RADIO TEST REPORT

Test Report No. 14177390H-A-R1

Customer	**Ricoh Company Ltd**
Description of EUT	**IC Card Reader/Writer**
Model Number of EUT	**ICM-3405U-A**
FCC ID	**BBP-RFICM01**
Test Regulation	**FCC Part 15 Subpart C: 2021**
Test Result	**Complied (Refer to SECTION 3)**
Issue Date	**April 4, 2022**
Remarks	**-**

Representative Test Engineer

Junya Okuno
Engineer

Approved By

Shinichi Miyazono
Engineer

CERTIFICATE 5107.02

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan, Inc.

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

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- The information provided from the applicant for this report is identified in Section 1.
- For test report(s) referred in this report, the latest version (including any revisions) is always referred.

REVISION HISTORY

Original Test Report No.: 14177390H-A

This report is a revised version of 14177390H. 14177390H is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	14177390H-A	March 11, 2022	-
1	14177390H-A-R1	April 4, 2022	SECTION 3.2 Correction of “FCC part 15.31(e)” and “FCC Part 15.203/212 Antenna requirement” to the following contents; FCC Part 15.31 (e) The RF Module has its own regulator. The RF Module is constantly provided voltage through the regulator regardless of input voltage. FCC Part 15.203/212 Antenna requirement The antenna is not removable from the EUT.
1	14177390H-A-R1	April 4, 2022	SECTION 7 - Correction of the description of Span, RBW and VBW with 20 dB Bandwidth. - Addition of "* 3)" in the item name of 20 dB Bandwidth. - Correction from * 1) to * 3) of the note numbers of Span, RBW, and VBW in 20 dB Bandwidth.

Reference: Abbreviations (Including words undescribed in this report)

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

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SECTION 1: Customer Information

Company Name	Ricoh Company Ltd *1)
Address	2-7-1 Izumi Ebina Kanagawa 243-0460 Japan
Telephone Number	+81-46-249-8146
Contact Person	Atsushi Yasuda

*1) Remarks:
Ricoh Company Ltd designates FUJIFILM Imaging Systems Co., Ltd. as manufacturer of the product (IC Card Reader/Writer).

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

* 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

Description	IC Card Reader/Writer
Model Number	ICM-3405U-A
Serial Number	Refer to SECTION 4.2
Condition	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	February 4 and 16, 2022
Test Date	February 6 to March 3, 2022

2.2 Product Description

General Specification

Rating	DC 5.0 V
Operating temperature	-5 deg. C to 43 deg. C

Radio Specification

Equipment Type	Transceiver
Frequency of Operation	13.56 MHz
Type of Modulation	ASK

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 15.225 Operation within the band 13.110-14.010 MHz.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	<FCC> ANSI C63.10:2013 6 Standard test methods	<FCC> Section 15.207	10.01 dB 0.49510 MHz AV, Phase L (Mode 5)	Complied a)	-
	<ISED> RSS-Gen 8.8	<ISED> RSS-Gen 8.8			
Electric Field Strength of Fundamental Emission	<FCC> ANSI C63.10:2013 6 Standard test methods	<FCC> Section 15.225(a)	46.93 dB, 13.56000 MHz, QP, 0 deg. (Mode 4 without Tag)	Complied b)	Radiated
	<ISED> RSS-Gen 6.4, 6.12	<ISED> RSS-210 B.6			
Spectrum Mask	<FCC> ANSI C63.10:2013 6 Standard test methods	<FCC> Section 15.225(b)(c)	22.45 dB, 13.34842 MHz, QP, 0 deg. (Mode 1 without Tag)	Complied b)	Radiated
	<ISED> RSS-Gen 6.4, 6.13	<ISED> RSS-210 B.6			
20 dB Bandwidth	<FCC> ANSI C63.10:2013 6 Standard test methods	<FCC> Section15.215(c)	See data	Complied c)	Radiated
	<ISED> -	<ISED> -			
Electric Field Strength of Spurious Emission	<FCC> ANSI C63.10:2013 6 Standard test methods	<FCC> Section 15.209, Section 15.225 (d)	8.37 dB 67.800 MHz, Vertical, QP (Mode 5 without Tag)	Complied d)	Radiated
	<ISED> RSS-Gen 6.4, 6.13	<ISED> RSS-210 B.6 RSS-Gen 8.9			
Frequency Tolerance	<FCC> ANSI C63.10:2013 6 Standard test methods	<FCC> Section 15.225(e)	See data	Complied e)	Radiated
	<ISED> RSS-Gen 6.11, 8.11	<ISED> RSS-210 B.6			

Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.

a) Refer to APPENDIX 1 (data of Conducted Emission)
b) Refer to APPENDIX 1 (data of Fundamental emission and Spectrum Mask)
c) Refer to APPENDIX 1 (data of 20 dB Bandwidth and 99% emission bandwidth)
d) Refer to APPENDIX 1 (data of Spurious emission)
e) Refer to APPENDIX 1 (data of Frequency Tolerance)

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)

The RF Module has its own regulator.
The RF Module is constantly provided voltage through the regulator regardless of input voltage.
Therefore, this EUT complies with the requirement.
However, the supply voltage was varied and tested at 85 % and 115 % of the nominal rated supply voltage during frequency tolerance test according to Section 15.225(e).

FCC Part 15.203/212 Antenna requirement

The antenna is not removable from the EUT.
Therefore the equipment complies with the requirement of 15.203/212.

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% emission bandwidth	<ISED>RSS-Gen 6.7	-	N/A	-	Radiated

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 $k = 2$.

Test Item		Frequency range		Uncertainty (+/-)
Conducted emission AMN (LISN)		0.009 MHz to 0.15 MHz		3.7 dB
		0.15 MHz to 30 MHz		3.3 dB
Radiated emission	3 m	9 kHz to 30 MHz		3.2 dB
	10 m			3.0 dB
	3 m	30 MHz to 200 MHz	Horizontal	4.8 dB
			Vertical	5.0 dB
		200 MHz to 1000 MHz	Horizontal	5.1 dB
			Vertical	6.2 dB
	10 m	30 MHz to 200 MHz	Horizontal	4.8 dB
			Vertical	4.8 dB
		200 MHz to 1000 MHz	Horizontal	5.0 dB
			Vertical	5.0 dB
	3 m	1 GHz to 6 GHz		4.9 dB
		6 GHz to 18 GHz		5.2 dB
	1 m	10 GHz to 26.5 GHz		5.4 dB
		26.5 GHz to 40 GHz		5.4 dB
Frequency Tolerance		-		0.01541 ppm
20 dB Bandwidth / 99% emission bandwidth		-		0.96 %

3.5 Test Location

UL Japan, Inc. Ise EMC Lab.
*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919
ISED Lab Company Number: 2973C / CAB identifier: JP0002
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone: +81 596 24 8999, Facsimile: +81 596 24 8124

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

* Size of vertical conducting plane (for Conducted Emission test): 2.0 m × 3.0 m2.0 m × 3.0 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 Mode(s)

The mode is used :

Test mode	Remarks
Transmitting mode (Tx)	The EUT Transmits and Receives at the same time and there is no receiving mode.
The EUT was operated in a manner similar to typical use during the tests.	
*Power of the EUT was set by the software as follows; Software: AP RF TestTool (for ICM-3405U-A) Ver.2.0.0.3 (Date: 2022.02.01, Storage location: Driven by connected PC) *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.	

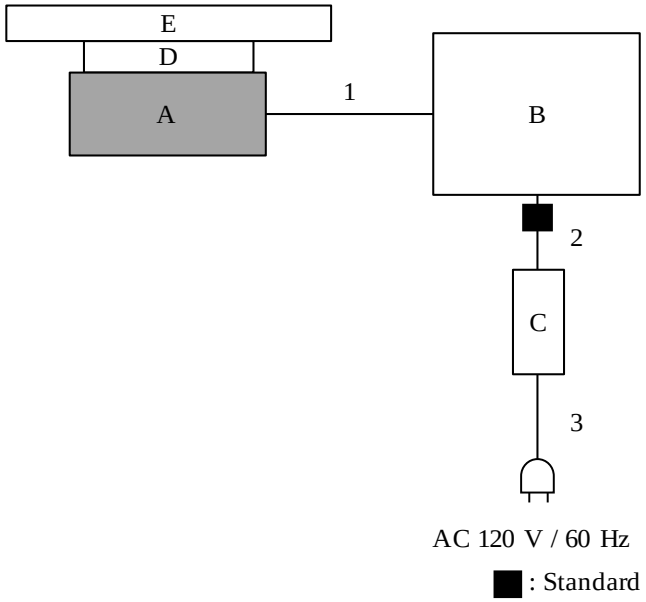
*The Details of Operation Mode(s)

Test Item	Operating mode*
Conducted Emission	Mode 1 ISO/IEC14443 TypeA (without Tag / with Tag) Mode 2 ISO/IEC14443 TypeB (without Tag / with Tag) Mode 3 ISO/IEC18092(FeliCa 212kbps) (without Tag / with Tag) Mode 4 ISO/IEC18092(FeliCa 424kbps) (without Tag / with Tag) Mode 5 ISO/IEC15693 (without Tag / with Tag) Mode 6 50 ohm terminated
Electric Field Strength of Fundamental Emission, Spectrum Mask, 20 dB Bandwidth and 99% emission bandwidth, Electric Field Strength of Spurious Emission,	Mode 1 ISO/IEC14443 TypeA (without Tag / with Tag) Mode 2 ISO/IEC14443 TypeB (without Tag / with Tag) Mode 3 ISO/IEC18092(FeliCa 212kbps) (without Tag / with Tag) Mode 4 ISO/IEC18092(FeliCa 424kbps) (without Tag / with Tag) Mode 5 ISO/IEC15693 (without Tag / with Tag)
Frequency Tolerance	Mode 7 Mod off

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

Frequency Tolerance:	
Temperature	-20 deg. C to +50 deg. C Step 10 deg. C
Voltage	Normal Voltage DC 5.0 V Maximum Voltage DC 5.75 V (DC 5.0 V +15 %) Minimum Voltage DC 4.25 V (DC 5.0 V -15 %)
*This EUT provides stable voltage constantly to RF Part regardless of input voltage	

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	IC Card Reader/Writer	ICM-3405U-A	TE2202055A	FUJIFILM Imaging Systems Co., Ltd.	EUT
B	Laptop PC	CF-W4	5IKSA41514	Panasonic	-
C	AC Adapter	CF-AA1625A	1625AM305603564C	Panasonic	-
D	Spacer	4mm	1	FUJIFILM Imaging Systems Co., Ltd.	-
E	Tag	ISO/IEC14443 TypeA	#06	FUJIFILM Imaging Systems Co., Ltd.	-
		ISO/IEC14443 TypeB	#06		-
		ISO/IEC18092(FeliCa)	#06		212kbps
		ISO/IEC18092(FeliCa)	#06		424kbps
		ISO/IEC15693	#05		-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Cable	1.0	Shielded	Shielded	-
2	DC Cable	0.8	Unshielded	Unshielded	-
3	AC Cable	1.2	Unshielded	Unshielded	-

SECTION 5: Conducted Emission

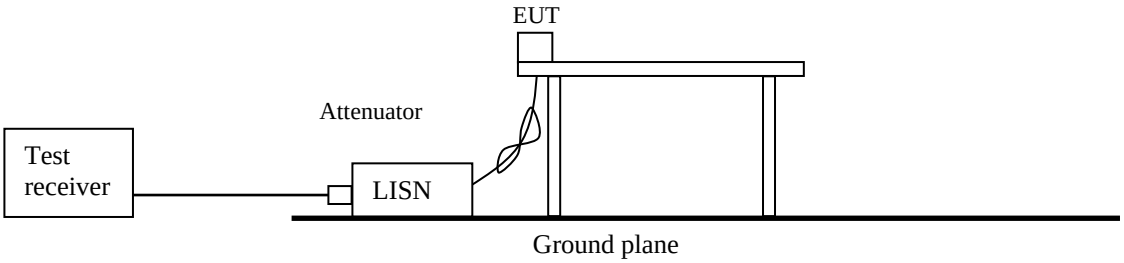
Test Procedure and conditions

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 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. The EUT was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.

[Test Setup]



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

Detector : QP and CISPR AV
Measurement range : 0.15 MHz - 30 MHz
Test data : APPENDIX
Test result : Pass

SECTION 6: Radiated emission (Fundamental, Spurious Emission and Spectrum Mask)

Test Procedure

[For below 1GHz]
EUT was placed on a urethane platform of nominal size, 0.5 m by 1.0 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

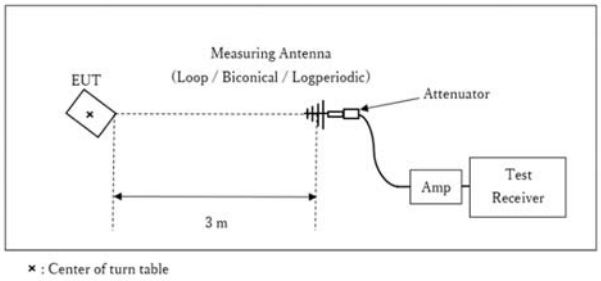
*1) Distance Factor: 40 x log (3 m / 300 m) = -80 dB
*2) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

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

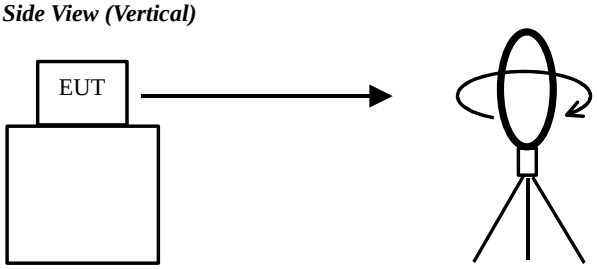
- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

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

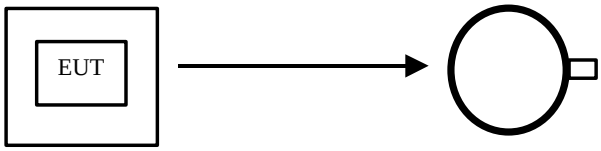
Measurement range : **9 kHz - 1 GHz**
Test data : **APPENDIX 1**
Test result : **Pass**

Figure 1: Direction of the Loop Antenna

Side View (Vertical)

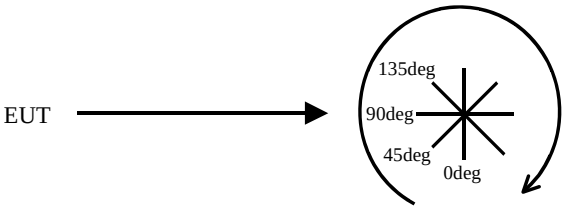


Top View (Horizontal)



Antenna was not rotated.

Top View (Vertical)



Front side: 0 deg.
Forward direction: clockwise

SECTION 7: Other test

Test	Span	RBW	VBW	Sweep	Detector	Trace	Instrument used
20 dB Bandwidth *3)	Enough width to display emission skirts	1 to 5 % of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
99% emission bandwidth	Enough width to display emission skirts	1 to 5 % of OBW	Three times of RBW	Auto	Peak *1)	Max Hold *1)	Spectrum Analyzer
Frequency Tolerance	-	-	-	-	-	-	Spectrum Analyzer *2)

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

*3) The Details of Span, RBW, VBW for 20 dB Bandwidth.

	Span	RBW	VBW
Mode 1 (with Tag)	2 MHz	10 kHz	30 kHz
Mode 1 (without Tag)	2 MHz	6.2 kHz	18 kHz
Mode 2 (with Tag / without Tag)	420 kHz	1.5 kHz	4.3 kHz
Mode 3 (with Tag / without Tag)	1.6 MHz	10 kHz	30 kHz
Mode 4 (with Tag)	3 MHz	10 kHz	30 kHz
Mode 4 (without Tag)	3.5 MHz	10 kHz	30 kHz
Mode 5 (with Tag / without Tag)	420 kHz	1.5 kHz	4.3 kHz

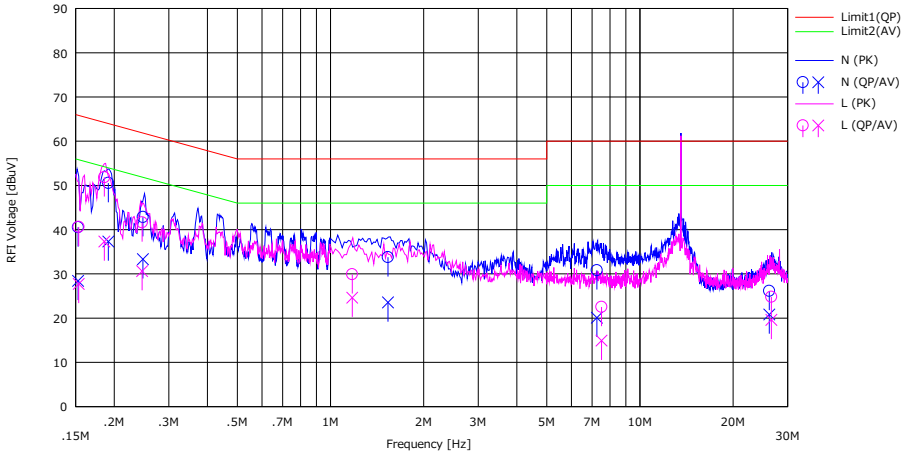
Test data : APPENDIX
Test result : Pass

APPENDIX 1: Test data

Conducted Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 1, 2022
Temperature / Humidity	22 deg. C / 33 % RH
Engineer	Junya Okuno
Mode	Mode 1 without Tag

Limit : FCC_Part 15 Subpart C(15.207)



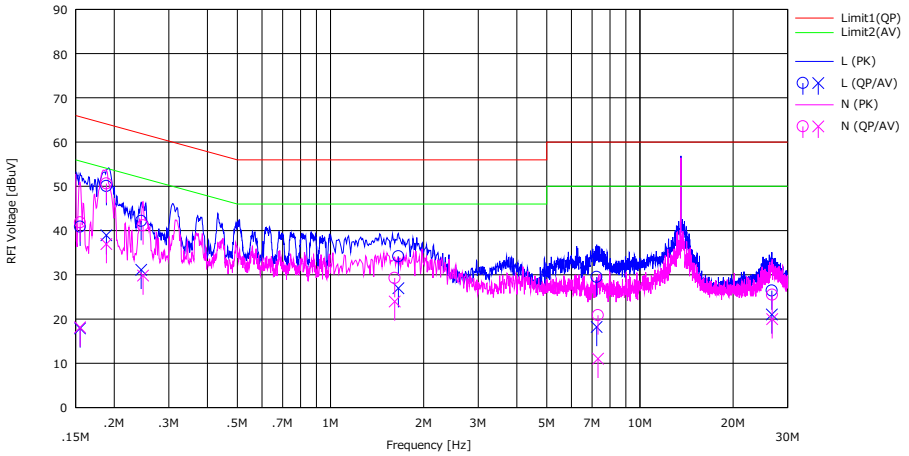
No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		〈QP〉	〈AV〉			〈QP〉	〈AV〉	〈QP〉	〈AV〉	〈QP〉	〈AV〉		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15270	27.30	15.20	0.05	13.18	40.53	28.43	65.85	55.85	25.32	27.42	N	
2	0.19134	37.30	24.10	0.05	13.19	50.54	37.34	63.98	53.98	13.44	16.64	N	
3	0.24746	29.60	20.10	0.05	13.19	42.84	33.34	61.84	51.84	19.00	18.50	N	
4	1.53306	20.40	10.20	0.07	13.30	33.77	23.57	56.00	46.00	22.23	22.43	N	
5	7.26252	17.10	6.40	0.17	13.56	30.83	20.13	60.00	50.00	29.17	29.87	N	
6	26.16912	11.70	6.40	0.45	14.00	26.15	20.85	60.00	50.00	33.85	29.15	N	
7	0.15342	27.40	14.50	0.05	13.18	40.63	27.73	65.81	55.81	25.18	28.08	L	
8	0.18570	38.60	24.10	0.05	13.19	51.84	37.34	64.23	54.23	12.39	16.89	L	
9	0.24596	28.40	17.40	0.05	13.19	41.64	30.64	61.89	51.89	20.25	21.25	L	
10	1.17528	16.60	11.30	0.05	13.27	29.92	24.62	56.00	46.00	26.08	21.38	L	
11	7.51314	8.80	1.20	0.17	13.56	22.53	14.93	60.00	50.00	37.47	35.07	L	
12	26.58162	10.30	5.10	0.52	14.01	24.83	19.63	60.00	50.00	35.17	30.37	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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 6, 2022
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Ken Fujita
Mode	Mode 1 with Tag

Limit : FCC_Part 15 Subpart C(15.207)



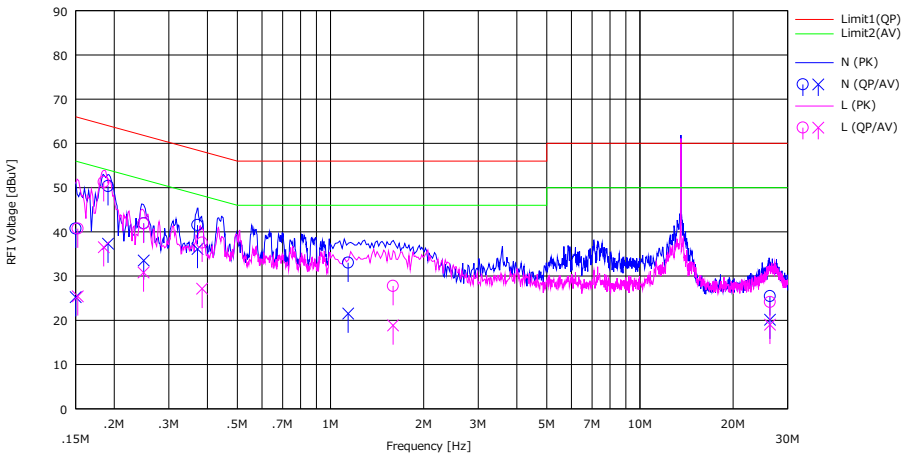
No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		(QP)	(AV)			(QP)	(AV)	(QP)	(AV)	(QP)	(AV)		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15510	27.64	4.66	0.05	13.18	40.87	17.89	65.72	55.72	24.85	37.83	L	
2	0.18855	36.80	25.70	0.05	13.19	50.04	38.94	64.10	54.10	14.06	15.16	L	
3	0.24435	28.90	17.90	0.05	13.19	42.14	31.14	61.95	51.95	19.81	20.81	L	
4	1.65700	20.80	13.60	0.06	13.31	34.17	26.97	56.00	46.00	21.83	19.03	L	
5	7.24600	15.80	4.50	0.16	13.55	29.51	18.21	60.00	50.00	30.49	31.79	L	
6	26.68000	11.90	6.50	0.52	14.01	26.43	21.03	60.00	50.00	33.57	28.97	L	
7	0.15510	28.60	4.90	0.05	13.18	41.83	18.13	65.72	55.72	23.89	37.59	N	
8	0.18855	37.40	23.70	0.05	13.19	50.64	36.94	64.10	54.10	13.46	17.16	N	
9	0.24775	27.90	16.60	0.05	13.19	41.14	29.84	61.83	51.83	20.69	21.99	N	
10	1.61200	15.90	10.60	0.07	13.30	29.27	23.97	56.00	46.00	26.73	22.03	N	
11	7.31800	7.10	-2.70	0.17	13.56	20.83	11.03	60.00	50.00	39.17	38.97	N	
12	26.76000	11.00	5.50	0.46	14.01	25.47	19.97	60.00	50.00	34.53	30.03	N	

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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 1, 2022
Temperature / Humidity	22 deg. C / 33 % RH
Engineer	Junya Okuno
Mode	Mode 2 without Tag

Limit : FCC_Part 15 Subpart C(15.207)



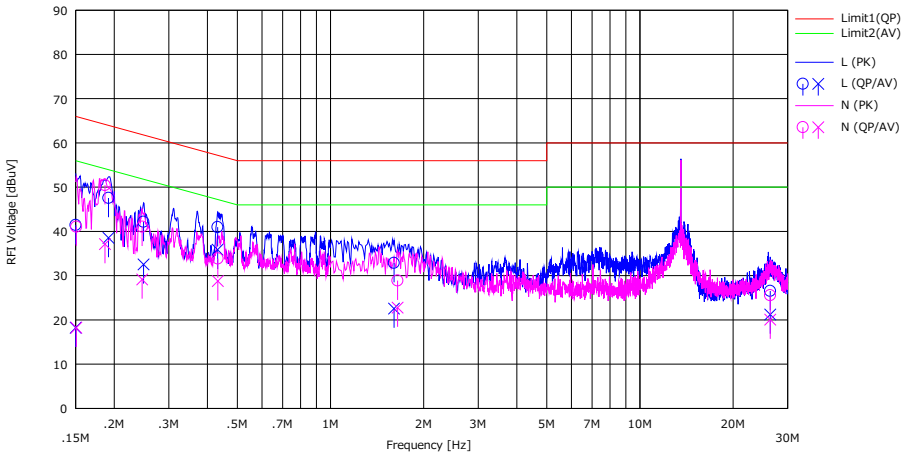
No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		(QP)	(AV)			(QP)	(AV)	(QP)	(AV)	(QP)	(AV)		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	27.50	12.00	0.05	13.18	40.73	25.23	66.00	56.00	25.27	30.77	N	
2	0.19090	37.10	24.10	0.05	13.19	50.34	37.34	64.00	54.00	13.66	16.66	N	
3	0.24904	28.70	20.30	0.05	13.19	41.94	33.54	61.79	51.79	19.85	18.25	N	
4	0.37146	28.30	22.90	0.04	13.21	41.55	36.15	58.47	48.47	16.92	12.32	N	
5	1.14010	19.70	8.20	0.06	13.27	33.03	21.53	56.00	46.00	22.97	24.47	N	
6	26.32882	11.00	5.70	0.45	14.00	25.45	20.15	60.00	50.00	34.55	29.85	N	
7	0.15248	27.50	12.20	0.05	13.18	40.73	25.43	65.86	55.86	25.13	30.43	L	
8	0.18493	38.00	23.30	0.05	13.19	51.24	36.54	64.26	54.26	13.02	17.72	L	
9	0.24854	28.60	17.60	0.05	13.19	41.84	30.84	61.81	51.81	19.97	20.97	L	
10	0.38426	24.30	13.90	0.04	13.21	37.55	27.15	58.19	48.19	20.64	21.04	L	
11	1.59240	14.40	5.50	0.06	13.30	27.76	18.86	56.00	46.00	28.24	27.14	L	
12	26.32172	9.60	4.50	0.52	14.00	24.12	19.02	60.00	50.00	35.88	30.98	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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 6, 2022
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Ken Fujita
Mode	Mode 2 with Tag

Limit : FCC_Part 15 Subpart C(15.207)



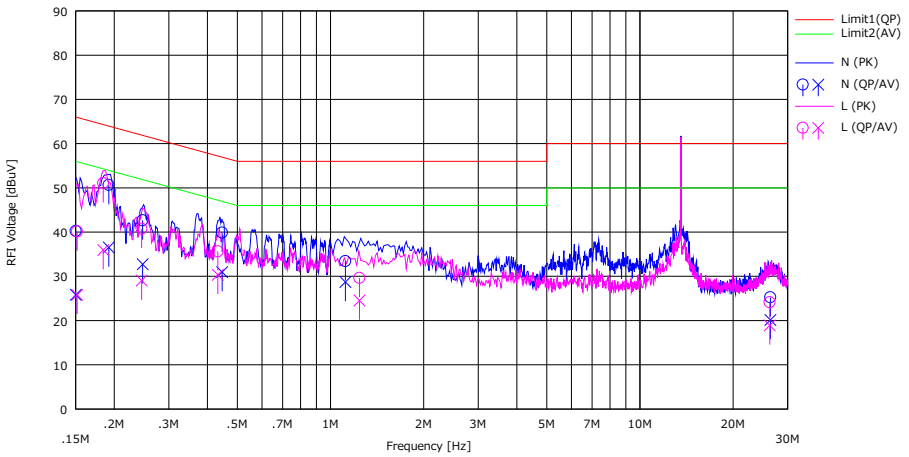
No.	Freq.	Reading ⟨QP⟩	Reading ⟨AV⟩	LISN	LOSS	Results ⟨QP⟩	Results ⟨AV⟩	Limit ⟨QP⟩	Limit ⟨AV⟩	Margin ⟨QP⟩	Margin ⟨AV⟩	Phase	Comment
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	28.20	5.00	0.05	13.18	41.43	18.23	66.00	56.00	24.57	37.77	L	
2	0.19165	34.30	25.30	0.05	13.19	47.54	38.54	63.96	53.96	16.42	15.42	L	
3	0.24860	28.90	19.30	0.05	13.19	42.14	32.54	61.80	51.80	19.66	19.26	L	
4	0.43135	27.70	22.60	0.04	13.21	40.95	35.85	57.23	47.23	16.28	11.38	L	
5	1.60300	19.50	9.20	0.06	13.30	32.86	22.56	56.00	46.00	23.14	23.44	L	
6	26.36000	12.00	6.70	0.52	14.00	26.52	21.22	60.00	50.00	33.48	28.78	L	
7	0.15085	27.80	5.00	0.05	13.18	41.03	18.23	65.95	55.95	24.92	37.72	N	
8	0.18655	37.20	23.90	0.05	13.19	50.44	37.14	64.19	54.19	13.75	17.05	N	
9	0.24605	27.80	15.90	0.05	13.19	41.04	29.14	61.89	51.89	20.85	22.75	N	
10	0.43220	20.60	15.50	0.05	13.21	33.86	28.76	57.21	47.21	23.35	18.45	N	
11	1.64800	15.50	9.40	0.07	13.31	28.88	22.78	56.00	46.00	27.12	23.22	N	
12	26.36000	11.10	5.60	0.45	14.00	25.55	20.05	60.00	50.00	34.45	29.95	N	

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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 1, 2022
Temperature / Humidity	22 deg. C / 33 % RH
Engineer	Junya Okuno
Mode	Mode 3 without Tag

Limit : FCC_Part 15 Subpart C(15.207)



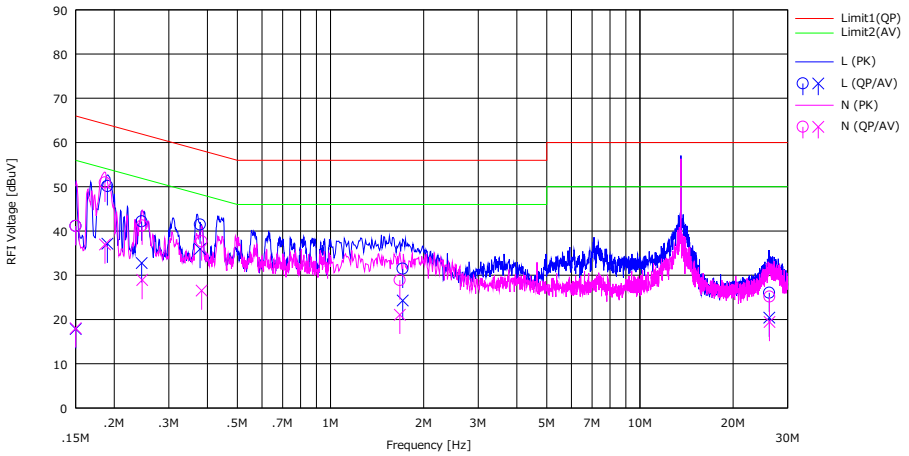
No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		(QP)	(AV)			(QP)	(AV)	(QP)	(AV)	(QP)	(AV)		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15031	27.00	12.60	0.05	13.18	40.23	25.83	65.98	55.98	25.75	30.15	N	
2	0.19184	37.40	23.30	0.05	13.19	50.64	36.54	63.96	53.96	13.32	17.42	N	
3	0.24709	29.40	19.50	0.05	13.19	42.64	32.74	61.85	51.85	19.21	19.11	N	
4	0.44644	26.60	17.70	0.05	13.21	39.86	30.96	56.94	46.94	17.08	15.98	N	
5	1.11684	20.10	15.40	0.06	13.27	33.43	28.73	56.00	46.00	22.57	17.27	N	
6	26.40268	10.80	5.70	0.45	14.00	25.25	20.15	60.00	50.00	34.75	29.85	N	
7	0.15172	26.90	12.60	0.05	13.18	40.13	25.83	65.91	55.91	25.78	30.08	L	
8	0.18431	37.80	22.70	0.05	13.19	51.04	35.94	64.29	54.29	13.25	18.35	L	
9	0.24534	27.50	15.80	0.05	13.19	40.74	29.04	61.91	51.91	21.17	22.87	L	
10	0.43234	22.40	17.10	0.04	13.21	35.65	30.35	57.21	47.21	21.56	16.86	L	
11	1.24016	16.30	11.20	0.05	13.28	29.63	24.53	56.00	46.00	26.37	21.47	L	
12	26.25968	9.60	4.40	0.52	14.00	24.12	18.92	60.00	50.00	35.88	31.08	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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 6, 2022
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Ken Fujita
Mode	Mode 3 with Tag

Limit : FCC_Part 15 Subpart C(15.207)



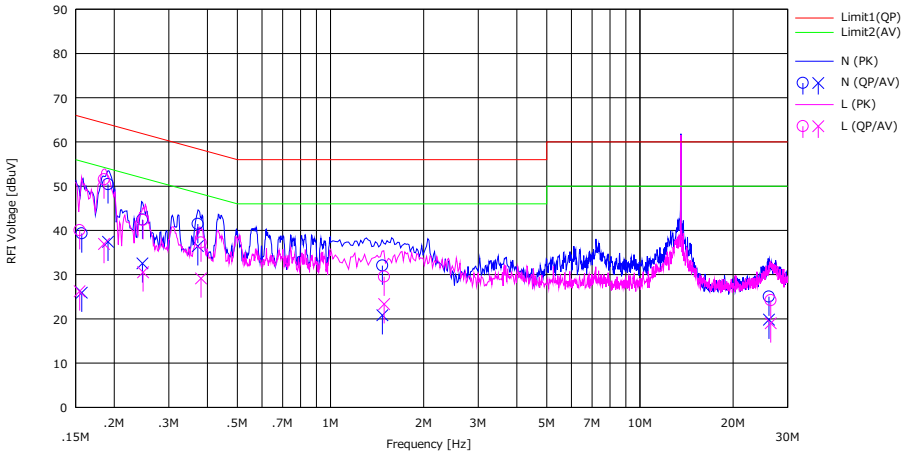
No.	Freq.	Reading ⟨QP⟩	Reading ⟨AV⟩	LISN	LOSS	Results ⟨QP⟩	Results ⟨AV⟩	Limit ⟨QP⟩	Limit ⟨AV⟩	Margin ⟨QP⟩	Margin ⟨AV⟩	Phase	Comment
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	27.90	4.60	0.05	13.18	41.13	17.83	66.00	56.00	24.87	38.17	L	
2	0.18995	36.90	23.90	0.05	13.19	50.14	37.14	64.04	54.04	13.90	16.90	L	
3	0.24520	28.90	19.50	0.05	13.19	42.14	32.74	61.92	51.92	19.78	19.18	L	
4	0.37865	28.20	22.70	0.04	13.21	41.45	35.95	58.31	48.31	16.86	12.36	L	
5	1.71100	18.10	10.90	0.06	13.31	31.47	24.27	56.00	46.00	24.53	21.73	L	
6	26.18000	11.50	5.90	0.52	14.00	26.02	20.42	60.00	50.00	33.98	29.58	L	
7	0.15000	27.90	4.80	0.05	13.18	41.13	18.03	66.00	56.00	24.87	37.97	N	
8	0.18655	37.70	23.70	0.05	13.19	50.94	36.94	64.19	54.19	13.25	17.25	N	
9	0.24605	28.00	15.70	0.05	13.19	41.24	28.94	61.89	51.89	20.65	22.95	N	
10	0.38290	24.40	13.30	0.04	13.21	37.65	26.55	58.22	48.22	20.57	21.67	N	
11	1.67500	15.50	7.70	0.07	13.31	28.88	21.08	56.00	46.00	27.12	24.92	N	
12	26.22000	10.70	5.00	0.45	14.00	25.15	19.45	60.00	50.00	34.85	30.55	N	

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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 1, 2022
Temperature / Humidity	22 deg. C / 33 % RH
Engineer	Junya Okuno
Mode	Mode 4 without Tag

Limit : FCC_Part 15 Subpart C(15.207)



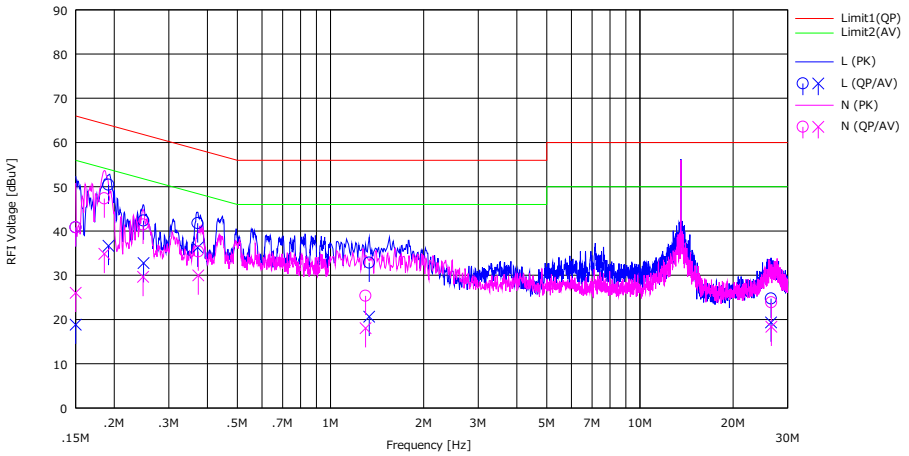
No.	Freq.	Reading ⟨QP⟩	Reading ⟨AV⟩	LISN	LOSS	Results ⟨QP⟩	Results ⟨AV⟩	Limit ⟨QP⟩	Limit ⟨AV⟩	Margin ⟨QP⟩	Margin ⟨AV⟩	Phase	Comment
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15699	26.10	12.70	0.05	13.18	39.33	25.93	65.62	55.62	26.29	29.69	N	
2	0.19089	37.20	24.20	0.05	13.19	50.44	37.44	64.00	54.00	13.56	16.56	N	
3	0.24662	29.20	19.30	0.05	13.19	42.44	32.54	61.87	51.87	19.43	19.33	N	
4	0.37219	28.20	23.20	0.04	13.21	41.45	36.45	58.45	48.45	17.00	12.00	N	
5	1.47052	18.70	7.50	0.06	13.29	32.05	20.85	56.00	46.00	23.95	25.15	N	
6	26.10667	10.60	5.40	0.45	14.00	25.05	19.85	60.00	50.00	34.95	30.15	N	
7	0.15448	26.80	13.00	0.05	13.18	40.03	26.23	65.76	55.76	25.73	29.53	L	
8	0.18537	38.30	23.70	0.05	13.19	51.54	36.94	64.24	54.24	12.70	17.30	L	
9	0.24774	29.10	17.30	0.05	13.19	42.34	30.54	61.83	51.83	19.49	21.29	L	
10	0.38146	24.00	15.90	0.04	13.21	37.25	29.15	58.25	48.25	21.00	19.10	L	
11	1.48955	16.20	10.00	0.05	13.29	29.54	23.34	56.00	46.00	26.46	22.66	L	
12	26.47067	9.70	4.50	0.52	14.00	24.22	19.02	60.00	50.00	35.78	30.98	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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 6, 2022
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Ken Fujita
Mode	Mode 4 with Tag

Limit : FCC_Part 15 Subpart C(15.207)



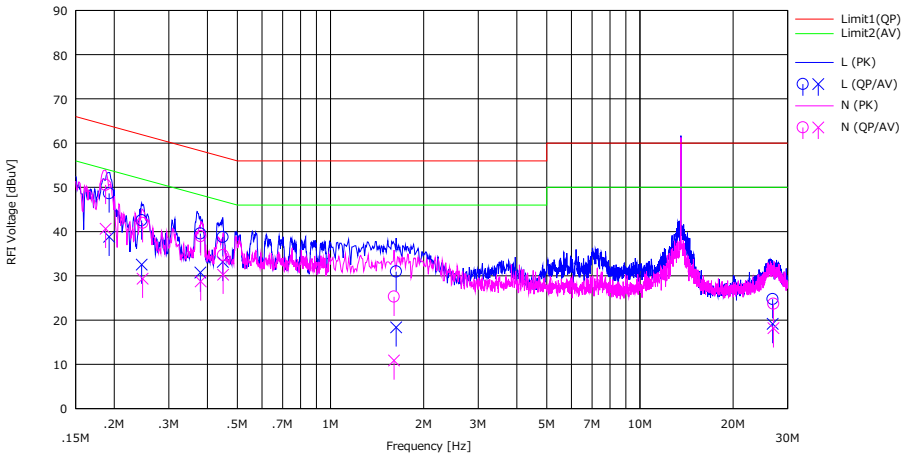
No.	Freq.	Reading ⟨QP⟩	Reading ⟨AV⟩	LISN	LOSS	Results ⟨QP⟩	Results ⟨AV⟩	Limit ⟨QP⟩	Limit ⟨AV⟩	Margin ⟨QP⟩	Margin ⟨AV⟩	Phase	Comment
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	27.60	5.60	0.05	13.18	40.83	18.83	66.00	56.00	25.17	37.17	L	
2	0.19165	37.20	23.40	0.05	13.19	50.44	36.64	63.96	53.96	13.52	17.32	L	
3	0.24860	29.10	19.50	0.05	13.19	42.34	32.74	61.80	51.80	19.46	19.06	L	
4	0.37185	28.50	23.00	0.04	13.21	41.75	36.25	58.46	48.46	16.71	12.21	L	
5	1.33300	19.50	7.30	0.05	13.28	32.83	20.63	56.00	46.00	23.17	25.37	L	
6	26.52000	10.20	4.80	0.52	14.00	24.72	19.32	60.00	50.00	35.28	30.68	L	
7	0.15000	27.60	12.80	0.05	13.18	40.83	26.03	66.00	56.00	25.17	29.97	N	
8	0.18570	34.10	21.60	0.05	13.19	47.34	34.84	64.23	54.23	16.89	19.39	N	
9	0.24775	28.20	16.40	0.05	13.19	41.44	29.64	61.83	51.83	20.39	22.19	N	
10	0.37355	22.10	16.70	0.04	13.21	35.35	29.95	58.42	48.42	23.07	18.47	N	
11	1.29700	12.00	4.70	0.06	13.28	25.34	18.04	56.00	46.00	30.66	27.96	N	
12	26.58000	9.40	3.90	0.46	14.01	23.87	18.37	60.00	50.00	36.13	31.63	N	

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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 6, 2022
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Ken Fujita
Mode	Mode 5 without Tag

Limit : FCC_Part 15 Subpart C(15.207)



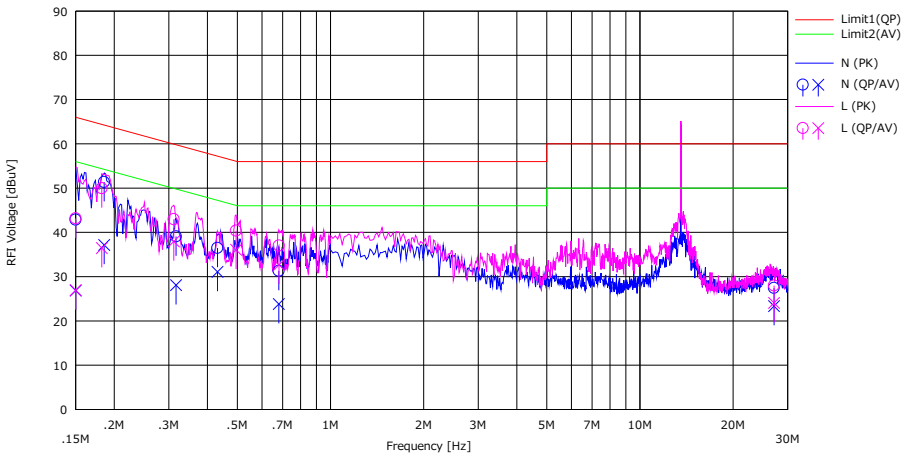
No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		〈QP〉	〈AV〉			〈QP〉	〈AV〉	〈QP〉	〈AV〉	〈QP〉	〈AV〉		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.19250	35.40	25.60	0.05	13.19	48.64	38.84	63.93	53.93	15.29	15.09	L	
2	0.24520	29.30	19.30	0.05	13.19	42.54	32.54	61.92	51.92	19.38	19.38	L	
3	0.37950	26.30	17.50	0.04	13.21	39.55	30.75	58.29	48.29	18.74	17.54	L	
4	0.44835	25.50	19.90	0.04	13.21	38.75	33.15	56.91	46.91	18.16	13.76	L	
5	1.63000	17.60	5.00	0.06	13.30	30.96	18.36	56.00	46.00	25.04	27.64	L	
6	26.86000	10.20	4.60	0.53	14.01	24.74	19.14	60.00	50.00	35.26	30.86	L	
7	0.18740	37.30	27.40	0.05	13.19	50.54	40.64	64.15	54.15	13.61	13.51	N	
8	0.24690	28.70	16.10	0.05	13.19	41.94	29.34	61.86	51.86	19.92	22.52	N	
9	0.38035	25.70	15.50	0.04	13.21	38.95	28.75	58.27	48.27	19.32	19.52	N	
10	0.44920	21.40	17.00	0.05	13.21	34.66	30.26	56.89	46.89	22.23	16.63	N	
11	1.60300	11.90	-2.50	0.07	13.30	25.27	10.87	56.00	46.00	30.73	35.13	N	
12	27.00000	9.20	3.70	0.46	14.01	23.67	18.17	60.00	50.00	36.33	31.83	N	

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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 18, 2022
Temperature / Humidity	20 deg. C / 33 % RH
Engineer	Kiyoshiro Okazaki
Mode	Mode 5 with Tag

Limit : FCC_Part 15 Subpart C(15.207)



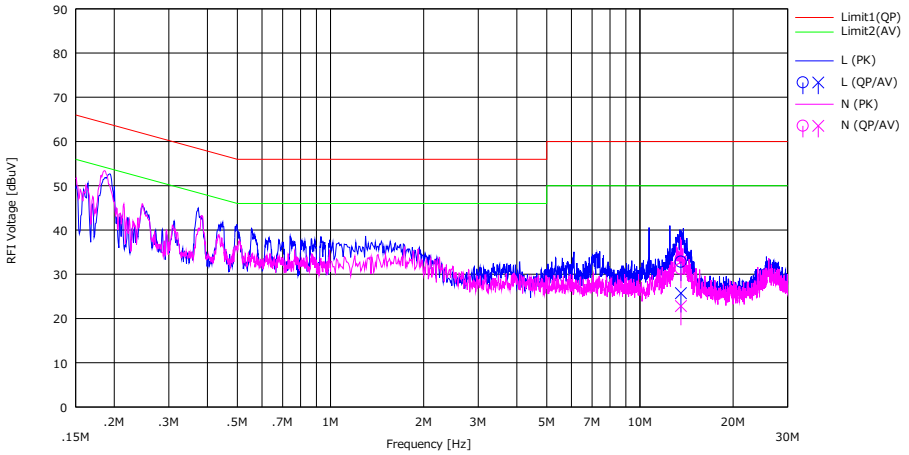
No.	Freq.	Reading ⟨QP⟩	Reading ⟨AV⟩	LISN	LOSS	Results ⟨QP⟩	Results ⟨AV⟩	Limit ⟨QP⟩	Limit ⟨AV⟩	Margin ⟨QP⟩	Margin ⟨AV⟩	Phase	Comment
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	29.60	13.60	0.06	13.18	42.84	26.84	66.00	56.00	23.16	29.16	N	
2	0.18543	38.10	23.90	0.07	13.19	51.36	37.16	64.24	54.24	12.88	17.08	N	
3	0.31687	25.80	14.80	0.06	13.20	39.06	28.06	59.79	49.79	20.73	21.73	N	
4	0.43120	23.20	17.80	0.06	13.21	36.47	31.07	57.23	47.23	20.76	16.16	N	
5	0.68040	18.00	10.50	0.06	13.23	31.29	23.79	56.00	46.00	24.71	22.21	N	
6	27.12000	12.90	8.80	0.52	14.02	27.44	23.34	60.00	50.00	32.56	26.66	N	
7	0.15000	29.90	13.70	0.06	13.18	43.14	26.94	66.00	56.00	22.86	29.06	L	
8	0.18230	36.70	23.20	0.05	13.19	49.94	36.44	64.38	54.38	14.44	17.94	L	
9	0.31150	29.70	24.70	0.05	13.20	42.95	37.95	59.93	49.93	16.98	11.98	L	
10	0.49510	27.10	22.80	0.05	13.22	40.37	36.07	56.08	46.08	15.71	10.01	L	
11	0.68120	23.70	19.40	0.05	13.23	36.98	32.68	56.00	46.00	19.02	13.32	L	
12	27.12000	13.40	9.50	0.55	14.02	27.97	24.07	60.00	50.00	32.03	25.93	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

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 6, 2022
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Ken Fujita
Mode	Mode 6_50 ohm terminated

Limit : FCC_Part 15 Subpart C(15.207)



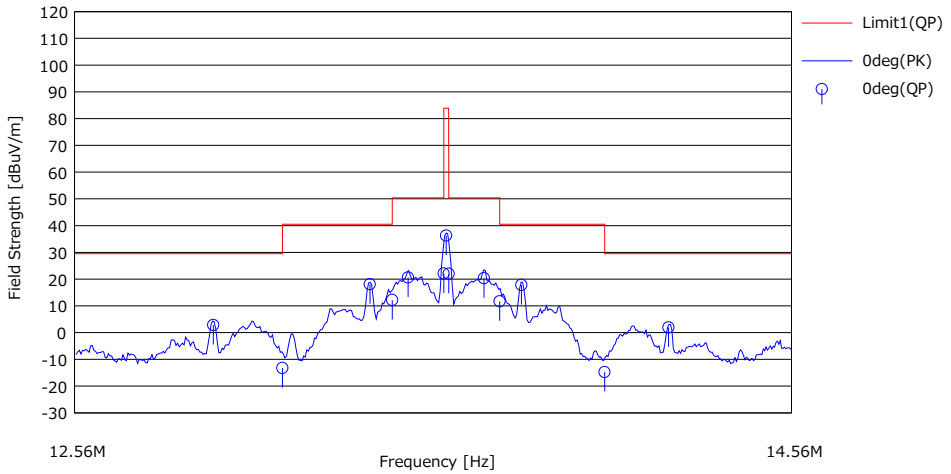
No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		〈QP〉	〈AV〉			〈QP〉	〈AV〉	〈QP〉	〈AV〉	〈QP〉	〈AV〉		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	13.560000	18.80	11.70	0.29	13.72	32.81	25.71	60.00	50.00	27.19	24.29	L	
2	13.560000	17.20	8.80	0.27	13.72	31.19	22.79	60.00	50.00	28.81	27.21	N	

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH
Engineer	Takafumi Noguchi
Mode	Mode 1 without Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq. [MHz]	Reading 〈QP〉 [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result 〈QP〉 [dBuV/m]	Limit 〈QP〉 [dBuV/m]	Margin 〈QP〉 [dB]	Antenna	Table [deg]	Comment
1	12.924447	48.70	19.25	-32.91	32.22	2.82	29.50	26.68	0deg	180	
2	13.110000	32.60	19.26	-32.90	32.22	-13.26	29.50	42.76	0deg	180	
3	13.348442	63.90	19.26	-32.89	32.22	18.05	40.50	22.45	0deg	180	
4	13.410000	58.00	19.27	-32.88	32.22	12.17	40.50	28.33	0deg	180	
5	13.454407	66.40	19.27	-32.88	32.22	20.57	50.40	29.83	0deg	180	
6	13.553300	67.90	19.27	-32.88	32.22	22.07	50.40	28.33	0deg	180	
7	13.560000	82.10	19.27	-32.88	32.22	36.27	83.90	47.63	0deg	180	
8	13.567700	67.80	19.27	-32.88	32.22	21.97	50.40	28.43	0deg	180	
9	13.666600	66.10	19.27	-32.87	32.22	20.28	50.40	30.12	0deg	180	
10	13.771000	57.50	19.27	-32.87	32.22	11.68	40.50	28.82	0deg	180	
11	13.771195	63.60	19.27	-32.86	32.22	17.79	40.50	22.71	0deg	180	
12	14.010000	31.00	19.28	-32.85	32.22	-14.79	29.50	44.29	0deg	180	
13	14.195571	47.70	19.28	-32.84	32.22	1.92	29.50	27.58	0deg	180	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

QP

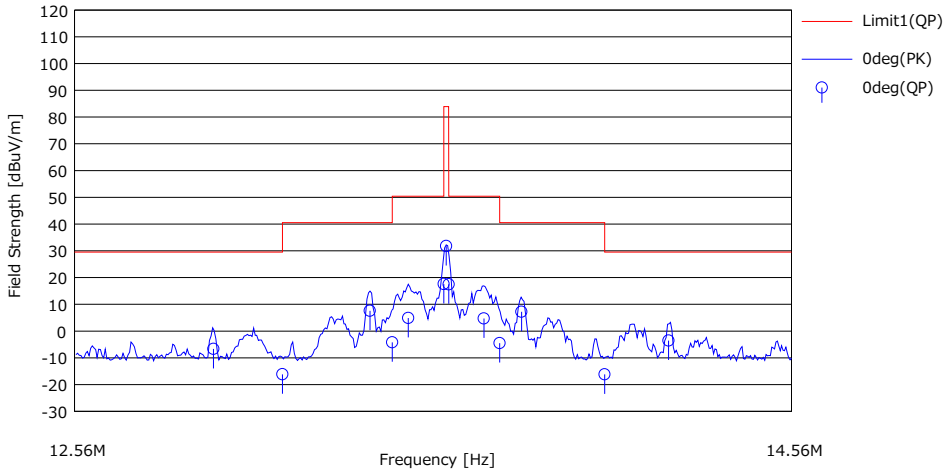
Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	13.56000	QP	82.10	19.27	7.12	32.22	-	76.27	-	-	Fundamental

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH
Engineer	Takafumi Noguchi
Mode	Mode 1 with Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq. [MHz]	Reading 〈QP〉 [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result 〈QP〉 [dBuV/m]	Limit 〈QP〉 [dBuV/m]	Margin 〈QP〉 [dB]	Antenna	Table [deg]	Comment
1	12.925111	39.20	19.25	-32.91	32.22	-6.68	29.50	36.18	0deg	180	
2	13.110000	29.70	19.26	-32.90	32.22	-16.16	29.50	45.66	0deg	180	
3	13.348834	53.40	19.26	-32.89	32.22	7.55	40.50	32.95	0deg	180	
4	13.410000	41.60	19.27	-32.88	32.22	-4.23	40.50	44.73	0deg	180	
5	13.454450	50.70	19.27	-32.88	32.22	4.87	50.40	45.53	0deg	180	
6	13.553000	63.40	19.27	-32.88	32.22	17.57	50.40	32.83	0deg	180	
7	13.560000	77.60	19.27	-32.88	32.22	31.77	83.90	52.13	0deg	180	
8	13.567000	63.30	19.27	-32.88	32.22	17.47	50.40	32.93	0deg	180	
9	13.665777	50.50	19.27	-32.87	32.22	4.68	50.40	45.72	0deg	180	
10	13.710000	41.30	19.27	-32.87	32.22	-4.52	40.50	45.02	0deg	180	
11	13.772140	53.00	19.27	-32.86	32.22	7.19	40.50	33.31	0deg	180	
12	14.010000	29.60	19.28	-32.85	32.22	-16.19	29.50	45.69	0deg	180	
13	14.195970	42.20	19.28	-32.84	32.22	-3.58	29.50	33.08	0deg	180	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

QP

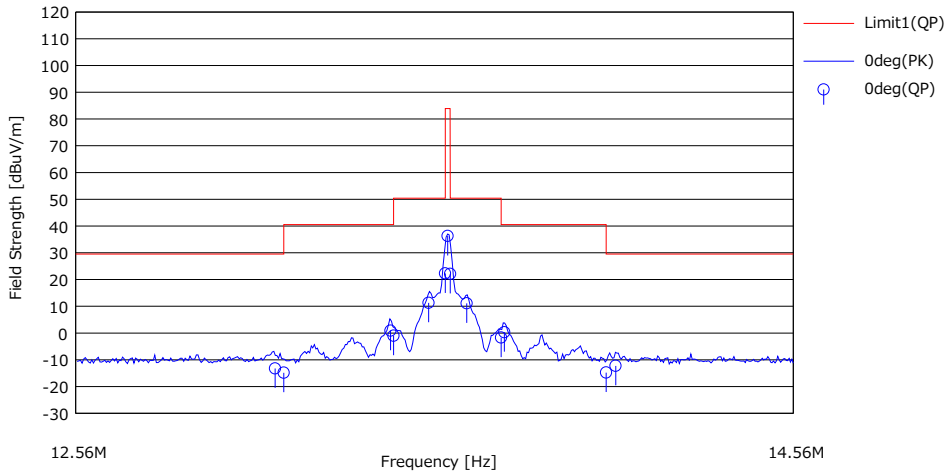
Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	13.56000	QP	77.60	19.27	7.12	32.22	-	71.77	-	-	Fundamental

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH
Engineer	Takafumi Noguchi
Mode	Mode 2 without Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq. [MHz]	Reading 〈QP〉 [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result 〈QP〉 [dBuV/m]	Limit 〈QP〉 [dBuV/m]	Margin 〈QP〉 [dB]	Antenna	Table [deg]	Comment
1	13.08674	32.60	19.26	-32.90	32.22	-13.26	29.50	42.76	0deg	180	
2	13.11000	31.00	19.26	-32.90	32.22	-14.86	29.50	44.36	0deg	180	
3	13.40132	46.70	19.26	-32.88	32.22	0.86	40.50	39.64	0deg	180	
4	13.41000	44.80	19.27	-32.88	32.22	-1.03	40.50	41.53	0deg	180	
5	13.50683	57.10	19.27	-32.88	32.22	11.27	50.40	39.13	0deg	180	
6	13.55300	68.10	19.27	-32.88	32.22	22.27	50.40	28.13	0deg	180	
7	13.56000	82.10	19.27	-32.88	32.22	36.27	83.90	47.63	0deg	180	
8	13.56700	67.90	19.27	-32.88	32.22	22.07	50.40	28.33	0deg	180	
9	13.61339	56.90	19.27	-32.87	32.22	11.08	50.40	39.32	0deg	180	
10	13.71000	44.10	19.27	-32.87	32.22	-1.72	40.50	42.22	0deg	180	
11	13.71933	46.10	19.27	-32.87	32.22	0.28	40.50	40.22	0deg	180	
12	14.01000	31.00	19.28	-32.85	32.22	-14.79	29.50	44.29	0deg	180	
13	14.03716	33.50	19.28	-32.84	32.22	-12.28	29.50	41.78	0deg	180	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

QP

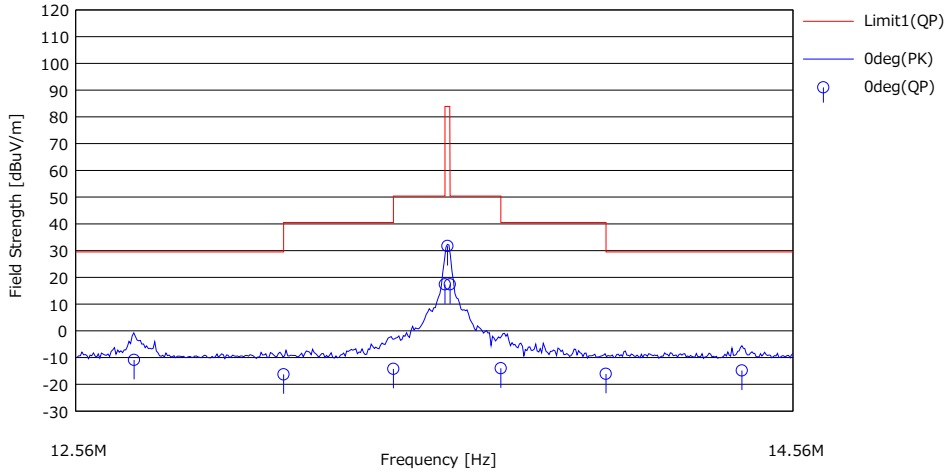
Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	13.56000	QP	82.10	19.27	7.12	32.22	-	76.27	-	-	Fundamental

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH
Engineer	Takafumi Noguchi
Mode	Mode 2 with Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq. [MHz]	Reading 〈QP〉 [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result 〈QP〉 [dBuV/m]	Limit 〈QP〉 [dBuV/m]	Margin 〈QP〉 [dB]	Antenna	Table [deg]	Comment
1	12.712300	35.00	19.25	-32.92	32.22	-10.89	29.50	40.39	0deg	180	
2	13.110000	29.60	19.26	-32.90	32.22	-16.26	29.50	45.76	0deg	180	
3	13.410000	31.60	19.27	-32.88	32.22	-14.23	40.50	54.73	0deg	180	
4	13.553000	63.20	19.27	-32.88	32.22	17.37	50.40	33.03	0deg	180	
5	13.560000	77.50	19.27	-32.88	32.22	31.67	83.90	52.23	0deg	180	
6	13.567000	63.20	19.27	-32.88	32.22	17.37	50.40	33.03	0deg	180	
7	13.710000	31.80	19.27	-32.87	32.22	-14.02	40.50	54.52	0deg	180	
8	14.010000	29.70	19.28	-32.85	32.22	-16.09	29.50	45.59	0deg	180	
9	14.407900	30.90	19.29	-32.83	32.22	-14.86	29.50	44.36	0deg	180	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

QP

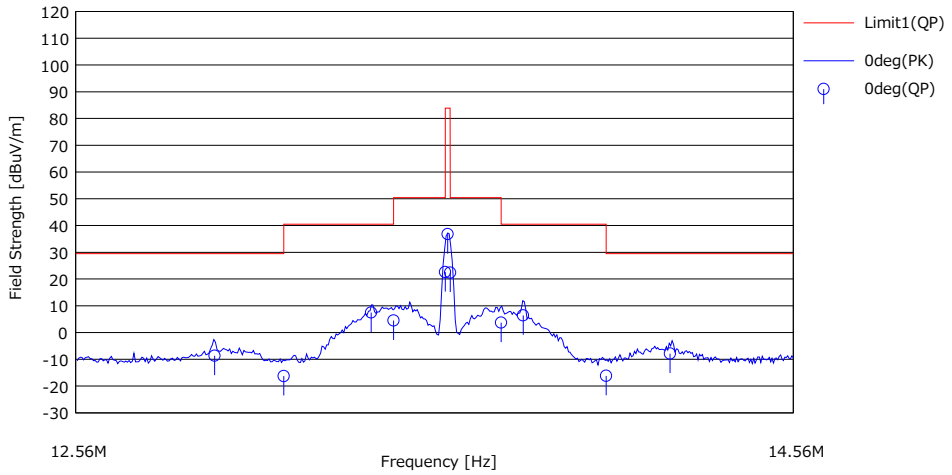
Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	13.56000	QP	77.50	19.27	7.12	32.22	-	71.67	-	-	Fundamental

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH
Engineer	Takafumi Noguchi
Mode	Mode 3 without Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq. [MHz]	Reading 〈QP〉 [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result 〈QP〉 [dBuV/m]	Limit 〈QP〉 [dBuV/m]	Margin 〈QP〉 [dB]	Antenna	Table [deg]	Comment
1	12.92486	37.20	19.25	-32.91	32.22	-8.68	29.50	38.18	0deg	180	
2	13.11000	29.60	19.26	-32.90	32.22	-16.26	29.50	45.76	0deg	180	
3	13.34827	53.30	19.26	-32.89	32.22	7.45	40.50	33.05	0deg	180	
4	13.41000	50.30	19.27	-32.88	32.22	4.47	40.50	36.03	0deg	180	
5	13.55300	68.40	19.27	-32.88	32.22	22.57	50.40	27.83	0deg	180	
6	13.56000	82.60	19.27	-32.88	32.22	36.77	83.90	47.13	0deg	180	
7	13.56700	68.20	19.27	-32.88	32.22	22.37	50.40	28.03	0deg	180	
8	13.71000	49.50	19.27	-32.87	32.22	3.68	40.50	36.82	0deg	180	
9	13.77224	52.20	19.27	-32.86	32.22	6.39	40.50	34.11	0deg	180	
10	14.01000	29.60	19.28	-32.85	32.22	-16.19	29.50	45.69	0deg	180	
11	14.19520	37.90	19.28	-32.84	32.22	-7.88	29.50	37.38	0deg	180	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

QP

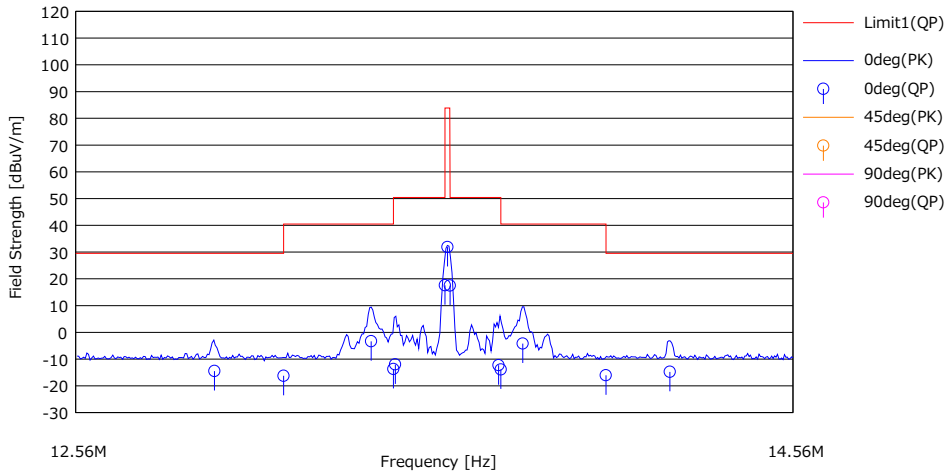
Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	13.56000	QP	82.60	19.27	7.12	32.22	-	76.77	-	-	Fundamental

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH
Engineer	Takafumi Noguchi
Mode	Mode 3 with Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq.	Reading 〈QP〉	Ant.Fac	Loss	Gain	Result 〈QP〉	Limit 〈QP〉	Margin 〈QP〉	Antenna	Table	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
1	12.92487	31.40	19.25	-32.91	32.22	-14.48	29.50	43.98	0deg	180	
2	13.11000	29.60	19.26	-32.90	32.22	-16.26	29.50	45.76	0deg	180	
3	13.34837	42.50	19.26	-32.89	32.22	-3.35	40.50	43.85	0deg	180	
4	13.41000	32.10	19.27	-32.88	32.22	-13.73	40.50	54.23	0deg	180	
5	13.41497	33.80	19.27	-32.88	32.22	-12.03	50.40	62.43	0deg	180	
6	13.55300	63.40	19.27	-32.88	32.22	17.57	50.40	32.83	0deg	180	
7	13.56000	77.70	19.27	-32.88	32.22	31.87	83.90	52.03	0deg	180	
8	13.56700	63.30	19.27	-32.88	32.22	17.47	50.40	32.93	0deg	180	
9	13.70339	33.50	19.27	-32.87	32.22	-12.32	50.40	62.72	0deg	180	
10	13.71000	31.90	19.27	-32.87	32.22	-13.92	40.50	54.42	0deg	180	
11	13.77220	41.60	19.27	-32.86	32.22	-4.21	40.50	44.71	0deg	180	
12	14.01000	29.70	19.28	-32.85	32.22	-16.09	29.50	45.59	0deg	180	
13	14.19592	31.00	19.28	-32.84	32.22	-14.78	29.50	44.28	0deg	180	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

QP

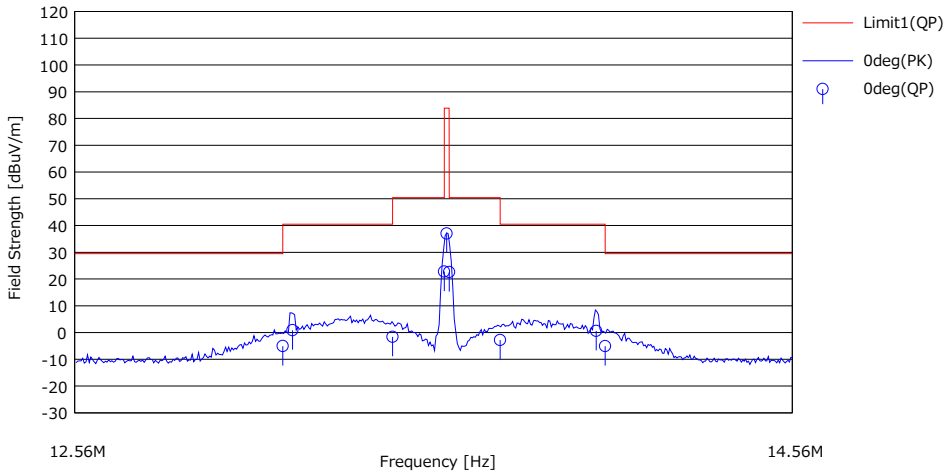
Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	13.56000	QP	77.70	19.27	7.12	32.22	-	71.87	-	-	Fundamental

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH
Engineer	Takafumi Noguchi
Mode	Mode 4 without Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq. [MHz]	Reading 〈QP〉 [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result 〈QP〉 [dBuV/m]	Limit 〈QP〉 [dBuV/m]	Margin 〈QP〉 [dB]	Antenna	Table [deg]	Comment
1	13.11000	40.80	19.26	-32.90	32.22	-5.06	29.50	34.56	0deg	180	
2	13.13652	46.70	19.26	-32.90	32.22	0.84	40.50	39.66	0deg	180	
3	13.41000	44.20	19.27	-32.88	32.22	-1.63	40.50	42.13	0deg	180	
4	13.55300	68.60	19.27	-32.88	32.22	22.77	50.40	27.63	0deg	180	
5	13.56000	82.80	19.27	-32.88	32.22	36.97	83.90	46.93	0deg	180	
6	13.56700	68.40	19.27	-32.88	32.22	22.57	50.40	27.83	0deg	180	
7	13.71000	43.00	19.27	-32.87	32.22	-2.82	40.50	43.32	0deg	180	
8	13.98395	46.40	19.28	-32.85	32.22	0.61	40.50	39.89	0deg	180	
9	14.01000	40.70	19.28	-32.85	32.22	-5.09	29.50	34.59	0deg	180	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

QP

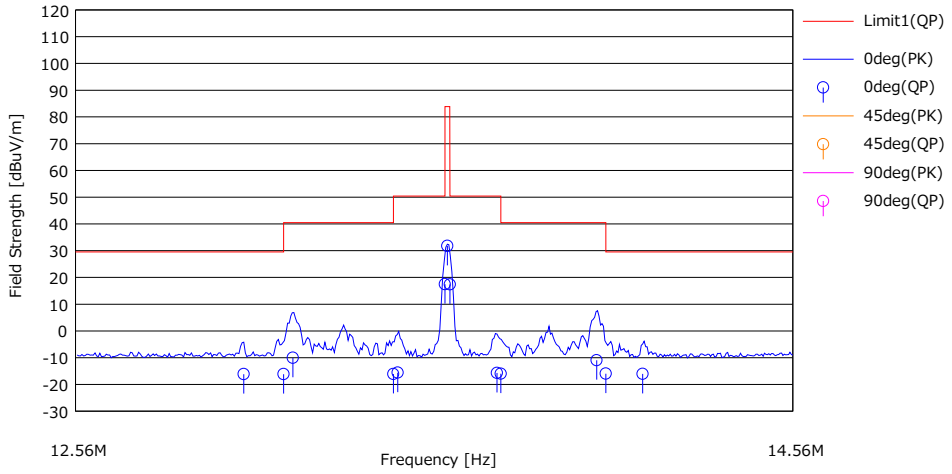
Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	13.56000	QP	82.80	19.27	7.12	32.22	-	76.97	-	-	Fundamental

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH
Engineer	Takafumi Noguchi
Mode	Mode 4 with Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq.	Reading ⟨QP⟩	Ant.Fac	Loss	Gain	Result ⟨QP⟩	Limit ⟨QP⟩	Margin ⟨QP⟩	Antenna	Table	Comment
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
1	13.00280	29.70	19.26	-32.90	32.22	-16.16	29.50	45.66	0deg	180	
2	13.11000	29.70	19.26	-32.90	32.22	-16.16	29.50	45.66	0deg	180	
3	13.13525	35.80	19.26	-32.90	32.22	-10.06	40.50	50.56	0deg	180	
4	13.41000	29.70	19.27	-32.88	32.22	-16.13	40.50	56.63	0deg	180	
5	13.42196	30.20	19.27	-32.88	32.22	-15.63	50.40	66.03	0deg	180	
6	13.55300	63.30	19.27	-32.88	32.22	17.47	50.40	32.93	0deg	180	
7	13.56000	77.60	19.27	-32.88	32.22	31.77	83.90	52.13	0deg	180	
8	13.56700	63.20	19.27	-32.88	32.22	17.37	50.40	33.03	0deg	180	
9	13.69936	30.10	19.27	-32.87	32.22	-15.72	50.40	66.12	0deg	180	
10	13.71000	29.80	19.27	-32.87	32.22	-16.02	40.50	56.52	0deg	180	
11	13.98340	34.80	19.28	-32.85	32.22	-10.99	40.50	51.49	0deg	180	
12	14.01000	29.80	19.28	-32.85	32.22	-15.99	29.50	45.49	0deg	180	
13	14.11690	29.70	19.28	-32.84	32.22	-16.08	29.50	45.58	0deg	180	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

QP

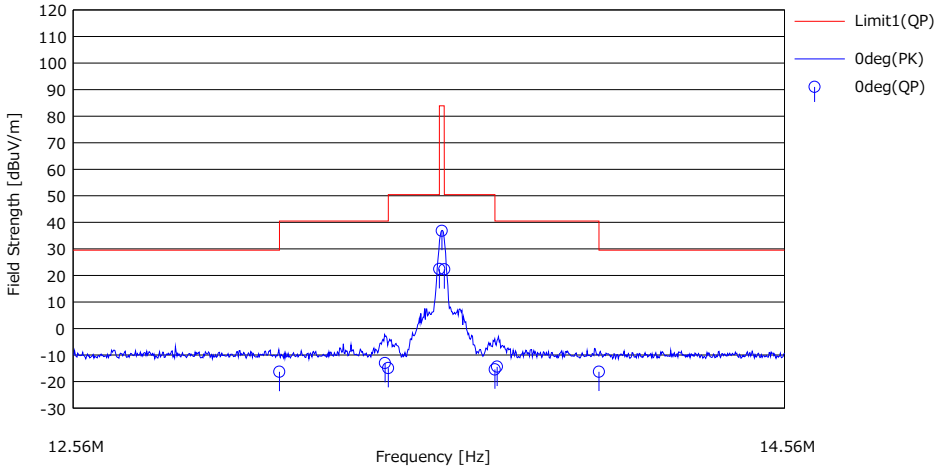
Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	13.56000	QP	77.60	19.27	7.12	32.22	-	71.77	-	-	Fundamental

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Nachi Konegawa
Mode	Mode 5 without Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq. [MHz]	Reading 〈QP〉 [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result 〈QP〉 [dBuV/m]	Limit 〈QP〉 [dBuV/m]	Margin 〈QP〉 [dB]	Antenna	Table [deg]	Comment
1	13.11000	29.50	19.26	-32.90	32.22	-16.36	29.50	45.86	0deg	169	
2	13.40090	32.80	19.26	-32.88	32.22	-13.04	40.50	53.54	0deg	169	
3	13.41000	30.90	19.27	-32.88	32.22	-14.93	40.50	55.43	0deg	169	
4	13.55300	68.20	19.27	-32.88	32.22	22.37	50.40	28.03	0deg	169	
5	13.56000	82.60	19.27	-32.88	32.22	36.77	83.90	47.13	0deg	169	
6	13.56700	68.10	19.27	-32.88	32.22	22.27	50.40	28.13	0deg	169	
7	13.71000	30.40	19.27	-32.87	32.22	-15.42	40.50	55.92	0deg	169	
8	13.71670	31.40	19.27	-32.87	32.22	-14.42	40.50	54.92	0deg	169	
9	14.01000	29.50	19.28	-32.85	32.22	-16.29	29.50	45.79	0deg	169	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

QP

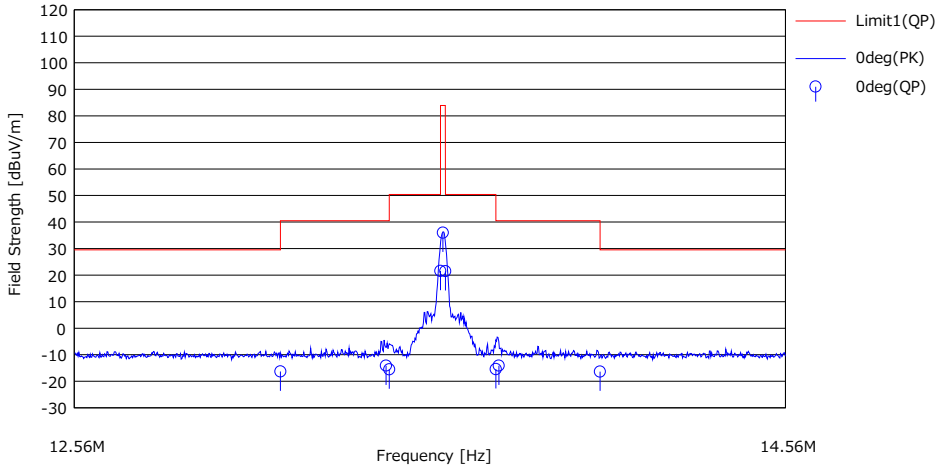
Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0	13.56000	QP	82.60	19.27	7.12	32.22	-	76.77	-	-	Fundamental

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

Fundamental emission and Spectrum Mask

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 3, 2022
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Nachi Konegawa
Mode	Mode 5 with Tag

Limit : FCC15.225(a), 9-90kHz:PK, 110-490kHz:PK, other:QP



No.	Freq. [MHz]	Reading 〈QP〉 [dBuV]	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result 〈QP〉 [dBuV/m]	Limit 〈QP〉 [dBuV/m]	Margin 〈QP〉 [dB]	Antenna	Table [deg]	Comment
1	13.11000	29.50	19.26	-32.90	32.22	-16.36	29.50	45.86	0deg	177	
2	13.40089	31.70	19.26	-32.88	32.22	-14.14	40.50	54.64	0deg	177	
3	13.41000	30.30	19.27	-32.88	32.22	-15.53	40.50	56.03	0deg	177	
4	13.55300	67.40	19.27	-32.88	32.22	21.57	50.40	28.83	0deg	177	
5	13.56000	81.80	19.27	-32.88	32.22	35.97	83.90	47.93	0deg	177	
6	13.56700	67.30	19.27	-32.88	32.22	21.47	50.40	28.93	0deg	177	
7	13.71000	30.40	19.27	-32.87	32.22	-15.42	40.50	55.92	0deg	177	
8	13.71854	31.70	19.27	-32.87	32.22	-14.12	40.50	54.62	0deg	177	
9	14.01000	29.40	19.28	-32.85	32.22	-16.39	29.50	45.89	0deg	177	

RESULT = READING + ANT FACTOR + LOSS (CABLE + Attenuator + Distance Factor*) - GAIN(AMP))
*) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Result of the fundamental emission at 3 m without Distance factor

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
0	13.56000	QP	81.80	19.27	7.12	32.22	-	75.97	-	-	Fundamental

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

Spurious emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.4
Date	March 3, 2022	February 13, 2022
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 31 % RH
Engineer	Takafumi Noguchi	Junya Okuno
	(Below 30 MHz)	(Above 30 MHz)
Mode	Mode 1 without Tag	

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	27.120	QP	31.00	19.43	-32.29	32.22	-	-14.08	29.5	43.58	
Hori.	40.680	QP	24.40	14.57	7.17	32.27	-	13.87	40.0	26.13	
Hori.	54.240	QP	22.50	9.65	7.35	32.27	-	7.23	40.0	32.77	
Hori.	149.160	QP	29.20	14.97	8.29	32.21	-	20.25	43.5	23.27	
Hori.	162.720	QP	25.50	15.57	8.40	32.20	-	17.27	43.5	26.25	
Hori.	176.280	QP	23.50	16.04	8.50	32.19	-	15.85	43.5	27.67	
Hori.	271.200	QP	24.50	13.18	9.21	32.11	-	14.78	46.0	31.24	
Vert.	40.680	QP	26.50	14.57	7.17	32.27	-	15.97	40.0	24.03	
Vert.	54.240	QP	25.90	9.65	7.35	32.27	-	10.63	40.0	29.37	
Vert.	149.160	QP	30.00	14.97	8.29	32.21	-	21.05	43.5	22.47	
Vert.	162.720	QP	32.31	15.57	8.40	32.20	-	24.08	43.5	19.44	
Vert.	176.280	QP	24.90	16.04	8.50	32.19	-	17.25	43.5	26.27	
Vert.	271.200	QP	23.40	13.18	9.21	32.11	-	13.68	46.0	32.34	

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

Spurious emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	March 3, 2022	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH	21 deg. C / 32 % RH
Engineer	Takafumi Noguchi (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 1 with Tag	

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	27.120	QP	29.70	19.43	-32.29	32.22	-	-15.38	29.5	44.88	
Hori.	67.800	QP	41.30	6.55	8.05	39.03	-	16.87	40.0	23.13	
Hori.	122.040	QP	30.00	12.87	8.83	39.11	-	12.59	43.5	30.93	
Hori.	149.160	QP	30.90	14.86	9.18	39.13	-	15.81	43.5	27.71	
Hori.	162.720	QP	33.20	15.45	9.33	39.13	-	18.85	43.5	24.67	
Hori.	176.280	QP	34.20	15.99	9.47	39.12	-	20.54	43.5	22.98	
Hori.	701.756	QP	33.50	20.11	13.48	38.42	-	28.67	46.0	17.35	
Vert.	67.800	QP	52.90	6.55	8.05	39.03	-	28.47	40.0	11.53	
Vert.	122.040	QP	35.60	12.87	8.83	39.11	-	18.19	43.5	25.33	
Vert.	149.160	QP	37.50	14.86	9.18	39.13	-	22.41	43.5	21.11	
Vert.	162.720	QP	42.00	15.45	9.33	39.13	-	27.65	43.5	15.87	
Vert.	176.280	QP	38.50	15.99	9.47	39.12	-	24.84	43.5	18.68	
Vert.	701.756	QP	31.10	20.11	13.48	38.42	-	26.27	46.0	19.75	

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

Spurious emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.4
Date	March 3, 2022	February 13, 2022
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 31 % RH
Engineer	Takafumi Noguchi (Below 30 MHz)	Junya Okuno (Above 30 MHz)
Mode	Mode 2 without Tag	

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	27.120	QP	33.70	19.43	-32.29	32.22	-	-11.38	29.5	40.88	
Hori.	40.680	QP	25.80	14.57	7.17	32.27	-	15.27	40.0	24.73	
Hori.	67.800	QP	37.00	6.48	7.52	32.26	-	18.74	40.0	21.26	
Hori.	149.160	QP	23.10	14.97	8.29	32.21	-	14.15	43.5	29.37	
Hori.	162.720	QP	32.30	15.57	8.40	32.20	-	24.07	43.5	19.45	
Hori.	176.280	QP	28.20	16.04	8.50	32.19	-	20.55	43.5	22.97	
Hori.	271.200	QP	25.00	13.18	9.21	32.11	-	15.28	46.0	30.74	
Vert.	40.680	QP	24.20	14.57	7.17	32.27	-	13.67	40.0	26.33	
Vert.	67.800	QP	39.90	6.48	7.52	32.26	-	21.64	40.0	18.36	
Vert.	149.160	QP	24.40	14.97	8.29	32.21	-	15.45	43.5	28.07	
Vert.	162.720	QP	38.90	15.57	8.40	32.20	-	30.67	43.5	12.85	
Vert.	176.280	QP	31.40	16.04	8.50	32.19	-	23.75	43.5	19.77	
Vert.	271.200	QP	26.50	13.18	9.21	32.11	-	16.78	46.0	29.24	

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

Spurious emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	March 3, 2022	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH	21 deg. C / 32 % RH
Engineer	Takafumi Noguchi (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 2 with Tag	

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	27.120	QP	29.80	19.43	-32.29	32.22	-	-15.28	29.5	44.78	
Hori.	67.800	QP	41.70	6.55	8.05	39.03	-	17.27	40.0	22.73	
Hori.	122.040	QP	30.10	12.87	8.83	39.11	-	12.69	43.5	30.83	
Hori.	149.160	QP	30.80	14.86	9.18	39.13	-	15.71	43.5	27.81	
Hori.	162.720	QP	33.20	15.45	9.33	39.13	-	18.85	43.5	24.67	
Hori.	176.280	QP	34.00	15.99	9.47	39.12	-	20.34	43.5	23.18	
Hori.	701.756	QP	33.50	20.11	13.48	38.42	-	28.67	46.0	17.35	
Vert.	67.800	QP	53.50	6.55	8.05	39.03	-	29.07	40.0	10.93	
Vert.	122.040	QP	34.00	12.87	8.83	39.11	-	16.59	43.5	26.93	
Vert.	149.160	QP	37.20	14.86	9.18	39.13	-	22.11	43.5	21.41	
Vert.	162.720	QP	42.00	15.45	9.33	39.13	-	27.65	43.5	15.87	
Vert.	176.280	QP	38.40	15.99	9.47	39.12	-	24.74	43.5	18.78	
Vert.	701.756	QP	31.00	20.11	13.48	38.42	-	26.17	46.0	19.85	

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

Spurious emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.4
Date	March 3, 2022	February 13, 2022
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 31 % RH
Engineer	Takafumi Noguchi (Below 30 MHz)	Junya Okuno (Above 30 MHz)
Mode	Mode 3 without Tag	

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	27.120	QP	31.20	19.43	-32.29	32.22	-	-13.88	29.5	43.38	
Hori.	40.680	QP	28.50	14.57	7.17	32.27	-	17.97	40.0	22.03	
Hori.	67.800	QP	34.70	6.48	7.52	32.26	-	16.44	40.0	23.56	
Hori.	149.160	QP	23.70	14.97	8.29	32.21	-	14.75	43.5	28.77	
Hori.	162.720	QP	31.80	15.57	8.40	32.20	-	23.57	43.5	19.95	
Hori.	176.280	QP	28.40	16.04	8.50	32.19	-	20.75	43.5	22.77	
Hori.	271.200	QP	28.00	13.18	9.21	32.11	-	18.28	46.0	27.74	
Vert.	40.680	QP	28.20	14.57	7.17	32.27	-	17.67	40.0	22.33	
Vert.	67.800	QP	35.00	6.48	7.52	32.26	-	16.74	40.0	23.26	
Vert.	149.160	QP	24.60	14.97	8.29	32.21	-	15.65	43.5	27.87	
Vert.	162.720	QP	36.50	15.57	8.40	32.20	-	28.27	43.5	15.25	
Vert.	176.280	QP	34.60	16.04	8.50	32.19	-	26.95	43.5	16.57	
Vert.	270.431	QP	27.10	13.13	9.20	32.11	-	17.32	46.0	28.70	

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

Spurious emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	March 3, 2022	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH	21 deg. C / 32 % RH
Engineer	Takafumi Noguchi (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 3 with Tag	

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	27.120	QP	29.80	19.43	-32.29	32.22	-	-15.28	29.5	44.78	
Hori.	67.800	QP	42.00	6.55	8.05	39.03	-	17.57	40.0	22.43	
Hori.	122.040	QP	30.00	12.87	8.83	39.11	-	12.59	43.5	30.93	
Hori.	149.160	QP	30.90	14.86	9.18	39.13	-	15.81	43.5	27.71	
Hori.	162.720	QP	33.40	15.45	9.33	39.13	-	19.05	43.5	24.47	
Hori.	176.280	QP	32.10	15.99	9.47	39.12	-	18.44	43.5	25.08	
Hori.	284.760	QP	33.80	14.34	10.55	38.93	-	19.76	46.0	26.26	
Vert.	67.800	QP	53.20	6.55	8.05	39.03	-	28.77	40.0	11.23	
Vert.	122.040	QP	34.20	12.87	8.83	39.11	-	16.79	43.5	26.73	
Vert.	149.160	QP	37.40	14.86	9.18	39.13	-	22.31	43.5	21.21	
Vert.	162.720	QP	42.20	15.45	9.33	39.13	-	27.85	43.5	15.67	
Vert.	176.280	QP	38.60	15.99	9.47	39.12	-	24.94	43.5	18.58	
Vert.	284.760	QP	34.20	14.34	10.55	38.93	-	20.16	46.0	25.86	

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

Spurious emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.4
Date	March 3, 2022	February 13, 2022
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 31 % RH
Engineer	Takafumi Noguchi (Below 30 MHz)	Junya Okuno (Above 30 MHz)
Mode	Mode 4 without Tag	

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	27.120	QP	31.40	19.43	-32.29	32.22	-	-13.68	29.5	43.18	
Hori.	40.680	QP	25.30	14.57	7.17	32.27	-	14.77	40.0	25.23	
Hori.	67.800	QP	37.30	6.48	7.52	32.26	-	19.04	40.0	20.96	
Hori.	149.160	QP	25.80	14.97	8.29	32.21	-	16.85	43.5	26.67	
Hori.	162.720	QP	32.20	15.57	8.40	32.20	-	23.97	43.5	19.55	
Hori.	176.720	QP	24.30	16.08	8.51	32.19	-	16.70	43.5	26.82	
Hori.	271.200	QP	26.30	13.18	9.21	32.11	-	16.58	46.0	29.44	
Vert.	40.680	QP	24.70	14.57	7.17	32.27	-	14.17	40.0	25.83	
Vert.	67.800	QP	39.80	6.48	7.52	32.26	-	21.54	40.0	18.46	
Vert.	149.160	QP	24.50	14.97	8.29	32.21	-	15.55	43.5	27.97	
Vert.	162.720	QP	37.10	15.57	8.40	32.20	-	28.87	43.5	14.65	
Vert.	176.720	QP	24.00	16.08	8.51	32.19	-	16.40	43.5	27.12	
Vert.	271.200	QP	26.10	13.18	9.21	32.11	-	16.38	46.0	29.64	

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

Spurious emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.1	No.3
Date	March 3, 2022	March 3, 2022
Temperature / Humidity	20 deg. C / 30 % RH	21 deg. C / 32 % RH
Engineer	Takafumi Noguchi (Below 30 MHz)	Nachi Konegawa (Above 30 MHz)
Mode	Mode 4 with Tag	

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	27.120	QP	29.70	19.43	-32.29	32.22	-	-15.38	29.5	44.88	
Hori.	67.800	QP	42.00	6.55	8.05	39.03	-	17.57	40.0	22.43	
Hori.	122.040	QP	30.20	12.87	8.83	39.11	-	12.79	43.5	30.73	
Hori.	149.160	QP	31.00	14.86	9.18	39.13	-	15.91	43.5	27.61	
Hori.	162.720	QP	33.60	15.45	9.33	39.13	-	19.25	43.5	24.27	
Hori.	176.280	QP	32.20	15.99	9.47	39.12	-	18.54	43.5	24.98	
Hori.	284.760	QP	33.80	14.34	10.55	38.93	-	19.76	46.0	26.26	
Vert.	67.800	QP	53.00	6.55	8.05	39.03	-	28.57	40.0	11.43	
Vert.	122.040	QP	34.30	12.87	8.83	39.11	-	16.89	43.5	26.63	
Vert.	149.160	QP	37.60	14.86	9.18	39.13	-	22.51	43.5	21.01	
Vert.	162.720	QP	42.20	15.45	9.33	39.13	-	27.85	43.5	15.67	
Vert.	176.280	QP	38.40	15.99	9.47	39.12	-	24.74	43.5	18.78	
Vert.	284.760	QP	34.30	14.34	10.55	38.93	-	20.26	46.0	25.76	

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

Spurious emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.4
Date	February 13, 2022
Temperature / Humidity	23 deg. C / 31 % RH
Engineer	Junya Okuno
Mode	Mode 5 without Tag

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	27.120	QP	30.20	19.43	-32.29	32.22	-	-14.88	29.5	44.38	
Hori.	67.800	QP	37.10	6.48	7.71	32.26	-	19.03	40.0	20.97	
Hori.	149.160	QP	28.00	14.97	8.68	32.21	-	19.44	43.5	24.08	
Hori.	162.720	QP	31.10	15.57	8.81	32.20	-	23.28	43.5	20.24	
Hori.	189.840	QP	27.20	16.41	9.06	32.18	-	20.49	43.5	23.03	
Hori.	284.760	QP	32.10	13.87	9.89	32.10	-	23.76	46.0	22.26	
Hori.	298.320	QP	28.10	13.78	10.00	32.09	-	19.79	46.0	26.23	
Vert.	67.800	QP	49.70	6.48	7.71	32.26	-	31.63	40.0	8.37	
Vert.	149.160	QP	36.20	14.97	8.68	32.21	-	27.64	43.5	15.88	
Vert.	162.720	QP	40.60	15.57	8.81	32.20	-	32.78	43.5	10.74	
Vert.	189.840	QP	35.50	16.41	9.06	32.18	-	28.79	43.5	14.73	
Vert.	284.760	QP	34.90	13.87	9.89	32.10	-	26.56	46.0	19.46	
Vert.	298.320	QP	35.90	13.78	10.00	32.09	-	27.59	46.0	18.43	

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

Spurious emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.1
Date	March 2, 2022
Temperature / Humidity	20 deg. C / 33 % RH
Engineer	Nachi Konegawa
Mode	Mode 5 with Tag

PK or QP

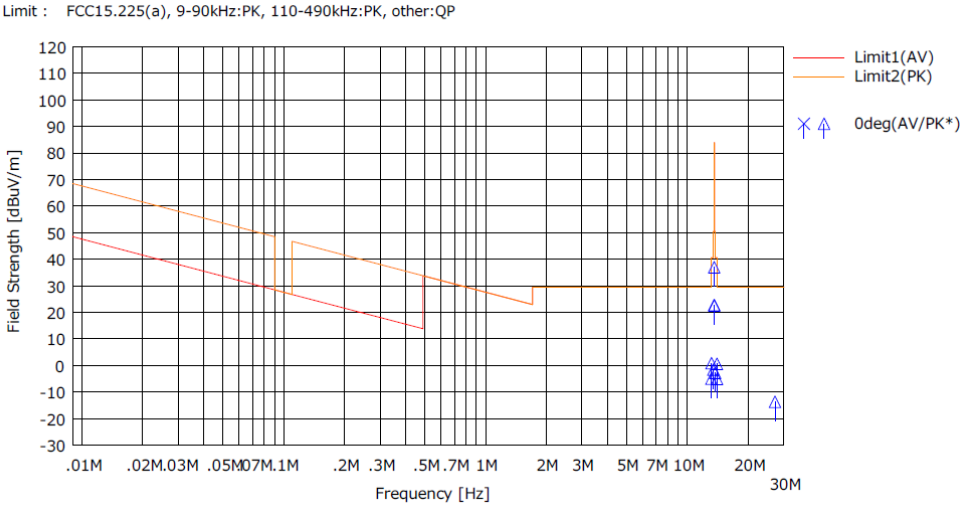
Ant Deg [deg] or Polarity [Hori/Vert]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0deg	27.120	QP	30.20	19.43	-32.29	32.22	-	-14.88	29.5	44.38	
Hori.	67.800	QP	41.50	6.55	8.05	39.03	-	17.07	40.0	22.93	
Hori.	122.040	QP	29.30	12.87	8.83	39.11	-	11.89	43.5	31.63	
Hori.	149.160	QP	29.80	14.86	9.18	39.13	-	14.71	43.5	28.81	
Hori.	162.720	QP	33.40	15.45	9.33	39.13	-	19.05	43.5	24.47	
Hori.	176.280	QP	32.10	15.99	9.47	39.12	-	18.44	43.5	25.08	
Hori.	284.760	QP	34.00	14.34	10.55	38.93	-	19.96	46.0	26.06	
Vert.	67.800	QP	55.30	6.55	8.05	39.03	-	30.87	40.0	9.13	
Vert.	122.040	QP	32.10	12.87	8.83	39.11	-	14.69	43.5	28.83	
Vert.	149.160	QP	36.00	14.86	9.18	39.13	-	20.91	43.5	22.61	
Vert.	162.720	QP	41.00	15.45	9.33	39.13	-	26.65	43.5	16.87	
Vert.	176.280	QP	31.40	15.99	9.47	39.12	-	17.74	43.5	25.78	
Vert.	284.760	QP	34.40	14.34	10.55	38.93	-	20.36	46.0	25.66	

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

Spurious Emission
(Plot data, Worst case for Spurious Emission)

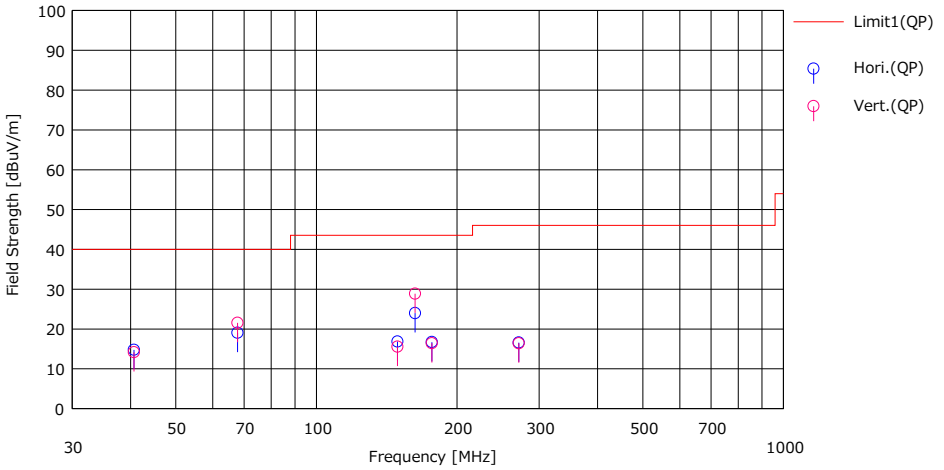
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.4	No.1
Date	February 13, 2022	March 3, 2022
Temperature / Humidity	23 deg. C / 31 % RH	20 deg. C / 30 % RH
Engineer	Junya Okuno	Takafumi Noguchi
Mode	Mode 4 without tag	

(below 30MHz)



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

(above 30MHz)



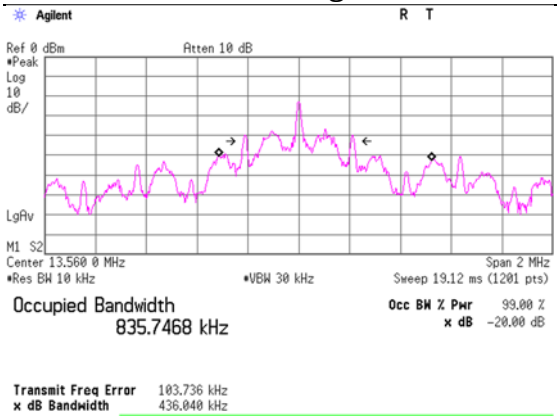
*These plots data contains sufficient number to show the trend of characteristic features for EUT.

20 dB Bandwidth and 99% emission bandwidth

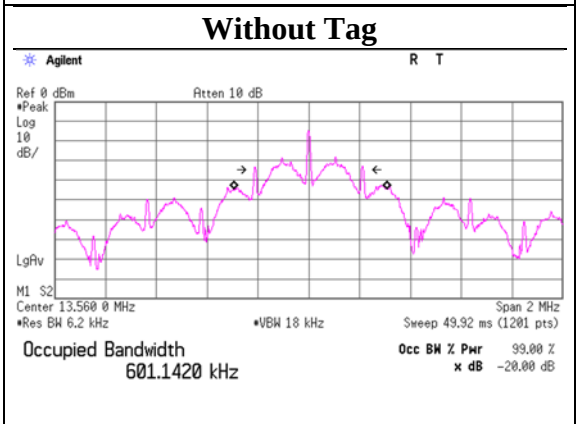
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.6	No.1
Date	February 10, 2022	March 3, 2022
Temperature / Humidity	20 deg. C / 35 % RH	21 deg. C / 32 % RH
Engineer	Junki Nagatomi	Nachi Konegawa
Mode	Mode 1	

FREQ [MHz]	Mode	20dB Bandwidth [kHz]	99% emission bandwidth [kHz]
13.56	With Tag	436.040	835.7468
	Without Tag	430.699	601.1420

With Tag



Without Tag

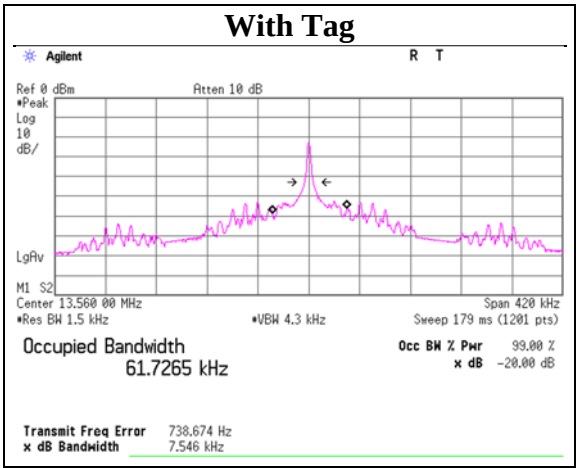


20 dB Bandwidth and 99% emission bandwidth

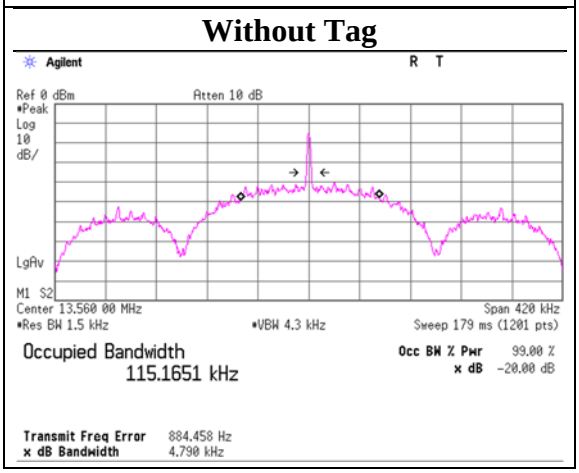
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.6	No.1
Date	February 10, 2022	March 3, 2022
Temperature / Humidity	20 deg. C / 35 % RH	21 deg. C / 32 % RH
Engineer	Junki Nagatomi	Nachi Konegawa
Mode	Mode 2	

FREQ [MHz]	Mode	20dB Bandwidth [kHz]	99% emission bandwidth [kHz]
13.56	With Tag	7.546	61.7265
	Without Tag	4.790	115.1651

With Tag



Without Tag



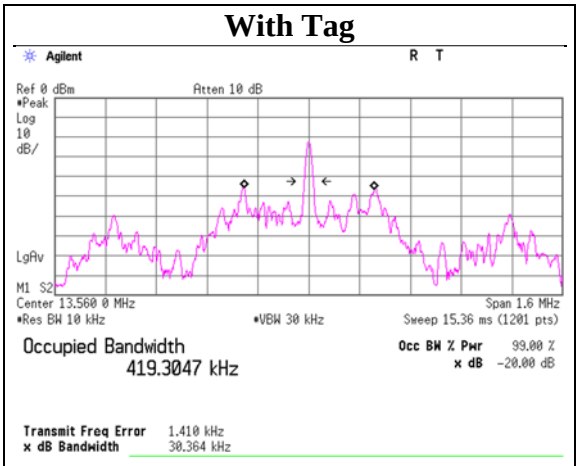
Since the transmitter signal is CW-like it is impractical to use a RBW setting of 1 % - 5 % of the emission bandwidth since the emission bandwidth will be proportional to the RBW.

20 dB Bandwidth and 99% emission bandwidth

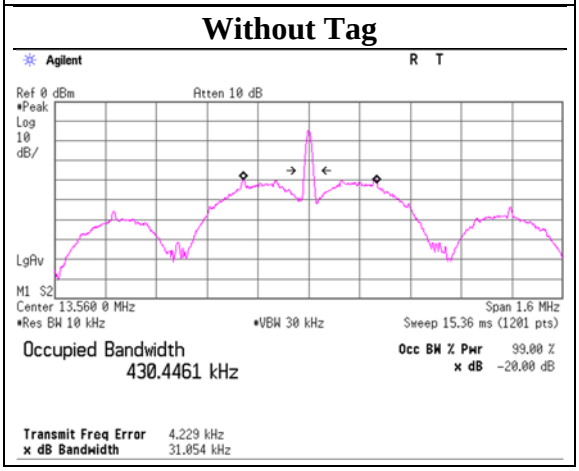
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.6	No.1
Date	February 10, 2022	March 3, 2022
Temperature / Humidity	20 deg. C / 35 % RH	21 deg. C / 32 % RH
Engineer	Junki Nagatomi	Nachi Konegawa
Mode	Mode 3	

FREQ [MHz]	Mode	20dB Bandwidth [kHz]	99% emission bandwidth [kHz]
13.56	With Tag	30.364	419.3047
	Without Tag	31.054	430.4461

With Tag



Without Tag



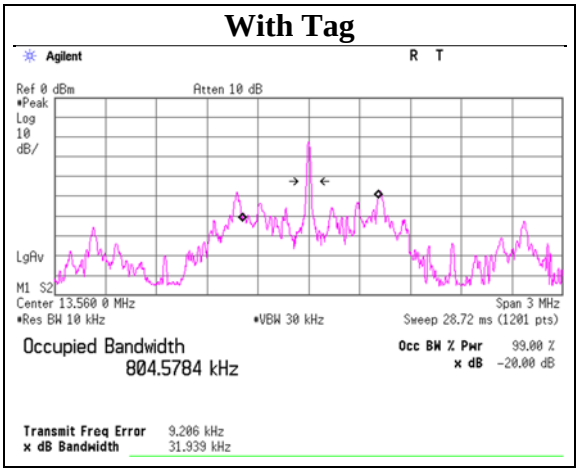
Since the transmitter signal is CW-like it is impractical to use a RBW setting of 1 % - 5 % of the emission bandwidth since the emission bandwidth will be proportional to the RBW.

20 dB Bandwidth and 99% emission bandwidth

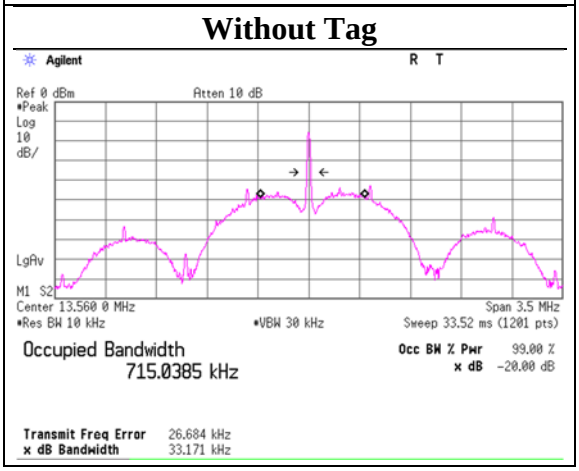
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.6	No.1
Date	February 10, 2022	March 3, 2022
Temperature / Humidity	20 deg. C / 35 % RH	21 deg. C / 32 % RH
Engineer	Junki Nagatomi	Nachi Konegawa
Mode	Mode 4	

FREQ [MHz]	Mode	20dB Bandwidth [kHz]	99% emission bandwidth [kHz]
13.56	With Tag	31.939	804.5784
	Without Tag	33.171	715.0385

With Tag



Without Tag



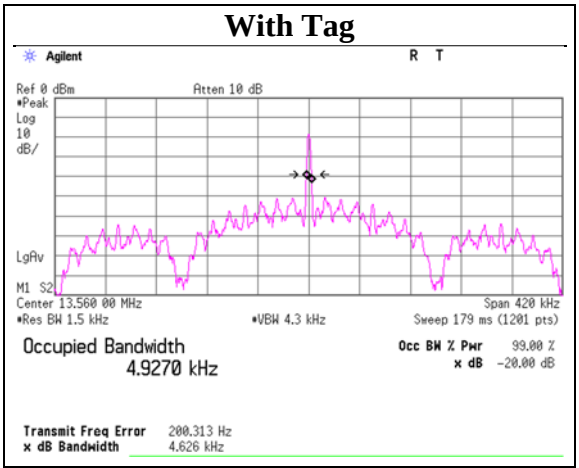
Since the transmitter signal is CW-like it is impractical to use a RBW setting of 1 % - 5 % of the emission bandwidth since the emission bandwidth will be proportional to the RBW.

20 dB Bandwidth and 99% emission bandwidth

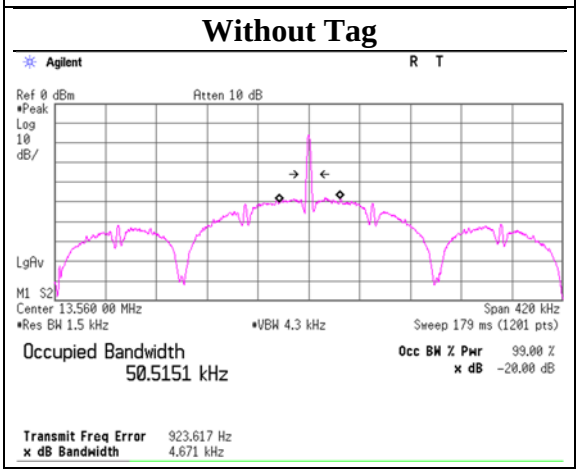
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.6	No.1
Date	February 10, 2022	March 3, 2022
Temperature / Humidity	20 deg. C / 35 % RH	21 deg. C / 32 % RH
Engineer	Junki Nagatomi	Nachi Konegawa
Mode	Mode 5	

FREQ [MHz]	Mode	20dB Bandwidth [kHz]	99% emission bandwidth [kHz]
13.56	With Tag	4.626	4.9270
	Without Tag	4.671	50.5151

With Tag



Without Tag



Since the transmitter signal is CW-like it is impractical to use a RBW setting of 1 % - 5 % of the emission bandwidth since the emission bandwidth will be proportional to the RBW.

Frequency Tolerance

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.6
Date	February 10, 2022
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Junki Nagatomi
Mode	Mode 7

Test condition		Tested	Measured	Frequency	Result		Limit
Temp.	Voltage	timing	frequency	error			
[deg. C]	[V]		[MHz]	[MHz]	[%]	[ppm]	[+/- %]
50	5	Power on	13.560019	0.000019	0.00014	1.4	0.01
		+ 2 min.	13.560025	0.000025	0.00018	1.8	0.01
		+ 5 min.	13.560026	0.000026	0.00019	1.9	0.01
		+ 10 min.	13.560026	0.000026	0.00019	1.9	0.01
40	5	Power on	13.560024	0.000024	0.00018	1.8	0.01
		+ 2 min.	13.560019	0.000019	0.00014	1.4	0.01
		+ 5 min.	13.560019	0.000019	0.00014	1.4	0.01
		+ 10 min.	13.560019	0.000019	0.00014	1.4	0.01
30	5	Power on	13.560045	0.000045	0.00033	3.3	0.01
		+ 2 min.	13.560031	0.000031	0.00023	2.3	0.01
		+ 5 min.	13.560029	0.000029	0.00022	2.2	0.01
		+ 10 min.	13.560028	0.000028	0.00021	2.1	0.01
20	5	Power on	13.560075	0.000075	0.00055	5.5	0.01
		+ 2 min.	13.560058	0.000058	0.00043	4.3	0.01
		+ 5 min.	13.560055	0.000054	0.00040	4.0	0.01
		+ 10 min.	13.560053	0.000053	0.00039	3.9	0.01
20	4.25	Power on	13.560071	0.000071	0.00053	5.3	0.01
	(5V -15%)	+ 2 min.	13.560065	0.000065	0.00048	4.8	0.01
		+ 5 min.	13.560063	0.000063	0.00047	4.7	0.01
		+ 10 min.	13.560062	0.000062	0.00046	4.6	0.01
20	5.75	Power on	13.560071	0.000071	0.00053	5.3	0.01
	(5V +15%)	+ 2 min.	13.560057	0.000057	0.00042	4.2	0.01
		+ 5 min.	13.560054	0.000054	0.00040	4.0	0.01
		+ 10 min.	13.560053	0.000053	0.00039	3.9	0.01
10	5	Power on	13.560094	0.000094	0.00070	7.0	0.01
		+ 2 min.	13.560083	0.000083	0.00062	6.2	0.01
		+ 5 min.	13.560081	0.000081	0.00060	6.0	0.01
		+ 10 min.	13.560081	0.000080	0.00059	5.9	0.01
0	5	Power on	13.560102	0.000102	0.00075	7.5	0.01
		+ 2 min.	13.560100	0.000100	0.00074	7.4	0.01
		+ 5 min.	13.560100	0.000100	0.00073	7.3	0.01
		+ 10 min.	13.560099	0.000099	0.00073	7.3	0.01
-10	5	Power on	13.560089	0.000089	0.00065	6.5	0.01
		+ 2 min.	13.560102	0.000102	0.00075	7.5	0.01
		+ 5 min.	13.560103	0.000102	0.00076	7.6	0.01
		+ 10 min.	13.560103	0.000103	0.00076	7.6	0.01
-20	5	Power on	13.560037	0.000037	0.00028	2.8	0.01
		+ 2 min.	13.560081	0.000081	0.00059	5.9	0.01
		+ 5 min.	13.560084	0.000084	0.00062	6.2	0.01
		+ 10 min.	13.560085	0.000084	0.00062	6.2	0.01

Calculation formula: Frequency error = Measured frequency - Tested frequency
Result [%] = Frequency error / Tested frequency * 100

Tested frequency: 13.56 MHz
Limit (+/-): 0.01 % (+/- 100ppm)

*The test was begun from 50 deg.C and the temperature was lowered each 10 deg.C.

APPENDIX 2: Test instruments

Test equipment

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
CE	MAEC-03	142008	AC3_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/22/2020	24
CE	MOS-13	141554	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	1301	01/10/2022	12
CE	MMM-08	141532	DIGITAL HiTESTER	HIOKI E.E. CORPORATION	3805	51201197	01/16/2022	12
CE	MJM-16	142183	Measure	KOMELON	KMC-36	-	-	-
CE	COTS-MEMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
CE	MLS-23	141357	LISN(AMN)	Schwarzbeck Mess-Elektronik OHG	NSLK8127	8127-729	07/18/2021	12
CE	MTA-56	141938	Terminator	TME	CT-01BP	-	12/16/2021	12
CE	MAT-67	141248	Attenuator	JFW Industries, Inc.	50FP-013H2 N	-	12/17/2021	12
CE	MCC-112	141216	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W/SFM14/ sucoform141-PE/ 421-010/RFM-E321(SW)	-/00640	07/19/2021	12
CE	MTR-03	141942	Test Receiver	Rohde & Schwarz	ESCI	100300	08/05/2021	12
CE	MLS-24	141358	LISN(AMN)	Schwarzbeck Mess-Elektronik OHG	NSLK8127	8127-730	07/18/2021	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	01/10/2022	12
RE	MMM-03	141530	Digital Tester	Fluke Corporation	FLUKE 26-3	78030621	08/10/2021	12
RE	MTR-09	141950	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	-	-
RE	KBA-05	141198	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103+BBA9106	2513	04/10/2021	12
RE	MLA-20	141264	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	189	04/10/2021	12
RE	MAT-08	141213	Attenuator(6dB)	Weinschel Corp	2	BK7971	11/09/2021	12
RE	MCC-02	141350	Coaxial Cable	Suhner/storm/Agilent/ TSJ	-	-	06/02/2021	12
RE	MPA-19	141585	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	02/28/2022	12
RE	MSA-03	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	03/10/2021	12
RE	MLPA-07	142645	Loop Antenna	UL Japan	-	-	-	-
RE	MLPA-01	141254	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100017	04/17/2021	12
RE	MCC-255	207745	Coaxial Cable	UL Japan, Inc.	-	-	05/17/2021	12
RE	MPA-13	141582	Pre Amplifier	SONOMA INSTRUMENT	310	260834	02/25/2022	12
RE	MCC-03	141215	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W/3D-2W/RG400u/RFM-E421(SW)	-/01068 (Switcher)	06/02/2021	12
FT	MOS-14	141561	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	1401	01/10/2022	12
FT	MMM-18	141558	Digital Tester(TRUE RMS MULTIMETER)	Fluke Corporation	115	17930030	05/24/2021	12
FT	MCH-07	141441	Temperature Chamber	Espec	SU-241	92013843	07/08/2021	12
FT	MSA-03	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	03/10/2021	12
FT	MLPA-08	202511	Loop Antenna	UL Japan	-	-	-	-

***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:

CE: Conducted Emission
RE: Radiated Emission
FT: Frequency Tolerance