RADIO TEST REPORT

Test Report No. : 13558632H-A-R1

Applicant	:	**Yamaha Corporation**
Type of EUT	:	**Desktop Audio System**
Model Number of EUT	:	**TSX-N237**
FCC ID	:	**A6RTSXN237**
Test regulation	:	**FCC Part 15 Subpart C: 2021**
Test Result	:	**Complied (Refer to SECTION 3.2)**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
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.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by the A2LA accreditation body.
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.
10. This report is a revised version of 13558632H-A. 13558632H-A is replaced with this report.

Date of test: December 16 to 19, 2020

Representative test engineer:
Takafumi Noguchi
Engineer
Consumer Technology Division

Approved by:
Tsubasa Takayama
Leader
Consumer Technology Division

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".

REVISION HISTORY

Original Test Report No.: 13558632H-A

Revision	Test report No.	Date	Page revised	Contents
- (Original)	13558632H-A	January 27, 2021	-	-
1	13558632H-A-R1	February 5, 2021	P.4	Correction of the contents table
1	13558632H-A-R1	February 5, 2021	corresponding page (for original report)	Deletion of contents related to Mode 1 and Mode 2.
1	13558632H-A-R1	February 5, 2021	P.16	Deletion of the note *1) from SECTION 7
1	13558632H-A-R1	February 5, 2021	P.16	Deletion of the note *2) from SECTION 8

Reference: Abbreviations (Including words undescribed in this report)

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

CONTENTS **PAGE**

SECTION 1: Customer information

Company Name	:	Yamaha Corporation
Address	:	10-1 Nakazawa-cho, Naka-ku, Hamamatsu-shi, Shizuoka-ken 430-8650, Japan
Telephone Number	:	+81-53-460-2376
Facsimile Number	:	+81-53-460-2379
Contact Person	:	Kenji Kawasaki

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

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

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT

Type	:	Desktop Audio System
Model Number	:	TSX-N237
Serial Number	:	Refer to SECTION 4.2
Rating	:	AC 120 V, 60 Hz (power consumption: 42 W)
Receipt Date	:	December 7, 2020
Country of Mass-production	:	Malaysia
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: TSX-N237 (referred to as the EUT in this report) is a Desktop Audio System.

General Specification

Clock frequency in the system (maximum)	:	4.5 GHz

Radio Specification

[Wireless power transmission systems] *1)

Operating Frequency	:	127.7 kHz
Rated Output Power	:	5 W (BPP), 10 W (EPP)
Coil system	:	Single Coil
Charging distance	:	Contact
Operating Temperature	:	5 deg. C to +35 deg. C

[WLAN / Bluetooth]

Common	
Power Supply	DC 3.7 V
Power consumption	4.21 W
Clock frequencies in the system	25 MHz, 37.4 MHz, 32.768 kHz, 800 MHz, 1 GHz
Country of Origin	China

R0	WLAN		Bluetooth (Class 2)
Equipment Radio Type	Transceiver	Transceiver	Transceiver
Frequency of Operation	2412 MHz - 2472 MHz	5180 MHz - 5825 MHz	2402 MHz - 2480 MHz
Type of Modulation	DSSS OFDM	OFDM	FHSS (GFSK, π/4 DQPSK, 8DQPSK)
Method of frequency generation	Synthesizer	Synthesizer	Synthesizer
Bandwidth	20 MHz	20 MHz	1 MHz
Channel Spacing	5 MHz	20 MHz	1 MHz
Standard / Version	IEEE 802.11b/g/n (20 MHz)	IEEE 802.11a/n/ac (20 MHz)	4.2 (except BLE)
Antenna Gain (Including Cable Loss)	3.01 dBi	3.99 dBi	3.01 dBi

R1	WLAN
Equipment Radio Type	Transceiver
Frequency of Operation	5180 MHz - 5825 MHz
Type of Modulation	OFDM
Method of frequency generation	Synthesizer
Bandwidth	20 MHz
Channel Spacing	20 MHz
Standard / Version	IEEE 802.11a/n/ac (20 MHz)
Antenna Gain (Including Cable Loss)	3.62 dBi

*1) This test report applies to Wireless power transmission systems.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C
FCC Part 15 final revised on January 12, 2021 and effective February 11, 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	13.30 dB 0.46542 MHz, AV Phase N <Mode 1>	Complied a)
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 4.4 RSS-Gen 8.9	Radiated	N/A	10.2 dB 0.12981Hz, 0 deg. Peak with Duty factor <Mode 4>	Complied b)
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 4.4 RSS-Gen 8.9	Radiated	N/A	7.9 dB 215.995 MHz, Horizontal, QP <Mode 7>	Complied b)
-26 dB Bandwidth	<FCC> ANSI C63.10:2013 6 Standard test methods <ISED> -	<FCC> Reference data <ISED> -	Radiated	N/A	N/A	Complied c)

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 Conducted Emission)
b) Refer to APPENDIX 1 (data of Radiated emission)
c) Refer to APPENDIX 1 (data of data of -26 dB Bandwidth and 99% Occupied 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 constantly provides the stable voltage 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.

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 following 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.

Conducted emission

using Item	Frequency range	Uncertainty (+/-)
AMN (LISN)	0.15 MHz to 30 MHz	2.9 dB

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
		(Vertical)	5.0 dB
	200 MHz to 1000 MHz	(Horizontal)	5.2 dB
		(Vertical)	6.3 dB
10 m	30 MHz to 200 MHz	(Horizontal)	4.8 dB
		(Vertical)	4.8 dB
	200 MHz to 1000 MHz	(Horizontal)	5.0 dB
		(Vertical)	5.0 dB

Antenna Terminal test

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

3.5 Test Location

UL Japan, Inc. Ise EMC Lab.
*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 199967 / ISED Lab Company Number: 2973C
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone: +81 596 24 8999, Facsimile: +81 596 24 8124

Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.5 measurement room	6.4 x 6.4 x 3.0	6.4 x 6.4	-	-
No.6 shielded room	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	3.1 x 5.0 x 2.7	3.1 x 5.0	-	-
No.9 measurement room	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.11 measurement room	6.2 x 4.7 x 3.0	4.8 x 4.6	-	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0 m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

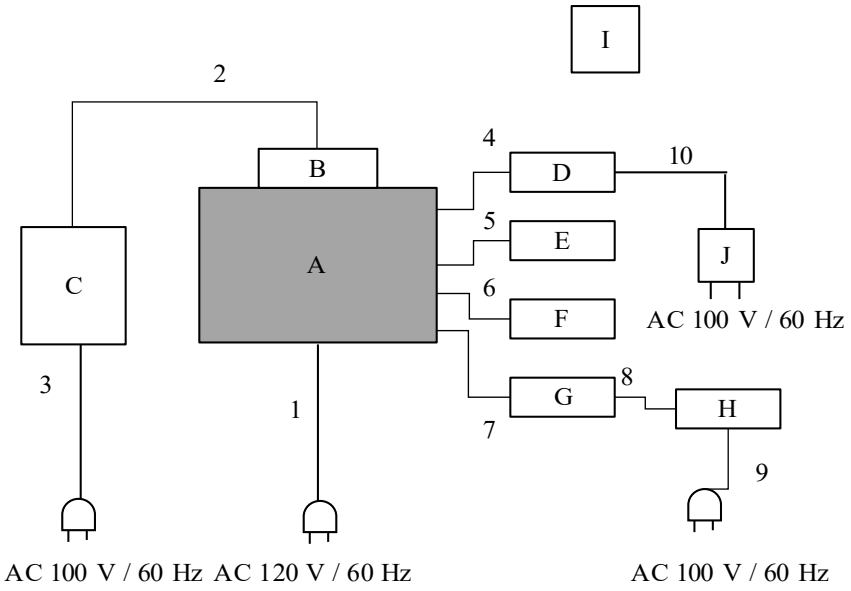
SECTION 4: Operation of EUT during testing

4.1 Operating Modes

Test mode	Remarks
1) Normal Operating mode Transmit power:10 W Frequency: 127.7 kHz (Un-mod) Modulation: FSK (Pos/Depth 31.25 ns)	Mode 1
2) Normal Operating mode Transmit power:10 W Frequency: 127.7 kHz (Un-mod) Modulation: FSK (Pos/Depth 62.5 ns)	Mode 2
3) Normal Operating mode Transmit power:10 W Frequency: 127.7 kHz (Un-mod) Modulation: FSK (Pos/Depth 125 ns)	Mode 3
4) Normal Operating mode Transmit power: 10 W Frequency: 127.7 kHz (Un-mod) Modulation: FSK (Pos/Depth 250 ns)	Mode 4
5) Normal Operating mode Transmit power: 10 W Frequency: 127.7 kHz (Un-mod) Modulation: FSK (Neg/Depth 31.25 ns)	Mode 5
6) Normal Operating mode Transmit power: 10 W Frequency: 127.7 kHz (Un-mod) Modulation: FSK (Neg/Depth 62.5 ns)	Mode 6
7) Normal Operating mode Transmit power: 10 W Frequency: 127.7 kHz (Un-mod) Modulation: FSK (Neg/Depth 125 ns)	Mode 7
8) Normal Operating mode Transmit power: 10 W Frequency: 127.7 kHz (Un-mod) Modulation: FSK (Neg/Depth 250 ns)	Mode 8
* EUT was set by the software as follows; Software: Qi Firm ver. EC801A_TSK_20190916 (Date: 2019/09/16, 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



* 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	Desktop Audio System	TSX-N237	Y010270XZ	Yamaha Corporation	EUT
B	Reference receiver	TPR#MP1B	1	Nok9	-
C	Qi Reference Tester	CATSII Qi BST	200134-1807	Nok9	-
D	Portable CD Player	SL-CT520-A	WL7GA002317R	Panasonic	-
E	iPad	MUUJ2J/A	DMPZ2766LMPD	Apple	-
F	Headphones	ATH-AVC200	-	Audio Technica	-
G	Laptop PC	CF-N8HWCDPS	9LKSA04645	Panasonic	-
H	AC Adapter	CF-AA6372B	6372BM610214975E	Panasonic	-
I	Remote Controller	VDA3670	-	Yamaha Corporation	-
J	AC Adapter	RFEA427J	10190942	Panasonic	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	AC Cable	1.6	Unshielded	Unshielded	-
2	Communication Cable	0.6	Shielded	Shielded	-
3	AC Cable	1.5	Unshielded	Unshielded	-
4	Audio Cable	1.5	Shielded	Shielded	-
5	USB Cable	1.0	Shielded	Shielded	-
6	Audio Cable	3.0	Shielded	Shielded	-
7	LAN Cable	1.0	Unshielded	Unshielded	-
8	DC Cable	1.0	Unshielded	Unshielded	-
9	AC Cable	0.8	Unshielded	Unshielded	-
10	DC Cable	1.9	Unshielded	Unshielded	-

SECTION 5: Conducted Emission

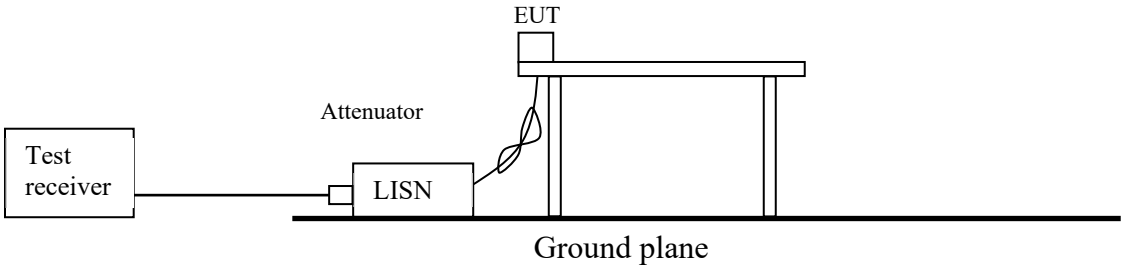
Test Procedure and conditions

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 rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80 cm from any other grounded conducting surface. EUT was located 80 cm from a Line Impedance Stabilization Network (LISN) / Artificial mains Network (AMN) and excess AC cable was bundled in center.

For the tests on EUT with other peripherals (as a whole system)
I/O cable and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane. All unused 50 ohm connectors of the LISN(AMN) were resistivity terminated in 50 ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber or a Measurement Room.
The EUT was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.

[Test Setup]



Detector **: CISPR quasi-peak and average detector (IF BW 9 kHz)**
Measurement range **: 0.15 MHz - 30 MHz**
Test data **: APPENDIX 1**
Test result **: Pass**

Date: December 16, 2020 Test engineer: Yuichiro Yamazaki

SECTION 6: 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., 135 deg., and 180 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 x log (3 m / 300 m) = -80 dB
*2) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

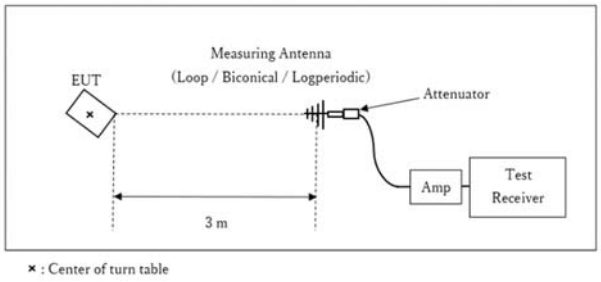
Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open field test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open 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 Ohmes. 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 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 test was made on EUT at the normal use position.

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

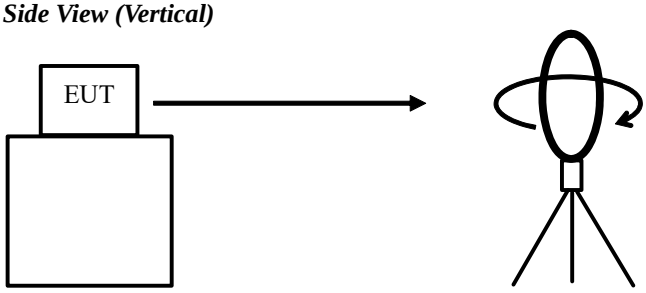
Measurement range : 9 kHz - 1 GHz
Test data : APPENDIX 1
Test result : Pass

Date: December 17, 2020
December 18, 2020

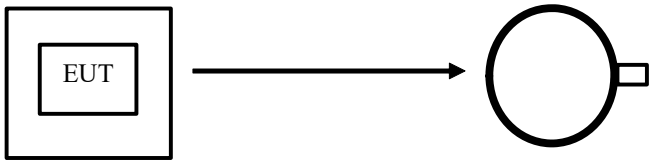
Test engineer: Takeshi Hiyaji
Takafumi Noguchi

Figure 1: Direction of the Loop Antenna

Side View (Vertical)

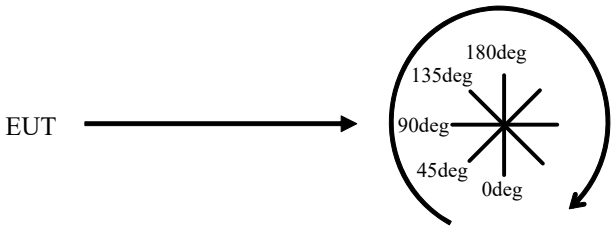


Top View (Horizontal)



Antenna was not rotated.

Top View (Vertical)



Front side: 0 deg.
Forward direction: clockwise

SECTION 7: -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	Remarks
-26 dB Bandwidth	between 2.0 times and 5.0 times the OBW.	1 to 5 % of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer	-

Test data : APPENDIX 1
Test result : Pass

SECTION 8: 99 % Occupied Bandwidth

Test Procedure

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

Test	Span	RBW	VBW	Sweep	Detector *1)	Trace *1)	Instrument used	Remarks
99 % Occupied Bandwidth	between 1.5 times and 5.0 times the OBW.	1 to 5 % of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer	-
*1) Peak hold was applied as Worst-case measurement.								

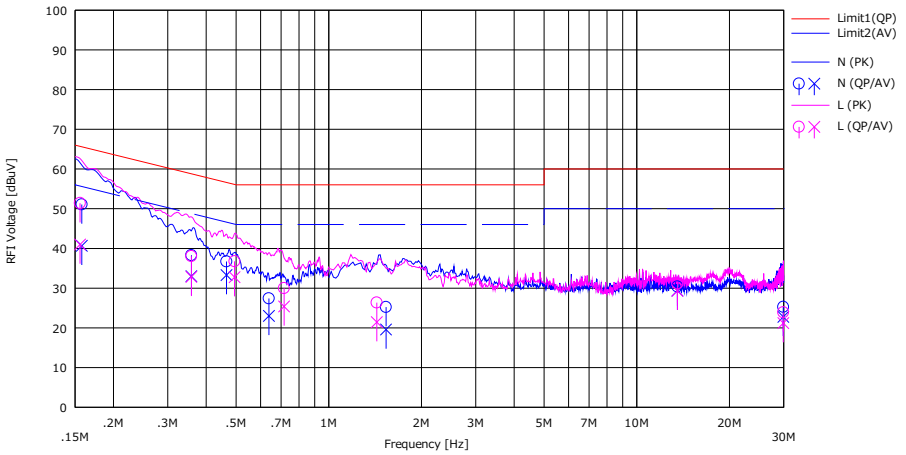
Test data : APPENDIX 1
Test result : Pass

APPENDIX 1: Test data

Conducted Emission

Report No.	13558632H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	December 16, 2020
Temperature / Humidity	22 deg. C / 33 % RH
Engineer	Yuichiro Yamazaki
Mode	Mode 1

Limit : FCC_Part 15 Subpart C(15.207)



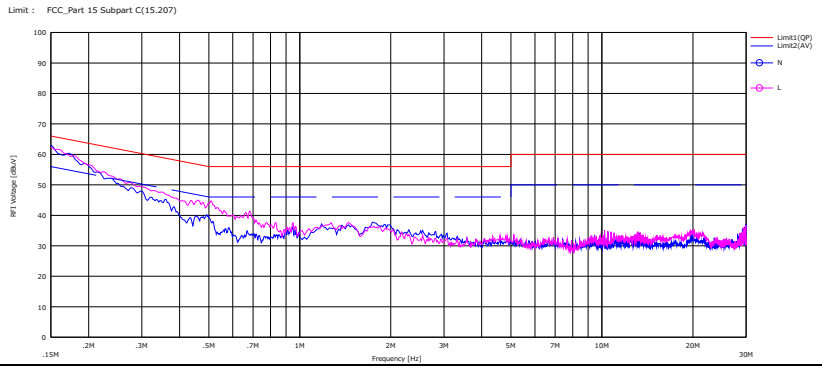
No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		〈QP〉	〈AV〉			〈QP〉	〈AV〉	〈QP〉	〈AV〉	〈QP〉	〈AV〉		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15777	37.80	27.40	0.07	13.20	51.07	40.67	65.58	55.58	14.51	14.91	N	
2	0.35789	25.00	19.70	0.06	13.23	38.29	32.99	58.78	48.78	20.49	15.79	N	
3	0.46542	23.40	20.00	0.06	13.24	36.70	33.30	56.60	46.60	19.90	13.30	N	
4	0.63897	14.10	9.70	0.06	13.26	27.42	23.02	56.00	46.00	28.58	22.98	N	
5	1.53355	11.80	6.20	0.08	13.33	25.21	19.61	56.00	46.00	30.79	26.39	N	
6	13.54626	16.30	15.30	0.30	13.79	30.39	29.39	60.00	50.00	29.61	20.61	N	
7	29.90404	10.50	8.00	0.62	14.14	25.26	22.76	60.00	50.00	34.74	27.24	N	
8	0.15573	38.10	27.70	0.10	13.20	51.40	41.00	65.69	55.69	14.29	14.69	L	
9	0.35782	24.70	19.50	0.10	13.23	38.03	32.83	58.78	48.78	20.75	15.95	L	
10	0.49451	23.40	19.40	0.10	13.25	36.75	32.75	56.09	46.09	19.34	13.34	L	
11	0.71566	16.60	12.00	0.11	13.27	29.98	25.38	56.00	46.00	26.02	20.62	L	
12	1.43110	12.90	8.00	0.12	13.32	26.34	21.44	56.00	46.00	29.66	24.56	L	
13	13.54626	17.00	15.20	0.35	13.79	31.14	29.34	60.00	50.00	28.86	20.66	L	
14	29.90405	9.00	6.30	0.76	14.14	23.90	21.20	60.00	50.00	36.10	28.80	L	

CHART: WITH FACTOR Peak hold data. CALCULATION : RESULT = READING + LISN + LOSS (CABLE + ATT)
Except for the above table: adequate margin data below the limits.

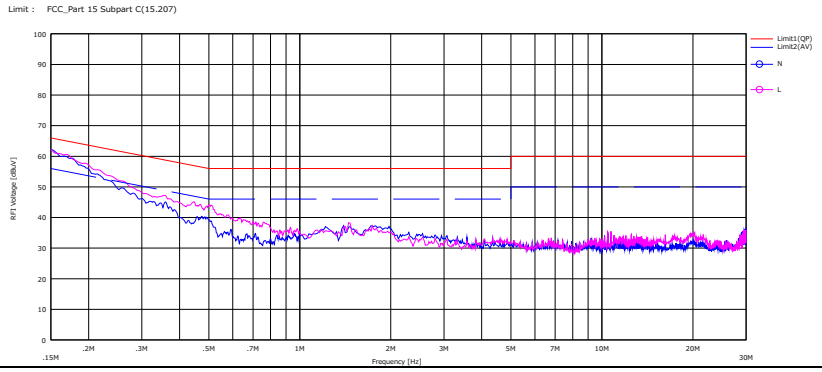
Conducted Emission

Report No.	13558632H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	December 16, 2020
Temperature / Humidity	22 deg. C / 33 % RH
Engineer	Yuichiro Yamazaki

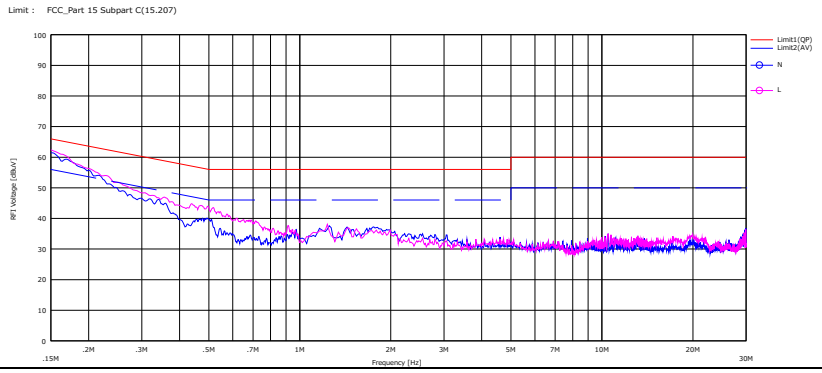
Mode 1



Mode 2



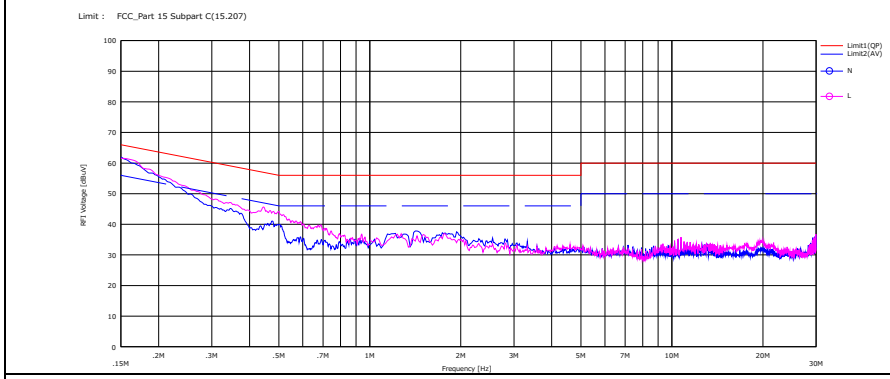
Mode 3



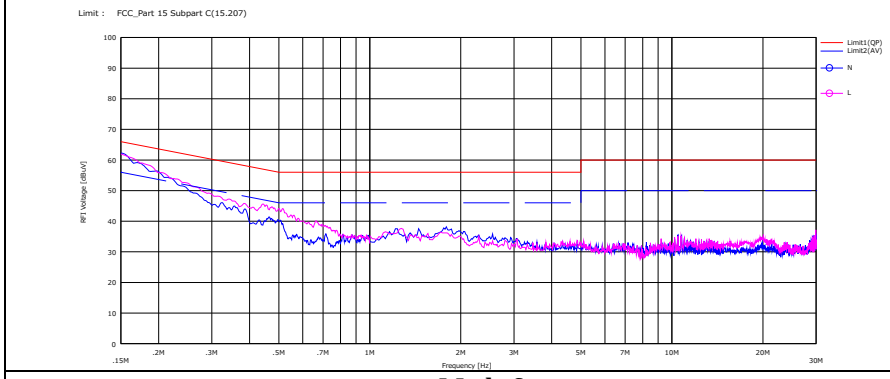
Conducted Emission

Report No.	13558632H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	December 16, 2020
Temperature / Humidity	22 deg. C / 33 % RH
Engineer	Yuichiro Yamazaki

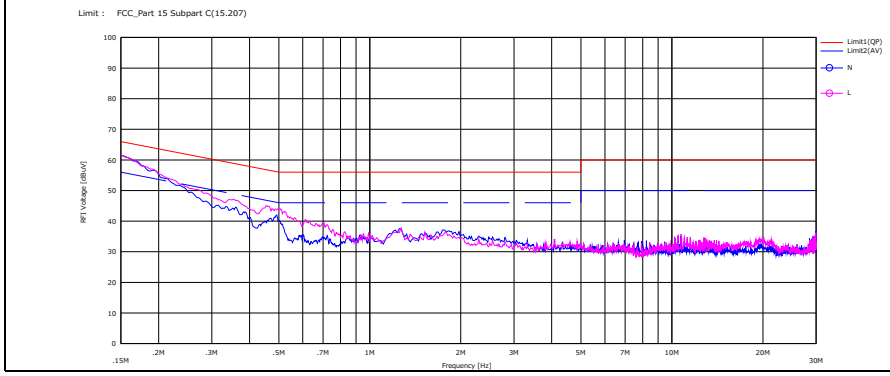
Mode 4



Mode 5



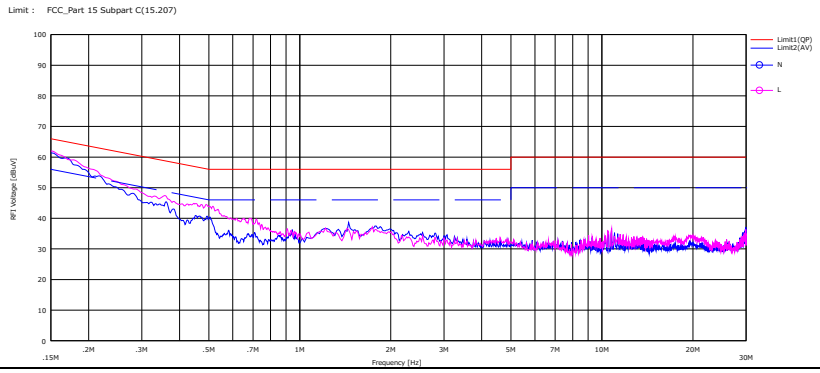
Mode 6



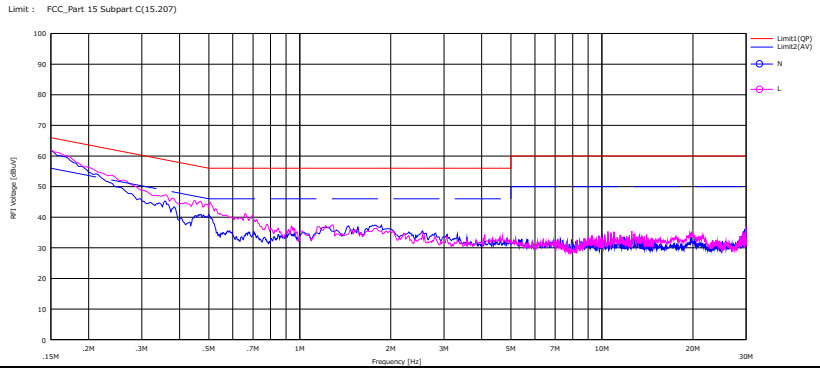
Conducted Emission

Report No.	13558632H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	December 16, 2020
Temperature / Humidity	22 deg. C / 33 % RH
Engineer	Yuichiro Yamazaki

Mode 7



Mode 8



Radiated Emission below 30 MHz (Fundamental and Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 1

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	0.12796	PK	102.3	18.9	-74.0	32.3	-	14.9	45.4	30.5	Fundamental
0deg	0.25591	PK	58.0	18.9	-74.0	32.3	-	-29.4	39.4	68.8	
0deg	0.38387	PK	77.8	18.8	-73.9	32.3	-	-9.6	35.9	45.5	
0deg	0.51182	QP	46.7	18.8	-33.9	32.2	-	-0.7	33.4	34.1	
0deg	0.63978	QP	67.6	18.8	-33.9	32.2	-	20.3	31.5	11.2	
0deg	0.76773	QP	42.8	18.8	-33.9	32.2	-	-4.5	29.9	34.4	
0deg	0.89569	QP	63.4	18.8	-33.9	32.2	-	16.1	28.5	12.4	
0deg	1.02365	QP	41.2	18.8	-33.8	32.2	-	-6.1	27.4	33.5	
0deg	1.15160	QP	60.0	18.8	-33.8	32.2	-	12.7	26.3	13.6	
0deg	1.27956	QP	39.6	18.8	-33.8	32.2	-	-7.6	25.4	33.0	

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

PK with Duty 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	0.12796	PK	102.3	18.9	-74.0	32.3	0.0	14.9	25.4	10.5	
0deg	0.25591	PK	58.0	18.9	-74.0	32.3	0.0	-29.4	19.4	48.8	
0deg	0.38387	PK	77.8	18.8	-73.9	32.3	0.0	-9.6	15.9	25.5	

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

PK or QP

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	0.12796	PK	102.3	18.9	6.0	32.3	-	94.9	-	-	Fundamental

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

* 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.

Radiated Emission below 30 MHz (Fundamental and Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 2

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	0.12821	PK	102.4	18.9	-74.0	32.3	-	15.0	45.4	30.4	Fundamental
0deg	0.25643	PK	58.3	18.9	-74.0	32.3	-	-29.1	39.4	68.5	
0deg	0.38464	PK	77.9	18.8	-73.9	32.3	-	-9.5	35.9	45.4	
0deg	0.51285	QP	46.4	18.8	-33.9	32.2	-	-1.0	33.4	34.4	
0deg	0.64107	QP	67.9	18.8	-33.9	32.2	-	20.6	31.5	10.9	
0deg	0.76928	QP	42.8	18.8	-33.9	32.2	-	-4.5	29.9	34.4	
0deg	0.89750	QP	63.4	18.8	-33.9	32.2	-	16.1	28.5	12.4	
0deg	1.02571	QP	41.3	18.8	-33.8	32.2	-	-6.0	27.3	33.3	
0deg	1.15392	QP	60.0	18.8	-33.8	32.2	-	12.7	26.3	13.6	
0deg	1.28214	QP	39.4	18.8	-33.8	32.2	-	-7.8	25.4	33.2	

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

PK with Duty 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	0.12821	PK	102.4	18.9	-74.0	32.3	0.0	15.0	25.4	10.4	
0deg	0.25643	PK	58.3	18.9	-74.0	32.3	0.0	-29.1	19.4	48.5	
0deg	0.38464	PK	77.9	18.8	-73.9	32.3	0.0	-9.5	15.9	25.4	

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

PK or QP

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	0.12821	PK	102.4	18.9	6.0	32.3	-	95.0	-	-	Fundamental

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

* 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.

Radiated Emission below 30 MHz (Fundamental and Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 3

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	0.12874	PK	102.3	18.9	-74.0	32.3	-	14.9	45.3	30.4	Fundamental
0deg	0.25747	PK	58.1	18.9	-74.0	32.3	-	-29.3	39.4	68.7	
0deg	0.38621	PK	77.9	18.8	-73.9	32.3	-	-9.5	35.9	45.4	
0deg	0.51494	QP	46.7	18.8	-33.9	32.2	-	-0.7	33.4	34.1	
0deg	0.64368	QP	67.8	18.8	-33.9	32.2	-	20.5	31.4	11.0	
0deg	0.77241	QP	42.8	18.8	-33.9	32.2	-	-4.5	29.8	34.3	
0deg	0.90115	QP	63.5	18.8	-33.8	32.2	-	16.2	28.5	12.3	
0deg	1.02989	QP	41.2	18.8	-33.8	32.2	-	-6.1	27.3	33.4	
0deg	1.15862	QP	60.1	18.8	-33.8	32.2	-	12.8	26.3	13.4	
0deg	1.28736	QP	39.4	18.8	-33.8	32.2	-	-7.8	25.4	33.2	

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

PK with Duty 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	0.12874	PK	102.3	18.9	-74.0	32.3	0.0	14.9	25.3	10.4	
0deg	0.25747	PK	58.1	18.9	-74.0	32.3	0.0	-29.3	19.4	48.7	
0deg	0.38621	PK	77.9	18.8	-73.9	32.3	0.0	-9.5	15.9	25.4	

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

PK or QP

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	0.12874	PK	102.3	18.9	6.0	32.3	-	94.9	-	-	Fundamental

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

* 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.

Radiated Emission below 30 MHz (Fundamental and Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 4

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	0.12981	PK	102.5	18.9	-74.0	32.3	-	15.1	45.3	30.2	Fundamental
0deg	0.25961	PK	58.4	18.9	-74.0	32.3	-	-29.0	39.3	68.3	
0deg	0.38942	PK	78.3	18.8	-73.9	32.3	-	-9.1	35.8	44.9	
0deg	0.51922	QP	46.4	18.8	-33.9	32.2	-	-1.0	33.3	34.3	
0deg	0.64903	QP	68.2	18.8	-33.9	32.2	-	20.9	31.3	10.5	
0deg	0.77883	QP	42.8	18.8	-33.9	32.2	-	-4.5	29.8	34.3	
0deg	0.90864	QP	63.5	18.8	-33.8	32.2	-	16.2	28.4	12.2	
0deg	1.03845	QP	41.2	18.8	-33.8	32.2	-	-6.1	27.2	33.3	
0deg	1.16825	QP	60.0	18.8	-33.8	32.2	-	12.8	26.2	13.5	
0deg	1.29806	QP	39.5	18.8	-33.8	32.2	-	-7.7	25.3	33.0	

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

PK with Duty 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	0.12981	PK	102.5	18.9	-74.0	32.3	0.0	15.1	25.3	10.2	
0deg	0.25961	PK	58.4	18.9	-74.0	32.3	0.0	-29.0	19.3	48.3	
0deg	0.38942	PK	78.3	18.8	-73.9	32.3	0.0	-9.1	15.8	24.9	

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

PK or QP

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	0.12981	PK	102.5	18.9	6.0	32.3	-	95.1	-	-	Fundamental

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

* 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.

Radiated Emission below 30 MHz (Fundamental and Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 5

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	0.12745	PK	102.5	18.9	-74.0	32.3	-	15.1	45.4	30.3	Fundamental
0deg	0.25489	PK	58.2	18.9	-74.0	32.3	-	-29.2	39.4	68.7	
0deg	0.38234	PK	78.1	18.8	-73.9	32.3	-	-9.3	35.9	45.2	
0deg	0.50978	QP	46.3	18.8	-33.9	32.2	-	-1.1	33.5	34.5	
0deg	0.63723	QP	68.2	18.8	-33.9	32.2	-	20.9	31.5	10.7	
0deg	0.76468	QP	42.7	18.8	-33.9	32.2	-	-4.6	29.9	34.5	
0deg	0.89212	QP	63.5	18.8	-33.9	32.2	-	16.2	28.6	12.4	
0deg	1.01957	QP	41.2	18.8	-33.8	32.2	-	-6.1	27.4	33.5	
0deg	1.14702	QP	60.0	18.8	-33.8	32.2	-	12.7	26.4	13.6	
0deg	1.27446	QP	39.4	18.8	-33.8	32.2	-	-7.8	25.4	33.3	

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

PK with Duty 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	0.12745	PK	102.5	18.9	-74.0	32.3	0.0	15.1	25.4	10.3	
0deg	0.25489	PK	58.2	18.9	-74.0	32.3	0.0	-29.2	19.4	48.7	
0deg	0.38234	PK	78.1	18.8	-73.9	32.3	0.0	-9.3	15.9	25.2	

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

PK or QP

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	0.12745	PK	102.5	18.9	6.0	32.3	-	95.1	-	-	Fundamental

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

* 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.

Radiated Emission below 30 MHz (Fundamental and Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 6

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	0.12719	PK	102.5	18.9	-74.0	32.3	-	15.1	45.5	30.4	Fundamental
0deg	0.25439	PK	58.5	18.9	-74.0	32.3	-	-28.9	39.5	68.4	
0deg	0.38158	PK	78.2	18.8	-73.9	32.3	-	-9.2	36.0	45.1	
0deg	0.50878	QP	46.5	18.8	-33.9	32.2	-	-0.9	33.5	34.4	
0deg	0.63597	QP	68.2	18.8	-33.9	32.2	-	20.9	31.5	10.7	
0deg	0.76317	QP	42.7	18.8	-33.9	32.2	-	-4.6	29.9	34.6	
0deg	0.89036	QP	63.5	18.8	-33.9	32.2	-	16.2	28.6	12.4	
0deg	1.01756	QP	41.2	18.8	-33.8	32.2	-	-6.1	27.4	33.5	
0deg	1.14475	QP	60.0	18.8	-33.8	32.2	-	12.7	26.4	13.6	
0deg	1.27194	QP	39.3	18.8	-33.8	32.2	-	-7.9	25.5	33.4	

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

PK with Duty 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	0.12719	PK	102.5	18.9	-74.0	32.3	0.0	15.1	25.5	10.4	
0deg	0.25439	PK	58.5	18.9	-74.0	32.3	0.0	-28.9	19.5	48.4	
0deg	0.38158	PK	78.2	18.8	-73.9	32.3	0.0	-9.2	16.0	25.1	

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

PK or QP

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	0.12719	PK	102.5	18.9	6.0	32.3	-	95.1	-	-	Fundamental

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

* 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.

Radiated Emission below 30 MHz (Fundamental and Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 7

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	0.12670	PK	102.5	18.9	-74.0	32.3	-	15.1	45.5	30.4	Fundamental
0deg	0.25339	PK	58.5	18.9	-74.0	32.3	-	-28.9	39.5	68.4	
0deg	0.38009	PK	78.2	18.8	-73.9	32.3	-	-9.2	36.0	45.2	
0deg	0.50679	QP	46.4	18.8	-33.9	32.2	-	-1.0	33.5	34.5	
0deg	0.63348	QP	68.2	18.8	-33.9	32.2	-	20.9	31.6	10.7	
0deg	0.76018	QP	42.7	18.8	-33.9	32.2	-	-4.6	30.0	34.6	
0deg	0.88688	QP	63.5	18.8	-33.9	32.2	-	16.2	28.6	12.4	
0deg	1.01357	QP	41.2	18.8	-33.8	32.2	-	-6.1	27.5	33.5	
0deg	1.14027	QP	60.0	18.8	-33.8	32.2	-	12.7	26.4	13.7	
0deg	1.26697	QP	39.4	18.8	-33.8	32.2	-	-7.8	25.5	33.3	

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

PK with Duty 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	0.12670	PK	102.5	18.9	-74.0	32.3	0.0	15.1	25.5	10.4	
0deg	0.25339	PK	58.5	18.9	-74.0	32.3	0.0	-28.9	19.5	48.4	
0deg	0.38009	PK	78.2	18.8	-73.9	32.3	0.0	-9.2	16.0	25.2	

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

PK or QP

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	0.12670	PK	102.5	18.9	6.0	32.3	-	95.1	-	-	Fundamental

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

* 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.

Radiated Emission below 30 MHz (Fundamental and Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 8

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	0.12572	PK	102.5	18.9	-74.0	32.3	-	15.1	45.6	30.5	Fundamental
0deg	0.25145	PK	58.5	18.9	-74.0	32.3	-	-28.9	39.6	68.5	
0deg	0.37717	PK	78.1	18.8	-73.9	32.3	-	-9.3	36.1	45.3	
0deg	0.50290	QP	46.5	18.8	-33.9	32.2	-	-0.9	33.6	34.5	
0deg	0.62862	QP	68.2	18.8	-33.9	32.2	-	20.8	31.6	10.8	
0deg	0.75435	QP	42.7	18.8	-33.9	32.2	-	-4.6	30.0	34.7	
0deg	0.88007	QP	63.6	18.8	-33.9	32.2	-	16.3	28.7	12.4	
0deg	1.00580	QP	41.2	18.8	-33.8	32.2	-	-6.1	27.5	33.6	
0deg	1.13152	QP	60.0	18.8	-33.8	32.2	-	12.7	26.5	13.7	
0deg	1.25725	QP	39.4	18.8	-33.8	32.2	-	-7.8	25.6	33.4	

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

PK with Duty 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	0.12572	PK	102.5	18.9	-74.0	32.3	0.0	15.1	25.6	10.5	
0deg	0.25145	PK	58.5	18.9	-74.0	32.3	0.0	-28.9	19.6	48.5	
0deg	0.37717	PK	78.1	18.8	-73.9	32.3	0.0	-9.3	16.1	25.3	

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

PK or QP

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	0.12572	PK	102.5	18.9	6.0	32.3	-	95.1	-	-	Fundamental

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

* 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.

Radiated Emission above 30 MHz (Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 17, 2020
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takeshi Hiyaji
Mode	Mode 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	72.542	QP	45.5	6.2	8.1	38.9	21.0	40.0	19.0	
Hori.	101.308	QP	46.7	10.2	8.6	39.0	26.5	43.5	17.0	
Hori.	158.916	QP	42.3	15.2	9.3	38.9	27.9	43.5	15.7	
Hori.	222.534	QP	47.2	10.9	10.0	38.9	29.2	46.0	16.8	
Hori.	300.172	QP	47.8	13.4	10.7	38.7	33.2	46.0	12.8	
Hori.	800.000	QP	38.4	20.6	14.0	38.2	34.8	46.0	11.2	
Vert.	72.542	QP	47.2	6.2	8.1	38.9	22.7	40.0	17.3	
Vert.	101.308	QP	49.0	10.2	8.6	39.0	28.8	43.5	14.7	
Vert.	158.916	QP	42.6	15.2	9.3	38.9	28.2	43.5	15.4	
Vert.	222.534	QP	45.0	10.9	10.0	38.9	27.0	46.0	19.0	
Vert.	300.172	QP	45.6	13.4	10.7	38.7	31.0	46.0	15.0	
Vert.	800.000	QP	39.6	20.6	14.0	38.2	36.0	46.0	10.0	

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.

Radiated Emission above 30 MHz (Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 17, 2020
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takeshi Hiyaji
Mode	Mode 2

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	72.277	QP	45.2	6.2	8.1	38.9	20.7	40.0	19.3	
Hori.	101.413	QP	46.4	10.2	8.6	39.0	26.2	43.5	17.3	
Hori.	156.697	QP	42.1	15.2	9.3	38.9	27.6	43.5	15.9	
Hori.	214.232	QP	47.0	10.9	9.9	38.9	28.8	43.5	14.7	
Hori.	299.199	QP	47.2	13.4	10.7	38.7	32.6	46.0	13.5	
Hori.	800.000	QP	38.5	20.6	14.0	38.2	34.9	46.0	11.1	
Vert.	72.277	QP	47.3	6.2	8.1	38.9	22.8	40.0	17.2	
Vert.	101.413	QP	48.7	10.2	8.6	39.0	28.5	43.5	15.0	
Vert.	156.697	QP	42.5	15.2	9.3	38.9	28.0	43.5	15.5	
Vert.	214.232	QP	44.6	10.9	9.9	38.9	26.4	43.5	17.1	
Vert.	299.199	QP	45.4	13.4	10.7	38.7	30.8	46.0	15.3	
Vert.	800.000	QP	39.4	20.6	14.0	38.2	35.8	46.0	10.2	

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.

Radiated Emission above 30 MHz (Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 17, 2020
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takeshi Hiyaji
Mode	Mode 3

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	72.758	QP	45.6	6.2	8.1	38.9	21.1	40.0	18.9	
Hori.	100.679	QP	46.7	10.1	8.6	39.0	26.4	43.5	17.1	
Hori.	157.985	QP	42.5	15.2	9.3	38.9	28.1	43.5	15.5	
Hori.	214.993	QP	47.2	10.9	9.9	38.9	29.0	43.5	14.5	
Hori.	304.582	QP	47.5	13.5	10.7	38.7	33.0	46.0	13.0	
Hori.	800.000	QP	38.9	20.6	14.0	38.2	35.3	46.0	10.7	
Vert.	72.758	QP	47.6	6.2	8.1	38.9	23.1	40.0	16.9	
Vert.	100.679	QP	48.9	10.1	8.6	39.0	28.6	43.5	14.9	
Vert.	157.985	QP	42.8	15.2	9.3	38.9	28.4	43.5	15.2	
Vert.	214.993	QP	45.6	10.9	9.9	38.9	27.4	43.5	16.1	
Vert.	304.582	QP	45.2	13.5	10.7	38.7	30.7	46.0	15.3	
Vert.	800.000	QP	39.7	20.6	14.0	38.2	36.1	46.0	9.9	

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.

Radiated Emission above 30 MHz (Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 17, 2020
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takeshi Hiyaji
Mode	Mode 4

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	72.678	QP	45.2	6.2	8.1	38.9	20.7	40.0	19.3	
Hori.	99.331	QP	46.6	9.9	8.5	39.0	26.1	43.5	17.5	
Hori.	159.977	QP	42.5	15.3	9.3	38.9	28.2	43.5	15.4	
Hori.	211.410	QP	46.9	10.8	9.8	38.9	28.7	43.5	14.9	
Hori.	303.974	QP	46.9	13.5	10.7	38.7	32.4	46.0	13.6	
Hori.	800.000	QP	38.8	20.6	14.0	38.2	35.2	46.0	10.8	
Vert.	72.678	QP	47.7	6.2	8.1	38.9	23.2	40.0	16.8	
Vert.	99.331	QP	48.6	9.9	8.5	39.0	28.1	43.5	15.5	
Vert.	159.977	QP	41.9	15.3	9.3	38.9	27.6	43.5	16.0	
Vert.	211.410	QP	45.4	10.8	9.8	38.9	27.2	43.5	16.4	
Vert.	303.974	QP	45.3	13.5	10.7	38.7	30.8	46.0	15.2	
Vert.	800.000	QP	39.9	20.6	14.0	38.2	36.3	46.0	9.7	

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.

Radiated Emission above 30 MHz (Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 5

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	78.543	QP	53.8	6.6	8.2	38.9	29.8	40.0	10.3	
Hori.	111.945	QP	45.1	11.6	8.7	39.0	26.5	43.5	17.0	
Hori.	160.000	QP	47.1	15.3	9.3	38.9	32.8	43.5	10.8	
Hori.	215.995	QP	53.0	10.9	9.9	38.9	34.9	43.5	8.7	
Hori.	300.000	QP	51.1	13.4	10.7	38.7	36.5	46.0	9.5	
Hori.	800.000	QP	38.0	20.6	14.0	38.2	34.4	46.0	11.6	
Vert.	78.543	QP	51.1	6.6	8.2	38.9	27.1	40.0	13.0	
Vert.	111.945	QP	47.8	11.6	8.7	39.0	29.2	43.5	14.3	
Vert.	160.000	QP	44.3	15.3	9.3	38.9	30.0	43.5	13.6	
Vert.	215.995	QP	49.4	10.9	9.9	38.9	31.3	43.5	12.3	
Vert.	300.000	QP	45.0	13.4	10.7	38.7	30.4	46.0	15.6	
Vert.	800.000	QP	39.8	20.6	14.0	38.2	36.2	46.0	9.8	

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.

Radiated Emission above 30 MHz (Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 6

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	78.543	QP	53.8	6.6	8.2	38.9	29.8	40.0	10.3	
Hori.	111.945	QP	45.0	11.6	8.7	39.0	26.4	43.5	17.1	
Hori.	160.000	QP	47.0	15.3	9.3	38.9	32.7	43.5	10.9	
Hori.	215.995	QP	53.4	10.9	9.9	38.9	35.3	43.5	8.3	
Hori.	300.000	QP	51.2	13.4	10.7	38.7	36.6	46.0	9.4	
Hori.	800.000	QP	38.1	20.6	14.0	38.2	34.5	46.0	11.5	
Vert.	78.543	QP	51.0	6.6	8.2	38.9	27.0	40.0	13.1	
Vert.	111.945	QP	47.8	11.6	8.7	39.0	29.2	43.5	14.3	
Vert.	160.000	QP	44.4	15.3	9.3	38.9	30.1	43.5	13.5	
Vert.	215.995	QP	49.8	10.9	9.9	38.9	31.7	43.5	11.9	
Vert.	300.000	QP	44.9	13.4	10.7	38.7	30.3	46.0	15.7	
Vert.	800.000	QP	39.7	20.6	14.0	38.2	36.1	46.0	9.9	

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.

Radiated Emission above 30 MHz (Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 7

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	78.543	QP	53.0	6.6	8.2	38.9	29.0	40.0	11.1	
Hori.	111.945	QP	44.7	11.6	8.7	39.0	26.1	43.5	17.4	
Hori.	160.000	QP	47.3	15.3	9.3	38.9	33.0	43.5	10.6	
Hori.	215.995	QP	53.8	10.9	9.9	38.9	35.7	43.5	7.9	
Hori.	300.000	QP	50.5	13.4	10.7	38.7	35.9	46.0	10.1	
Hori.	800.000	QP	38.1	20.6	14.0	38.2	34.5	46.0	11.5	
Vert.	78.543	QP	50.6	6.6	8.2	38.9	26.6	40.0	13.5	
Vert.	111.945	QP	47.8	11.6	8.7	39.0	29.2	43.5	14.3	
Vert.	160.000	QP	44.6	15.3	9.3	38.9	30.3	43.5	13.3	
Vert.	215.995	QP	49.6	10.9	9.9	38.9	31.5	43.5	12.1	
Vert.	300.000	QP	44.8	13.4	10.7	38.7	30.2	46.0	15.8	
Vert.	800.000	QP	39.9	20.6	14.0	38.2	36.3	46.0	9.7	

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.

Radiated Emission above 30 MHz (Spurious Emission)

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 18, 2020
Temperature / Humidity	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi
Mode	Mode 8

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	78.543	QP	53.6	6.6	8.2	38.9	29.6	40.0	10.5	
Hori.	111.945	QP	44.8	11.6	8.7	39.0	26.2	43.5	17.3	
Hori.	160.000	QP	47.3	15.3	9.3	38.9	33.0	43.5	10.6	
Hori.	215.995	QP	53.7	10.9	9.9	38.9	35.6	43.5	8.0	
Hori.	300.000	QP	50.4	13.4	10.7	38.7	35.8	46.0	10.2	
Hori.	800.000	QP	38.1	20.6	14.0	38.2	34.5	46.0	11.5	
Vert.	78.543	QP	51.2	6.6	8.2	38.9	27.2	40.0	12.9	
Vert.	111.945	QP	47.9	11.6	8.7	39.0	29.3	43.5	14.2	
Vert.	160.000	QP	44.6	15.3	9.3	38.9	30.3	43.5	13.3	
Vert.	215.995	QP	49.5	10.9	9.9	38.9	31.4	43.5	12.2	
Vert.	300.000	QP	44.6	13.4	10.7	38.7	30.0	46.0	16.0	
Vert.	800.000	QP	39.9	20.6	14.0	38.2	36.3	46.0	9.7	

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

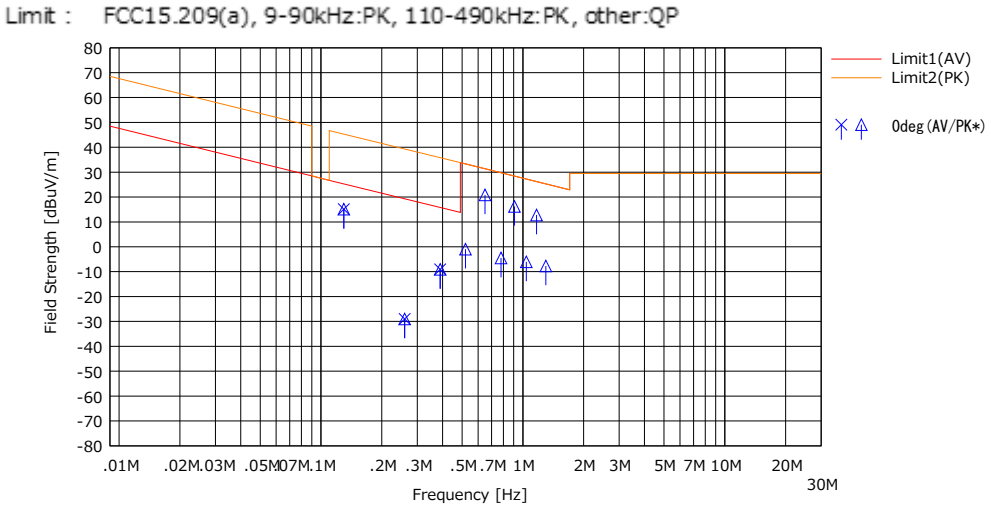
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

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

Radiated Emission Plot data, Worst case

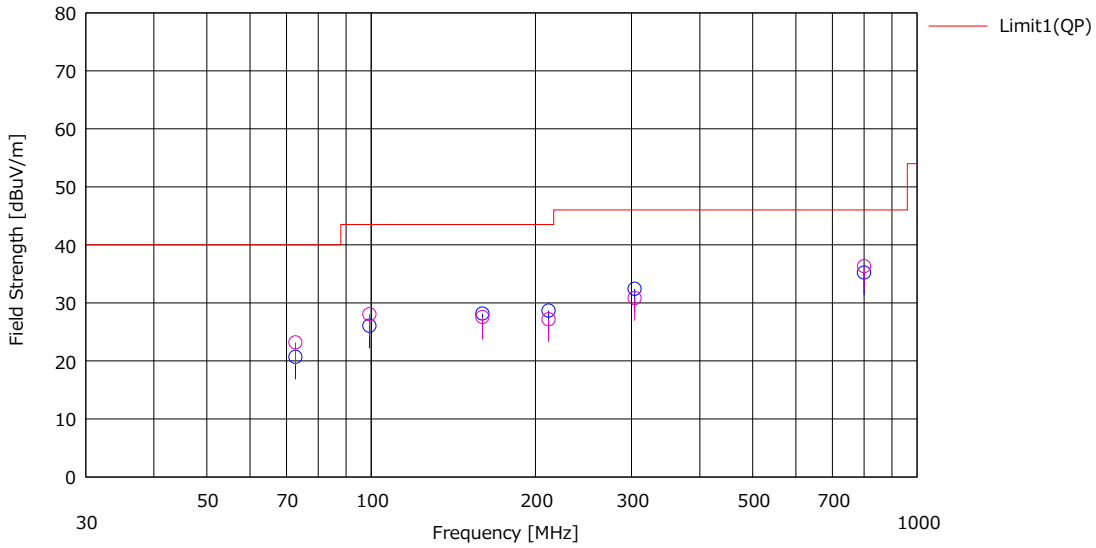
Report No.	13558632H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.1
Date	December 18, 2020	December 17, 2020
Temperature / Humidity	21 deg. C / 38 % RH	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi	Takeshi Hiyaji
Mode	Mode 4	

(below 30MHz)



* Data above 490 kHz were measured using a QP detector.

(above 30MHz)

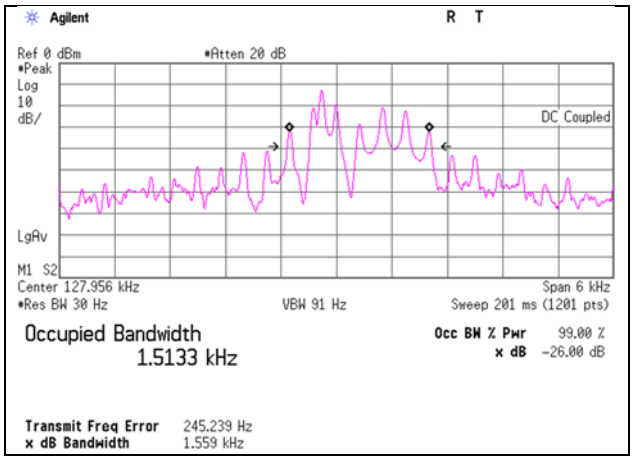


*These plots data contains sufficient number to show the trend of characteristic features for EUT.

-26 dB Bandwidth and 99% Occupide Bandwidth

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2020
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takafumi Noguchi
Mode	Mode 1

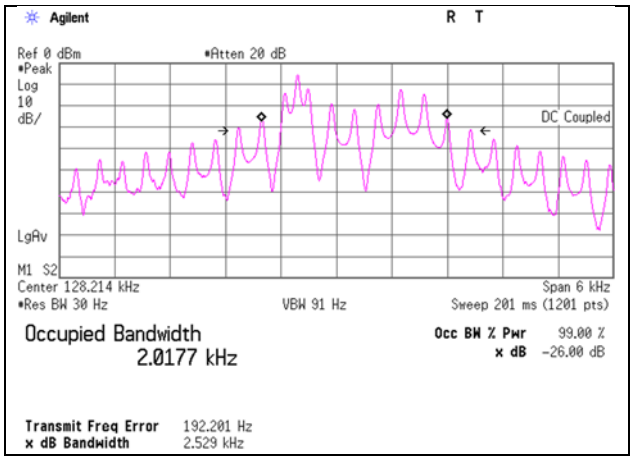
-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
1.559	1.5133



-26 dB Bandwidth and 99% Occupide Bandwidth

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2020
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takafumi Noguchi
Mode	Mode 2

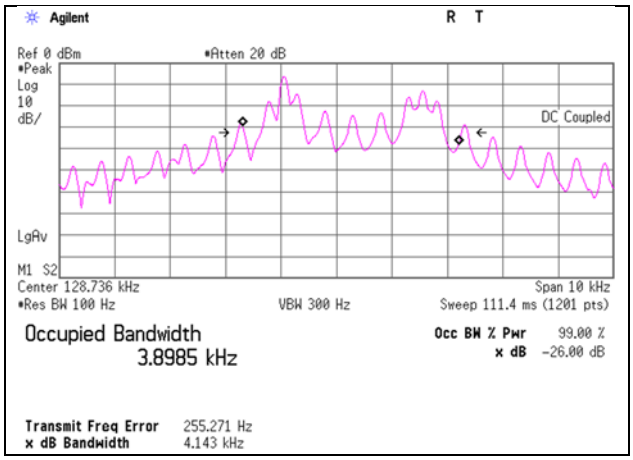
-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
2.529	2.0177



-26 dB Bandwidth and 99% Occupide Bandwidth

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2020
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takafumi Noguchi
Mode	Mode 3

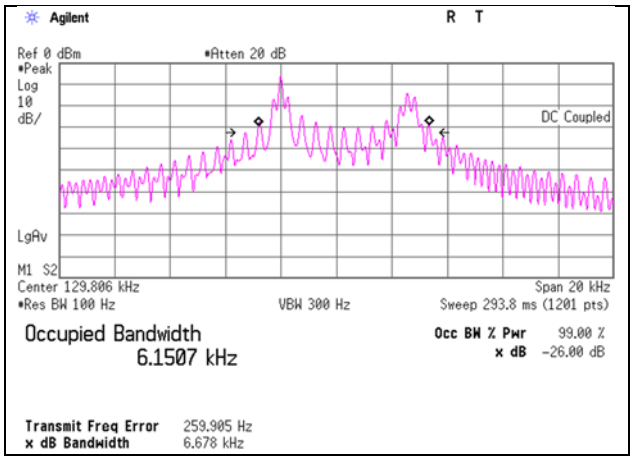
-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
4.143	3.8985



-26 dB Bandwidth and 99% Occupide Bandwidth

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2020
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takafumi Noguchi
Mode	Mode 4

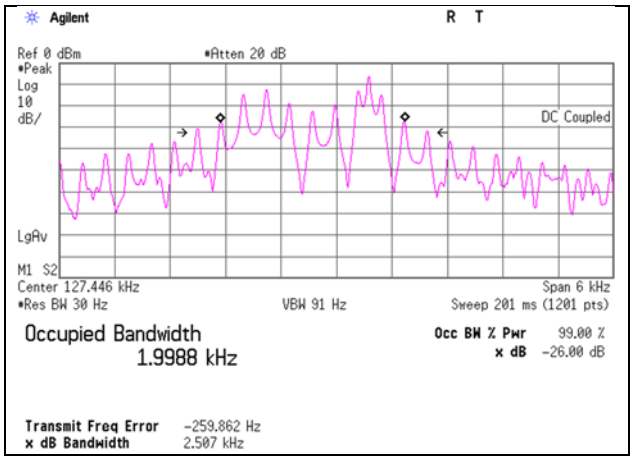
-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
6.678	6.1507



-26 dB Bandwidth and 99% Occupide Bandwidth

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2020
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takafumi Noguchi
Mode	Mode 5

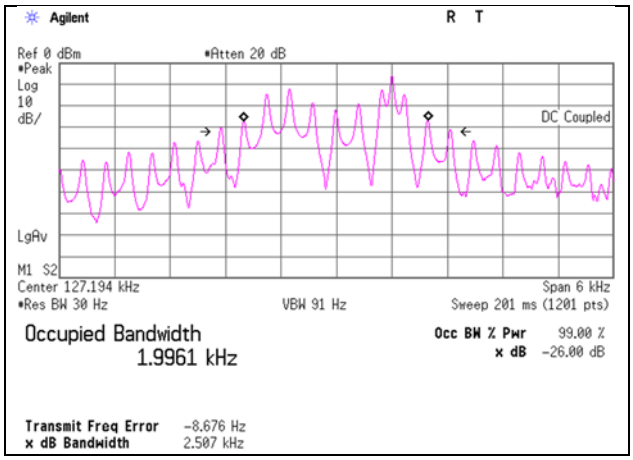
-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
2.507	1.9988



-26 dB Bandwidth and 99% Occupide Bandwidth

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2020
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takafumi Noguchi
Mode	Mode 6

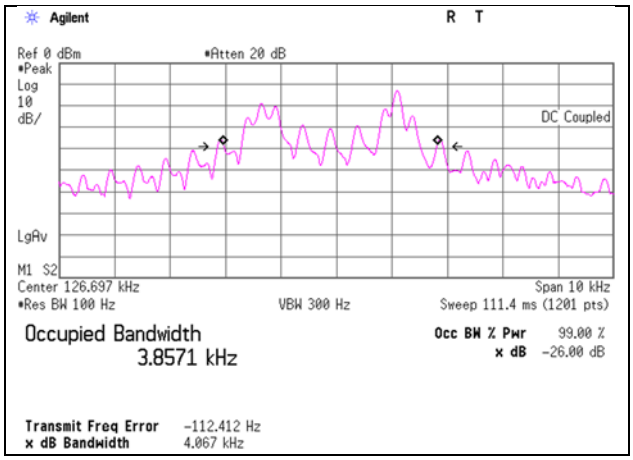
-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
2.507	1.9961



-26 dB Bandwidth and 99% Occupide Bandwidth

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2020
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takafumi Noguchi
Mode	Mode 7

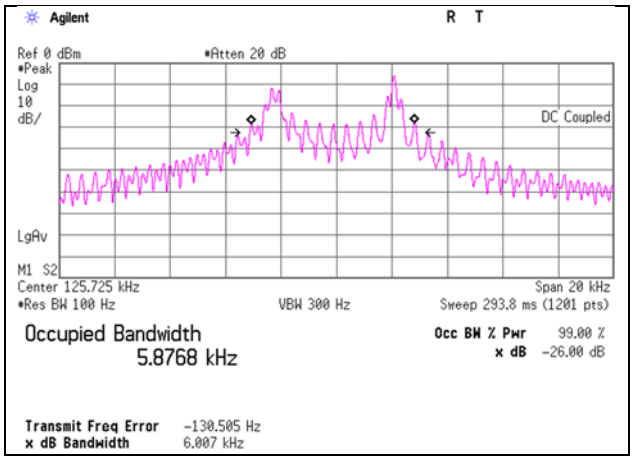
-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
4.067	3.8571



-26 dB Bandwidth and 99% Occupide Bandwidth

Report No.	13558632H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	December 19, 2020
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takafumi Noguchi
Mode	Mode 8

-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
6.007	5.8768



APPENDIX 2: Test instruments

Test equipment

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
CE	MAEC-04	142011	AC4_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/25/2020	24
CE	MOS-15	141562	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	0010	01/07/2020	12
CE	MMM-10	141545	DIGITAL HiTESTER	Hioki	3805	51201148	01/06/2020	12
CE	MJM-29	142230	Measure	KOMELON	KMC-36	-	-	-
CE	COTS-MEMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
CE	MTR-10	141951	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	03/10/2020	12
CE	MLS-23	141357	LISN(AMN)	Schwarzbeck Mess - Elektronik	NSLK8127	8127-729	07/22/2020	12
CE	MLS-24	141358	LISN(AMN)	Schwarzbeck Mess - Elektronik	NSLK8127	8127-730	07/22/2020	12
CE	MTA-56	141938	Terminator	TME	CT-01BP	-	12/04/2020	12
CE	MAT-67	141248	Attenuator	JFW Industries, Inc.	50FP-013H2 N	-	12/07/2020	12
CE	MCC-113	141217	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W/SFM141/ 421-010/ sucoform141-PE/ RFM-E121(SW)	-/04178	06/18/2020	12
RE	MAEC-01	141998	AC1_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	06/08/2020	24
RE	MOS-27	141566	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	A08Q26	01/07/2020	12
RE	MMM-03	141530	Digital Tester	Fluke Corporation	FLUKE 26-3	78030621	08/18/2020	12
RE	MJM-25	142226	Measure	KOMELON	KMC-36	-	-	-
RE	COTS-MEMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	MAT-08	141213	Attenuator(6dB)	Weinschel Corp	2	BK7971	11/13/2020	12
RE	KBA-05	141198	Biconical Antenna	Schwarzbeck Mess - Elektronik	VHA9103+BBA9106	2513	04/22/2020	12
RE	MCC-02	141350	Coaxial Cable	Suhner/storm/Agilent/TSJ	-	-	06/25/2020	12
RE	MTR-09	141950	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	06/03/2020	12
RE	MLA-20	141264	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess - Elektronik	VUSLP9111B	9111B-189	04/22/2020	12
RE	MPA-19	141585	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	02/10/2020	12
RE	MLPA-02	142152	Loop Antenna	Rohde & Schwarz	HFH2-Z2	836553/009	12/04/2020	12
RE	MCC-219	159670	Coaxial Cable	UL Japan Inc.	-	-	11/17/2020	12
RE	MCC-03	141215	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W/3D-2W/ RG400u/ RFM-E421(SW)	- /01068(Switcher)	06/25/2020	12
RE	MPA-13	141582	Pre Amplifier	SONOMA INSTRUMENT	310	260834	02/10/2020	12
RE	MSA-15	141902	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46187105	10/15/2020	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: Spurious emission