3	-	-14.1	25.4	39.5	
Hori.	33.025	QP	22.6	17.3	7.2	32.2	-	14.9	40.0	25.1	
Hori.	47.773	QP	26.1	12.0	7.4	32.2	-	13.3	40.0	26.7	
Hori.	69.343	QP	37.1	6.4	7.8	32.2	-	19.1	40.0	20.9	
Hori.	185.505	QP	25.1	16.4	9.1	32.1	-	18.5	43.5	25.0	
Hori.	230.803	QP	29.8	11.3	9.5	32.1	-	18.5	46.0	27.5	
Hori.	317.339	QP	27.0	13.9	10.2	32.0	-	19.1	46.0	26.9	
Vert.	33.025	QP	28.3	17.3	7.2	32.2	-	20.6	40.0	19.4	
Vert.	47.773	QP	33.1	12.0	7.4	32.2	-	20.3	40.0	19.7	
Vert.	69.343	QP	38.6	6.4	7.8	32.2	-	20.6	40.0	19.4	
Vert.	185.505	QP	24.2	16.4	9.1	32.1	-	17.6	43.5	25.9	
Vert.	230.803	QP	27.8	11.3	9.5	32.1	-	16.5	46.0	29.5	
Vert.	317.339	QP	24.6	13.9	10.2	32.0	-	16.7	46.0	29.3	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12855	PK	93.6	18.9	-74.0	32.2	0.0	6.3	25.4	19.1	Fundamental
0deg	0.25710	PK	50.1	18.9	-74.0	32.2	0.0	-37.2	19.4	56.6	
0deg	0.38565	PK	69.3	18.8	-73.9	32.2	0.0	-18.0	15.9	33.9	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12855	PK	93.6	18.9	6.0	32.2	-	86.3	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 60 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Akihiko Maeda (Above 30 MHz)
Mode	Mode 8(10W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12737	PK	94.8	18.9	-74.0	32.2	-	7.5	45.4	37.9	Fundamental
0deg	0.25475	PK	54.8	18.9	-74.0	32.2	-	-32.5	39.5	72.0	
0deg	0.38212	PK	71.4	18.8	-73.9	32.2	-	-15.9	36.0	51.9	
0deg	0.50949	QP	41.3	18.8	-33.9	32.2	-	-6.0	33.5	39.5	
0deg	0.63687	QP	61.4	18.8	-33.9	32.3	-	14.0	31.5	17.5	
0deg	0.76424	QP	37.3	18.8	-33.9	32.3	-	-10.1	29.9	40.0	
0deg	0.89161	QP	55.5	18.8	-33.9	32.3	-	8.1	28.6	20.5	
0deg	1.01898	QP	34.3	18.8	-33.9	32.3	-	-13.1	27.4	40.5	
0deg	1.14636	QP	51.0	18.8	-33.9	32.3	-	3.6	26.4	22.8	
0deg	1.27373	QP	34.1	18.8	-33.8	32.3	-	-13.2	25.5	38.7	
Hori.	33.198	QP	22.4	17.3	7.2	32.2	-	14.7	40.0	25.3	
Hori.	47.852	QP	25.4	12.0	7.4	32.2	-	12.6	40.0	27.4	
Hori.	69.453	QP	37.3	6.4	7.8	32.2	-	19.3	40.0	20.7	
Hori.	185.263	QP	24.3	16.4	9.1	32.1	-	17.7	43.5	25.8	
Hori.	227.645	QP	29.1	11.3	9.5	32.1	-	17.8	46.0	28.2	
Hori.	323.813	QP	27.9	14.2	10.2	32.0	-	20.3	46.0	25.7	
Vert.	33.198	QP	28.3	17.3	7.2	32.2	-	20.6	40.0	19.4	
Vert.	47.852	QP	32.1	12.0	7.4	32.2	-	19.3	40.0	20.7	
Vert.	69.453	QP	37.3	6.4	7.8	32.2	-	19.3	40.0	20.7	
Vert.	185.263	QP	24.1	16.4	9.1	32.1	-	17.5	43.5	26.0	
Vert.	227.645	QP	26.3	11.3	9.5	32.1	-	15.0	46.0	31.0	
Vert.	323.813	QP	24.5	14.2	10.2	32.0	-	16.9	46.0	29.1	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12737	PK	94.8	18.9	-74.0	32.2	0.0	7.5	25.4	17.9	Fundamental
0deg	0.25475	PK	54.8	18.9	-74.0	32.2	0.0	-32.5	19.5	52.0	
0deg	0.38212	PK	71.4	18.8	-73.9	32.2	0.0	-15.9	16.0	31.9	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12737	PK	94.8	18.9	6.0	32.2	-	87.5	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 60 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Akihiko Maeda (Above 30 MHz)
Mode	Mode 9(10W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12725	PK	94.5	18.9	-74.0	32.2	-	7.2	45.4	38.2	Fundamental
0deg	0.25450	PK	53.1	18.9	-74.0	32.2	-	-34.2	39.5	73.7	
0deg	0.38174	PK	71.0	18.8	-73.9	32.2	-	-16.3	36.0	52.3	
0deg	0.50899	QP	42.4	18.8	-33.9	32.2	-	-4.9	33.5	38.4	
0deg	0.63624	QP	60.7	18.8	-33.9	32.3	-	13.3	31.5	18.2	
0deg	0.76349	QP	37.8	18.8	-33.9	32.3	-	-9.6	29.9	39.5	
0deg	0.89074	QP	54.7	18.8	-33.9	32.3	-	7.3	28.6	21.3	
0deg	1.01798	QP	36.3	18.8	-33.9	32.3	-	-11.1	27.4	38.5	
0deg	1.14523	QP	49.8	18.8	-33.9	32.3	-	2.4	26.4	24.0	
0deg	1.27248	QP	34.8	18.8	-33.8	32.3	-	-12.5	25.5	38.0	
Hori.	31.719	QP	22.6	17.8	7.1	32.2	-	15.3	40.0	24.7	
Hori.	47.714	QP	25.0	12.1	7.4	32.2	-	12.3	40.0	27.7	
Hori.	68.853	QP	43.5	6.4	7.8	32.2	-	25.5	40.0	14.5	
Hori.	184.788	QP	24.1	16.3	9.1	32.1	-	17.4	43.5	26.1	
Hori.	230.532	QP	30.3	11.3	9.5	32.1	-	19.0	46.0	27.0	
Hori.	323.813	QP	27.9	14.2	10.2	32.0	-	20.3	46.0	25.7	
Vert.	31.719	QP	28.5	17.8	7.1	32.2	-	21.2	40.0	18.8	
Vert.	47.714	QP	32.7	12.1	7.4	32.2	-	20.0	40.0	20.0	
Vert.	68.853	QP	40.6	6.4	7.8	32.2	-	22.6	40.0	17.4	
Vert.	184.788	QP	23.9	16.3	9.1	32.1	-	17.2	43.5	26.3	
Vert.	230.532	QP	25.3	11.3	9.5	32.1	-	14.0	46.0	32.0	
Vert.	323.813	QP	25.5	14.2	10.2	32.0	-	17.9	46.0	28.1	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12725	PK	94.5	18.9	-74.0	32.2	0.0	7.2	25.4	18.2	Fundamental
0deg	0.25450	PK	53.1	18.9	-74.0	32.2	0.0	-34.2	19.5	53.7	
0deg	0.38174	PK	71.0	18.8	-73.9	32.2	0.0	-16.3	16.0	32.3	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12725	PK	94.5	18.9	6.0	32.2	-	87.2	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 60 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Akihiko Maeda (Above 30 MHz)
Mode	Mode 10(10W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12700	PK	94.4	18.9	-74.0	32.2	-	7.1	45.5	38.4	Fundamental
0deg	0.25400	PK	53.1	18.9	-74.0	32.2	-	-34.2	39.5	73.7	
0deg	0.38100	PK	70.9	18.8	-73.9	32.2	-	-16.4	36.0	52.4	
0deg	0.50800	QP	42.5	18.8	-33.9	32.2	-	-4.8	33.5	38.3	
0deg	0.63500	QP	60.7	18.8	-33.9	32.3	-	13.3	31.5	18.2	
0deg	0.76199	QP	38.0	18.8	-33.9	32.3	-	-9.4	29.9	39.3	
0deg	0.88899	QP	54.5	18.8	-33.9	32.3	-	7.1	28.6	21.5	
0deg	1.01599	QP	36.5	18.8	-33.9	32.3	-	-10.9	27.4	38.3	
0deg	1.14299	QP	49.6	18.8	-33.9	32.3	-	2.2	26.4	24.2	
0deg	1.26999	QP	35.1	18.8	-33.8	32.3	-	-12.2	25.5	37.7	
Hori.	32.143	QP	23.0	17.7	7.2	32.2	-	15.7	40.0	24.3	
Hori.	48.024	QP	25.1	12.0	7.4	32.2	-	12.3	40.0	27.7	
Hori.	69.002	QP	41.1	6.4	7.8	32.2	-	23.1	40.0	16.9	
Hori.	182.198	QP	24.6	16.2	9.0	32.1	-	17.7	43.5	25.8	
Hori.	233.141	QP	30.2	11.4	9.5	32.1	-	19.0	46.0	27.0	
Hori.	332.245	QP	26.9	14.6	10.3	32.0	-	19.8	46.0	26.2	
Vert.	32.143	QP	28.5	17.7	7.2	32.2	-	21.2	40.0	18.8	
Vert.	48.024	QP	33.1	12.0	7.4	32.2	-	20.3	40.0	19.7	
Vert.	69.002	QP	40.9	6.4	7.8	32.2	-	22.9	40.0	17.1	
Vert.	182.198	QP	24.2	16.2	9.0	32.1	-	17.3	43.5	26.2	
Vert.	233.141	QP	25.8	11.4	9.5	32.1	-	14.6	46.0	31.4	
Vert.	332.245	QP	24.8	14.6	10.3	32.0	-	17.7	46.0	28.3	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12700	PK	94.4	18.9	-74.0	32.2	0.0	7.1	25.5	18.4	Fundamental
0deg	0.25400	PK	53.1	18.9	-74.0	32.2	0.0	-34.2	19.5	53.7	
0deg	0.38100	PK	70.9	18.8	-73.9	32.2	0.0	-16.4	16.0	32.4	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12700	PK	94.4	18.9	6.0	32.2	-	87.1	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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Radiated Emission (Fundamental and Spurious Emission)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 60 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Akihiko Maeda (Above 30 MHz)
Mode	Mode 11(10W)	

PK or QP

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12652	PK	94.6	18.9	-74.0	32.2	-	7.3	45.5	38.2	Fundamental
0deg	0.25303	PK	52.9	18.9	-74.0	32.2	-	-34.4	39.5	73.9	
0deg	0.37955	PK	71.1	18.8	-73.9	32.2	-	-16.2	36.0	52.2	
0deg	0.50606	QP	42.5	18.8	-33.9	32.2	-	-4.8	33.5	38.3	
0deg	0.63258	QP	60.9	18.8	-33.9	32.3	-	13.5	31.6	18.1	
0deg	0.75909	QP	38.0	18.8	-33.9	32.3	-	-9.4	30.0	39.4	
0deg	0.88561	QP	54.7	18.8	-33.9	32.3	-	7.3	28.6	21.3	
0deg	1.01212	QP	36.5	18.8	-33.9	32.3	-	-10.9	27.5	38.4	
0deg	1.13864	QP	50.1	18.8	-33.9	32.3	-	2.7	26.4	23.7	
0deg	1.26515	QP	35.0	18.8	-33.8	32.3	-	-12.3	25.5	37.8	
Hori.	32.143	QP	23.2	17.7	7.2	32.2	-	15.9	40.0	24.1	
Hori.	47.934	QP	25.4	12.0	7.4	32.2	-	12.6	40.0	27.4	
Hori.	68.963	QP	43.0	6.4	7.8	32.2	-	25.0	40.0	15.0	
Hori.	183.302	QP	25.1	16.3	9.1	32.1	-	18.4	43.5	25.1	
Hori.	232.970	QP	30.6	11.4	9.5	32.1	-	19.4	46.0	26.6	
Hori.	332.016	QP	26.9	14.6	10.3	32.0	-	19.8	46.0	26.2	
Vert.	32.143	QP	27.8	17.7	7.2	32.2	-	20.5	40.0	19.5	
Vert.	47.934	QP	32.5	12.0	7.4	32.2	-	19.7	40.0	20.3	
Vert.	68.963	QP	40.8	6.4	7.8	32.2	-	22.8	40.0	17.2	
Vert.	183.302	QP	24.1	16.3	9.1	32.1	-	17.4	43.5	26.1	
Vert.	232.970	QP	27.1	11.4	9.5	32.1	-	15.9	46.0	30.1	
Vert.	332.016	QP	24.3	14.6	10.3	32.0	-	17.2	46.0	28.8	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier)

PK with Duty factor

Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12652	PK	94.6	18.9	-74.0	32.2	0.0	7.3	25.5	18.2	Fundamental
0deg	0.25303	PK	52.9	18.9	-74.0	32.2	0.0	-34.4	19.5	53.9	
0deg	0.37955	PK	71.1	18.8	-73.9	32.2	0.0	-16.2	16.0	32.2	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amplifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	0.12652	PK	94.6	18.9	6.0	32.2	-	87.3	-	-	Fundamental

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

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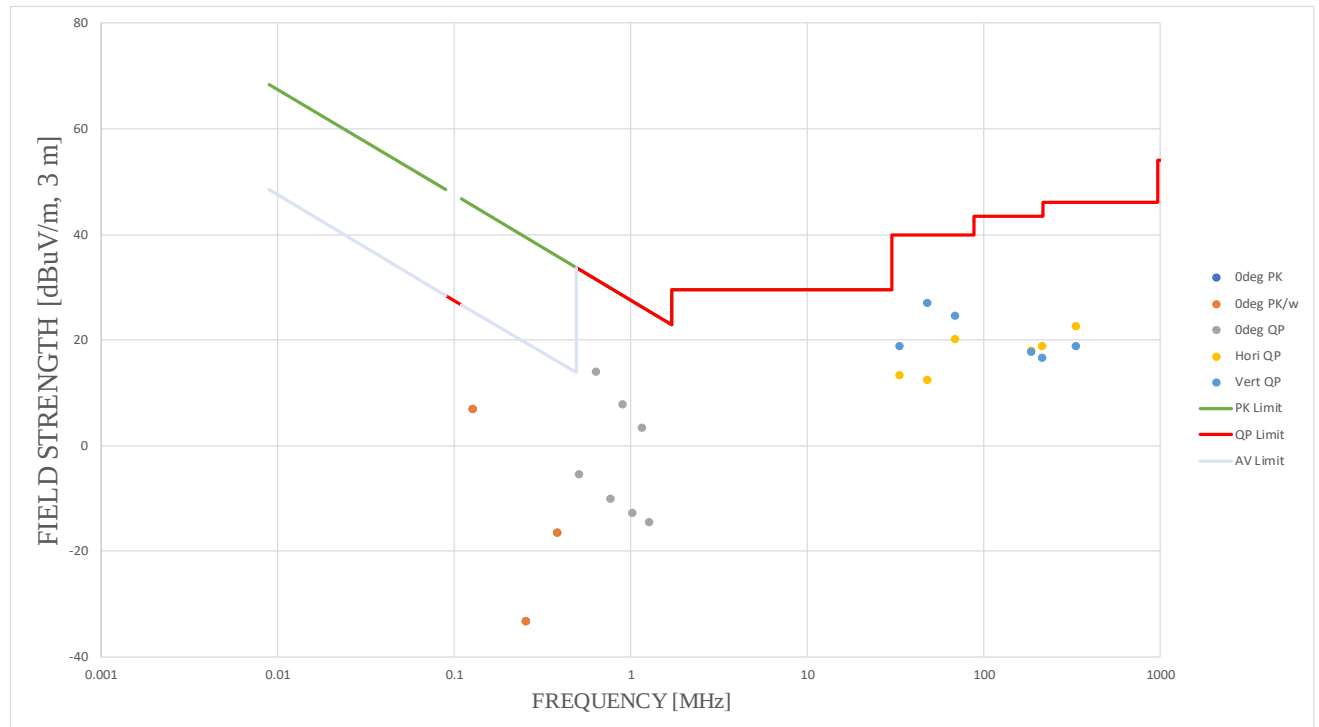
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Radiated Spurious Emission (Plot data, Worst case)

Report No.	13762991H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	May 13, 2021	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH	21 deg. C / 59 % RH
Engineer	Akihiko Maeda (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 4(10W)	



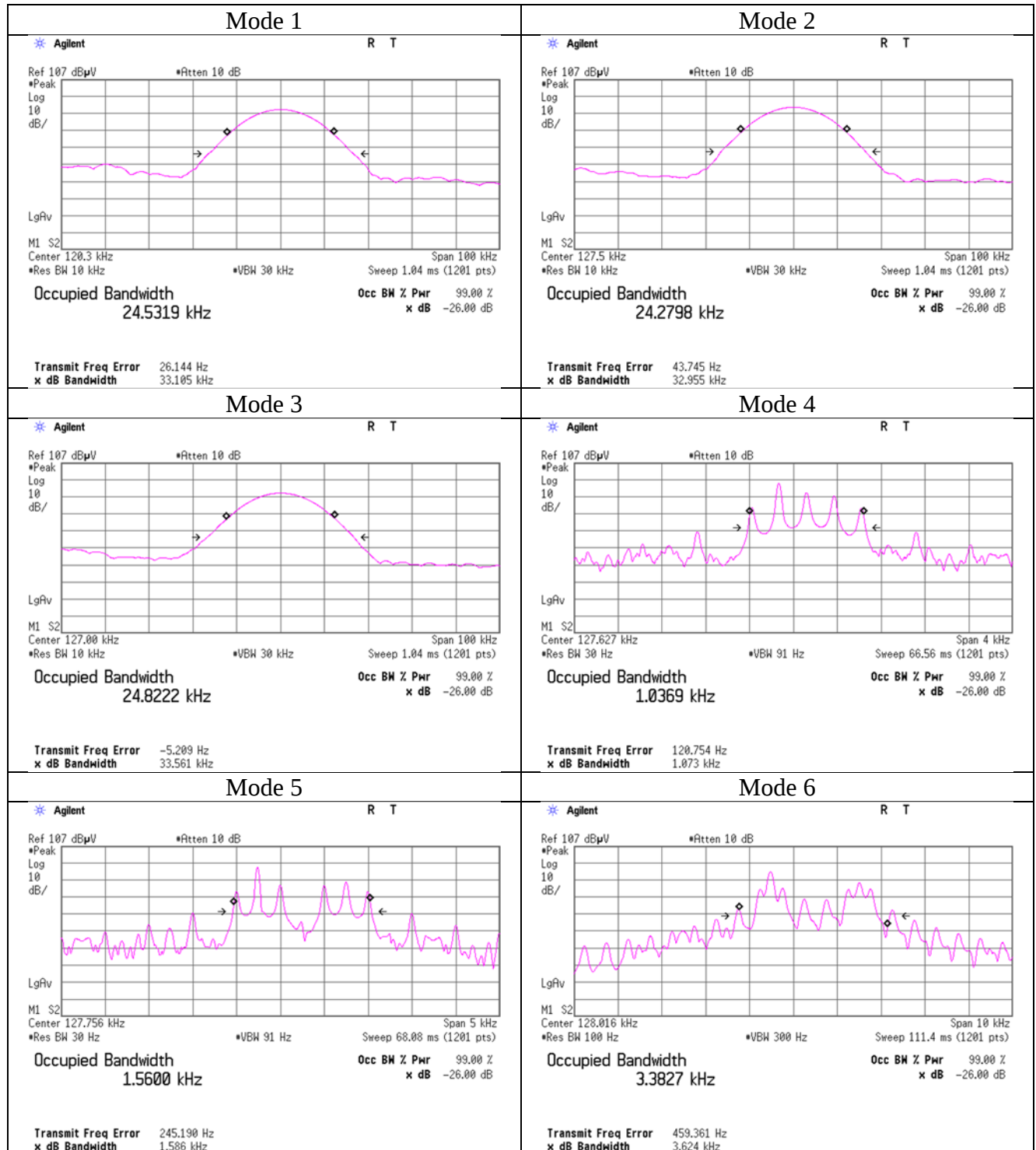
-26 dB Bandwidth / 99 % Occupied Bandwidth

Report No. 13762991H
Test place Ise EMC Lab.
Semi Anechoic Chamber No.3
Date May 13, 2021
Temperature / Humidity 23 deg. C / 51 % RH
Engineer Akihiko Maeda
Mode Mode 1 to 11

Mode	-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
Mode 1	33.105	24.5319
Mode 2	32.955	24.2798
Mode 3	33.561	24.8222
Mode 4	1.073	1.0369
Mode 5	1.586	1.5600
Mode 6	3.624	3.3827
Mode 7	5.744	5.6662
Mode 8	1.069	1.0306
Mode 9	2.502	1.5524
Mode 10	3.573	3.3667
Mode 11	5.598	5.4281

-26 dB Bandwidth / 99 % Occupied Bandwidth

Report No.	13762991H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	May 13, 2021
Temperature / Humidity	23 deg. C / 51 % RH
Engineer	Akihiko Maeda
Mode	Mode 1 to 6



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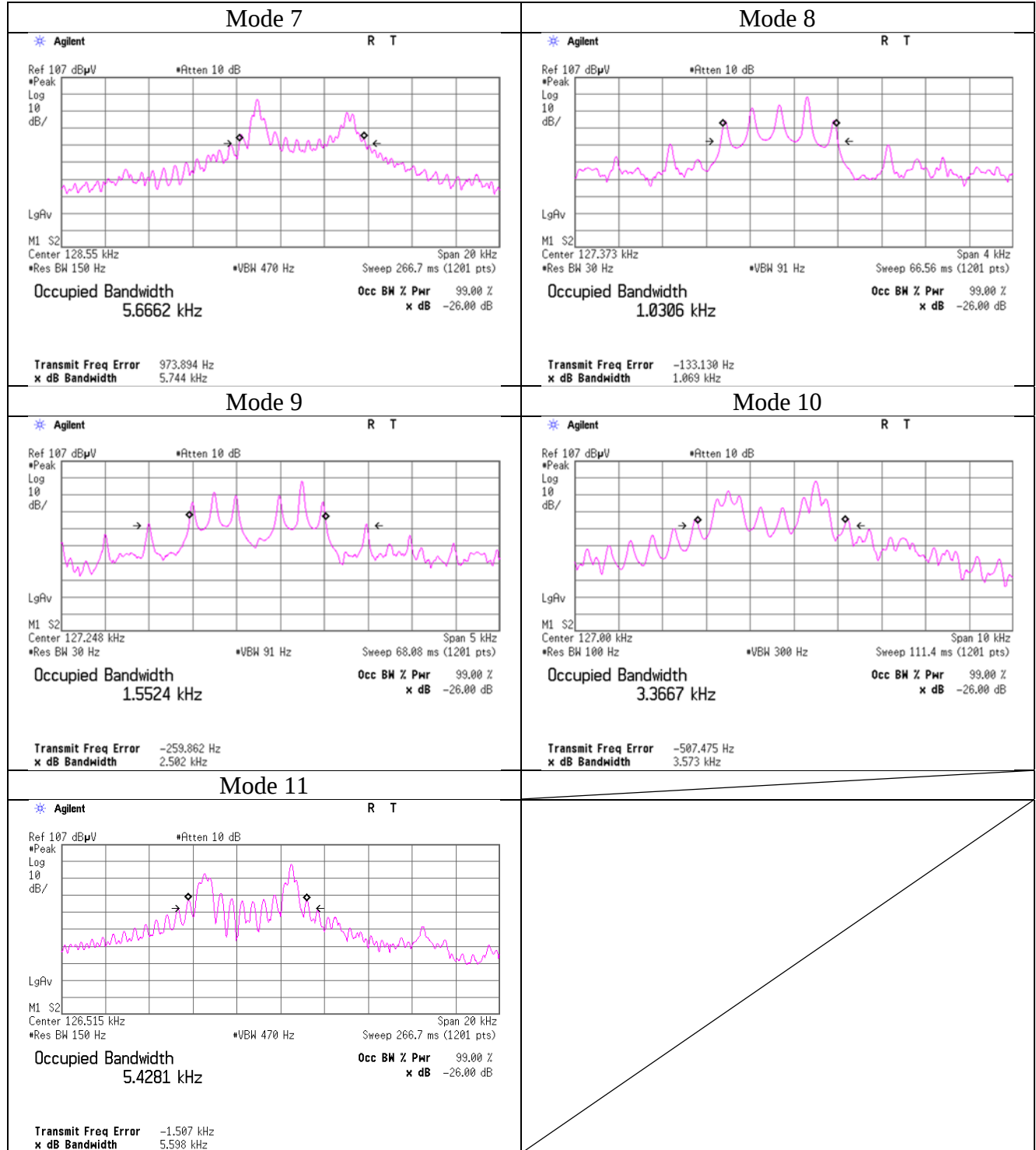
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-26 dB Bandwidth / 99 % Occupied Bandwidth

Report No. 13762991H
Test place Ise EMC Lab.
Semi Anechoic Chamber No.3
Date May 13, 2021
Temperature / Humidity 23 deg. C / 51 % RH
Engineer Akihiko Maeda
Mode Mode 7 to 11



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APPENDIX 2: Test instruments

Test equipment

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	MAEC-03	142008	AC3_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/22/2020	24
RE	MOS-13	141554	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	1301	01/15/2021	12
RE	MMM-08	141532	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	51201197	01/07/2021	12
RE	MJM-16	142183	Measure	KOMELON	KMC-36	-	-	-
RE	COTS-MEMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	MTR-03	141942	Test Receiver	Rohde & Schwarz	ESCI	100300	08/18/2020	12
RE	MSA-04	141885	Spectrum Analyzer	Keysight Technologies Inc	E4448A	US44300523	11/09/2020	12
RE	MLPA-01	141254	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100017	04/17/2021	12
RE	MCC-219	159670	Coaxial Cable	UL Japan Inc.	-	-	11/17/2020	12
RE	MCC-112	141216	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W/SFM14/sucoform141-PE/421-010/RFM-E321(SW)	-/00640	07/06/2020	12
RE	MAT-95	142314	Attenuator	Pasternack Enterprises	PE7390-6	D/C 1504	06/17/2020	12
RE	MPA-13	141582	Pre Amplifier	SONOMA INSTRUMENT	310	260834	02/18/2021	12
RE	MBA-03	141424	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+BBA9106	1915	08/13/2020	12
RE	MCC-51	141323	Coaxial cable	UL Japan	-	-	07/06/2020	12
RE	MLA-22	141266	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-191	08/13/2020	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 test

UL Japan, Inc.

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