



RADIO TEST REPORT

Test Report No. : 13565954H-A-R1

Applicant : silex technology, Inc.
Type of EUT : SDIO Wireless Module
Model Number of EUT : SX-SDMAC
FCC ID : N6C-SDMAC
Test regulation : FCC Part 15 Subpart C: 2020
*For Permissive Change
(Conducted Emission and Maximum Peak Output Power,
Radiated Spurious Emission tests only)
Test Result : Complied (Refer to SECTION 3.2)

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
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6. This test report covers Radio technical requirements.
It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. The all test items in this test report are conducted by UL Japan, Inc. Ise EMC Lab.
8. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
9. The information provided from the customer for this report is identified in Section 1.
10. This report is a revised version of 13565954H-A. 13565954H-A is replaced with this report.

Date of test: November 20 to 25, 2020

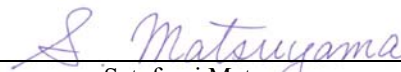
Representative test engineer:


Junki Nagatomi

Engineer

Consumer Technology Division

Approved by:


Satofumi Matsuyama

Engineer

Consumer Technology Division



CERTIFICATE 5107.02 CERTIFICATE 5107.02

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

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

REVISION HISTORY

Original Test Report No.: 13565954H-A

Revision	Test report No.	Date	Page revised	Contents
- (Original)	13565954H-A	December 10, 2020	-	-
1	13565954H-A-R1	January 26, 2021	P 6	Correction of Contents of the change from original model in Section 2.2. Test Report Number of original is 11182619H-A-R1 (issued by UL Japan, Inc.). Specification was changed from the original as follows: Only antenna for 2.4 GHz (WLAN) of the EUT was modified. Therefore, that antenna was applied to this test report. The radio specification is identical to the original. → Test Report Number of original is 11182619H-A-R1 (issued by UL Japan, Inc.). Specification was changed from the original as follows: Antenna for 2.4 GHz (WLAN) of the EUT was modified. Therefore, that antenna was applied to this test report. In addition, since the power setting value of IEEE802.11b decreased, the maximum peak output power test was performed only for IEEE802.11b. The radio specification other than above is identical to the original.
1	13565954H-A-R1	January 26, 2021	P 7	Correction of FCC Part 15.31 (e) in Section 3.2. The stable voltage was provided to the EUT during the tests. Therefore, this EUT complies with the requirement. → This EUT provides stable voltage constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.
1	13565954H-A-R1	January 26, 2021	P 12	Correction of Model number of B and B' in table (Description of EUT and Support equipment) in Section 4.2. 1029-C7586→1029-C17586

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Reference: Abbreviations (Including words undescribed in this report)

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

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Ise EMC Lab.

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

Telephone : +81 596 24 8999

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SECTION 1: Customer information

Company Name	:	silex technology, Inc.
Address	:	2-3-1 Hikaridai, Seika-cho, Kyoto 619-0237, Japan
Telephone Number	:	+81-774-98-3878
Facsimile Number	:	+81-774-98-3758
Contact Person	:	Yoshinori Nakai

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	:	SDIO Wireless Module
Model Number	:	SX-SDMAC
Serial Number	:	Refer to SECTION 4.2
Rating	:	DC 3.3 V
Receipt Date	:	November 6, 2020
Country of Mass-production	:	Japan
Condition	:	Production model
Modification	:	No Modification by the test lab.

2.2 Product Description

Model: SX-SDMAC (referred to as the EUT in this report) is a SDIO Wireless Module.

General Specification

Clock frequency(ies) in the system : 48 MHz
 Operating Temperature : -40 deg. C - +85 deg. C

Radio Specification

Radio Type : Transceiver
 Method of Frequency Generation : Synthesizer

	IEEE802.11b	IEEE802.11g/n (20 M band)	IEEE802.11a/n/ac (20 M band)	IEEE802.11n/ac (40 M band)	IEEE802.11ac (80 M band)	Bluetooth Ver.4.0 with EDR/ LE function
Frequency of operation	2412 MHz - 2462 MHz *1)	2412 MHz - 2462 MHz *1)	5180 MHz - 5240 MHz 5260 MHz - 5320 MHz 5500 MHz - 5700 MHz 5745 MHz - 5825 MHz	2422 MHz - 2452 MHz *1) 5190 MHz - 5230 MHz 5270 MHz - 5310 MHz 5510 MHz - 5670 MHz 5755 MHz - 5795 MHz	5210 MHz 5290 MHz 5530 MHz - 5610 MHz 5775 MHz	2402 MHz - 2480 MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK) 11ac: OFDM (64QAM, 16QAM, QPSK, BPSK, 256QAM)			BT: FHSS (GFSK, $\pi/4$ -DQPSK, 8-DPSK) LE: GFSK
Channel spacing	5 MHz		20 MHz	40 MHz	80 MHz	BT: 1 MHz LE: 2 MHz
Antenna type	Rod Antenna					
Antenna Connector type	U.FL Alternative connector					
Antenna Gain	2.14 dBi					

*1) This test report applies to IEEE802.11b/g/n-20 (2412 MHz - 2462 MHz), IEEE802.11n-40 (2422 MHz - 2452 MHz).

<Contents of the change from original model>

Test Report Number of original is 11182619H-A-R1 (issued by UL Japan, Inc.).

Specification was changed from the original as follows:

Antenna for 2.4 GHz (WLAN) of the EUT was modified.

Therefore, that antenna was applied to this test report.

In addition, since the power setting value of IEEE802.11b decreased, the maximum peak output power test was performed only for IEEE802.11b.

The radio specification other than above is identical to the original.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C
FCC Part 15 final revised on October 13, 2020

Title : FCC 47 CFR Part 15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz,
and 5725-5850 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 ISED: RSS-Gen 8.8	FCC: Section 15.207 ----- ISED: RSS-Gen 8.8	11.01 dB, 0.38259 MHz, L	Complied a)	-
Maximum Peak Output Power	FCC: KDB 558074 D01 15.247 Meas Guidance v05r02 ISED: RSS-Gen 6.12	FCC: Section 15.247(b)(3) ----- ISED: RSS-247 5.4(d)		Complied b)	Conducted
Spurious Emission Restricted Band Edges	FCC: KDB 558074 D01 15.247 Meas Guidance v05r02 ISED: RSS-Gen 6.13	FCC: Section 15.247(d) ----- ISED: RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10	2.5 dB 2483.500 MHz, AV, Vert.	Complied# c)	Radiated (above 30 MHz) *1)

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

*1) Radiated test was selected over 30 MHz based on section 15.247(d) and KDB 558074 D01 15.247 Meas Guidance v05r02 8.5 and 8.6.

a) Refer to APPENDIX 1 (data of Conducted Emission)

b) Refer to APPENDIX 1 (data of Maximum Peak Output Power)

c) Refer to APPENDIX 1 (data of Radiated Spurious Emission)

Symbols:

Complied The data of this test item has enough margin, more than the measurement uncertainty.

Complied# The data of this test item meets the limits unless the measurement uncertainty is taken into consideration.

* In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred.

FCC Part 15.31 (e)

This EUT provides stable voltage constantly to RF Module regardless of input voltage.

Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

The EUT has an external antenna connector, but it is installed by the professionals.

Therefore, the equipment complies with the antenna requirement of Section 15.203.

UL Japan, Inc.

Ise EMC Lab.

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

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3.3 Addition to standard

Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

There is no applicable rule of uncertainty in this applied standard. Therefore, the results are derived depending on whether or not laboratory uncertainty is applied.

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor $k=2$.

Antenna Terminal test

Test Item	Uncertainty (+/-)
20 dB Bandwidth / 99 % Occupied Bandwidth	0.96 %
Maximum Peak Output Power / Average Output Power	1.4 dB
Carrier Frequency Separation	0.42 %
Dwell time / Burst rate	0.10 %
Conducted Spurious Emission	2.6 dB

Conducted emission

using Item	Frequency range	Uncertainty (+/-)
AMN (LISN)	0.009 MHz to 0.15 MHz	3.4 dB
	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
3 m	1 GHz to 6 GHz	4.9 dB
	6 GHz to 18 GHz	5.2 dB
1 m	10 GHz to 26.5 GHz	5.5 dB
	26.5 GHz to 40 GHz	5.5 dB
10 m	1 GHz to 18 GHz	5.2 dB

3.5 Test Location

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

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

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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.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

Test operating mode was determined as follows according to “Section 1 of 6 802.11 a/b/g/n testing - Managing Complex Regulatory Approvals - ” of TCB Council Workshop October 2009.

Mode	Remarks*
IEEE 802.11b (11b)	2 Mbps, PN9
IEEE 802.11g (11g)	24 Mbps, PN9
IEEE 802.11n 20 MHz BW (11n-20)	MCS 4 (Long GI, 3 Streams), PN9
IEEE 802.11n 40 MHz BW (11n-40)	MCS 3 (Short GI, 3 Streams), PN9
*The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel)	
*Power of the EUT was set by the software as follows (power setting value might be different from product specification value); Power settings: Refer to the following table Software: QRCT Version 4.0.00138.0 (Date: 2019.8.6, 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.	

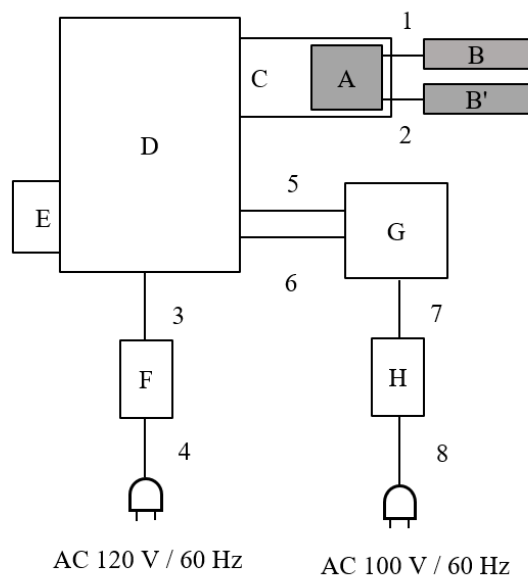
[Power setting]

	Rate		Power Setting
11b	2 Mbps (Short GI)	2412 MHz	12.5
		2417 MHz	
		2437 MHz	
		2457 MHz	
		2462 MHz	
11g	24Mbps	2412 MHz	13
		2417 MHz	15
		2437 MHz	15
		2457 MHz	15
		2462 MHz	12
11n20	MCS4	2412 MHz	12
		2417 MHz	15
		2437 MHz	15
		2457 MHz	15
		2462 MHz	11.5
11n40	MCS3	2422 MHz	9
		2427 MHz	9
		2437 MHz	10.5
		2447 MHz	10.5
		2452 MHz	9.5

*The details of Operating mode(s)

Test Item	Operating Mode	Tested frequency
Conducted Emission *1)	11g Tx	2437 MHz
Spurious Emission above 1GHz (Radiated) *2)	11b Tx	2412 MHz
	11g Tx	2437 MHz
		2462 MHz
	11n-20 Tx *3)	2412 MHz
		2462 MHz
	11n-40 Tx	2422 MHz
		2437 MHz
		2452 MHz
Spurious Emission below 1GHz (Radiated) *1)	11g Tx	2437 MHz
Maximum Peak Output Power *4)	11b Tx	2412 MHz
		2437 MHz
		2462 MHz
*1) The operating mode and tested frequency were tested as a representative, because it had the highest power at antenna terminal test. *2) Since 11g and 11n-20 have the same modulation method and no differences in transmitting specification, test was performed on the representative mode that had the highest peak output power. *3) The test was performed only band-edge. *4) Since the maximum power setting of 11b was lowered from the original report, the maximum peak output power test was performed only for 11b.		

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	SDIO Wireless Module	SX-SDMAC	84253f0154B2	silex technology, Inc.	EUT
B	Rod Antenna	1029-C17586	001	Hoko ELECTRONICS CO.,LTD	EUT
B'	Rod Antenna	1029-C17586	002	Hoko ELECTRONICS CO.,LTD	EUT
C	Jig	PW102660CX	-	silex technology, Inc.	-
D	Jig	i.MX6 MCIMX6Q-SDB	SX05342	NXP	-
E	SD Card	SP008GBSTH010V 10SP	SX06658	silicon power	-
F	AC Adapter	ATS036T-A050	PS2D-5050APL05	SCEPTRE POWER	-
G	Laptop PC	Latitude5590	6QHLST2	Dell	-
H	AC Adapter	LA90PM130	05GT3K	Dell	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Antenna Cable	0.15	Shielded	Shielded	-
2	Antenna Cable	0.15	Shielded	Shielded	-
3	DC Cable	1.00	Unshielded	Unshielded	-
4	AC Cable	1.90	Unshielded	Unshielded	-
5	USB Cable	1.00	Shielded	Shielded	-
6	LAN Cable	1.90	Unshielded	Unshielded	-
7	DC Cable	1.80	Unshielded	Unshielded	-
8	AC Cable	0.90	Unshielded	Unshielded	-

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Ise EMC Lab.

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

Telephone : +81 596 24 8999

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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 80cm 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.

1) 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 50ohm connectors of the LISN (AMN) were resistivity terminated in 50 ohm when not connected to the measuring equipment.

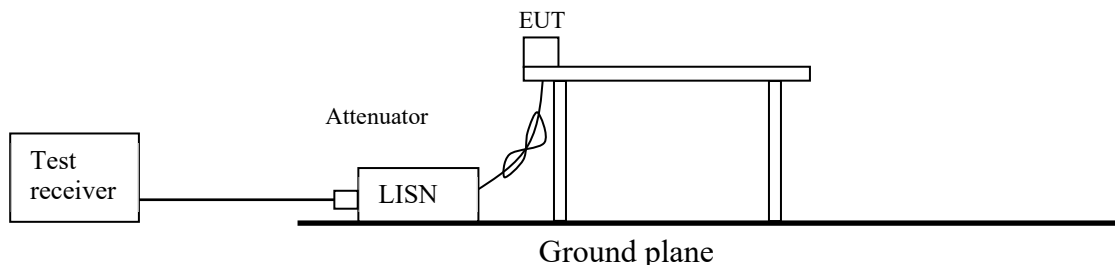
The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber. The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

The test results and limit are rounded off to one decimal 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

Figure 1: Test Setup



SECTION 6: Radiated Spurious Emission

Test Procedure

It was measured based on "8.5 and 8.6 of KDB 558074 D01 15.247 Meas Guidance v05r02".

[For below 1 GHz]

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.

[For above 1 GHz]

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane.

The height of the measuring antenna varied between 1 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.

Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

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	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20 dBc was applied to the frequency over the limit of FCC 15.209 / Table 4 of RSS-Gen 8.9(ISED) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (ISED).

Frequency	Below 1 GHz	Above 1 GHz		20 dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV *1)	PK
IF Bandwidth	BW 120 kHz	RBW: 1 MHz VBW: 3 MHz	11.12.2.5.1 RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (RMS) Trace: 100 traces 11.12.2.5.2 The duty cycle was less than 98% for detected noise, a duty factor was added to the 11.12.2.5.1 results.	RBW: 100 kHz VBW: 300 kHz

*1) Average Power Measurement was performed based on ANSI C63.10-2013.

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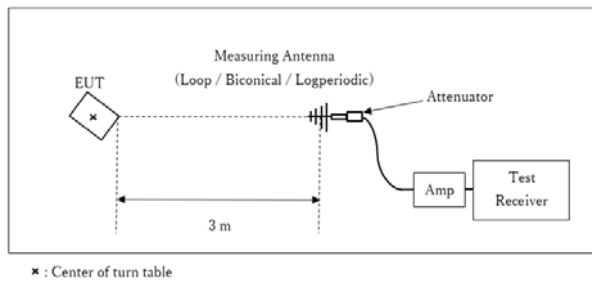
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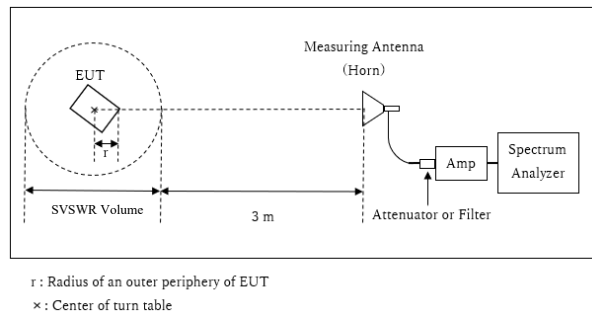
Figure 2: Test Setup

Below 1 GHz



Test Distance: 3 m

1 GHz - 10 GHz



Distance Factor: $20 \times \log (3.9 \text{ m} / 3.0 \text{ m}) = 2.28 \text{ dB}$

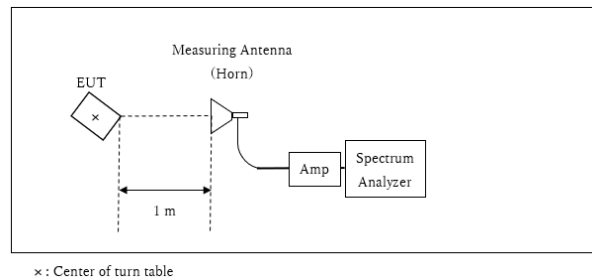
* Test Distance: $(3 + \text{SVSWR Volume} / 2) - r = 3.9 \text{ m}$

SVSWR Volume : 2.0 m

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

$r = 0.1 \text{ m}$

10 GHz - 26.5 GHz



Distance Factor: $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

*Test Distance: 1 m

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

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

Measurement range	: 30 MHz - 26.5 GHz
Test data	: APPENDIX
Test result	: Pass

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Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

The tests were made with below setting connected to the antenna port.

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
Maximum Peak Output Power	-	-	-	Auto	Peak	-	Power Meter (Sensor: 50 MHz BW)

The test results and limit are rounded off to two decimals place, so some differences might be observed.
The equipment and cables were not used for factor 0 dB of the data sheets.

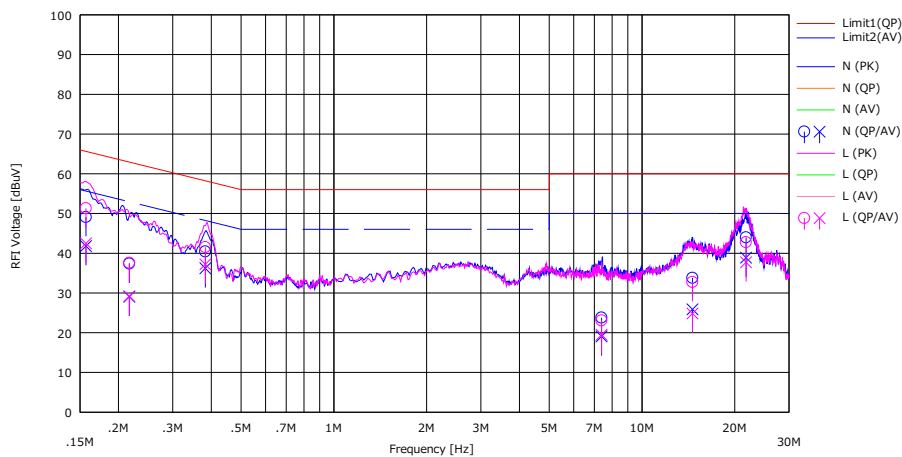
Test data : APPENDIX
Test result : Pass

APPENDIX 1: Test data

Conducted Emission

Report No. 13565954H
Test place Ise EMC Lab. No.4 Semi Anechoic Chamber
Date November 25, 2020
Temperature / Humidity 20 deg. C / 38 % RH
Engineer Junki Nagatomi
Mode Tx 11g 2437 MHz

Limit : FCC_Part 15 Subpart C(15.207)



No.	Freq. [MHz]	Reading		LISN [dB]	LOSS [dB]	Results		Limit		Margin		Phase	Comment
		[QP] [dBuV]	[AV] [dBuV]			[QP] [dBuV]	[AV] [dBuV]	[QP] [dBuV]	[AV] [dBuV]	[QP] [dB]	[AV] [dB]		
1	0.15680	35.80	28.50	0.05	13.23	49.08	41.78	65.63	55.63	16.55	13.85	N	
2	0.21699	24.10	15.80	0.05	13.23	37.38	29.08	62.93	52.93	25.55	23.85	N	
3	0.38259	27.10	22.90	0.06	13.26	40.42	36.22	58.22	48.22	17.80	12.00	N	
4	7.39000	10.00	5.30	0.18	13.60	23.78	19.08	60.00	50.00	36.22	30.92	N	
5	14.58834	19.70	11.80	0.30	13.80	33.80	25.90	60.00	50.00	26.20	24.10	N	
6	21.76000	29.60	24.50	0.43	13.95	43.98	38.88	60.00	50.00	16.02	11.12	N	
7	0.15680	38.00	29.20	0.06	13.23	51.29	42.49	65.63	55.63	14.34	13.14	L	
8	0.21699	24.30	15.90	0.05	13.23	37.58	29.18	62.93	52.93	25.35	23.75	L	
9	0.38259	28.20	23.90	0.05	13.26	41.51	37.21	58.22	48.22	16.71	11.01	L	
10	7.39000	9.30	5.70	0.19	13.60	23.09	19.49	60.00	50.00	36.91	30.51	L	
11	14.58834	18.60	10.70	0.33	13.80	32.73	24.83	60.00	50.00	27.27	25.17	L	
12	21.76000	28.30	23.30	0.49	13.95	42.74	37.74	60.00	50.00	17.26	12.26	L	

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

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Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Maximum Peak Output Power

Report No. 13565954H
Test place Ise EMC Lab. No.3 Measurement Room
Date November 20, 2020
Temperature / Humidity 23 deg. C / 63 % RH
Engineer Junki Nagatomi
Mode Tx 11b

Antenna 1				Conducted Power					e.i.r.p. for RSS-247					
Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	5.65	0.59	9.50	15.74	37.50	30.00	1000	14.26	2.14	17.88	61.38	36.02	4000	18.14
2437	5.93	0.59	9.50	16.02	39.99	30.00	1000	13.98	2.14	18.16	65.46	36.02	4000	17.86
2462	5.87	0.59	9.50	15.96	39.45	30.00	1000	14.04	2.14	18.10	64.57	36.02	4000	17.92

Antenna 2				Conducted Power					e.i.r.p. for RSS-247					
Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	5.68	0.59	9.50	15.77	37.76	30.00	1000	14.23	2.14	17.91	61.80	36.02	4000	18.11
2437	6.01	0.59	9.50	16.10	40.74	30.00	1000	13.90	2.14	18.24	66.68	36.02	4000	17.78
2462	5.95	0.59	9.50	16.04	40.18	30.00	1000	13.96	2.14	18.18	65.77	36.02	4000	17.84

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

e.i.r.p. Result = Conducted Power Result + Antenna Gain

*The equipment and cables were not used for factor 0 dB of the data sheets.

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Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13565954H		
Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.3	No.3	No.4
Date	November 21, 2020	November 22, 2020	November 24, 2020
Temperature / Humidity	20 deg. C / 53 % RH	22 deg. C / 47 % RH	20 deg. C / 49 % RH
Engineer	Ken Fujita	Ken Fujita	Junki Nagatomi
	(1 GHz - 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 26.5 GHz)
Mode	Tx 11b 2412 MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	PK	52.0	27.5	5.4	32.7	-	52.2	73.9	21.7	
Hori.	4824.000	PK	42.2	31.7	7.5	31.7	-	49.7	73.9	24.2	
Hori.	7236.000	PK	42.2	36.1	8.8	32.6	-	54.5	73.9	19.4	Floor noise
Hori.	9648.000	PK	43.6	38.7	9.3	33.3	-	58.3	73.9	15.6	Floor noise
Hori.	2390.000	AV	42.2	27.5	5.4	32.7	-	42.4	53.9	11.5	
Hori.	4824.000	AV	33.2	31.7	7.5	31.7	-	40.7	53.9	13.2	
Hori.	7236.000	AV	29.9	36.1	8.8	32.6	-	42.3	53.9	11.7	Floor noise
Hori.	9648.000	AV	31.9	38.7	9.3	33.3	-	46.6	53.9	7.3	Floor noise
Vert.	2390.000	PK	52.9	27.5	5.4	32.7	-	53.0	73.9	20.9	
Vert.	4824.000	PK	43.5	31.7	7.5	31.7	-	51.0	73.9	22.9	
Vert.	7236.000	PK	42.6	36.1	8.8	32.6	-	54.9	73.9	19.0	Floor noise
Vert.	9648.000	PK	43.7	38.7	9.3	33.3	-	58.4	73.9	15.5	Floor noise
Vert.	2390.000	AV	44.1	27.5	5.4	32.7	-	44.3	53.9	9.6	
Vert.	4824.000	AV	35.5	31.7	7.5	31.7	-	42.9	53.9	11.0	
Vert.	7236.000	AV	32.4	36.1	8.8	32.6	-	44.7	53.9	9.2	Floor noise
Vert.	9648.000	AV	33.1	38.7	9.3	33.3	-	47.8	53.9	6.1	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz $20\log(3.9\text{ m} / 3.0\text{ m}) = 2.28\text{ dB}$
10 GHz - 26.5 GHz $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

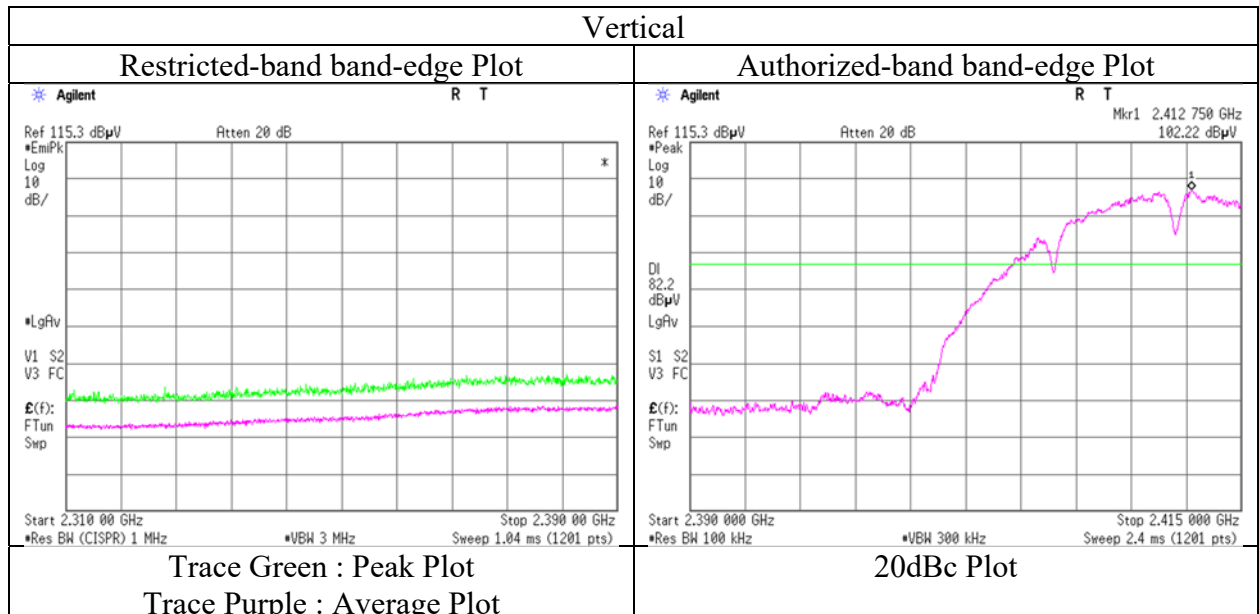
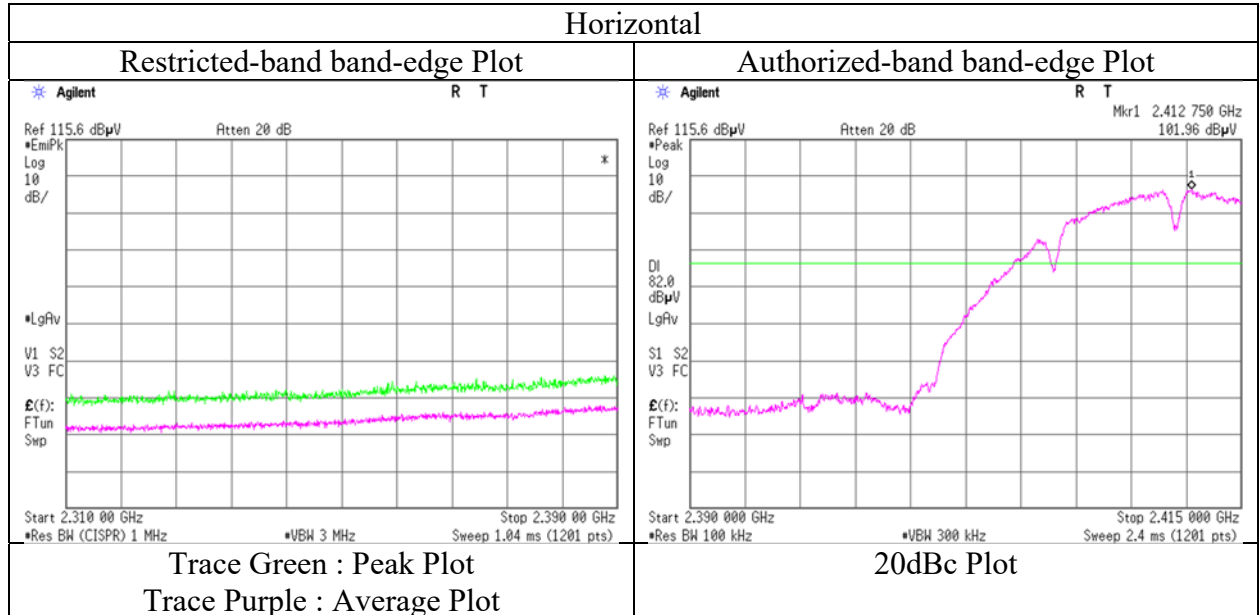
20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	102.0	27.5	5.4	32.7	102.1	-	-	Carrier
Hori.	2396.108	PK	47.2	27.5	5.4	32.7	47.4	82.1	34.7	
Hori.	2400.000	PK	45.5	27.5	5.4	32.7	45.7	82.1	36.4	
Vert.	2412.000	PK	102.2	27.5	5.4	32.7	102.4	-	-	Carrier
Vert.	2398.347	PK	48.8	27.5	5.4	32.7	49.0	82.4	33.4	
Vert.	2400.000	PK	46.5	27.5	5.4	32.7	46.6	82.4	35.7	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13565954H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	November 21, 2020
Temperature / Humidity	20 deg. C / 53 % RH
Engineer	Ken Fujita
	(1 GHz - 10 GHz)
Mode	Tx 11b 2412 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13565954H		
Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.3	No.3	No.4
Date	November 21, 2020	November 22, 2020	November 24, 2020
Temperature / Humidity	20 deg. C / 53 % RH	22 deg. C / 47 % RH	20 deg. C / 49 % RH
Engineer	Ken Fujita	Ken Fujita	Junki Nagatomi
	(1 GHz - 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 26.5 GHz)
Mode	Tx 11b 2437 MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4874.000	PK	43.5	31.5	7.5	31.6	-	50.8	73.9	23.1	
Hori.	7311.000	PK	42.3	36.2	8.8	32.6	-	54.7	73.9	19.2	Floor noise
Hori.	9748.000	PK	42.6	39.0	9.4	33.4	-	57.6	73.9	16.3	Floor noise
Hori.	4874.000	AV	35.8	31.5	7.5	31.6	-	43.1	53.9	10.8	
Hori.	7311.000	AV	30.0	36.2	8.8	32.6	-	42.3	53.9	11.6	Floor noise
Hori.	9748.000	AV	31.8	39.0	9.4	33.4	-	46.8	53.9	7.1	Floor noise
Vert.	4874.000	PK	44.3	31.5	7.5	31.6	-	51.7	73.9	22.3	
Vert.	7311.000	PK	42.7	36.2	8.8	32.6	-	55.1	73.9	18.8	Floor noise
Vert.	9748.000	PK	43.5	39.0	9.4	33.4	-	58.5	73.9	15.4	Floor noise
Vert.	4874.000	AV	37.4	31.5	7.5	31.6	-	44.7	53.9	9.2	
Vert.	7311.000	AV	31.9	36.2	8.8	32.6	-	44.3	53.9	9.6	Floor noise
Vert.	9748.000	AV	32.9	39.0	9.4	33.4	-	47.9	53.9	6.0	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Report No.	13565954H		
Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.3	No.3	No.4
Date	November 21, 2020	November 22, 2020	November 24, 2020
Temperature / Humidity	20 deg. C / 53 % RH	22 deg. C / 47 % RH	20 deg. C / 49 % RH
Engineer	Ken Fujita	Ken Fujita	Junki Nagatomi
	(1 GHz - 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 26.5 GHz)
Mode	Tx 11b 2462 MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	PK	58.4	27.3	5.4	32.7	-	58.4	73.9	15.5	
Hori.	4924.000	PK	43.3	31.4	7.5	31.6	-	50.6	73.9	23.4	
Hori.	7386.000	PK	42.3	36.2	8.8	32.7	-	54.7	73.9	19.2	Floor noise
Hori.	9848.000	PK	42.6	38.9	9.4	33.4	-	57.4	73.9	16.5	Floor noise
Hori.	2483.500	AV	48.5	27.3	5.4	32.7	-	48.6	53.9	5.3	
Hori.	4924.000	AV	35.7	31.4	7.5	31.6	-	42.9	53.9	11.0	
Hori.	7386.000	AV	32.1	36.2	8.8	32.7	-	44.6	53.9	9.3	Floor noise
Hori.	9848.000	AV	32.6	38.9	9.4	33.4	-	47.4	53.9	6.5	Floor noise
Vert.	2483.500	PK	56.1	27.3	5.4	32.7	-	56.2	73.9	17.7	
Vert.	4924.000	PK	44.0	31.4	7.5	31.6	-	51.2	73.9	22.7	
Vert.	7386.000	PK	42.0	36.2	8.8	32.7	-	54.5	73.9	19.5	Floor noise
Vert.	9848.000	PK	43.4	38.9	9.4	33.4	-	58.2	73.9	15.7	Floor noise
Vert.	2483.500	AV	48.5	27.3	5.4	32.7	-	48.6	53.9	5.3	
Vert.	4924.000	AV	36.8	31.4	7.5	31.6	-	44.1	53.9	9.8	
Vert.	7386.000	AV	32.0	36.2	8.8	32.7	-	44.4	53.9	9.5	Floor noise
Vert.	9848.000	AV	32.9	38.9	9.4	33.4	-	47.7	53.9	6.2	Floor noise

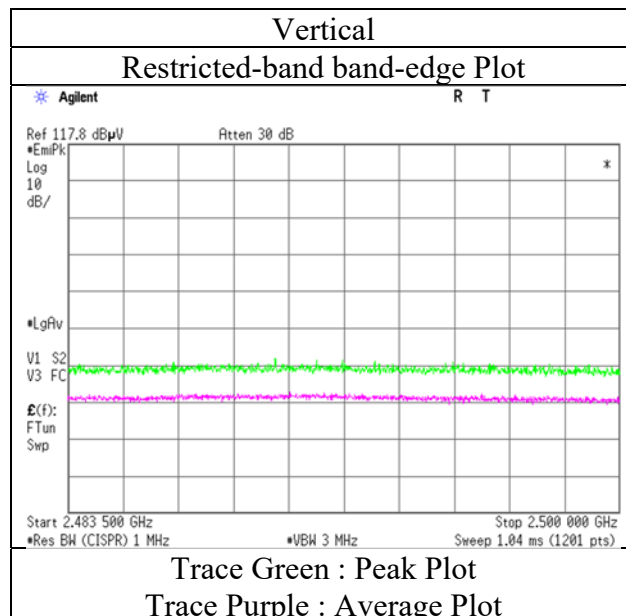
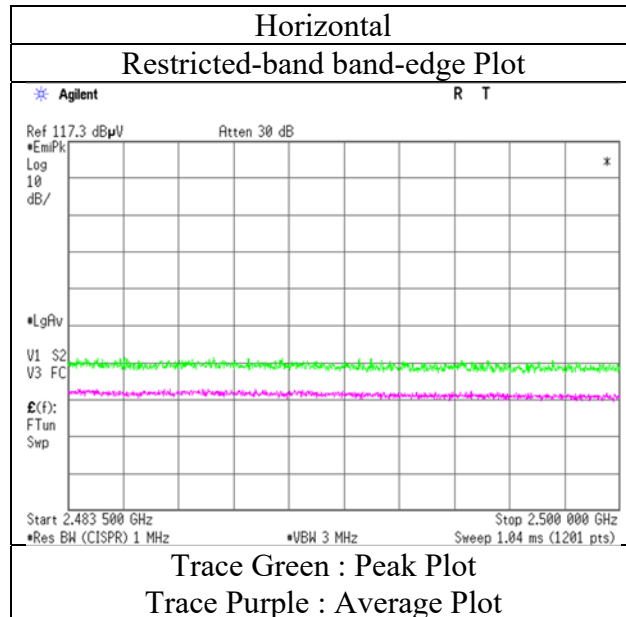
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz $20\log(3.9\text{ m} / 3.0\text{ m}) = 2.28\text{ dB}$
10 GHz - 26.5 GHz $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13565954H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	November 21, 2020
Temperature / Humidity	20 deg. C / 53 % RH
Engineer	Ken Fujita
	(1 GHz - 10 GHz)
Mode	Tx 11b 2462 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13565954H		
Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.3	No.3	No.4
Date	November 21, 2020	November 22, 2020	November 24, 2020
Temperature / Humidity	20 deg. C / 53 % RH	22 deg. C / 47 % RH	20 deg. C / 49 % RH
Engineer	Ken Fujita	Ken Fujita	Junki Nagatomi
	(1 GHz - 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 26.5 GHz)
Mode	Tx 11g 2412 MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	PK	59.0	27.5	5.4	32.7	-	59.2	73.9	14.7	
Hori.	4824.000	PK	41.6	31.7	7.5	31.7	-	49.1	73.9	24.8	Floor noise
Hori.	7236.000	PK	42.2	36.1	8.8	32.6	-	54.5	73.9	19.4	Floor noise
Hori.	9648.000	PK	43.6	38.7	9.3	33.3	-	58.3	73.9	15.6	Floor noise
Hori.	2390.000	AV	49.0	27.5	5.4	32.7	0.7	49.9	53.9	4.0	*1)
Hori.	4824.000	AV	29.6	31.7	7.5	31.7	-	37.1	53.9	16.8	Floor noise
Hori.	7236.000	AV	29.8	36.1	8.8	32.6	-	42.1	53.9	11.8	Floor noise
Hori.	9648.000	AV	31.6	38.7	9.3	33.3	-	46.4	53.9	7.5	Floor noise
Vert.	2390.000	PK	59.6	27.5	5.4	32.7	-	59.7	73.9	14.2	
Vert.	4824.000	PK	41.9	31.7	7.5	31.7	-	49.4	73.9	24.5	Floor noise
Vert.	7236.000	PK	42.2	36.1	8.8	32.6	-	54.6	73.9	19.3	Floor noise
Vert.	9648.000	PK	42.9	38.7	9.3	33.3	-	57.6	73.9	16.3	Floor noise
Vert.	2390.000	AV	49.3	27.5	5.4	32.7	0.7	50.1	53.9	3.8	*1)
Vert.	4824.000	AV	31.2	31.7	7.5	31.7	-	38.7	53.9	15.2	Floor noise
Vert.	7236.000	AV	32.0	36.1	8.8	32.6	-	44.4	53.9	9.6	Floor noise
Vert.	9648.000	AV	33.1	38.7	9.3	33.3	-	47.9	53.9	6.0	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

*1) Not Out of Band emission(Leakage Power)

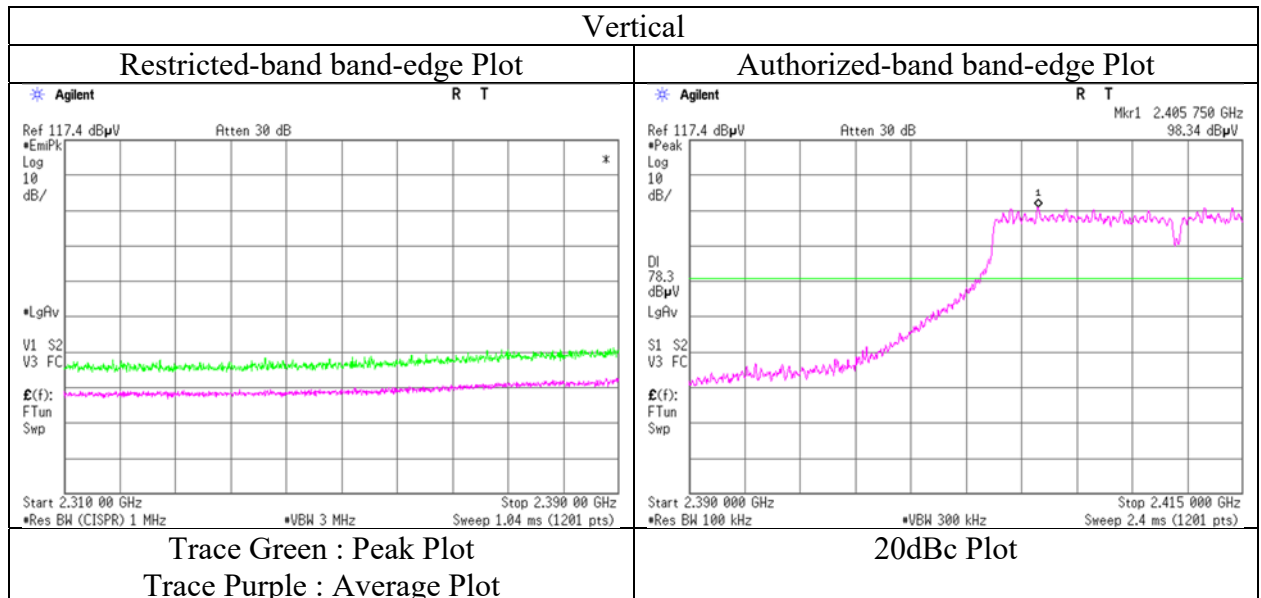
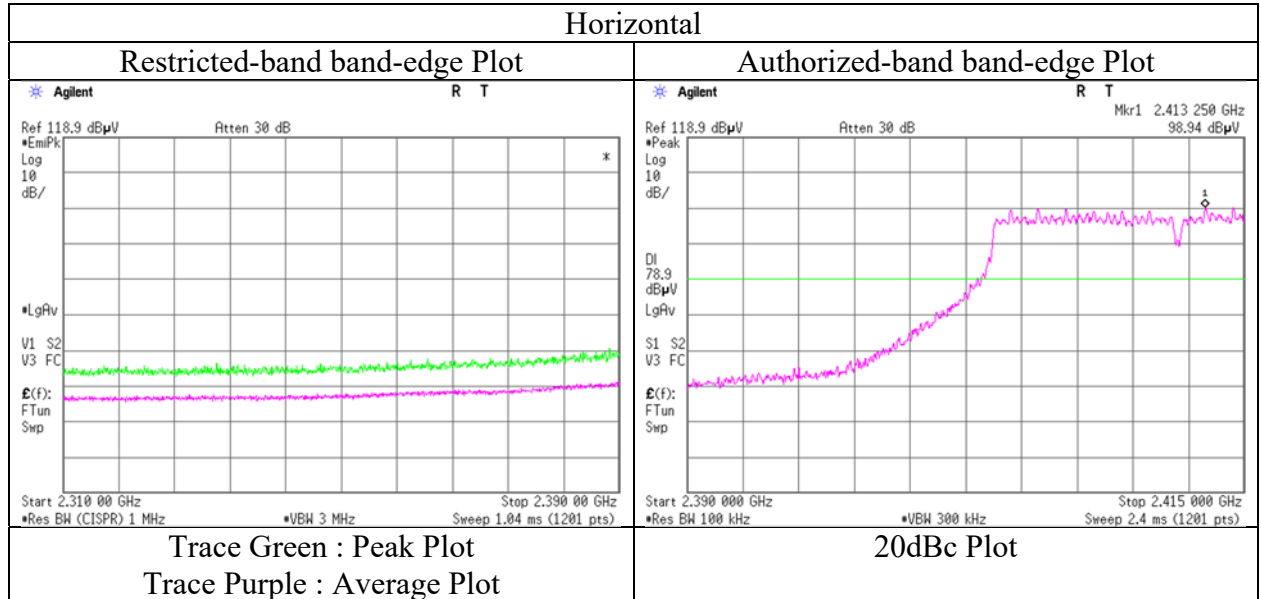
20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	98.9	27.5	5.4	32.7	99.1	-	-	Carrier
Hori.	2400.000	PK	64.3	27.5	5.4	32.7	64.4	79.1	14.7	
Vert.	2412.000	PK	98.3	27.5	5.4	32.7	98.5	-	-	Carrier
Vert.	2400.000	PK	64.5	27.5	5.4	32.7	64.6	78.5	13.9	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13565954H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	November 21, 2020
Temperature / Humidity	20 deg. C / 53 % RH
Engineer	Ken Fujita
	(1 GHz - 10 GHz)
Mode	Tx 11g 2412 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13565954H		
Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.3	No.4	No.4
Date	November 22, 2020	November 24, 2020	November 24, 2020
Temperature / Humidity	22 deg. C / 47 % RH	20 deg. C / 49 % RH	20 deg. C / 49 % RH
Engineer	Ken Fujita	Junki Nagatomi	Junki Nagatomi
	(1 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(Below 1 GHz)
Mode	Tx 11g 2437 MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	73.007	QP	35.8	6.3	7.7	38.9	-	10.9	40.0	29.1	
Hori.	162.823	QP	38.6	15.4	8.5	38.9	-	23.6	43.5	19.9	
Hori.	269.946	QP	46.9	12.9	9.4	38.8	-	30.4	46.0	15.6	
Hori.	317.987	QP	50.4	14.1	9.7	38.7	-	35.5	46.0	10.5	
Hori.	341.982	QP	54.1	15.0	9.8	38.6	-	40.3	46.0	5.7	
Hori.	433.966	QP	41.5	16.2	10.4	38.5	-	29.7	46.0	16.4	
Hori.	4874.000	PK	42.2	31.5	7.5	31.6	-	49.5	73.9	24.4	Floor noise
Hori.	7311.000	PK	42.2	36.2	8.8	32.6	-	54.6	73.9	19.3	Floor noise
Hori.	9748.000	PK	42.6	39.0	9.4	33.4	-	57.6	73.9	16.3	Floor noise
Hori.	4874.000	AV	31.3	31.5	7.5	31.6	-	38.6	53.9	15.3	Floor noise
Hori.	7311.000	AV	32.1	36.2	8.8	32.6	-	44.5	53.9	9.4	Floor noise
Hori.	9748.000	AV	32.2	39.0	9.4	33.4	-	47.2	53.9	6.7	Floor noise
Vert.	73.007	QP	35.8	6.3	7.7	38.9	-	10.9	40.0	29.1	
Vert.	162.892	QP	42.6	15.4	8.5	38.9	-	27.6	43.5	15.9	
Vert.	263.990	QP	44.8	12.5	9.3	38.8	-	27.8	46.0	18.2	
Vert.	317.092	QP	40.7	14.0	9.7	38.7	-	25.7	46.0	20.3	
Vert.	341.980	QP	53.8	15.0	9.8	38.6	-	40.0	46.0	6.0	
Vert.	442.475	QP	33.1	16.3	10.4	38.4	-	21.4	46.0	24.6	
Vert.	4874.000	PK	42.3	31.5	7.5	31.6	-	49.6	73.9	24.3	Floor noise
Vert.	7311.000	PK	42.3	36.2	8.8	32.6	-	54.7	73.9	19.3	Floor noise
Vert.	9748.000	PK	42.2	39.0	9.4	33.4	-	57.2	73.9	16.7	Floor noise
Vert.	4874.000	AV	32.0	31.5	7.5	31.6	-	39.3	53.9	14.6	Floor noise
Vert.	7311.000	AV	32.1	36.2	8.8	32.6	-	44.5	53.9	9.4	Floor noise
Vert.	9748.000	AV	32.3	39.0	9.4	33.4	-	47.2	53.9	6.7	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Report No.	13565954H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.4
Date	November 22, 2020	November 24, 2020
Temperature / Humidity	22 deg. C / 47 % RH	20 deg. C / 49 % RH
Engineer	Ken Fujita	Junki Nagatomi
	(1 GHz - 18 GHz)	(18 GHz - 26.5 GHz)
Mode	Tx 11g 2462 MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	PK	60.1	27.3	5.4	32.7	-	60.2	73.9	13.7	
Hori.	4924.000	PK	42.0	31.4	7.5	31.6	-	49.2	73.9	24.7	Floor noise
Hori.	7386.000	PK	42.0	36.2	8.8	32.7	-	54.4	73.9	19.5	Floor noise
Hori.	9848.000	PK	42.9	38.9	9.4	33.4	-	57.7	73.9	16.2	Floor noise
Hori.	2483.500	AV	48.9	27.3	5.4	32.7	0.7	49.7	53.9	4.3	*1)
Hori.	4924.000	AV	31.3	31.4	7.5	31.6	-	38.6	53.9	15.3	Floor noise
Hori.	7386.000	AV	31.8	36.2	8.8	32.7	-	44.3	53.9	9.6	Floor noise
Hori.	9848.000	AV	32.0	38.9	9.4	33.4	-	46.8	53.9	7.1	Floor noise
Vert.	2483.500	PK	60.0	27.3	5.4	32.7	-	60.0	73.9	13.9	
Vert.	4924.000	PK	41.7	31.4	7.5	31.6	-	49.0	73.9	24.9	Floor noise
Vert.	7386.000	PK	42.3	36.2	8.8	32.7	-	54.7	73.9	19.2	Floor noise
Vert.	9848.000	PK	42.7	38.9	9.4	33.4	-	57.5	73.9	16.4	Floor noise
Vert.	2483.500	AV	48.0	27.3	5.4	32.7	0.7	48.8	53.9	5.1	*1)
Vert.	4924.000	AV	31.4	31.4	7.5	31.6	-	38.6	53.9	15.3	Floor noise
Vert.	7386.000	AV	32.2	36.2	8.8	32.7	-	44.6	53.9	9.3	Floor noise
Vert.	9848.000	AV	32.7	38.9	9.4	33.4	-	47.5	53.9	6.4	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

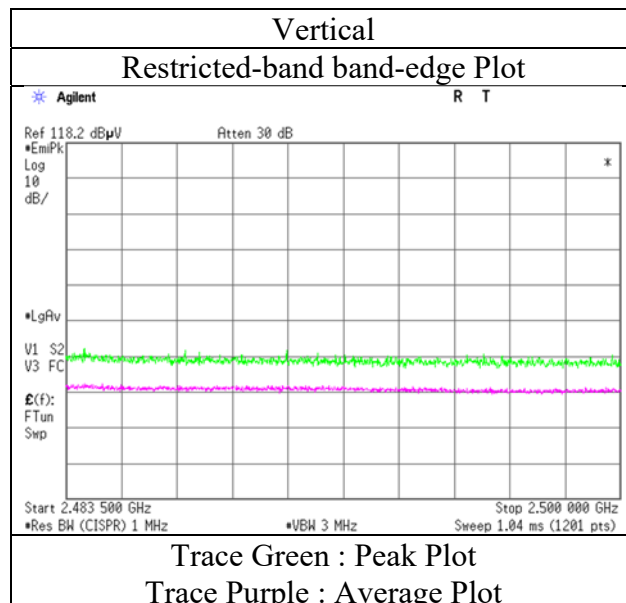
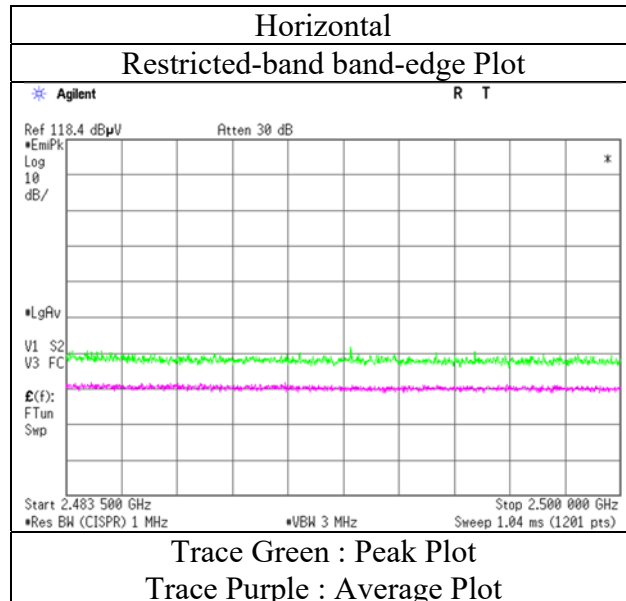
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

*1) Not Out of Band emission(Leakage Power)

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13565954H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	November 22, 2020
Temperature / Humidity	22 deg. C / 47 % RH
Engineer	Ken Fujita
	(1 GHz - 18 GHz)
Mode	Tx 11g 2462 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No. 13565954H
Test place Ise EMC Lab.
Semi Anechoic Chamber No.3
Date November 22, 2020
Temperature / Humidity 22 deg. C / 47 % RH
Engineer Ken Fujita
(Band Edge)
Mode Tx 11n-20 2412 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	PK	58.3	27.5	5.4	32.7	-	58.5	73.9	15.4	
Hori.	2390.000	AV	48.8	27.5	5.4	32.7	0.7	49.6	53.9	4.3	*1)
Vert.	2390.000	PK	58.8	27.5	5.4	32.7	-	59.0	73.9	14.9	
Vert.	2390.000	AV	48.9	27.5	5.4	32.7	0.7	49.7	53.9	4.2	*1)

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

*1) Not Out of Band emission(Leakage Power)

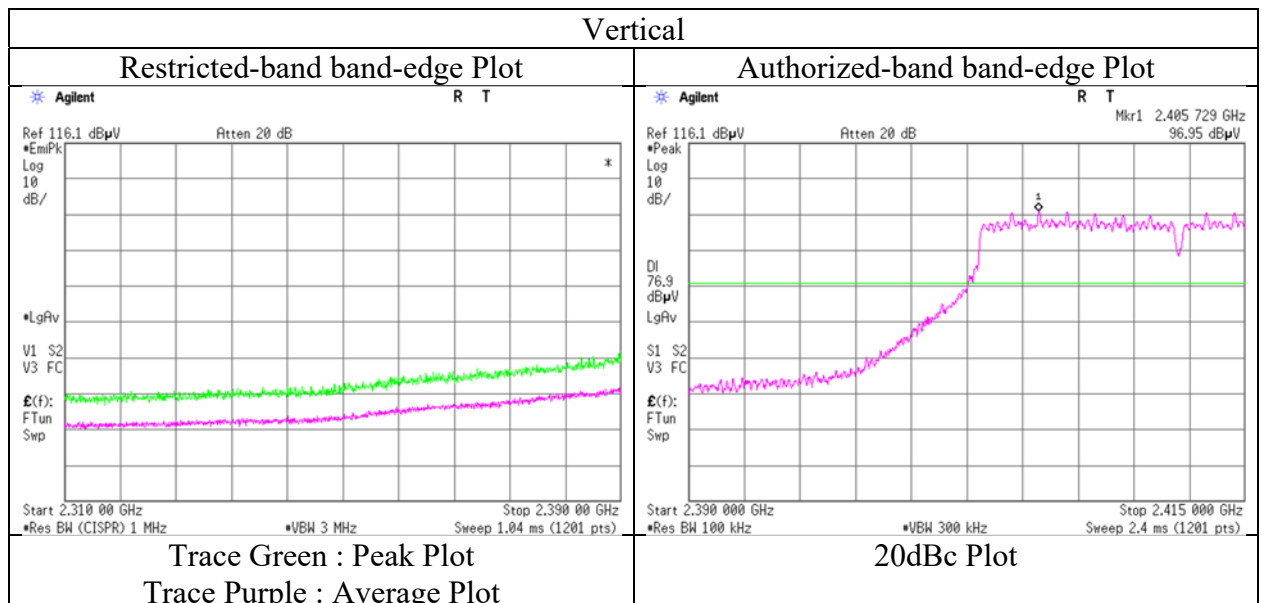
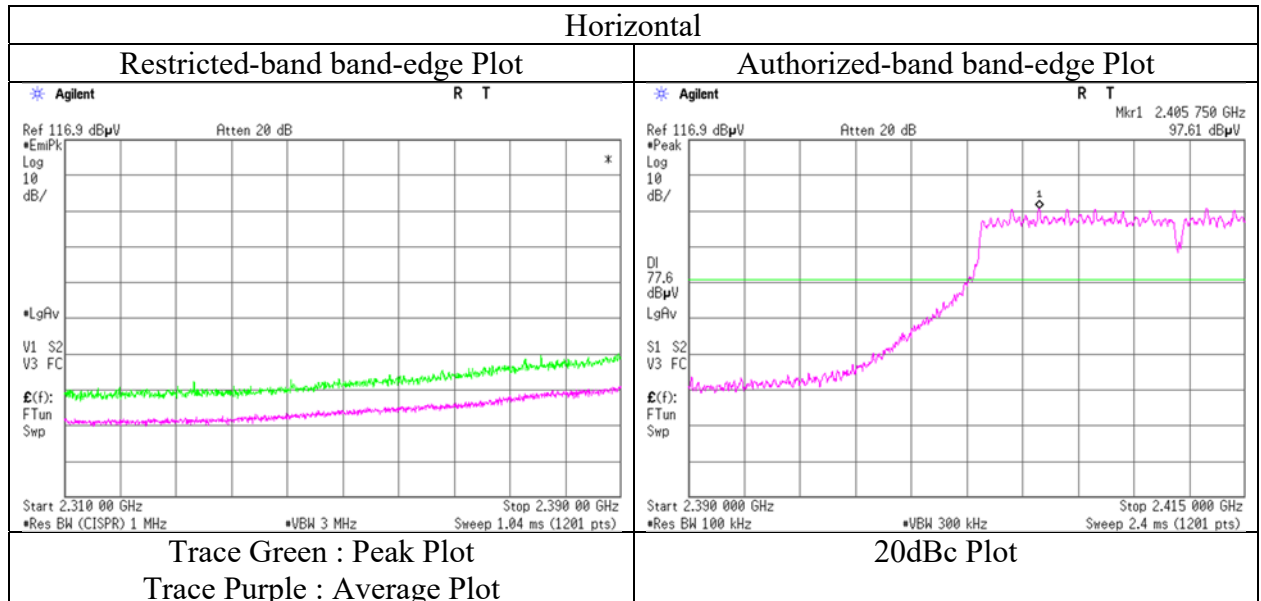
20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	97.6	27.5	5.4	32.7	97.7	-	-	Carrier
Hori.	2400.000	PK	64.2	27.5	5.4	32.7	64.3	77.7	13.4	
Vert.	2412.000	PK	97.0	27.5	5.4	32.7	97.1	-	-	Carrier
Vert.	2400.000	PK	63.9	27.5	5.4	32.7	64.0	77.1	13.0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13565954H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	November 22, 2020
Temperature / Humidity	22 deg. C / 47 % RH
Engineer	Ken Fujita (Band Edge)
Mode	Tx 11n-20 2412 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No. 13565954H
Test place Ise EMC Lab.
Semi Anechoic Chamber No.3
Date November 22, 2020
Temperature / Humidity 22 deg. C / 47 % RH
Engineer Ken Fujita
(Band Edge)
Mode Tx 11n-20 2462 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	PK	59.5	27.3	5.4	32.7	-	59.5	73.9	14.4	
Hori.	2483.500	AV	48.6	27.3	5.4	32.7	0.7	49.4	53.9	4.5	*1)
Vert.	2483.500	PK	59.6	27.3	5.4	32.7	-	59.7	73.9	14.3	
Vert.	2483.500	AV	50.0	27.3	5.4	32.7	0.7	50.8	53.9	3.1	*1)

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

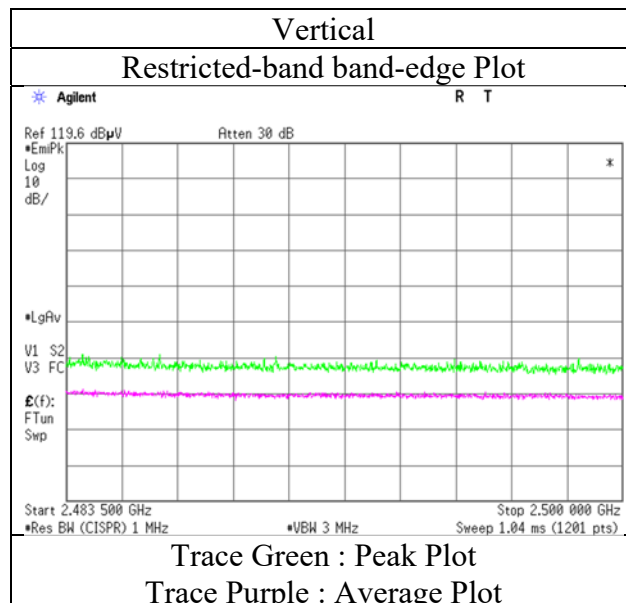
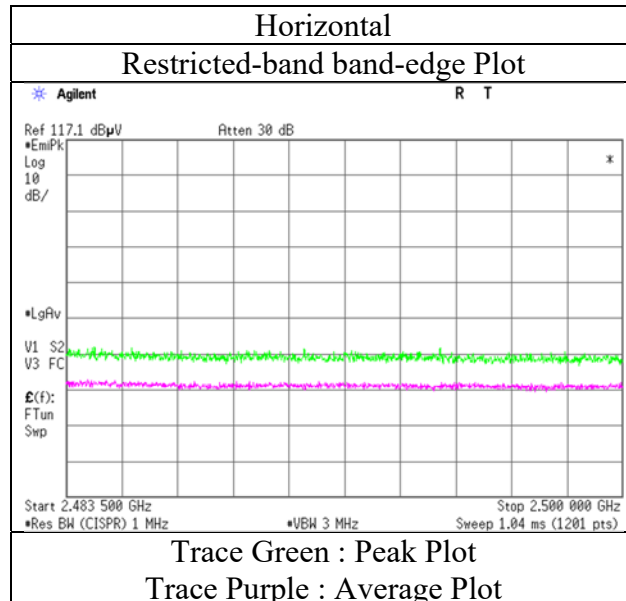
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz $20\log(3.9\text{ m} / 3.0\text{ m}) = 2.28\text{ dB}$
10 GHz - 26.5 GHz $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

*1) Not Out of Band emission(Leakage Power)

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13565954H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	November 22, 2020
Temperature / Humidity	22 deg. C / 47 % RH
Engineer	Ken Fujita (Band Edge)
Mode	Tx 11n-20 2462 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No. 13565954H
Test place Ise EMC Lab.
Semi Anechoic Chamber No.3 No.4
Date November 22, 2020 November 24, 2020
Temperature / Humidity 22 deg. C / 47 % RH 20 deg. C / 49 % RH
Engineer Ken Fujita Junki Nagatomi
(1 GHz - 10 GHz) (10 GHz - 26.5 GHz)
Mode Tx 11n-40 2422 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	PK	61.2	27.5	5.4	32.7	-	61.3	73.9	12.6	
Hori.	4844.000	PK	40.6	31.6	7.5	31.7	-	48.1	73.9	25.8	Floor noise
Hori.	7266.000	PK	42.0	36.1	8.8	32.6	-	54.3	73.9	19.6	Floor noise
Hori.	9688.000	PK	42.7	38.9	9.3	33.3	-	57.5	73.9	16.4	Floor noise
Hori.	2390.000	AV	45.6	27.5	5.4	32.7	1.3	47.0	53.9	6.9	*1)
Hori.	4844.000	AV	30.2	31.6	7.5	31.7	-	37.7	53.9	16.3	Floor noise
Hori.	7266.000	AV	31.9	36.1	8.8	32.6	-	44.3	53.9	9.6	Floor noise
Hori.	9688.000	AV	32.0	38.9	9.3	33.3	-	46.9	53.9	7.0	Floor noise
Vert.	2390.000	PK	61.5	27.5	5.4	32.7	-	61.6	73.9	12.3	
Vert.	4844.000	PK	40.9	31.6	6.7	31.7	-	47.5	73.9	26.4	Floor noise
Vert.	7266.000	PK	42.2	36.1	7.9	32.6	-	53.6	73.9	20.3	Floor noise
Vert.	9688.000	PK	42.2	38.9	8.8	33.3	-	56.5	73.9	17.4	Floor noise
Vert.	2390.000	AV	46.3	27.5	5.4	32.7	1.3	47.7	53.9	6.2	*1)
Vert.	4844.000	AV	30.3	31.6	6.7	31.7	-	37.0	53.9	17.0	Floor noise
Vert.	7266.000	AV	31.9	36.1	7.9	32.6	-	43.3	53.9	10.6	Floor noise
Vert.	9688.000	AV	32.0	38.9	8.8	33.3	-	46.4	53.9	7.5	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

*1) Not Out of Band emission(Leakage Power)

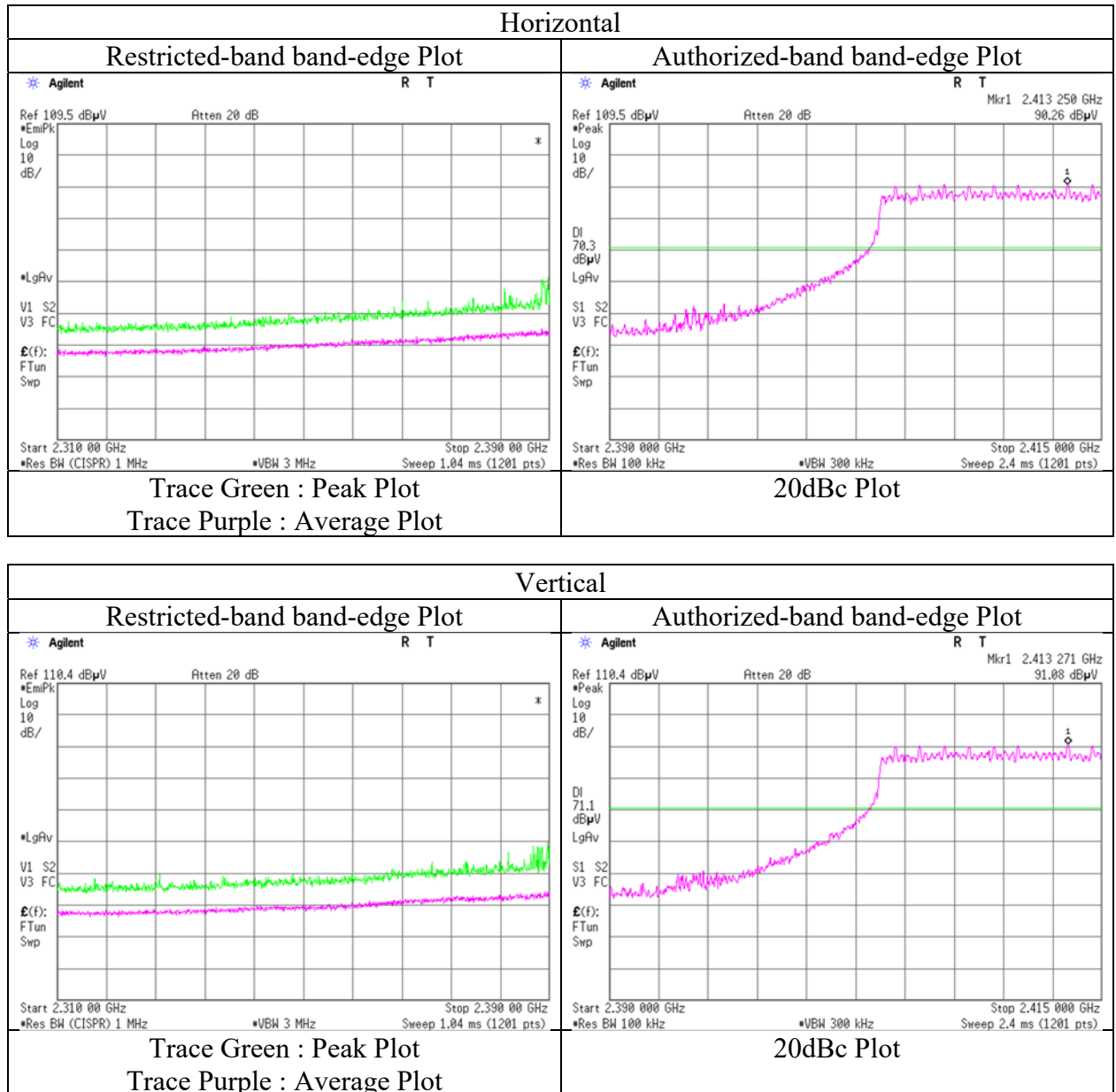
20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2422.000	PK	90.3	27.5	5.4	32.7	90.4	-	-	Carrier
Hori.	2400.000	PK	59.0	27.5	5.4	32.7	59.1	70.4	11.3	
Vert.	2422.000	PK	91.1	27.5	5.4	32.7	91.2	-	-	Carrier
Vert.	2400.000	PK	59.6	27.5	5.4	32.7	59.8	71.2	11.5	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13565954H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	November 22, 2020
Temperature / Humidity	22 deg. C / 47 % RH
Engineer	Ken Fujita
	(1 GHz - 10 GHz)
Mode	Tx 11n-40 2422 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13565954H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.4
Date	November 22, 2020	November 24, 2020
Temperature / Humidity	22 deg. C / 47 % RH	20 deg. C / 49 % RH
Engineer	Ken Fujita	Junki Nagatomi
	(1 GHz - 10 GHz)	(10 GHz - 26.5 GHz)
Mode	Tx 11n-40 2437 MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4874.000	PK	42.2	31.5	7.5	31.6	-	49.6	73.9	24.3	Floor noise
Hori.	7311.000	PK	42.3	36.2	8.8	32.6	-	54.7	73.9	19.2	Floor noise
Hori.	9748.000	PK	42.4	39.0	9.4	33.4	-	57.4	73.9	16.5	Floor noise
Hori.	4874.000	AV	30.5	31.5	7.5	31.6	-	37.8	53.9	16.1	Floor noise
Hori.	7311.000	AV	31.7	36.2	8.8	32.6	-	44.1	53.9	9.8	Floor noise
Hori.	9748.000	AV	32.2	39.0	9.4	33.4	-	47.2	53.9	6.7	Floor noise
Vert.	4874.000	PK	41.7	31.5	7.5	31.6	-	49.0	73.9	24.9	Floor noise
Vert.	7311.000	PK	42.2	36.2	8.8	32.6	-	54.6	73.9	19.4	Floor noise
Vert.	9748.000	PK	42.4	39.0	9.4	33.4	-	57.4	73.9	16.5	Floor noise
Vert.	4874.000	AV	31.2	31.5	7.5	31.6	-	38.5	53.9	15.4	Floor noise
Vert.	7311.000	AV	31.8	36.2	8.8	32.6	-	44.2	53.9	9.7	Floor noise
Vert.	9748.000	AV	31.9	39.0	9.4	33.4	-	46.9	53.9	7.0	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Report No.	13565954H	
Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.3	No.4
Date	November 22, 2020	November 24, 2020
Temperature / Humidity	22 deg. C / 47 % RH	20 deg. C / 49 % RH
Engineer	Ken Fujita	Junki Nagatomi
	(1 GHz - 10 GHz)	(10 GHz - 26.5 GHz)
Mode	Tx 11n-40 2452 MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	PK	62.6	27.3	5.4	32.7	-	62.6	73.9	11.3	
Hori.	4904.000	PK	40.2	31.4	7.5	31.6	-	47.4	73.9	26.5	Floor noise
Hori.	7356.000	PK	41.4	36.3	8.8	32.6	-	53.9	73.9	20.0	Floor noise
Hori.	9808.000	PK	42.2	39.0	9.4	33.4	-	57.1	73.9	16.8	Floor noise
Hori.	2483.500	AV	48.8	27.3	5.4	32.7	1.3	50.1	53.9	3.8	*1)
Hori.	4904.000	AV	30.7	31.4	7.5	31.6	-	37.9	53.9	16.0	Floor noise
Hori.	7356.000	AV	31.3	36.3	8.8	32.6	-	43.8	53.9	10.1	Floor noise
Hori.	9808.000	AV	31.9	39.0	9.4	33.4	-	46.9	53.9	7.0	Floor noise
Vert.	2483.500	PK	62.6	27.3	5.4	32.7	-	62.7	73.9	11.2	
Vert.	4904.000	PK	40.2	31.4	7.5	31.6	-	47.4	73.9	26.5	Floor noise
Vert.	7356.000	PK	41.6	36.3	8.8	32.6	-	54.1	73.9	19.8	Floor noise
Vert.	9808.000	PK	41.8	39.0	9.4	33.4	-	56.8	73.9	17.2	Floor noise
Vert.	2483.500	AV	50.0	27.3	5.4	32.7	1.3	51.4	53.9	2.5	*1)
Vert.	4904.000	AV	30.5	31.4	7.5	31.6	-	37.7	53.9	16.2	Floor noise
Vert.	7356.000	AV	31.6	36.3	8.8	32.6	-	44.0	53.9	9.9	Floor noise
Vert.	9808.000	AV	31.8	39.0	9.4	33.4	-	46.7	53.9	7.2	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

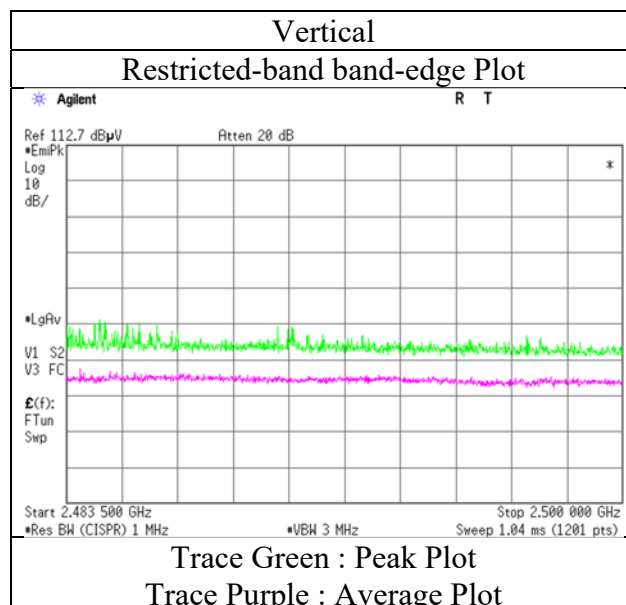
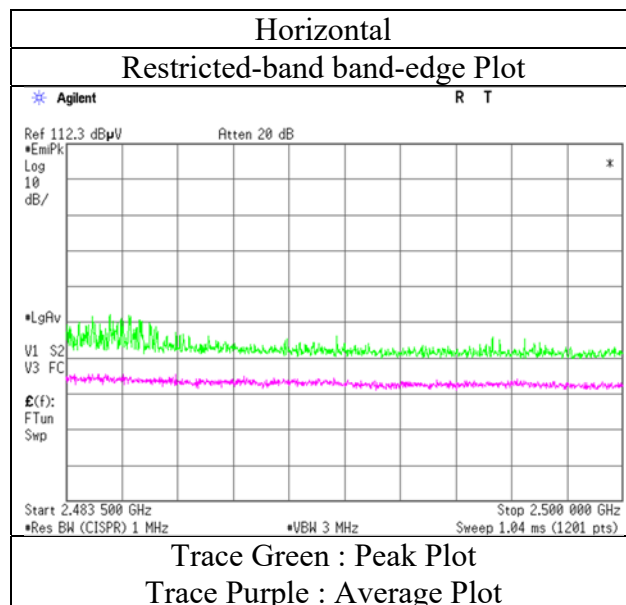
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

*1) Not Out of Band emission(Leakage Power)

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13565954H
Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Date	November 22, 2020
Temperature / Humidity	22 deg. C / 47 % RH
Engineer	Ken Fujita
	(1 GHz - 10 GHz)
Mode	Tx 11n-40 2452 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

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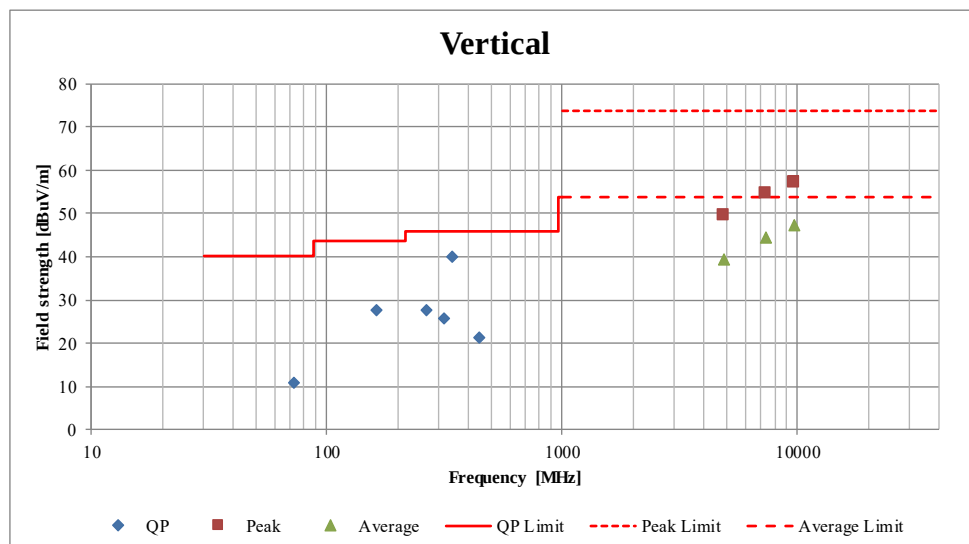
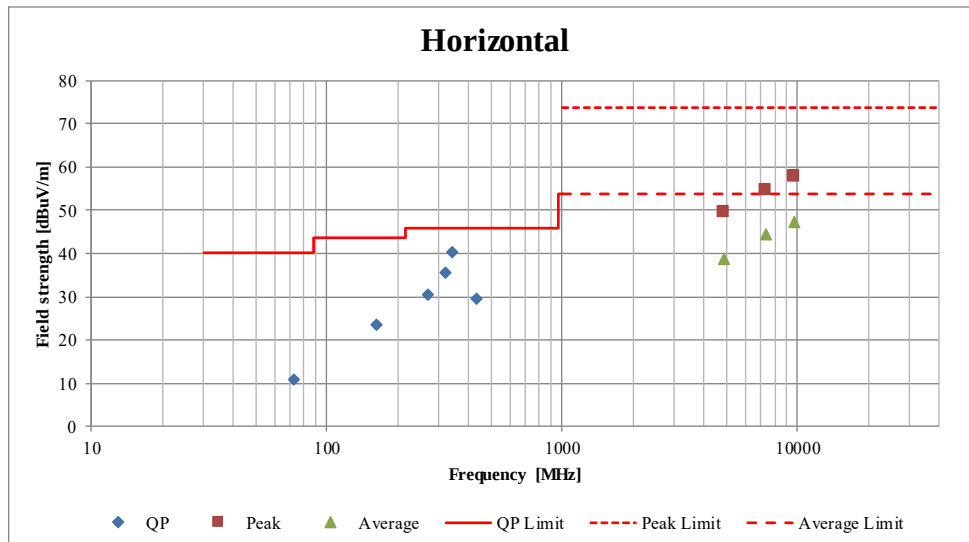
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission (Plot data, Worst case)

Report No.	13565954H		
Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.3	No.4	No.4
Date	November 22, 2020	November 24, 2020	November 24, 2020
Temperature / Humidity	22 deg. C / 47 % RH	20 deg. C / 49 % RH	20 deg. C / 49 % RH
Engineer	Ken Fujita (1 GHz - 18 GHz)	Junki Nagatomi (18 GHz - 26.5 GHz)	Junki Nagatomi (Below 1 GHz)
Mode	Tx 11g 2437 MHz		



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

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

APPENDIX 2: Test instruments

Test equipment(1/2)

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	MPM-08	141805	Power Meter	ANRITSU	ML2495A	6K00003338	10/15/2020	12
AT	MPSE-11	141840	Power sensor	ANRITSU	MA2411B	11737	10/15/2020	12
AT	MAT-90	141223	Attenuator	Weinschel Associates	WA56-10	56100306	05/25/2020	12
AT	MCC-210	141289	Microwave Cable	RS Pro	R-132G7210200CD	-	04/13/2020	12
AT	MOS-29	141568	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	2901	01/07/2020	12
RE	MAEC-03	142008	AC3_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/22/2020	24
RE	MOS-13	141554	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	1301	01/07/2020	12
RE	MMM-08	141532	DIGITAL HiTESTER	Hioki	3805	51201197	01/06/2020	12
RE	MJM-16	142183	Measure	KOMELON	KMC-36	-	-	-
RE	COTS-MEMI-02	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	MAEC-03-SVSWR	142013	AC3_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	04/08/2019	24
RE	MHA-20	141507	Horn Antenna 1-18GHz	Schwarzbeck Mess - Elektronik	BBHA9120D	258	10/01/2020	12
RE	MPA-11	141580	MicroWave System Amplifier	Keysight Technologies Inc	83017A	MY39500779	03/24/2020	12
RE	MCC-231	177964	Microwave Cable	Junkosha INC.	MMX221	1901S329(1m)/1902 S579(5m)	03/02/2020	12
RE	MHF-25	141232	High Pass Filter 3.5-18.0GHz	UL Japan	HPF SELECTOR	001	09/23/2020	12
RE	MSA-03	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	03/04/2020	12
RE	MAEC-04	142011	AC4_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	05/25/2020	24
RE	MOS-15	141562	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	0010	01/07/2020	12
RE	MMM-10	141545	DIGITAL HiTESTER	Hioki	3805	51201148	01/06/2020	12
RE	MJM-29	142230	Measure	KOMELON	KMC-36	-	-	-
RE	MAEC-04-SVSWR	142017	AC4_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-10005	04/04/2019	24
RE	MCC-246	199563	Microwave Cable	HUBER+SUNER	SF126E/11PC35/11 PC35/1000M,5000 M	537061/126E / 537072/126E	06/11/2020	12
RE	MHA-21	141508	Horn Antenna 1-18GHz	Schwarzbeck Mess - Elektronik	BBHA9120D	557	05/22/2020	12
RE	MHA-17	141506	Horn Antenna 15-40GHz	Schwarzbeck Mess - Elektronik	BBHA9170	BBHA9170307	07/16/2020	12
RE	MTR-10	141951	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	03/10/2020	12
RE	MCC-50	141397	Coaxial Cable	UL Japan	-	-	11/06/2020	12
RE	MAT-34	141331	Attenuator(6dB)	TME	UFA-01	-	02/05/2020	12
RE	MPA-19	141585	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	02/10/2020	12
RE	MPA-12	141581	MicroWave System Amplifier	Keysight Technologies Inc	83017A	00650	10/19/2020	12
RE	MHF-26	141296	High Pass Filter 3.5-18.0GHz	UL Japan	HPF SELECTOR	002	09/23/2020	12
RE	MLA-23	141267	Logperiodic Antenna(200-1000MHz)	Schwarzbeck Mess - Elektronik	VUSLP9111B	9111B-192	09/02/2020	12
RE	MBA-05	141425	Biconical Antenna	Schwarzbeck Mess - Elektronik	VHA9103+BBA9106	VHA 91031302	08/31/2020	12

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Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Test equipment(2/2)

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	2Serial	Last Calibration Date	Cal Int
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-54	141936	Terminator	TME	CT-01BP	-	12/02/2019	12
CE	MAT-67	141248	Attenuator	JFW Industries, Inc.	50FP-013H2 N	-	12/02/2019	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
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

*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 test
RE: Radiated Emission test
AT: Antenna Terminal Conducted test