RADIO TEST REPORT

Test Report No. : 12656071S-P-R1

Applicant	:	**Nintendo Co., Ltd.**
Type of Equipment	:	**Game Console**
Model No.	:	**HDH-002**
FCC ID	:	**BKEHDH002**
Test regulation	:	**FCC Part 15 Subpart C: 2019** * Wireless LAN (2.4 GHz bands) and Bluetooth low energy part
Test Result	:	**Complied (Refer to SECTION 3.2)**
Test Item	:	**Maximum Peak Output Power, Spurious Emission (1 GHz to 13 GHz), Restricted Band Edges**
Purpose of test	:	**Spot check**

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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. Shonan 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 12656071S-P. 12656071S-P is replaced with this report.

Date of test: April 1 to August 4, 2019

Representative test engineer:
K.Takeyama
Kazutaka Takeyama
Engineer
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Approved by :
A.Hayashi
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Leader
Consumer Technology Division

CERTIFICATE 1266.03

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

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REVISION HISTORY

Original Test Report No.: 12656071S-P

Revision	Test report No.	Date	Page revised	Contents
- (Original)	12656071S-P	August 6, 2019	-	-
1	12656071S-P-R1	September 27, 2019	5	Addition of product description as below, The EUT is intended to be used for software development or events.

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SECTION 1: Customer information

Company Name	:	Nintendo Co., Ltd.
Address	:	11-1 Hokotate-cho, Kamitoba, Minami-ku, Kyoto 601-8501, Japan
Telephone Number	:	+81-75-662-9600
Facsimile Number	:	+81-75-662-9624
Contact Person	:	Kazuya Kuramoto

The information provided from the customer is as follows;
- Applicant, Type of Equipment, Model No., 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 (E.U.T.)
- SECTION 4: Operation of E.U.T. 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 (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Game Console
Model No.	:	HDH-002
Serial No.	:	Refer to Section 4.2
Rating	:	DC 3.8 V (battery), AC Adapter input: AC 100 V - 240 V, 50 Hz / 60 Hz, 1 A, AC Adapter output: DC 5 V - DC 15 V, 2.6 A
Receipt Date of Sample (Information from test lab.)	:	December 27, 2018
Country of Mass-production	:	China
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab.

2.2 Product Description

Model: HDH-002 (referred to as the EUT in this report) is a Game Console.
The EUT is intended to be used for software development or events.

Radio Specification

Wireless LAN, Bluetooth part:

Equipment type	:	Transmitter
Frequency of operation	:	Wireless LAN part: (2.4 GHz): 2412 MHz - 2472 MHz, (U-NII-1): 5180 MHz - 5240 MHz, (U-NII-2A): 5260 MHz - 5320 MHz, Bluetooth (BDR/EDR/BTLE) part: 2402 MHz - 2480 MHz
Radio part clock frequency	:	37.4 MHz
Channel spacing	:	Wireless LAN part: (2.4 GHz): 5 MHz, (5 GHz): 20 MHz, Bluetooth part: (BDR/EDR): 1 MHz, (BT LE): 2 MHz
Type of modulation	:	Wireless LAN part: 2.4 GHz bands: DBPSK, DQPSK, CCK, OFDM, 5 GHz bands: OFDM Bluetooth (BT) part: BDR (Basic Data Rate): GFSK, EDR (Enhanced Data Rate): π/4-DQPSK, 8DPSK, BT LE (Low Energy mode): GFSK
Antenna type	:	Sheet metal antenna
Antenna connector type	:	(Ant: 0): MHF2, (Ant: 1): MHF2
Antenna gain	:	2.4 GHz bands: (Ant: 0): -0.904 dBi, (Ant: 1): -0.730 dBi 5 GHz bands: (Ant: 0): 2.949 dBi, (Ant: 1): 1.994 dBi
Power Supply (radio part input)	:	DC 1.8 V, DC 3.3 V
Operation temperature range	:	+5 deg.C to +35 deg.C

Remarks: This wireless module consists of 1 chip each of 5 GHz bands and 2.4 GHz bands.

NFC part:

Equipment type	:	Transmitter
Frequency of operation	:	13.56 MHz
Radio part clock frequency	:	27.12 MHz
Type of modulation	:	ASK
Power Supply (radio part input)	:	DC 1.8 V, DC 5.0 V
Antenna type	:	Ferrite Chip Antenna
Operation temperature range	:	+5 deg.C to +35 deg.C

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C
FCC Part 15 final revised on July 19, 2019 and effective August 19, 2019 except 15.258

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.247 Operation within the bands 902-928MHz,
2400-2483.5MHz, and 5725-5850MHz

* The revisions made after testing date do not affect the test specification applied to the EUT.

* Also the EUT complies with FCC Part 15 Subpart B.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Maximum Peak Output Power	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r01	**FCC:** Section 15.247(b)(3)	See data.	Complied a)	Conducted
	IC: RSS-Gen 6.12	**IC:** RSS-247 5.4(d)			
Spurious Emission Restricted Band Edges	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r01	**FCC:** Section15.247(d)	**2.3 dB** Freq.: 2483.5 MHz Detector: AV Polarization: Vertical Mode: Tx, OFDM VHT20(SISO) 2462 MHz	Complied# b)	Radiated
	IC: RSS-Gen 6.13	**IC:** RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10			

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.
a) Refer to APPENDIX 1 (data of Maximum Peak Conducted Output Power)
b) Refer to APPENDIX 1 (data of Radiated 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 the stable voltage constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

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

3.3 Addition to standard

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.
Shonan EMC Lab.

Item	Frequency range	Uncertainty (+/-)				
		No. 1 SAC / SR	No. 2 SAC / SR	No. 3 SAC / SR	No. 4 SAC / SR	No. 5,6,8 SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.9 dB	2.8 dB	2.9 dB	2.9 dB	2.9 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	3.0 dB	3.0 dB	3.1 dB	-	-
	30 MHz-200 MHz	4.6 dB	4.6 dB	4.7 dB	-	-
	200 MHz-1 GHz	6.0 dB	6.0 dB	6.1 dB	-	-
	1 GHz-6 GHz	4.8 dB	4.8 dB	4.8 dB	-	-
	6 GHz-18 GHz	5.4 dB	5.4 dB	5.4 dB	-	-
	18 GHz-40 GHz	5.6 dB	5.6 dB	5.6 dB	-	-
Radiated emission (Measurement distance: 1 m)	1 GHz-18 GHz	5.7 dB	5.7 dB	5.7 dB	-	-
	18 GHz-40 GHz	5.9 dB	5.9 dB	5.9 dB	-	-

SAC=Semi-Anechoic Chamber
SR= Shielded Room is applied besides radiated emission

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)_SPM-06	0.81 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-06	1.53 dB
Power Measurement above 1 GHz (Average Detector)_SPM-07	0.95 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-07	1.21 dB
Power Measurement above 1 GHz (Average Detector)_SPM-13	0.90 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-13	1.04 dB

3.5 Test Location

UL Japan, Inc. Shonan EMC Lab.
1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN
Telephone: +81 463 50 6400, Facsimile: +81 463 50 6401
A2LA Certificate Number: 1266.03
FCC Test Firm Registration Number: 626366

Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
No.1 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 Shielded room	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 Shielded room	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 shielded room	-	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of E.U.T. 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 and also was judged the necessity of 802.11ac mode by the pre-test.

Mode	Remarks*
Transmitting (Tx), IEEE 802.11b	11 Mbps, PN9
Transmitting (Tx), IEEE 802.11g	48 Mbps, PN9
Transmitting (Tx), IEEE 802.11n HT20 (11n-20), SISO	MCS 4, PN9 (2412 MHz) MCS 3, PN9 (Other than 2412 MHz)
Transmitting (Tx), OFDM VHT20 (OFDM-20), SISO	MCS 4, PN9 (2412 MHz) MCS 3, PN9 (Other than 2412 MHz)
Transmitting (Tx), IEEE 802.11n HT40 (11n-40), SISO	MCS 6, PN9
Transmitting (Tx), OFDM VHT40 (OFDM-40), SISO	MCS 4, PN9
Transmitting (Tx), IEEE 802.11n HT20 (11n-20), MIMO	MCS 14, PN9
Transmitting (Tx), OFDM VHT20 (OFDM-20), MIMO	MCS 3, PN9
Transmitting (Tx), IEEE 802.11n HT40 (11n-40), MIMO	MCS 11, PN9
Transmitting (Tx), OFDM VHT40 (OFDM-40), MIMO	MCS 3, PN9
Transmitting (Tx), Bluetooth (BT) Low Energy (LE)	Maximum Packet Size, PRBS9
*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 settings: Fixed (refer to power setting (target power) table) Software: cmd.exe version 6.1.7601.23403 *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 worst rate was determined based on the test result of HDH-001 (12656071S-F).	

*The details of Operating mode(s)

Test Item	Operating Mode	Tested Antenna	Tested frequency
Maximum Peak Output Power	Transmitting (Tx), Bluetooth (BT) Low Energy (LE)	0	2402 MHz 2440 MHz 2480 MHz
	Transmitting (Tx), IEEE 802.11b,	1	2412 MHz 2437 MHz 2462 MHz 2467 MHz 2472 MHz
	Transmitting (Tx), IEEE 802.11g, Transmitting (Tx), IEEE 802.11n HT20 (11n-20), SISO, Transmitting (Tx), OFDM VHT20 (OFDM-20), SISO	1	2412 MHz 2417 MHz 2437 MHz 2462 MHz 2467 MHz 2472 MHz
	Transmitting (Tx), IEEE 802.11n HT20 (11n-20), MIMO, Transmitting (Tx), OFDM VHT20 (OFDM-20), MIMO	0 & 1	
	Transmitting (Tx), IEEE 802.11n HT40 (11n-40), SISO Transmitting (Tx), OFDM VHT40 (OFDM-40), SISO	1	2422 MHz 2437 MHz 2452 MHz 2457 MHz 2462 MHz
	Transmitting (Tx), IEEE 802.11n HT40 (11n-40), MIMO Transmitting (Tx), OFDM VHT40 (OFDM-40), MIMO	0 & 1	
Spurious Emission	Transmitting (Tx), Bluetooth (BT) Low Energy (LE)	0	2402 MHz 2480 MHz
	Transmitting (Tx), IEEE 802.11b	1	2412 MHz 2462 MHz 2467 MHz 2472 MHz
	Transmitting (Tx), OFDM VHT20 (OFDM-20), SISO	1	2412 MHz 2417 MHz 2437 MHz
	Transmitting (Tx), OFDM VHT20 (OFDM-20), MIMO	0 & 1	2462 MHz 2467 MHz 2472 MHz
	Transmitting (Tx), IEEE 802.11n HT40 (11n-40), SISO	1	2422 MHz 2452 MHz
	Transmitting (Tx), IEEE 802.11n HT40 (11n-40), MIMO	0 & 1	2457 MHz 2462 MHz

Power setting (target power) table:

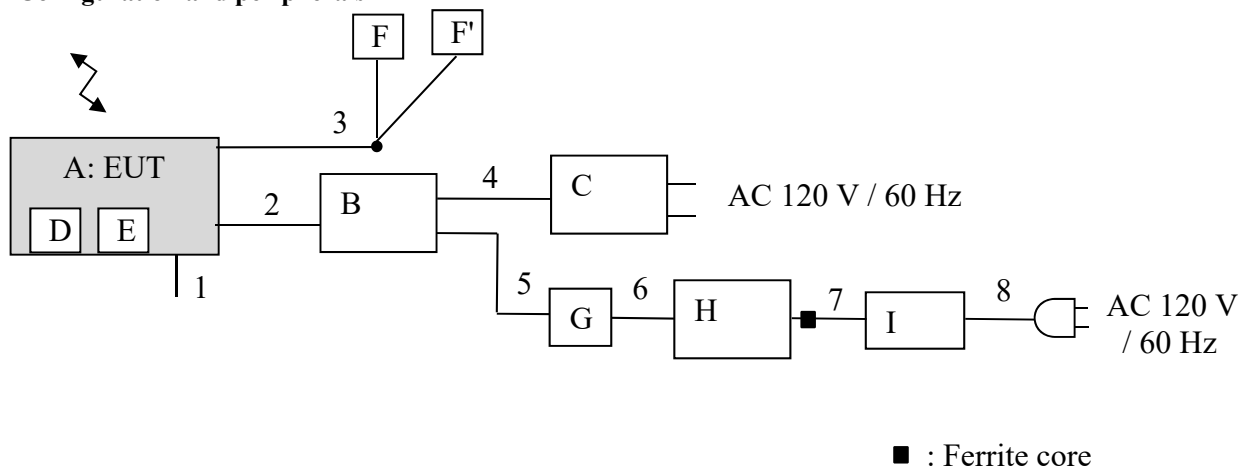
(Wireless LAN)

Bandwidth	Channel frequency	Mode	Rate / MCS mode [dBm]									
20 MHz			1 M	2 M	5.5 M	11 M	-	-	-	-	-	-
	2412 MHz – 2462 MHz	11b	17.5	17.5	17.5	17.5	-	-	-	-	-	-
			1 M	2 M	5.5 M	11 M	-	-	-	-	-	-
	2467 MHz		8.5	8.5	8.5	8.5	-	-	-	-	-	-
			1 M	2 M	5.5 M	11 M	-	-	-	-	-	-
	2472 MHz		3.5	3.5	3.5	3.5	-	-	-	-	-	-
			6 M	9 M	12 M	18 M	24 M	36 M	48 M	54 M	-	-
	2412 MHz	11g	15.5	15.5	15.5	15.5	14.5	14.5	14.5	14.5	-	-
			6 M	9 M	12 M	18 M	24 M	36 M	48 M	54 M	-	-
	2417 MHz – 2462 MHz		16.5	16.5	16.5	16.5	14.5	14.5	14.5	14.5	-	-
			6 M	9 M	12 M	18 M	24 M	36 M	48 M	54 M	-	-
	2467 MHz		8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	-	-
			6 M	9 M	12 M	18 M	24 M	36 M	48 M	54 M	-	-
	2472 MHz		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	-	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	-	-
	2412 MHz	11n-HT20 (SISO)	15.5	15.5	15.5	15.5	15.5	15.5	15.5	14.5	-	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	-	-
	2417 MHz – 2462 MHz		16.5	16.5	16.5	16.5	15.5	15.5	15.5	14.5	-	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	-	-
	2467 MHz		8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	-	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	-	-
	2472 MHz		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	-	-
			MCS 8	MCS 9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15	-	-
	2412 MHz	11n-HT20 (MIMO)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	-	-
			MCS 8	MCS 9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15	-	-
	2417 MHz – 2462 MHz		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	-	-
			MCS 8	MCS 9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15	-	-
	2467 MHz		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	-	-
			MCS 8	MCS 9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15	-	-
	2472 MHz		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	-
	2412 MHz	OFDM VHT20	15.5	15.5	15.5	15.5	15.5	15.5	15.5	14.5	13.0	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	-
	2417 MHz – 2462 MHz		16.5	16.5	16.5	16.5	15.5	15.5	15.5	14.5	13.0	-
		(SISO)	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	-
	2467 MHz		8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	-
	2472 MHz		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	-
	2412 MHz	OFDM VHT20	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	-
	2417 MHz – 2462 MHz		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	-
		(MIMO)	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	-
	2467 MHz		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	-
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	-
	2472 MHz		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-
40 MHz			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	-	-
	2422 MHz – 2462 MHz	11n-HT40 (SISO)	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	-	-
			MCS 8	MCS 9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15	-	-
	2422 MHz – 2457 MHz	11n-HT40 (MIMO)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	-	-
			MCS 8	MCS 9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15	-	-
	2462 MHz		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	-	-
		OFDM VHT40	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9
	2422 MHz – 2462 MHz	(SISO)	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9
	2422 MHz – 2457 MHz	OFDM VHT40	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
			MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9
	2462 MHz	(MIMO)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5

(Bluetooth Low Energy)

Channel frequency	Mode	-
2402 – 2480 MHz	BT LE	Fixed

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	Game Console	HDH-002	XJW01000026236 *1) XJW01000026052 *2)	Nintendo Co., Ltd.	EUT
B	SDEV Cradle	HAT-003	XZL0100007151	Nintendo Co., Ltd.	-
C	AC Adapter	HAC-002	-	Nintendo Co., Ltd.	-
D	Game Card	HAC-008	DFCAA22L000	Nintendo Co., Ltd.	-
E	Micro SD Card	-	-	Transcend	-
F, F'	Headphone	-	-	Nintendo Co., Ltd.	-
G	GIGA Ethernet Adapter	LAN-GTJU3	3495DB2BF5CA	Logitec	-
H	Laptop PC	CF-S10AWNDS	2BKSA58270	Panasonic	-
I	AC Adapter	CF-AA6402A M1	6402AM111Z03016A	Panasonic	-

*1) Used for Maximum Peak Output Power
*2) Used for Conducted Emission test and Radiated Emission test

List of cables used

No.	Cable Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal	0.1	Unshielded	Unshieided	*1)
2	USB	0.4	Shielded	Shielded	-
3	Headphone	0.5 + 0.3	Unshielded	Unshieided	-
4	USB	1.8	Shielded	Shielded	-
5	USB	0.15	Shielded	Shielded	-
6	LAN	0.5	Unshielded	Unshieided	-
7	DC	1.8	Unshielded	Unshieided	-
8	AC	1.0	Unshielded	Unshieided	-

*1) This signal cable is used only for the settings of Bluetooth test mode, not used for the product.

SECTION 5: Maximum Peak Output Power

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/ Average *1)	-	Power Meter (Sensor: 160 MHz BW)
*1) Reference data							

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

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 v05r01".

[For below 1 GHz]
EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.
The table is made of expanded polystyrol and expanded polypropylene and the table top is covered with polycarbonate. That has very low permittivity.
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	Above 1 GHz
Antenna Type	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.

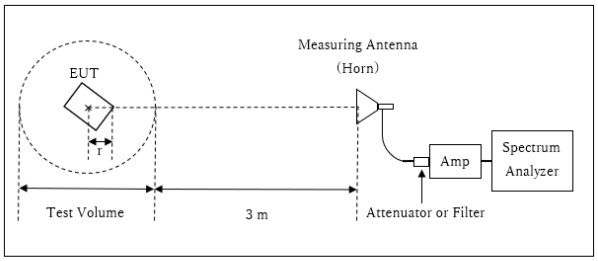
20 dBc was applied to the frequency over the limit of FCC 15.209 / Table 4 of RSS-Gen 8.9(IC) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (IC).

Frequency	Above 1 GHz		20 dBc
Instrument used	Spectrum Analyzer		Spectrum Analyzer
Detector	PK	AV *1)	PK
IF Bandwidth	RBW: 1 MHz VBW: 3 MHz	Bluetooth low energy: Average Power Method: 11.12.2.5.2 RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (Linear voltage) Trace: 100 traces Duty factor was added to the results.	RBW: 100 kHz VBW: 300 kHz
		Wireless LAN: Average Power Method: 11.12.2.5.3 RBW: 1 MHz VBW: 1/T (T: burst length, refer to Burst rate confirmation sheet) Detector: Peak Trace: max hold	

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

Figure 1: Test Setup

1 GHz - 13 GHz



r : Radius of an outer periphery of EUT
× : Center of turn table

Distance Factor: 20 x log (3.89 m / 3.0 m) = 2.26 dB
* Test Distance: (3 + Test Volume /2) - r = 3.89 m

Test Volume : 2.0 m
(Test Volume has been calibrated based on CISPR 16-1-4.)
r = 0.11 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.

Worst position:
Bluetooth low energy:

Antenna polarization	Carrier (Band edge)	Spurious	
		Above 1 GHz	
		1 GHz- 2.8 GHz	2.8 GHz -13 GHz
Horizontal	X	X	X
Vertical	Z	Z	X

Worst position:
Wireless LAN:

Mode	Antenna polarization	Carrier (Band edge)	Spurious	
			Above 1 GHz	
			1 GHz- 2.8 GHz	2.8 GHz -13 GHz
SISO	Horizontal	Z	Z	Y
	Vertical	Z	Z	X
MIMO	Horizontal	X	X	Y
	Vertical	Y	Y	X

*The worst condition was determined based on the test result of HDH-001 (12656071S-F).

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

Measurement range : 1 GHz - 13 GHz
Test data : APPENDIX
Test result : Pass

APPENDIX 1: Test data

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date	August 4, 2019
Temperature / Humidity	25 deg.C , 48 %RH
Engineer	Kenichi Adachi
Mode	Tx, Bluetooth Low Energy, PRSB9, s/n: XJW01000026236

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2402.0	-10.87	2.40	9.89	1.42	1.39	30.00	1000	28.58
Mid	2440.0	-10.68	2.41	9.89	1.62	1.45	30.00	1000	28.38
High	2480.0	-10.59	2.42	9.89	1.72	1.49	30.00	1000	28.28

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11b, PN9,	worst antenna :	1	worst data mode :	11 Mbps

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	8.07	2.41	10.18	20.66	116.41	30.00	1000	9.34
Mid	2437.0	8.16	2.41	10.18	20.75	118.85	30.00	1000	9.25
High1	2462.0	7.94	2.42	10.18	20.54	113.24	30.00	1000	9.46

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

(* EUT: m/n: HDH-002
s/n: XJW01000026236 (AT)
s/n: XJW01000026052 (RE))

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11b, PN9,	worst antenna :	1	worst data mode :	11 Mbps

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2467.0	-0.49	2.42	10.18	12.11	16.26	30.00	1000	17.89
High3	2472.0	-5.22	2.42	10.18	7.38	5.47	30.00	1000	22.62

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11g, PN9,	worst antenna :	1	worst data mode :	48 Mbps

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low1	2412.0	10.57	2.41	10.18	23.16	207.01	30.00	1000	6.84

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11g, PN9,	worst antenna :	1	worst data mode :	48 Mbps

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low2	2417.0	10.64	2.41	10.18	23.23	210.38	30.00	1000	6.77
Mid	2437.0	10.55	2.41	10.18	23.14	206.06	30.00	1000	6.86
High1	2462.0	10.19	2.42	10.18	22.79	190.11	30.00	1000	7.21

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11g, PN9,	worst antenna :	1	worst data mode :	48 Mbps

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Hgih2	2467.0	5.11	2.42	10.18	17.71	59.02	30.00	1000	12.29
High3	2472.0	0.53	2.42	10.18	13.13	20.56	30.00	1000	16.87

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT20 (SISO), PN9,	worst antenna :	1	worst data mode :	4 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low1	2412.0	11.45	2.41	10.18	24.04	253.51	30.00	1000	5.96

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT20 (SISO), PN9,	worst antenna :	1	worst data mode :	3 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low2	2417.0	11.71	2.41	10.18	24.30	269.15	30.00	1000	5.70
Mid	2437.0	11.91	2.41	10.18	24.50	281.84	30.00	1000	5.50
High1	2462.0	11.44	2.42	10.18	24.04	253.51	30.00	1000	5.96

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT20 (SISO), PN9,	worst antenna :	1	worst data mode :	3 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2467.0	5.55	2.42	10.18	18.15	65.31	30.00	1000	11.85
Hgih3	2472.0	1.26	2.42	10.18	13.86	24.32	30.00	1000	16.14

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, OFDM VHT20 (SISO), PN9,	worst antenna :	1	worst data mode :	4 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low1	2412.0	11.56	2.41	10.18	24.15	260.02	30.00	1000	5.85

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, OFDM VHT20 (SISO), PN9,	worst antenna :	1	worst data mode :	3 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low2	2417.0	11.94	2.41	10.18	24.53	283.79	30.00	1000	5.47
Mid	2437.0	11.85	2.41	10.18	24.44	277.97	30.00	1000	5.56
High1	2462.0	11.66	2.42	10.18	24.26	266.69	30.00	1000	5.74

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, OFDM VHT20 (SISO), PN9,	worst antenna :	1	worst data mode :	3 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2467.0	5.54	2.42	10.18	18.14	65.16	30.00	1000	11.86
High3	2472.0	1.42	2.42	10.18	14.02	25.23	30.00	1000	15.98

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT40 (SISO), PN9,	worst antenna :	1	worst data mode :	6 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	6.37	2.41	10.18	18.96	78.70	30.00	1000	11.04
Mid	2437.0	6.44	2.41	10.18	19.03	79.98	30.00	1000	10.97
High1	2452.0	6.42	2.42	10.18	19.02	79.80	30.00	1000	10.98

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT40 (SISO), PN9,	worst antenna :	1	worst data mode :	6 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2457.0	6.45	2.42	10.18	19.05	80.35	30.00	1000	10.95
High3	2462.0	6.34	2.42	10.18	18.94	78.34	30.00	1000	11.06

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

* The pre-check was measured on 2437 MHz transmission as the representative.

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, OFDM VHT40 (SISO), PN9,	worst antenna :	1	worst data mode :	4 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	6.72	2.41	10.18	19.31	85.31	30.00	1000	10.69
Mid	2437.0	6.86	2.41	10.18	19.45	88.10	30.00	1000	10.55
High1	2452.0	6.58	2.42	10.18	19.18	82.79	30.00	1000	10.82

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, OFDM VHT40 (SISO), PN9,	worst antenna :	1	worst data mode :	4 (MCS)

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2457.0	6.44	2.42	10.18	19.04	80.17	30.00	1000	10.96
High3	2462.0	6.36	2.42	10.18	18.96	78.70	30.00	1000	11.04

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT20 (MIMO), PN9,	worst data mode :	14 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
Low1	2412.0	136.46	127.06		24.21	263.52	30.00	1000	5.79

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low1	2412.0	8.76	2.41	10.18	21.35	136.46	30.00	1000	8.65

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low1	2412.0	8.45	2.41	10.18	21.04	127.06	30.00	1000	8.96

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT20 (MIMO), PN9,	worst data mode :	14 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
Low2	2417.0	154.88	147.57		24.81	302.45	30.00	1000	5.19
Mid	2437.0	149.62	150.31		24.77	299.93	30.00	1000	5.23
High1	2462.0	150.31	144.21		24.69	294.52	30.00	1000	5.31

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low2	2417.0	9.31	2.41	10.18	21.90	154.88	30.00	1000	8.10
Mid	2437.0	9.16	2.41	10.18	21.75	149.62	30.00	1000	8.25
High1	2462.0	9.17	2.42	10.18	21.77	150.31	30.00	1000	8.23

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low2	2417.0	9.10	2.41	10.18	21.69	147.57	30.00	1000	8.31
Mid	2437.0	9.18	2.41	10.18	21.77	150.31	30.00	1000	8.23
High1	2462.0	8.99	2.42	10.18	21.59	144.21	30.00	1000	8.41

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT20 (MIMO), PN9,	worst data mode :	14 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2467.0	29.17	33.50		17.97	62.67	30.00	1000	12.03
High3	2472.0	10.40	12.74		13.64	23.14	30.00	1000	16.36

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2467.0	2.05	2.42	10.18	14.65	29.17	30.00	1000	15.35
High3	2472.0	-2.43	2.42	10.18	10.17	10.40	30.00	1000	19.83

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2467.0	2.65	2.42	10.18	15.25	33.50	30.00	1000	14.75
High3	2472.0	-1.55	2.42	10.18	11.05	12.74	30.00	1000	18.95

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT20 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
Low1	2412.0	133.35	130.62		24.22	263.97	30.00	1000	5.78

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low1	2412.0	8.66	2.41	10.18	21.25	133.35	30.00	1000	8.75

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low1	2412.0	8.57	2.41	10.18	21.16	130.62	30.00	1000	8.84

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT20 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
Low2	2417.0	154.88	159.59		24.98	314.47	30.00	1000	5.02
Mid	2437.0	167.49	164.44		25.21	331.93	30.00	1000	4.79
High1	2462.0	149.62	152.41		24.80	302.03	30.00	1000	5.20

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low2	2417.0	9.31	2.41	10.18	21.90	154.88	30.00	1000	8.10
Mid	2437.0	9.65	2.41	10.18	22.24	167.49	30.00	1000	7.76
High1	2462.0	9.15	2.42	10.18	21.75	149.62	30.00	1000	8.25

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low2	2417.0	9.44	2.41	10.18	22.03	159.59	30.00	1000	7.97
Mid	2437.0	9.57	2.41	10.18	22.16	164.44	30.00	1000	7.84
High1	2462.0	9.23	2.42	10.18	21.83	152.41	30.00	1000	8.17

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT20 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2467.0	28.64	34.67		18.01	63.31	30.00	1000	11.99
High3	2472.0	10.59	12.74		13.68	23.33	30.00	1000	16.32

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2467.0	1.97	2.42	10.18	14.57	28.64	30.00	1000	15.43
High3	2472.0	-2.35	2.42	10.18	10.25	10.59	30.00	1000	19.75

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2467.0	2.80	2.42	10.18	15.40	34.67	30.00	1000	14.60
High3	2472.0	-1.55	2.42	10.18	11.05	12.74	30.00	1000	18.95

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT40 (MIMO), PN9,	worst data mode :	11 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	68.87	76.91		21.64	145.78	30.00	1000	8.36
Mid	2437.0	65.92	80.72		21.66	146.64	30.00	1000	8.34
High1	2452.0	60.53	76.03		21.35	136.56	30.00	1000	8.65

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	5.79	2.41	10.18	18.38	68.87	30.00	1000	11.62
Mid	2437.0	5.60	2.41	10.18	18.19	65.92	30.00	1000	11.81
High1	2452.0	5.22	2.42	10.18	17.82	60.53	30.00	1000	12.18

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	6.27	2.41	10.18	18.86	76.91	30.00	1000	11.14
Mid	2437.0	6.48	2.41	10.18	19.07	80.72	30.00	1000	10.93
High1	2452.0	6.21	2.42	10.18	18.81	76.03	30.00	1000	11.19

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT40 (MIMO), PN9,	worst data mode :	11 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2457.0	63.39	72.95		21.35	136.34	30.00	1000	8.65
High3	2462.0	30.97	40.83		18.56	71.80	30.00	1000	11.44

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2457.0	5.42	2.42	10.18	18.02	63.39	30.00	1000	11.98
High3	2462.0	2.31	2.42	10.18	14.91	30.97	30.00	1000	15.09

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2457.0	6.03	2.42	10.18	18.63	72.95	30.00	1000	11.37
High3	2462.0	3.51	2.42	10.18	16.11	40.83	30.00	1000	13.89

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT40 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	64.71	70.79		21.32	135.50	30.00	1000	8.68
Mid	2437.0	66.07	72.44		21.41	138.51	30.00	1000	8.59
High1	2452.0	62.81	71.45		21.28	134.26	30.00	1000	8.72

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	5.52	2.41	10.18	18.11	64.71	30.00	1000	11.89
Mid	2437.0	5.61	2.41	10.18	18.20	66.07	30.00	1000	11.80
High1	2452.0	5.38	2.42	10.18	17.98	62.81	30.00	1000	12.02

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	5.91	2.41	10.18	18.50	70.79	30.00	1000	11.50
Mid	2437.0	6.01	2.41	10.18	18.60	72.44	30.00	1000	11.40
High1	2452.0	5.94	2.42	10.18	18.54	71.45	30.00	1000	11.46

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT40 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2457.0	63.83	74.30		21.40	138.13	30.00	1000	8.60
High3	2462.0	31.41	37.41		18.38	68.82	30.00	1000	11.62

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2457.0	5.45	2.42	10.18	18.05	63.83	30.00	1000	11.95
High3	2462.0	2.37	2.42	10.18	14.97	31.41	30.00	1000	15.03

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
High2	2457.0	6.11	2.42	10.18	18.71	74.30	30.00	1000	11.29
High3	2462.0	3.13	2.42	10.18	15.73	37.41	30.00	1000	14.27

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date	August 4, 2019
Temperature / Humidity	25 deg.C , 48 %RH
Engineer	Kenichi Adachi
Mode	Tx, Bluetooth Low Energy, PRSB9, s/n: XJW01000026236

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low	2402.0	-13.25	2.40	9.89	1.79	0.83	1.21
Mid	2440.0	-13.08	2.41	9.89	1.79	1.01	1.26
High	2480.0	-13.09	2.42	9.89	1.79	1.01	1.26

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11b, PN9,	worst antenna :	1	tested data mode :	11 Mbps

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low	2412.0	3.93	2.41	10.18	0.43	16.95	49.55
Mid	2437.0	4.02	2.41	10.18	0.43	17.04	50.58
High1	2462.0	3.84	2.42	10.18	0.43	16.87	48.64

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11b, PN9,	worst antenna :	1	tested data mode :	11 Mbps

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2467.0	-4.74	2.42	10.18	0.43	8.29	6.75
High3	2472.0	-9.59	2.42	10.18	0.43	3.44	2.21

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11g, PN9,	worst antenna :	1	tested data mode :	48 Mbps

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low1	2412.0	-0.06	2.41	10.18	1.77	14.30	26.92

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11g, PN9,	worst antenna :	1	tested data mode :	48 Mbps

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low2	2417.0	-0.22	2.41	10.18	1.77	14.14	25.94
Mid	2437.0	-0.32	2.41	10.18	1.77	14.04	25.35
High1	2462.0	-0.35	2.42	10.18	1.77	14.02	25.23

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11g, PN9,	worst antenna :	1	tested data mode :	48 Mbps

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Hgih2	2467.0	-6.05	2.42	10.18	1.77	8.32	6.79
High3	2472.0	-10.37	2.42	10.18	1.77	4.00	2.51

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT20 (SISO), PN9,	worst antenna :	1	tested data mode :	4 (MCS)

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low1	2412.0	0.88	2.41	10.18	1.41	14.88	30.76

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT20 (SISO), PN9,	worst antenna :	1	tested data mode :	3 (MCS)

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low2	2417.0	2.12	2.41	10.18	1.03	15.74	37.50
Mid	2437.0	2.19	2.41	10.18	1.03	15.81	38.11
High1	2462.0	1.91	2.42	10.18	1.03	15.54	35.81

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT20 (SISO), PN9,	worst antenna :	1	tested data mode :	3 (MCS)

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
High2	2467.0	-5.34	2.42	10.18	1.03	8.29	6.75
Hgih3	2472.0	-10.21	2.42	10.18	1.03	3.42	2.20

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, OFDM VHT20 (SISO), PN9, worst antenna :	1	tested data mode :	4 (MCS)	

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low1	2412.0	0.99	2.41	10.18	1.38	14.96	31.33

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab. No.1 Measurement Room
Date	March 31, 2019
Temperature / Humidity	20 deg.C , 48 %RH
Engineer	Yosuke Ishikawa
Mode	Tx, OFDM VHT20 (SISO), PN9, worst antenna : 1 tested data mode : 3 (MCS)

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low2	2417.0	2.21	2.41	10.18	1.02	15.82	38.19
Mid	2437.0	2.15	2.41	10.18	1.02	15.76	37.67
High1	2462.0	2.00	2.42	10.18	1.02	15.62	36.48

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab. No.1 Measurement Room
Date	March 31, 2019
Temperature / Humidity	20 deg.C , 48 %RH
Engineer	Yosuke Ishikawa
Mode	Tx, OFDM VHT20 (SISO), PN9, worst antenna : 1 tested data mode : 3 (MCS)

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2467.0	-5.27	2.42	10.18	1.02	8.35	6.84
High3	2472.0	-9.91	2.42	10.18	1.02	3.71	2.35

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT40 (SISO), PN9,	worst antenna :	1	tested data mode :	6 (MCS)

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low	2422.0	-6.38	2.41	10.18	2.77	8.98	7.91
Mid	2437.0	-6.34	2.41	10.18	2.77	9.02	7.98
High1	2452.0	-6.43	2.42	10.18	2.77	8.94	7.83

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT20 (MIMO), PN9,	worst data mode :	14 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Ant 0 Result	Ant 1 Result		Result	
	[MHz]	[mW]	[mW]		[dBm]	[mW]
Low2	2417.0	14.76	16.33		14.93	31.09
Mid	2437.0	14.35	15.78		14.79	30.13
High1	2462.0	14.29	16.14		14.83	30.43

Antenna 0

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low2	2417.0	-3.55	2.41	10.18	2.65	11.69	14.76
Mid	2437.0	-3.67	2.41	10.18	2.65	11.57	14.35
High1	2462.0	-3.70	2.42	10.18	2.65	11.55	14.29

Antenna 1

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low2	2417.0	-3.11	2.41	10.18	2.65	12.13	16.33
Mid	2437.0	-3.26	2.41	10.18	2.65	11.98	15.78
High1	2462.0	-3.17	2.42	10.18	2.65	12.08	16.14

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, IEEE802.11n HT40 (SISO), PN9,	worst antenna :	1	tested data mode :	6 (MCS)

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
High2	2457.0	-6.39	2.42	10.18	2.77	8.98	7.91
High3	2462.0	-6.35	2.42	10.18	2.77	9.02	7.98

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room			
Date	March 31, 2019				
Temperature / Humidity	20 deg.C , 48 %RH				
Engineer	Yosuke Ishikawa				
Mode	Tx, OFDM VHT40 (SISO), PN9,	worst antenna :	1	tested data mode :	4 (MCS)

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low	2422.0	-5.90	2.41	10.18	2.18	8.87	7.71
Mid	2437.0	-5.97	2.41	10.18	2.18	8.80	7.59
High1	2452.0	-5.77	2.42	10.18	2.18	9.01	7.96

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab. No.1 Measurement Room
Date	March 31, 2019
Temperature / Humidity	20 deg.C , 48 %RH
Engineer	Yosuke Ishikawa
Mode	Tx, OFDM VHT40 (SISO), PN9, worst antenna : 1 tested data mode : 4 (MCS)

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2457.0	-5.98	2.42	10.18	2.18	8.80	7.59
High3	2462.0	-5.97	2.42	10.18	2.18	8.81	7.60

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT20 (MIMO), PN9,	worst data mode :	14 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Ant 0 Result [mW]	Ant 1 Result [mW]		Result [dBm]	Result [mW]
Low1	2412.0	12.05	12.71		13.94	24.76

Antenna 0 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low1	2412.0	-4.43	2.41	10.18	2.65	10.81	12.05

Antenna 1 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low1	2412.0	-4.20	2.41	10.18	2.65	11.04	12.71

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT20 (MIMO), PN9,	worst data mode :	14 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Ant 0 Result [mW]	Ant 1 Result [mW]		Result [dBm]	Result [mW]
High2	2467.0	2.88	3.61		8.12	6.49
High3	2472.0	0.93	1.21		3.30	2.14

Antenna 0

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2467.0	-10.66	2.42	10.18	2.65	4.59	2.88
High3	2472.0	-15.58	2.42	10.18	2.65	-0.33	0.93

Antenna 1

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2467.0	-9.68	2.42	10.18	2.65	5.57	3.61
High3	2472.0	-14.42	2.42	10.18	2.65	0.83	1.21

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT20 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Ant 0 Result [mW]	Ant 1 Result [mW]		Result [dBm]	Result [mW]
Low1	2412.0	11.80	11.86		13.74	23.66

Antenna 0 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low1	2412.0	-3.53	2.41	10.18	1.66	10.72	11.80

Antenna 1 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low1	2412.0	-3.51	2.41	10.18	1.66	10.74	11.86

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT20 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Ant 0 Result	Ant 1 Result		Result	
	[MHz]	[mW]	[mW]		[dBm]	[mW]
Low2	2417.0	15.21	15.63		14.89	30.84
Mid	2437.0	14.35	16.33		14.87	30.68
High1	2462.0	14.26	15.60		14.75	29.86

Antenna 0

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low2	2417.0	-2.43	2.41	10.18	1.66	11.82	15.21
Mid	2437.0	-2.68	2.41	10.18	1.66	11.57	14.35
High1	2462.0	-2.72	2.42	10.18	1.66	11.54	14.26

Antenna 1

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low2	2417.0	-2.31	2.41	10.18	1.66	11.94	15.63
Mid	2437.0	-2.12	2.41	10.18	1.66	12.13	16.33
High1	2462.0	-2.33	2.42	10.18	1.66	11.93	15.60

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT20 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Ant 0 Result [mW]	Ant 1 Result [mW]		Result [dBm]	Result [mW]
High2	2467.0	2.92	3.59		8.14	6.51
High3	2472.0	0.91	1.19		3.22	2.10

Antenna 0 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2467.0	-9.60	2.42	10.18	1.66	4.66	2.92
High3	2472.0	-14.66	2.42	10.18	1.66	-0.40	0.91

Antenna 1 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2467.0	-8.71	2.42	10.18	1.66	5.55	3.59
High3	2472.0	-13.50	2.42	10.18	1.66	0.76	1.19

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT40 (MIMO), PN9,	worst data mode :	11 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Ant 0 Result	Ant 1 Result		Result	
	[MHz]	[mW]	[mW]		[dBm]	[mW]
Low	2422.0	6.34	7.01		11.25	13.35
Mid	2437.0	6.03	7.21		11.22	13.24
High1	2452.0	5.87	7.08		11.12	12.95

Antenna 0

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low	2422.0	-7.12	2.41	10.18	2.55	8.02	6.34
Mid	2437.0	-7.34	2.41	10.18	2.55	7.80	6.03
High1	2452.0	-7.46	2.42	10.18	2.55	7.69	5.87

Antenna 1

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low	2422.0	-6.68	2.41	10.18	2.55	8.46	7.01
Mid	2437.0	-6.56	2.41	10.18	2.55	8.58	7.21
High1	2452.0	-6.65	2.42	10.18	2.55	8.50	7.08

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Shonan EMC Lab.

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Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, IEEE802.11n HT40 (MIMO), PN9,	worst data mode :	11 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Ant 0 Result [mW]	Ant 1 Result [mW]		Result [dBm]	Result [mW]
High2	2457.0	5.87	6.87		11.05	12.74
High3	2462.0	3.27	3.77		8.48	7.04

Antenna 0 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2457.0	-7.46	2.42	10.18	2.55	7.69	5.87
High3	2462.0	-10.01	2.42	10.18	2.55	5.14	3.27

Antenna 1 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2457.0	-6.78	2.42	10.18	2.55	8.37	6.87
High3	2462.0	-9.39	2.42	10.18	2.55	5.76	3.77

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT40 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Ant 0 Result	Ant 1 Result		Result	
	[MHz]	[mW]	[mW]		[dBm]	[mW]
Low	2422.0	6.32	6.95		11.23	13.27
Mid	2437.0	6.37	7.11		11.30	13.48
High1	2452.0	6.19	7.01		11.21	13.20

Antenna 0

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low	2422.0	-7.09	2.41	10.18	2.51	8.01	6.32
Mid	2437.0	-7.06	2.41	10.18	2.51	8.04	6.37
High1	2452.0	-7.19	2.42	10.18	2.51	7.92	6.19

Antenna 1

(* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
Low	2422.0	-6.68	2.41	10.18	2.51	8.42	6.95
Mid	2437.0	-6.58	2.41	10.18	2.51	8.52	7.11
High1	2452.0	-6.65	2.42	10.18	2.51	8.46	7.01

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Maximum Conducted Output Power

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room	
Date	March 31, 2019		
Temperature / Humidity	20 deg.C , 48 %RH		
Engineer	Yosuke Ishikawa		
Mode	Tx, OFDM VHT40 (MIMO), PN9,	worst data mode :	3 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Ant 0 Result [mW]	Ant 1 Result [mW]		Result [dBm]	Result [mW]
High2	2457.0	6.24	7.03		11.23	13.27
High3	2462.0	3.15	3.83		8.44	6.98

Antenna 0 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2457.0	-7.16	2.42	10.18	2.51	7.95	6.24
High3	2462.0	-10.13	2.42	10.18	2.51	4.98	3.15

Antenna 1 (* P/M: Power Meter with power sensor, AV: Average with gate trigger mode)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
High2	2457.0	-6.64	2.42	10.18	2.51	8.47	7.03
High3	2462.0	-9.28	2.42	10.18	2.51	5.83	3.83

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Deviation = Typical Power + Power Range - Result
* This data shows output power is appropriate for maximum typical power at tested data mode.

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Radiated Emission

Report No.
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 5, 2019
Temperature / Humidity 20 deg.C / 45 %RH
Engineer Kazutaka Takeyama
(1 GHz - 13 GHz)
Mode Tx, 2402 MHz
BT LE

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	47.50	27.86	14.15	41.59	2.26	50.18	73.90	23.7	221	214	
Hori.	9608.000	PK	48.80	38.51	9.30	43.17	2.26	55.70	73.90	**18.2**	100	0	
Vert.	2390.000	PK	47.80	27.86	14.15	41.59	2.26	50.48	73.90	23.4	173	252	
Vert.	9608.000	PK	48.50	38.51	9.30	43.17	2.26	55.40	73.90	18.5	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	37.80	27.86	14.15	41.59	3.56	2.26	44.04	53.90	9.8	*1)
Hori.	9608.000	AV	39.00	38.51	9.30	43.17	3.56	2.26	49.46	53.90	**4.4**	
Vert.	2390.000	AV	38.00	27.86	14.15	41.59	3.56	2.26	44.24	53.90	9.6	*1)
Vert.	9608.000	AV	38.80	38.51	9.30	43.17	3.56	2.26	49.26	53.90	4.6	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB
Duty factor refer to "Duty factor Calculation chart" sheet.
*1) Not out of band emission (Leakage Power)

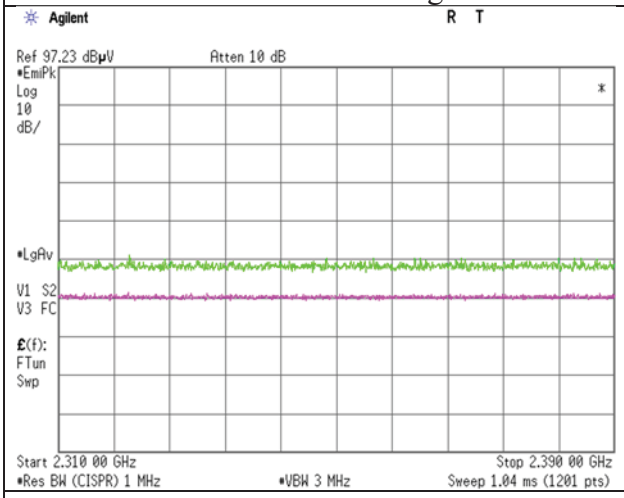
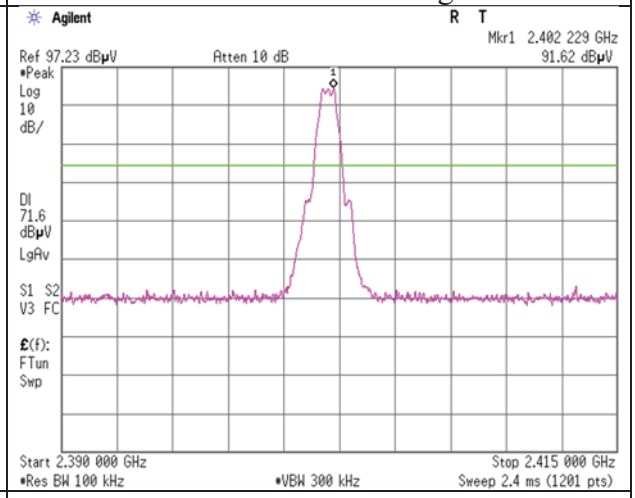
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

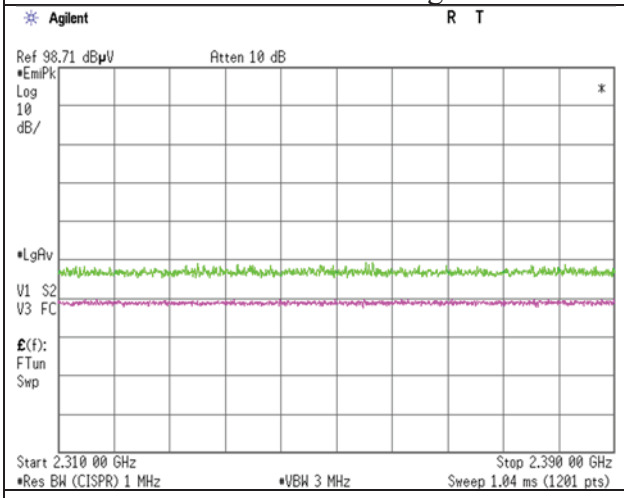
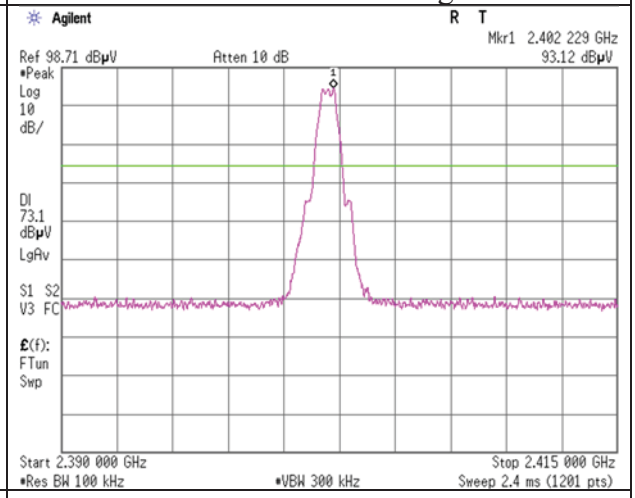
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	93.60	27.86	14.16	41.60	2.26	96.28	-	-	Carrier
Hori.	2400.000	PK	39.50	27.86	14.16	41.60	2.26	42.18	76.28	34.1	
Vert.	2402.000	PK	93.00	27.86	14.16	41.60	2.26	95.68	-	-	Carrier
Vert.	2400.000	PK	39.40	27.86	14.16	41.60	2.26	42.08	75.68	33.6	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 5, 2019
Temperature / Humidity	20 deg.C / 45 %RH
Engineer	Kazutaka Takeyama
	(1 GHz – 2.8 GHz)
Mode	Tx BT LE , 2402 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

* 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.

Radiated Emission

Report No.
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 5, 2019
Temperature / Humidity 20 deg.C / 45 %RH
Engineer Kazutaka Takeyama
(1 GHz - 13 GHz)
Mode Tx, 2480 MHz
BT LE

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	47.40	27.65	14.22	41.62	2.26	49.91	73.90	23.9	143	249	
Vert.	2483.500	PK	48.00	27.65	14.22	41.62	2.26	50.51	73.90	**23.3**	100	253	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	39.50	27.65	14.22	41.62	3.56	2.26	45.57	53.90	8.3	*1)
Vert.	2483.500	AV	40.20	27.65	14.22	41.62	3.56	2.26	46.27	53.90	**7.6**	*1)

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB
Duty factor refer to "Duty factor Calculation chart" sheet.
*1) Not out of band emission (Leakage Power)

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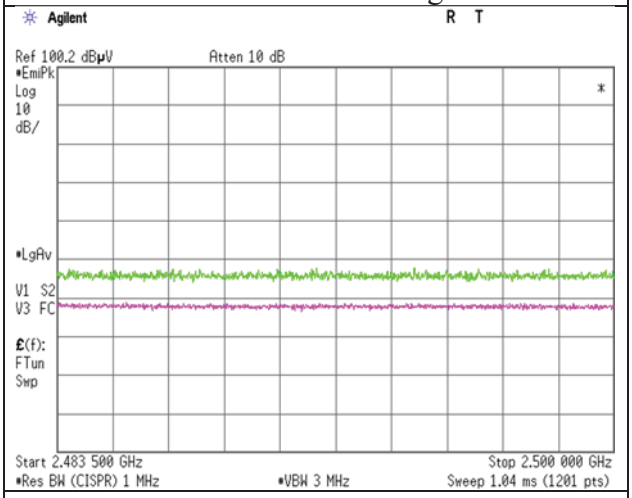
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 5, 2019
Temperature / Humidity	20 deg.C / 45 %RH
Engineer	Kazutaka Takeyama (1 GHz – 2.8 GHz)
Mode	Tx BT LE , 2480 MHz

Horizontal

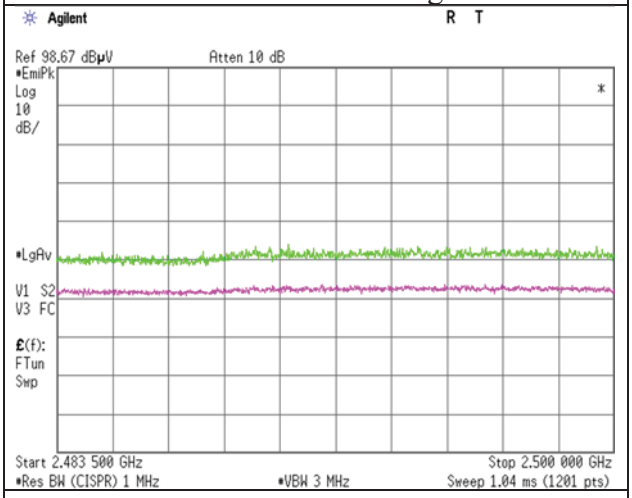
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2412 MHz
	Tx, IEEE802.11b,

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	54.48	27.86	14.15	41.59	2.26	57.16	73.90	16.7	275	315	
Hori.	2390.000	AV	42.34	27.86	14.15	41.59	2.26	45.02	53.90	8.8	275	315	
Vert.	2390.000	PK	54.30	27.86	14.15	41.59	2.26	56.98	73.90	16.9	149	107	
Vert.	2390.000	AV	42.98	27.86	14.15	41.59	2.26	45.66	53.90	**8.2**	149	107	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

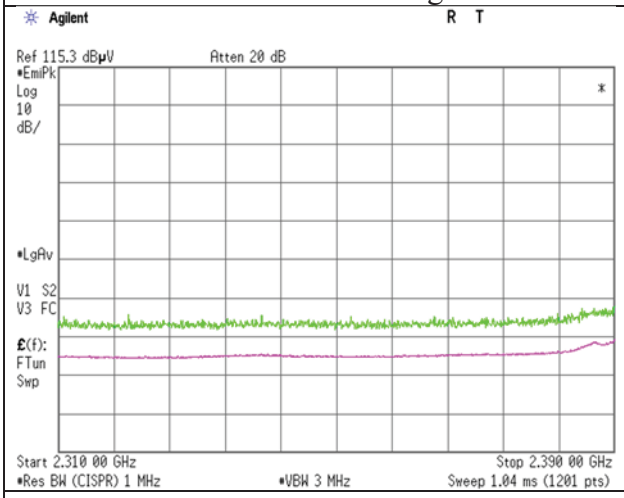
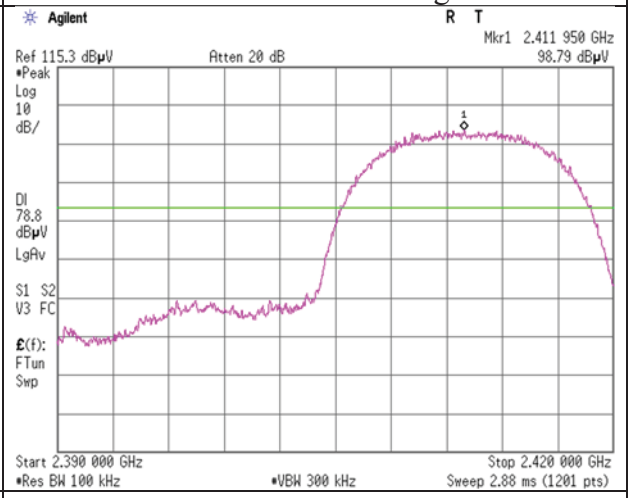
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

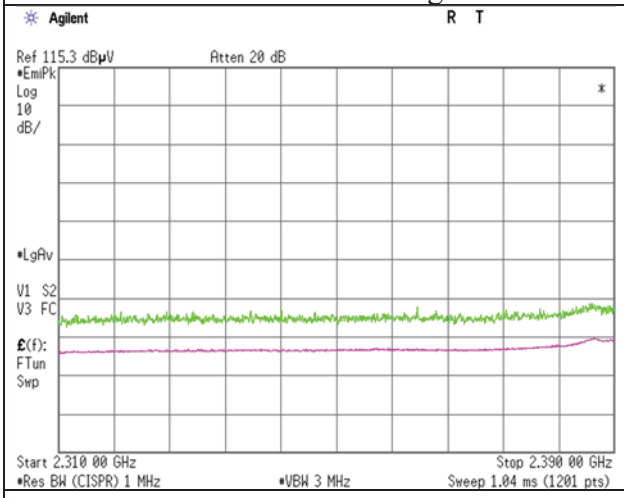
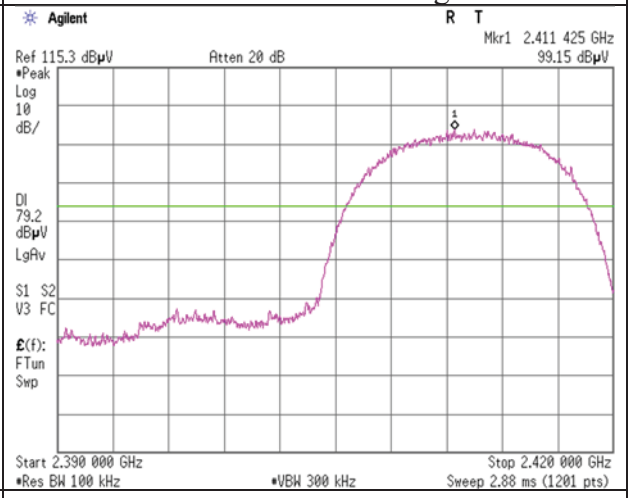
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	99.09	27.85	14.16	41.60	2.26	101.76	-	-	Carrier
Hori.	2398.400	PK	54.37	27.86	14.15	41.60	2.26	57.04	81.76	24.7	
Hori.	2400.000	PK	51.52	27.86	14.16	41.60	2.26	54.20	81.76	27.5	
Vert.	2412.000	PK	98.26	27.85	14.16	41.60	2.26	100.93	-	-	Carrier
Vert.	2398.400	PK	53.14	27.86	14.15	41.60	2.26	55.81	80.93	25.1	
Vert.	2400.000	PK	49.52	27.86	14.16	41.60	2.26	52.20	80.93	28.7	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11b , 2412 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

* 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.

Radiated Emission

Report No.		
Test place	Shonan EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	April 1, 2019	April 4, 2019
Temperature / Humidity	20 deg.C / 36 %RH	20 deg.C / 38 %RH
Engineer	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz -2.8 GHz)	(2.8 GHz - 13 GHz)
Mode	Tx, 2462 MHz	
	Tx, IEEE802.11b,	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	54.04	27.65	14.22	41.62	2.26	56.55	73.90	17.3	100	36	
Hori.	2483.500	AV	43.46	27.65	14.22	41.62	2.26	45.97	53.90	**7.9**	100	36	
Vert.	2483.500	PK	53.99	27.65	14.22	41.62	2.26	56.50	73.90	17.4	154	271	
Vert.	9848.000	PK	49.50	39.12	9.28	42.92	2.26	57.24	73.90	16.6	151	164	
Vert.	2483.500	AV	43.26	27.65	14.22	41.62	2.26	45.77	53.90	8.1	154	271	
Vert.	9848.000	AV	38.00	39.12	9.28	42.92	2.26	45.74	53.90	8.1	151	164	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

UL Japan, Inc.
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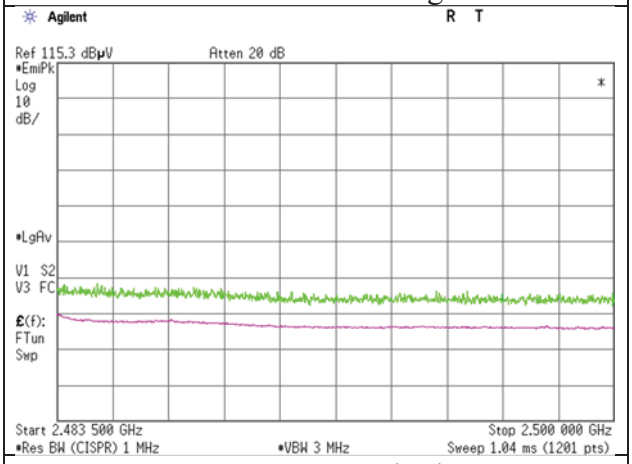
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11b , 2462 MHz

Horizontal

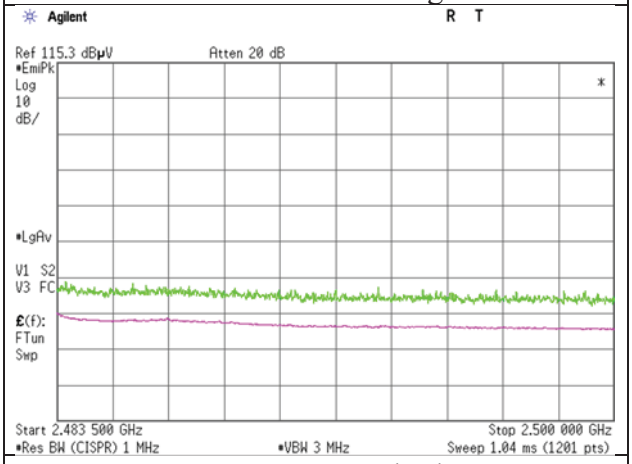
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2467 MHz
	Tx, IEEE802.11b,

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	49.81	27.65	14.22	41.62	2.26	52.32	73.90	21.5	186	36	
Hori.	2483.500	AV	39.11	27.65	14.22	41.62	2.26	41.62	53.90	**12.2**	186	36	
Vert.	2483.500	PK	51.08	27.65	14.22	41.62	2.26	53.59	73.90	20.3	160	186	
Vert.	2483.500	AV	38.95	27.65	14.22	41.62	2.26	41.46	53.90	12.4	160	186	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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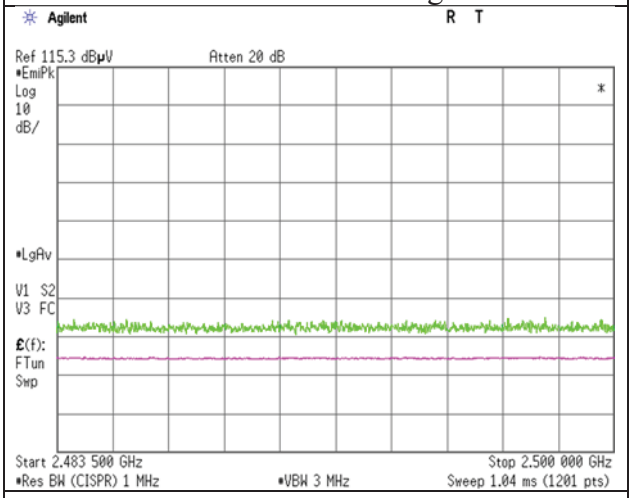
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11b , 2467 MHz

Horizontal

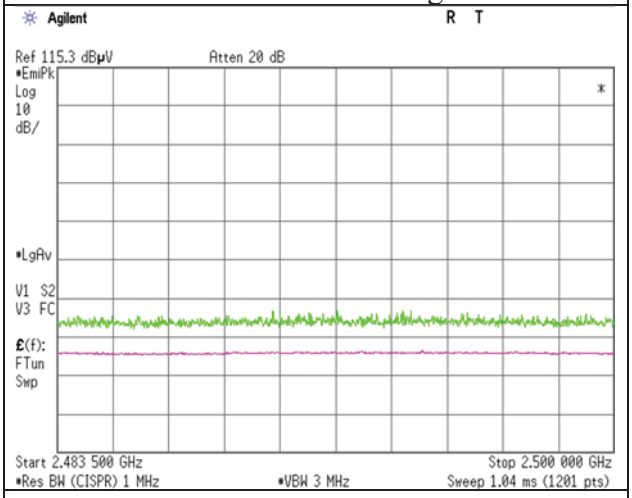
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 1, 2019
Temperature / Humidity 20 deg.C / 36 %RH
Engineer Makoto Hosaka
(1 GHz -2.8 GHz)
Mode Tx, 2472 MHz
Tx, IEEE802.11b,

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	49.94	27.65	14.22	41.62	2.26	52.45	73.90	21.4	185	36	
Hori.	2483.500	AV	38.49	27.65	14.22	41.62	2.26	41.00	53.90	**12.9**	185	36	
Vert.	2483.500	PK	50.59	27.65	14.22	41.62	2.26	53.10	73.90	20.8	133	187	
Vert.	2483.500	AV	38.31	27.65	14.22	41.62	2.26	40.82	53.90	13.0	133	187	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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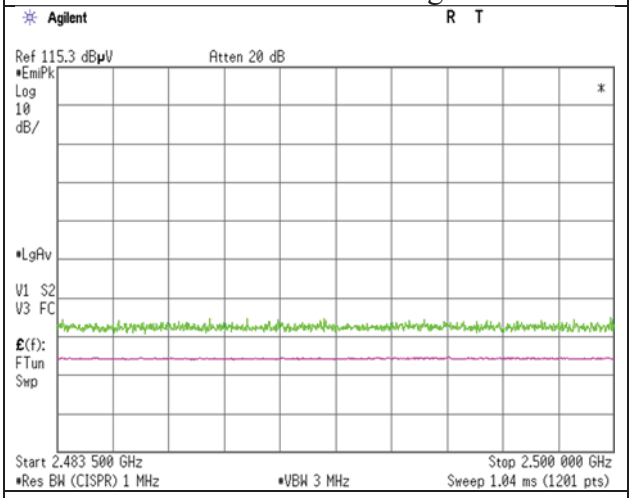
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11b , 2472 MHz

Horizontal

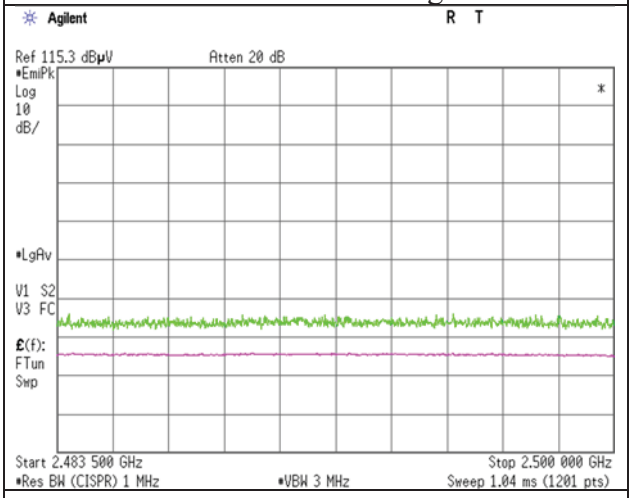
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 1, 2019
Temperature / Humidity 20 deg.C / 36 %RH
Engineer Makoto Hosaka
(1 GHz -2.8 GHz)
Mode Tx, 2412 MHz
Tx, OFDM VHT20 (SISO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	56.64	27.86	14.15	41.59	2.26	59.32	73.90	14.5	144	326	
Hori.	2390.000	AV	44.13	27.86	14.15	41.59	2.26	46.81	53.90	7.0	144	326	
Vert.	2390.000	PK	56.15	27.86	14.15	41.59	2.26	58.83	73.90	15.0	148	118	
Vert.	2390.000	AV	44.33	27.86	14.15	41.59	2.26	47.01	53.90	**6.8**	148	118	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

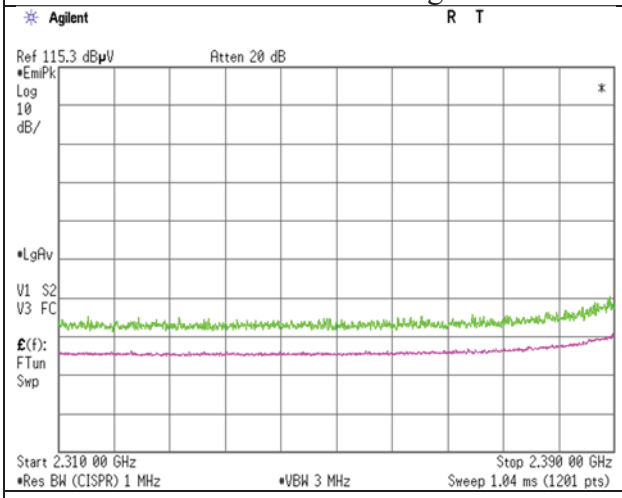
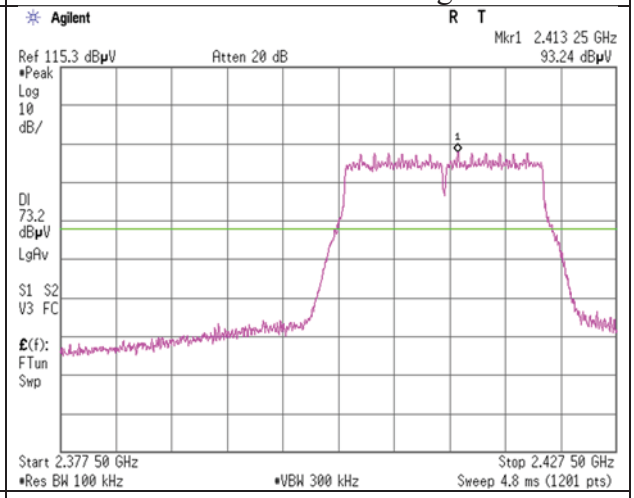
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

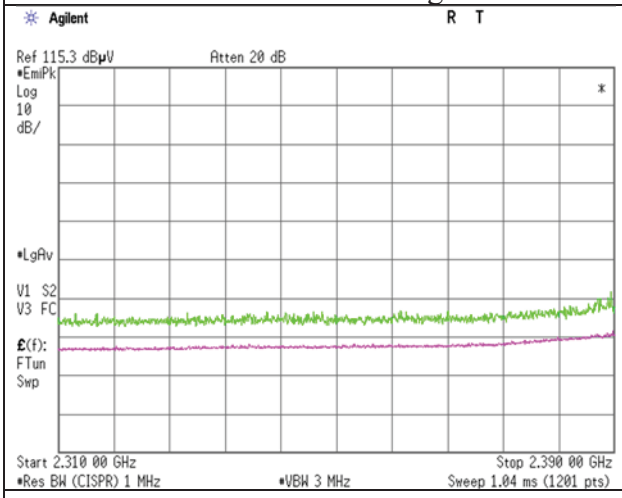
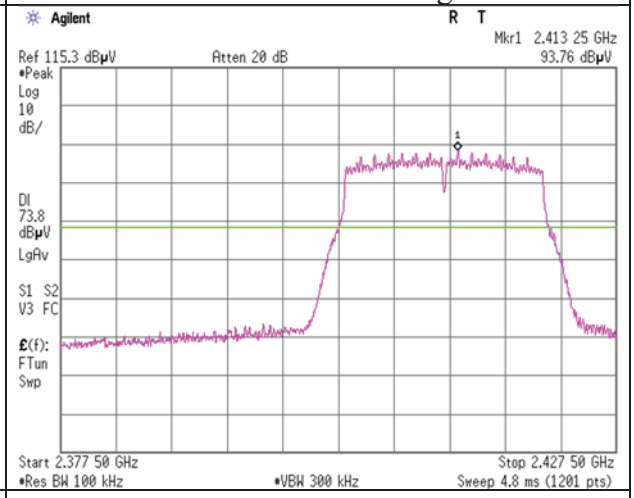
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	93.27	27.85	14.16	41.60	2.26	95.94	-	-	Carrier
Hori.	2400.000	PK	51.21	27.86	14.16	41.60	2.26	53.89	75.94	22.0	
Vert.	2412.000	PK	93.96	27.85	14.16	41.60	2.26	96.63	-	-	Carrier
Vert.	2400.000	PK	50.54	27.86	14.16	41.60	2.26	53.22	76.63	23.4	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,2412 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

* 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.

Radiated Emission

Report No.
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 1, 2019
Temperature / Humidity 20 deg.C / 36 %RH
Engineer Makoto Hosaka
(1 GHz -2.8 GHz)
Mode Tx, 2417 MHz
Tx, OFDM VHT20 (SISO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	57.34	27.86	14.15	41.59	2.26	60.02	73.90	13.8	276	316	
Hori.	2390.000	AV	44.16	27.86	14.15	41.59	2.26	46.84	53.90	7.0	276	316	
Vert.	2390.000	PK	58.49	27.86	14.15	41.59	2.26	61.17	73.90	12.7	145	106	
Vert.	2390.000	AV	44.90	27.86	14.15	41.59	2.26	47.58	53.90	**6.3**	145	106	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

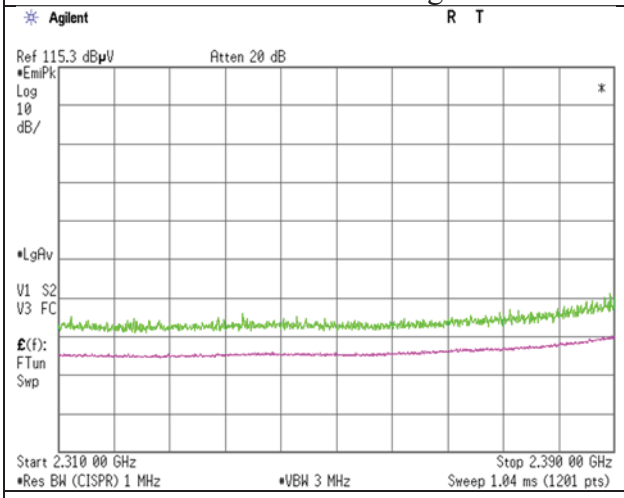
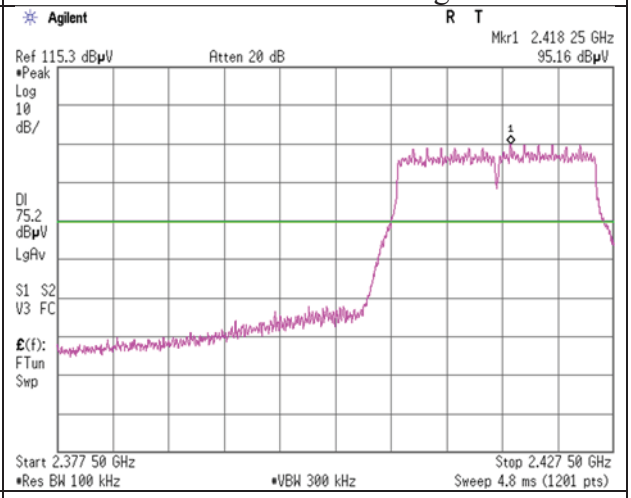
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

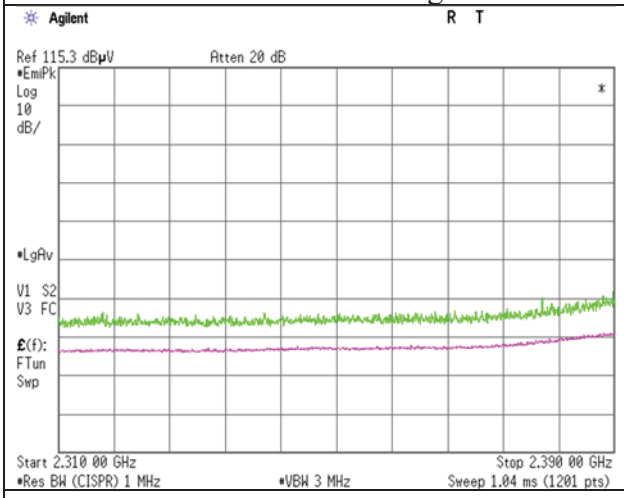
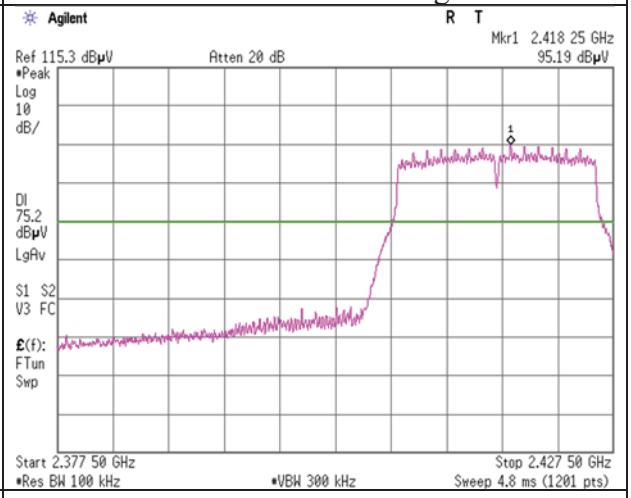
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2417.000	PK	95.40	27.84	14.17	41.60	2.26	98.07	-	-	Carrier
Hori.	2400.000	PK	52.35	27.86	14.16	41.60	2.26	55.03	78.07	23.0	
Vert.	2417.000	PK	95.16	27.84	14.17	41.60	2.26	97.83	-	-	Carrier
Vert.	2400.000	PK	50.69	27.86	14.16	41.60	2.26	53.37	77.83	24.4	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,2417 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 4, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Kazutaka Takeyama
	(2.8 GHz - 13 GHz)
Mode	Tx, 2437 MHz
	Tx, OFDM VHT20 (SISO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	12185.000	PK	46.40	39.26	10.73	42.20	2.26	56.45	73.90	17.4	100	0	
Hori.	12185.000	AV	35.80	39.26	10.73	42.20	2.26	45.85	53.90	**8.0**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2462 MHz
	Tx, OFDM VHT20 (SISO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	63.96	27.65	14.22	41.62	2.26	66.47	73.90	7.4	155	56	
Hori.	2483.500	AV	46.76	27.65	14.22	41.62	2.26	49.27	53.90	4.6	155	56	
Vert.	2483.500	PK	65.51	27.65	14.22	41.62	2.26	68.02	73.90	5.8	161	186	
Vert.	2483.500	AV	49.01	27.65	14.22	41.62	2.26	51.52	53.90	**2.3**	161	186	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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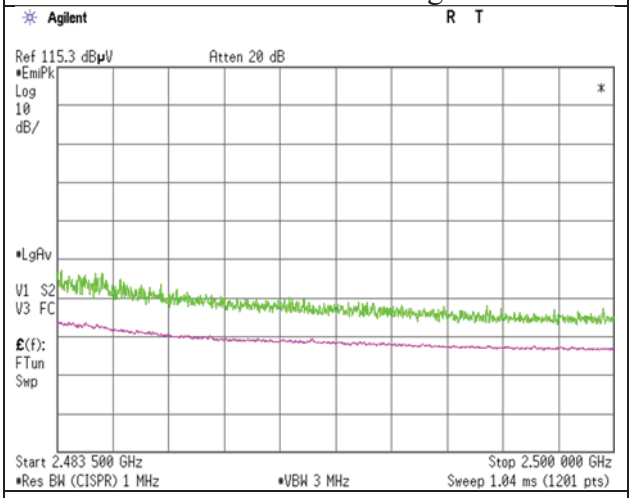
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,2462 MHz

Horizontal

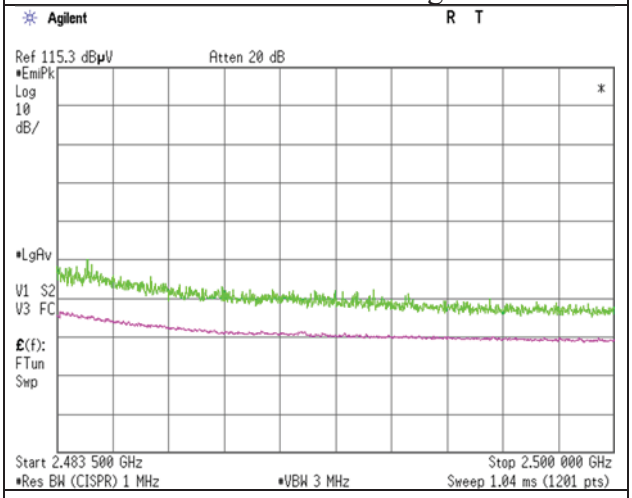
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2467 MHz
	Tx, OFDM VHT20 (SISO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	50.84	27.65	14.22	41.62	2.26	53.35	73.90	20.5	184	37	
Hori.	2483.500	AV	39.44	27.65	14.22	41.62	2.26	41.95	53.90	11.9	184	37	
Vert.	2483.500	PK	51.01	27.65	14.22	41.62	2.26	53.52	73.90	20.3	154	187	
Vert.	2483.500	AV	40.04	27.65	14.22	41.62	2.26	42.55	53.90	**11.3**	154	187	

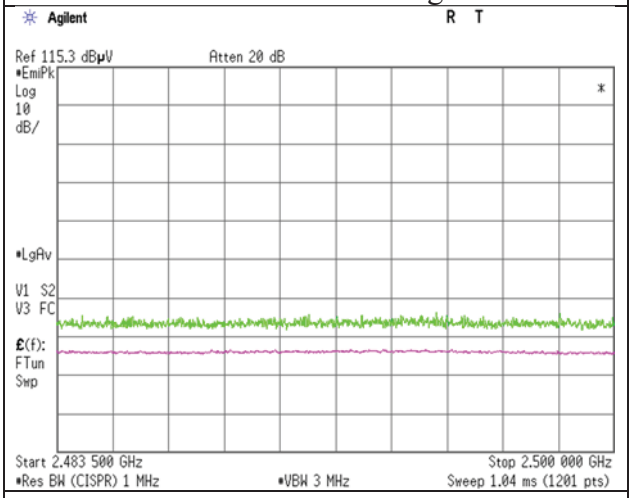
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,2467 MHz

Horizontal

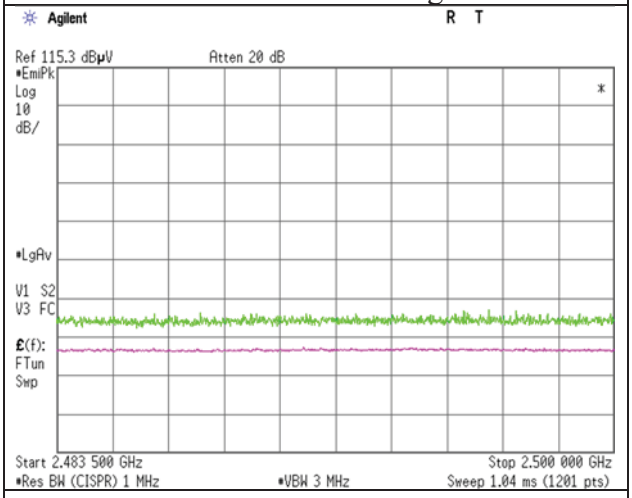
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2472 MHz
	Tx, OFDM VHT20 (SISO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	52.09	27.65	14.22	41.62	2.26	54.60	73.90	19.3	184	38	
Hori.	2483.500	AV	40.50	27.65	14.22	41.62	2.26	43.01	53.90	10.8	184	38	
Vert.	2483.500	PK	52.01	27.65	14.22	41.62	2.26	54.52	73.90	19.3	147	186	
Vert.	2483.500	AV	40.94	27.65	14.22	41.62	2.26	43.45	53.90	**10.4**	147	186	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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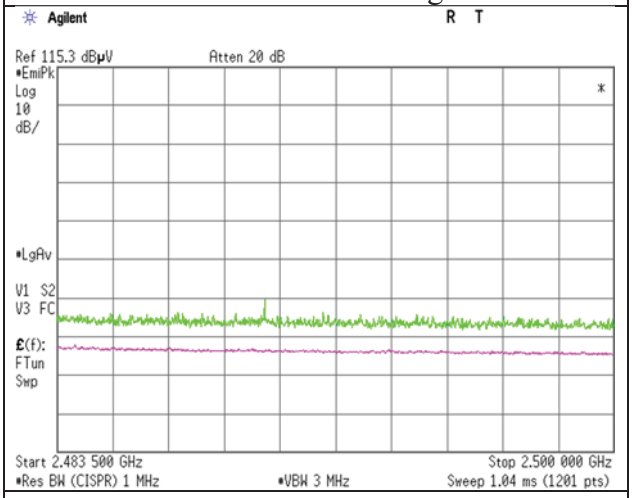
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka (1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,2472 MHz

Horizontal

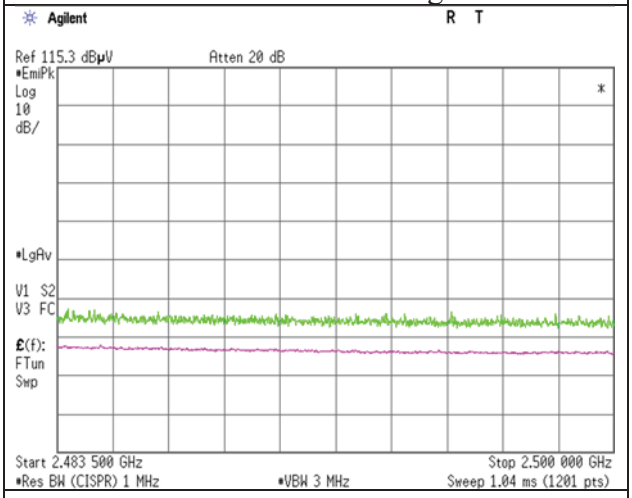
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2412 MHz
	Tx, OFDM VHT20 (MIMO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	55.70	27.86	14.15	41.59	2.26	58.38	73.90	15.5	240	264	
Hori.	2390.000	AV	44.18	27.86	14.15	41.59	2.26	46.86	53.90	7.0	240	264	
Vert.	2390.000	PK	56.34	27.86	14.15	41.59	2.26	59.02	73.90	14.8	146	114	
Vert.	2390.000	AV	44.38	27.86	14.15	41.59	2.26	47.06	53.90	**6.8**	146	114	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

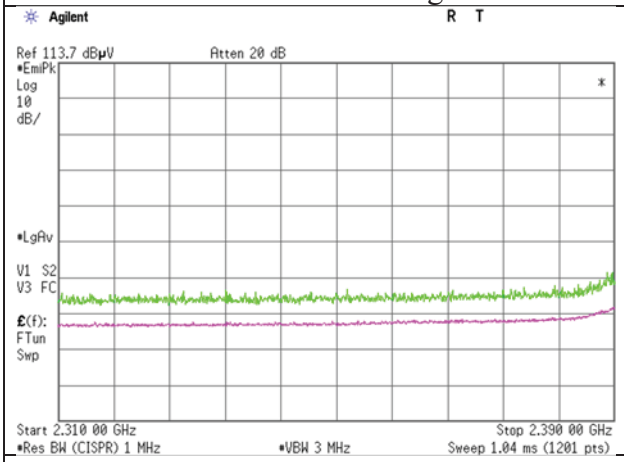
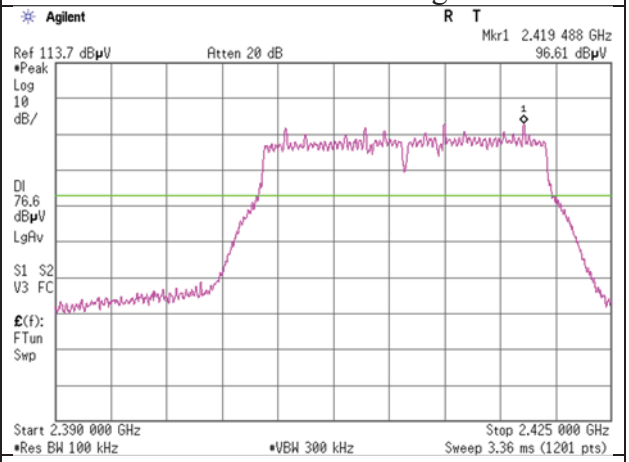
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

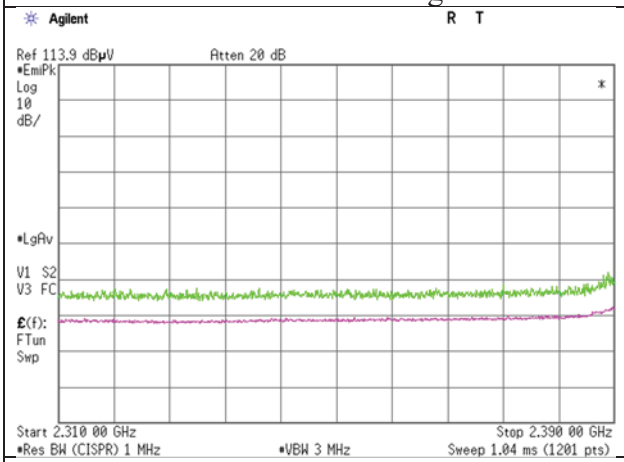
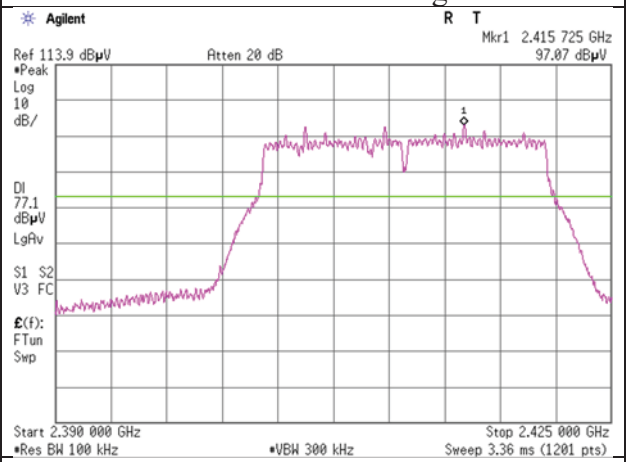
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	96.65	27.85	14.16	41.60	2.26	99.32	-	-	Carrier
Hori.	2400.000	PK	52.43	27.86	14.16	41.60	2.26	55.11	79.32	24.2	
Vert.	2412.000	PK	96.97	27.85	14.16	41.60	2.26	99.64	-	-	Carrier
Vert.	2400.000	PK	53.04	27.86	14.16	41.60	2.26	55.72	79.64	23.9	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (MIMO) ,2412 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2417 MHz
	Tx, OFDM VHT20 (MIMO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	54.40	27.86	14.15	41.59	2.26	57.08	73.90	16.8	233	261	
Hori.	2390.000	AV	41.07	27.86	14.15	41.59	2.26	43.75	53.90	10.1	233	261	
Vert.	2390.000	PK	53.32	27.86	14.15	41.59	2.26	56.00	73.90	17.9	146	108	
Vert.	2390.000	AV	42.41	27.86	14.15	41.59	2.26	45.09	53.90	**8.8**	146	108	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

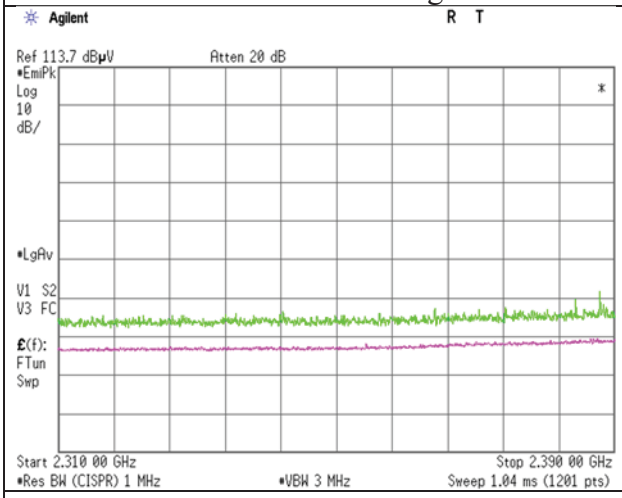
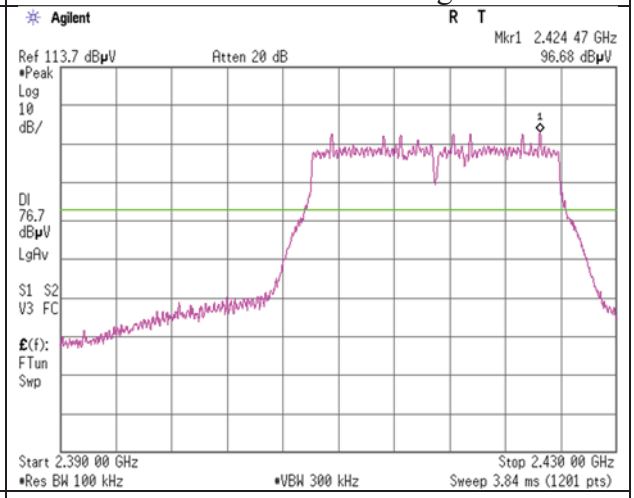
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

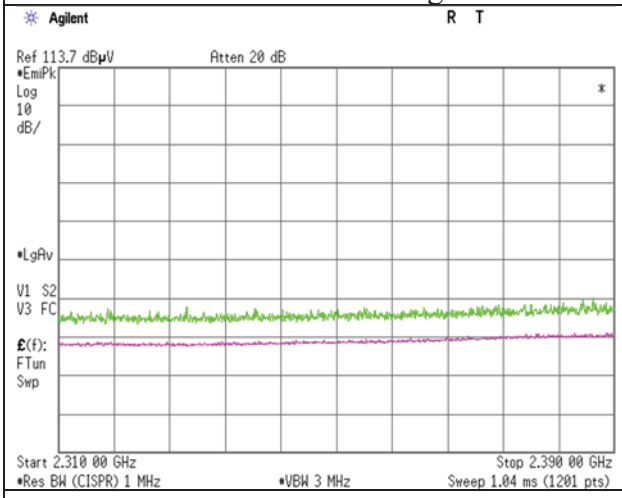
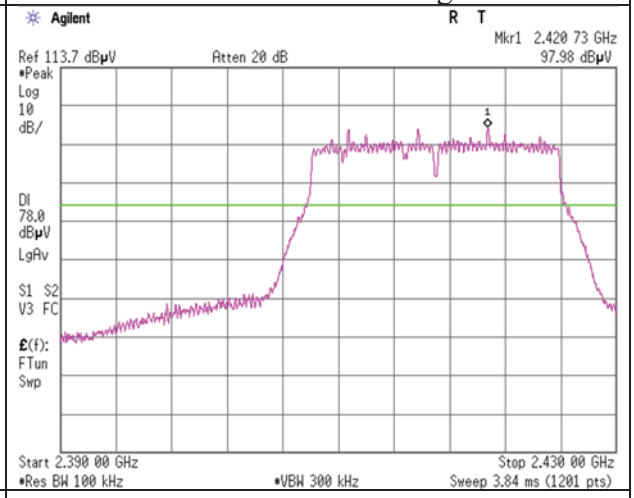
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2417.000	PK	96.60	27.84	14.17	41.60	2.26	99.27	-	-	Carrier
Hori.	2400.000	PK	50.30	27.86	14.16	41.60	2.26	52.98	79.27	26.2	
Vert.	2417.000	PK	97.91	27.84	14.17	41.60	2.26	100.58	-	-	Carrier
Vert.	2400.000	PK	51.01	27.86	14.16	41.60	2.26	53.69	80.58	26.8	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (MIMO) ,2417 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 4, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Kazutaka Takeyama
	(2.8 GHz - 13 GHz)
Mode	Tx, 2437 MHz
	Tx, OFDM VHT20 (MIMO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	9748.000	PK	49.44	38.92	9.29	43.02	2.26	56.89	73.90	17.0	150	0	
Hori.	9748.000	AV	37.80	38.92	9.29	43.02	2.26	45.25	53.90	**8.6**	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2462 MHz
	Tx, OFDM VHT20 (MIMO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	55.61	27.65	14.22	41.62	2.26	58.12	73.90	15.7	242	256	
Hori.	2483.500	AV	41.80	27.65	14.22	41.62	2.26	44.31	53.90	9.5	242	256	
Vert.	2483.500	PK	56.35	27.65	14.22	41.62	2.26	58.86	73.90	15.0	150	104	
Vert.	2483.500	AV	43.62	27.65	14.22	41.62	2.26	46.13	53.90	**7.7**	150	104	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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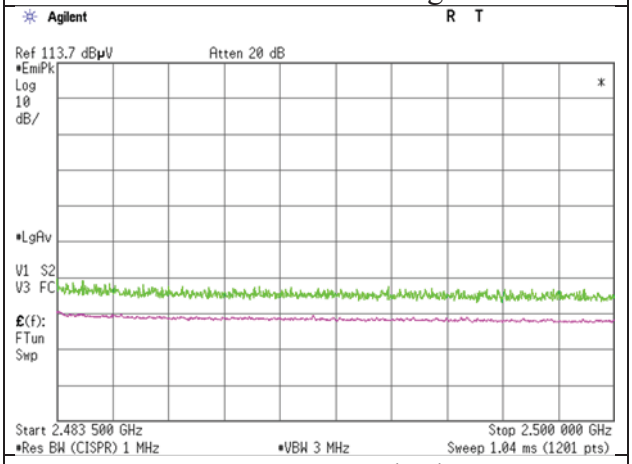
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 1, 2019
Temperature / Humidity	20 deg.C / 36 %RH
Engineer	Makoto Hosaka (1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (MIMO) ,2462 MHz

Horizontal

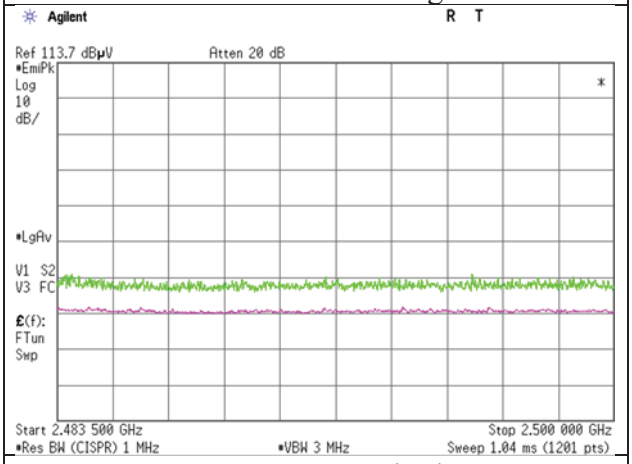
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2467 MHz
	Tx, OFDM VHT20 (MIMO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	50.65	27.65	14.22	41.62	2.26	53.16	73.90	20.7	297	263	
Hori.	2483.500	AV	40.69	27.65	14.22	41.62	2.26	43.20	53.90	10.7	297	263	
Vert.	2483.500	PK	52.14	27.65	14.22	41.62	2.26	54.65	73.90	19.2	152	107	
Vert.	2483.500	AV	41.91	27.65	14.22	41.62	2.26	44.42	53.90	**9.4**	152	107	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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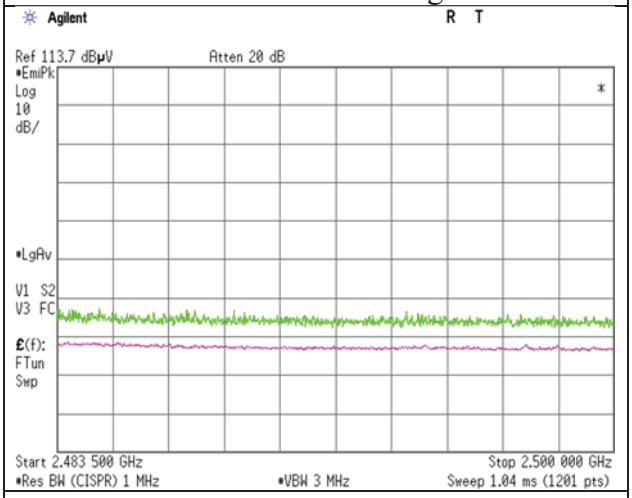
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (MIMO) ,2467 MHz

Horizontal

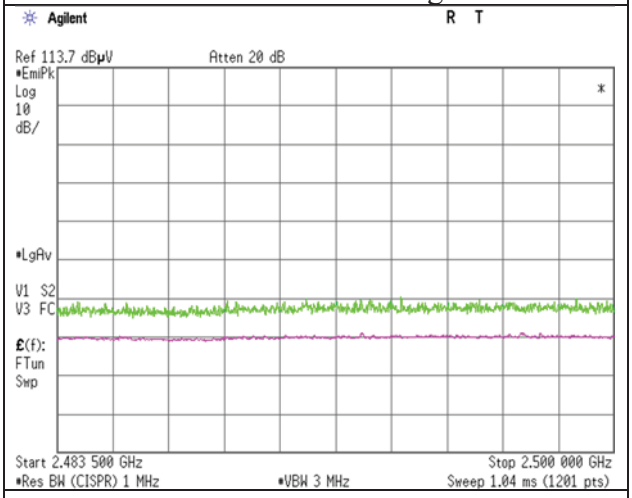
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2472 MHz
	Tx, OFDM VHT20 (MIMO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	50.52	27.65	14.22	41.62	2.26	53.03	73.90	20.8	294	258	
Hori.	2483.500	AV	40.17	27.65	14.22	41.62	2.26	42.68	53.90	11.2	294	258	
Vert.	2483.500	PK	52.13	27.65	14.22	41.62	2.26	54.64	73.90	19.2	146	107	
Vert.	2483.500	AV	41.77	27.65	14.22	41.62	2.26	44.28	53.90	**9.6**	146	107	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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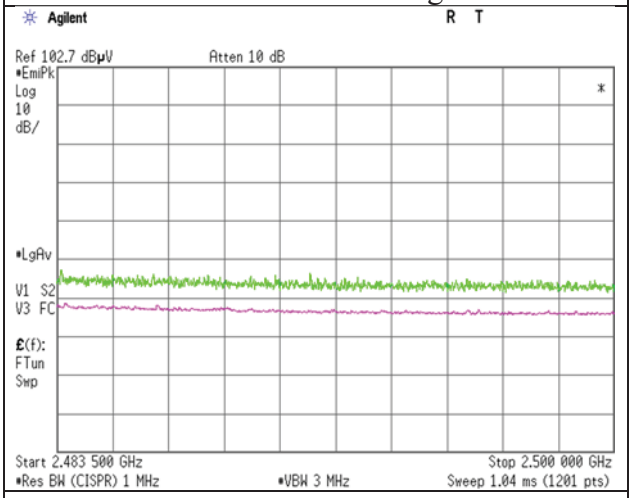
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, OFDM VHT20 (MIMO) ,2472 MHz

Horizontal

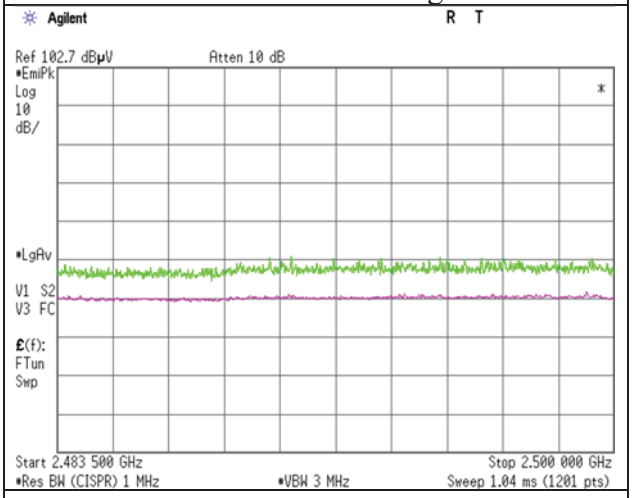
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.		
Test place	Shonan EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	April 2, 2019	April 4, 2019
Temperature / Humidity	20 deg.C / 38 %RH	20 deg.C / 38 %RH
Engineer	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz -2.8 GHz)	(2.8 GHz - 13 GHz)
Mode	Tx, 2422 MHz	
	Tx, IEEE802.11n HT40 (SISO)	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	51.36	27.86	14.15	41.59	2.26	54.04	73.90	19.8	268	0	
Hori.	9688.000	PK	48.10	38.79	9.30	43.08	2.26	55.37	73.90	18.5	150	0	
Hori.	2390.000	AV	40.55	27.86	14.15	41.59	2.26	43.23	53.90	10.6	268	0	
Hori.	9688.000	AV	38.30	38.79	9.30	43.08	2.26	45.57	53.90	8.3	150	0	
Vert.	2390.000	PK	52.85	27.86	14.15	41.59	2.26	55.53	73.90	18.3	142	54	
Vert.	9688.000	PK	48.20	38.79	9.30	43.08	2.26	55.47	73.90	18.4	150	0	
Vert.	2390.000	AV	42.36	27.86	14.15	41.59	2.26	45.04	53.90	8.8	142	54	
Vert.	9688.000	AV	38.50	38.79	9.30	43.08	2.26	45.77	53.90	**8.1**	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

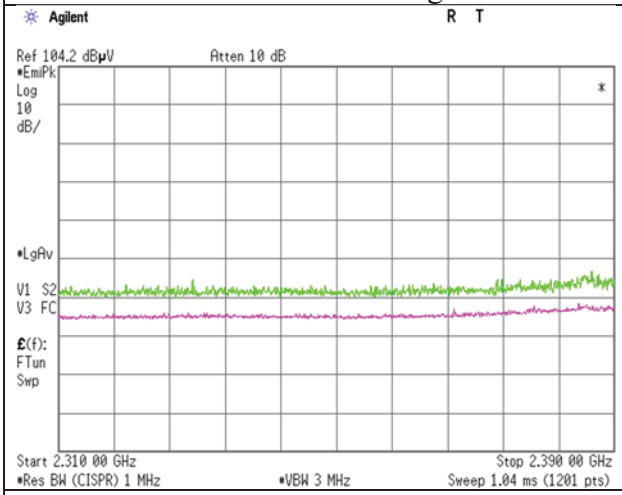
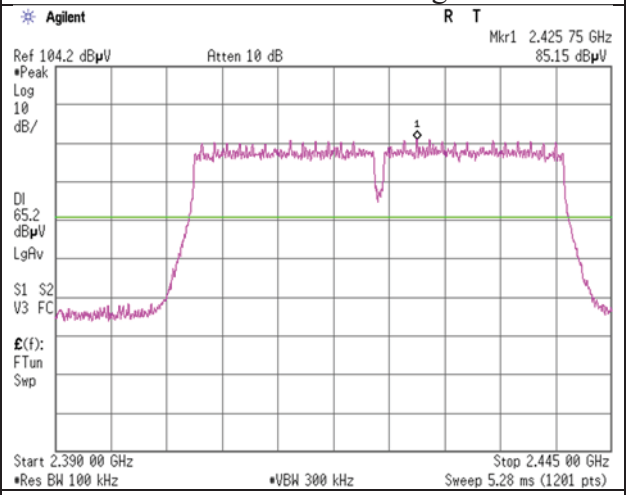
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

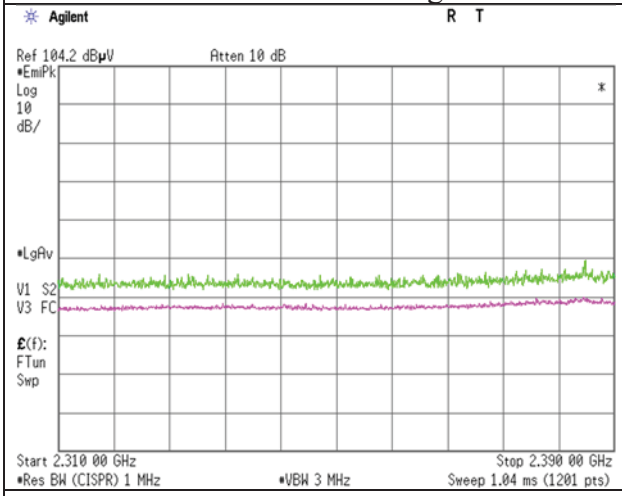
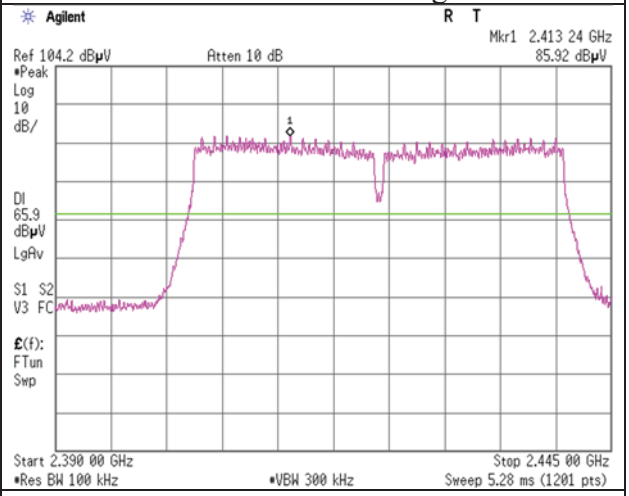
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2422.000	PK	85.25	27.83	14.17	41.60	2.26	87.91	-	-	Carrier
Hori.	2400.000	PK	42.29	27.86	14.16	41.60	2.26	44.97	67.91	22.9	
Vert.	2422.000	PK	86.17	27.83	14.17	41.60	2.26	88.83	-	-	Carrier
Vert.	2400.000	PK	44.31	27.86	14.16	41.60	2.26	46.99	68.83	21.8	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) , 2422 MHz

<table>
<tr><th colspan="2">Horizontal</th></tr>
<tr><th>Restricted-band band-edge Plot</th><th>Authorized-band band-edge Plot</th></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>Trace Green : Peak Plot
Trace Purple : Average Plot</td><td>20dBc Plot</td></tr>
</table>

<table>
<tr><th colspan="2">Vertical</th></tr>
<tr><th>Restricted-band band-edge Plot</th><th>Authorized-band band-edge Plot</th></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>Trace Green : Peak Plot
Trace Purple : Average Plot</td><td>20dBc Plot</td></tr>
</table>

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2452 MHz
	Tx, IEEE802.11n HT40 (SISO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	50.18	27.65	14.22	41.62	2.26	52.69	73.90	21.2	293	0	
Hori.	2483.500	AV	40.55	27.65	14.22	41.62	2.26	43.06	53.90	10.8	293	0	
Vert.	2483.500	PK	51.95	27.65	14.22	41.62	2.26	54.46	73.90	19.4	162	49	
Vert.	2483.500	AV	42.40	27.65	14.22	41.62	2.26	44.91	53.90	**8.9**	162	49	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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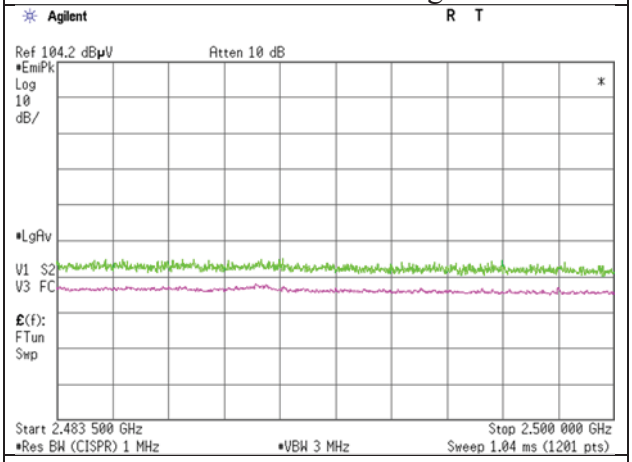
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) , 2452 MHz

Horizontal

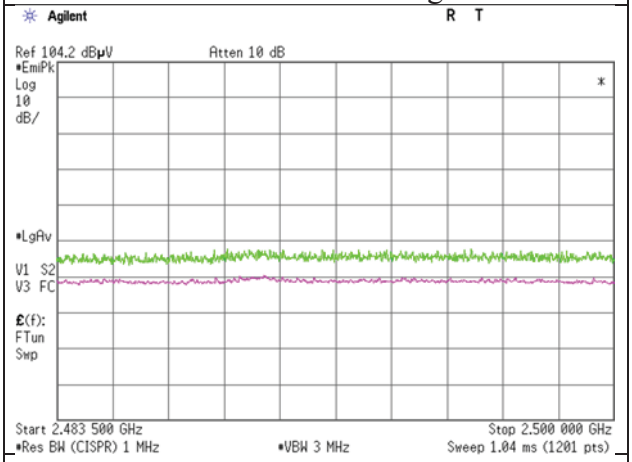
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2457 MHz
	Tx, IEEE802.11n HT40 (SISO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	50.87	27.65	14.22	41.62	2.26	53.38	73.90	20.5	282	24	
Hori.	2483.500	AV	40.68	27.65	14.22	41.62	2.26	43.19	53.90	10.7	282	24	
Vert.	2483.500	PK	53.02	27.65	14.22	41.62	2.26	55.53	73.90	18.3	171	60	
Vert.	2483.500	AV	43.17	27.65	14.22	41.62	2.26	45.68	53.90	**8.2**	171	60	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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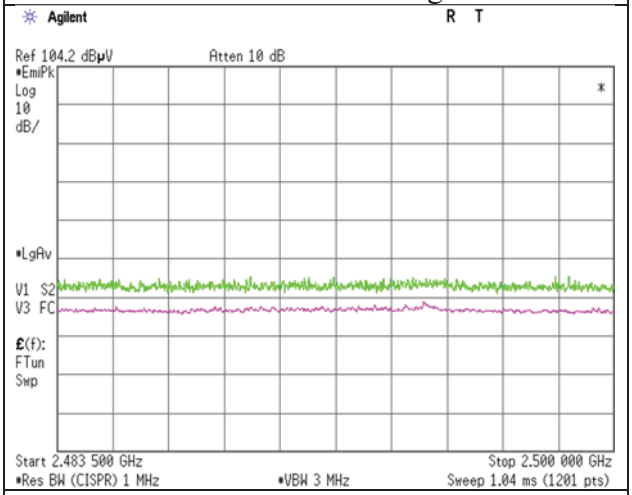
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) , 2457 MHz

Horizontal

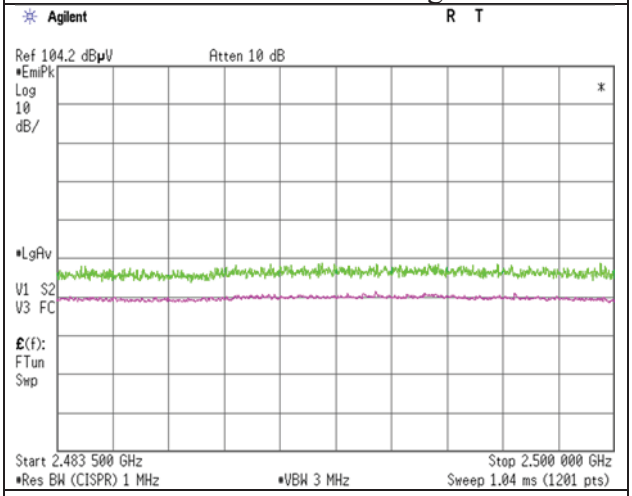
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 2, 2019
Temperature / Humidity 20 deg.C / 38 %RH
Engineer Makoto Hosaka
(1 GHz -2.8 GHz)
Mode Tx, 2462 MHz
Tx, IEEE802.11n HT40 (SISO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	54.66	27.65	14.22	41.62	2.26	57.17	73.90	16.7	188	34	
Hori.	2483.500	AV	42.25	27.65	14.22	41.62	2.26	44.76	53.90	9.1	188	34	
Vert.	2483.500	PK	56.50	27.65	14.22	41.62	2.26	59.01	73.90	14.8	143	48	
Vert.	2483.500	AV	44.42	27.65	14.22	41.62	2.26	46.93	53.90	**6.9**	143	48	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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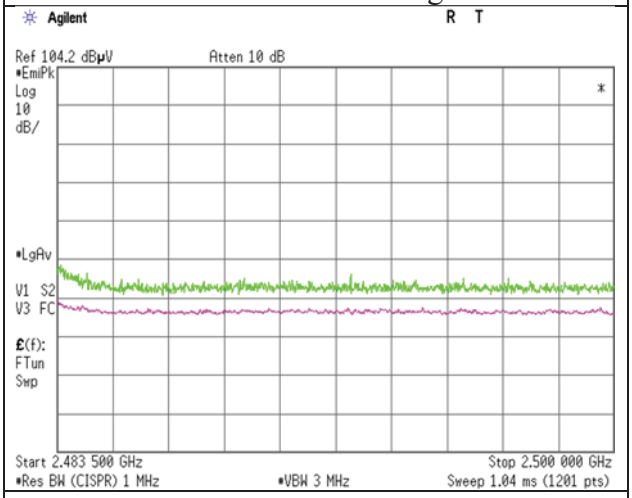
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) , 2462 MHz

Horizontal

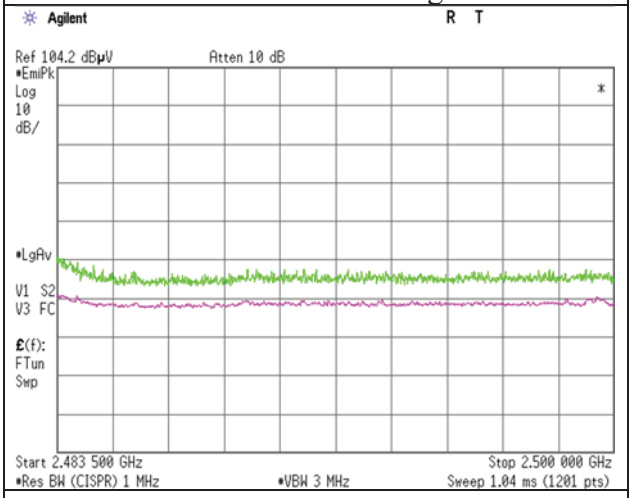
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.		
Test place	Shonan EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	April 2, 2019	April 4, 2019
Temperature / Humidity	20 deg.C / 38 %RH	20 deg.C / 38 %RH
Engineer	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz -2.8 GHz)	(2.8 GHz - 13 GHz)
Mode	Tx, 2422 MHz	
	Tx, IEEE802.11n HT40 (MIMO)	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2388.235	PK	55.79	27.86	14.15	41.59	2.26	58.47	73.90	15.4	244	253	
Hori.	2390.000	PK	56.84	27.86	14.15	41.59	2.26	59.52	73.90	14.3	244	253	
Hori.	2388.235	AV	46.22	27.86	14.15	41.59	2.26	48.90	53.90	5.0	244	253	
Hori.	2390.000	AV	44.72	27.86	14.15	41.59	2.26	47.40	53.90	6.5	244	253	
Vert.	2385.710	PK	56.43	27.85	14.15	41.59	2.26	59.10	73.90	14.8	154	108	
Vert.	2390.000	PK	55.75	27.86	14.15	41.59	2.26	58.43	73.90	15.4	154	108	
Vert.	9688.000	PK	47.90	38.79	9.30	43.08	2.26	55.17	73.90	18.7	150	0	
Vert.	2385.710	AV	46.24	27.85	14.15	41.59	2.26	48.91	53.90	**4.9**	154	108	
Vert.	2390.000	AV	45.04	27.86	14.15	41.59	2.26	47.72	53.90	6.1	154	108	
Vert.	9688.000	AV	38.50	38.79	9.30	43.08	2.26	45.77	53.90	8.1	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2422.000	PK	90.92	27.83	14.17	41.60	2.26	93.58	-	-	Carrier
Hori.	2400.000	PK	46.40	27.86	14.16	41.60	2.26	49.08	73.58	24.5	
Vert.	2422.000	PK	91.41	27.83	14.17	41.60	2.26	94.07	-	-	Carrier
Vert.	2400.000	PK	46.76	27.86	14.16	41.60	2.26	49.44	74.07	24.6	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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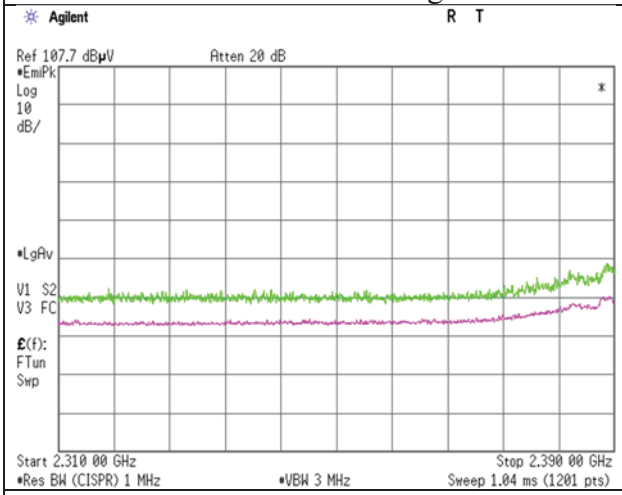
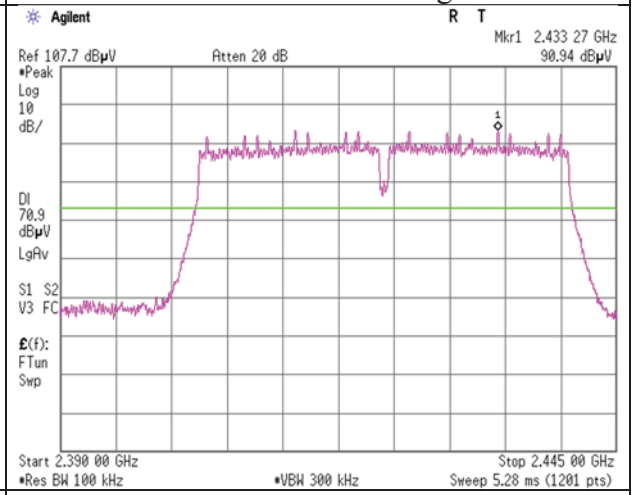
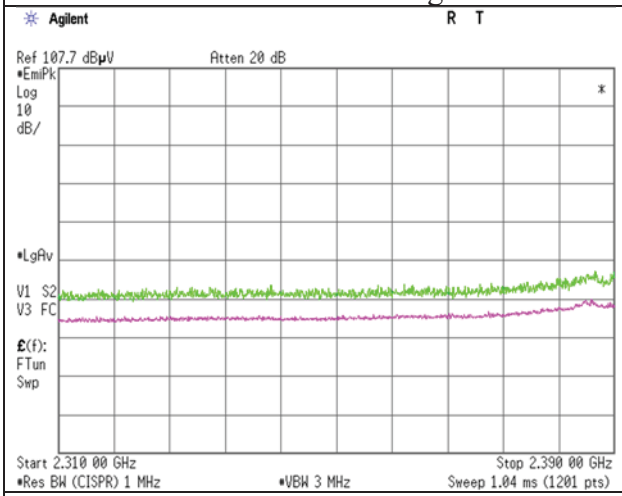
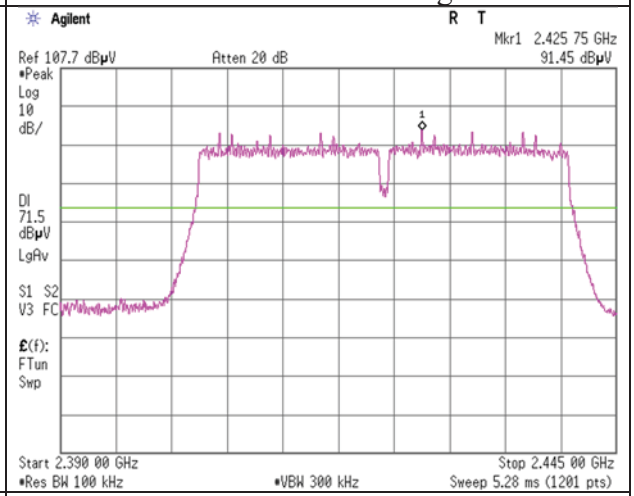
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11n HT40 (MIMO) , 2422 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2452 MHz
	Tx, IEEE802.11n HT40 (MIMO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	51.47	27.65	14.22	41.62	2.26	53.98	73.90	19.9	226	150	
Hori.	2483.500	AV	41.42	27.65	14.22	41.62	2.26	43.93	53.90	9.9	226	150	
Vert.	2483.500	PK	52.54	27.65	14.22	41.62	2.26	55.05	73.90	18.8	147	106	
Vert.	2483.500	AV	42.68	27.65	14.22	41.62	2.26	45.19	53.90	**8.7**	147	106	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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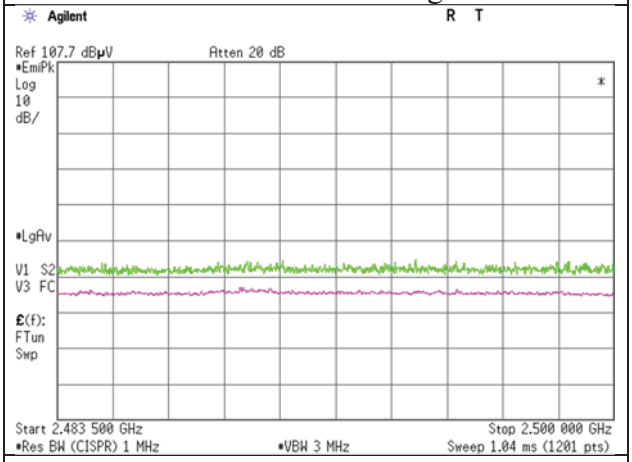
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11n HT40 (MIMO) , 2452 MHz

Horizontal

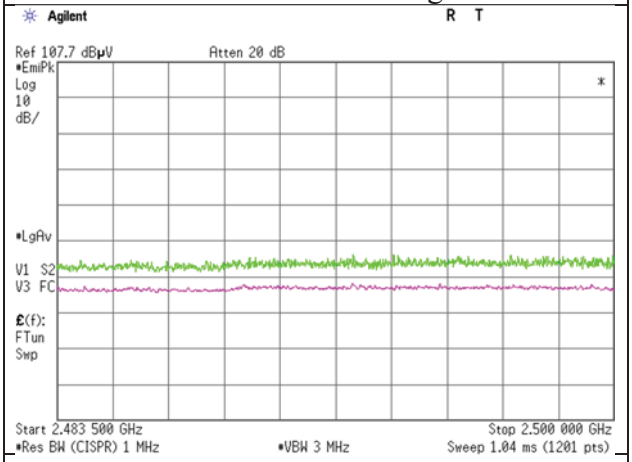
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz -2.8 GHz)
Mode	Tx, 2457 MHz
	Tx, IEEE802.11n HT40 (MIMO)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	52.48	27.65	14.22	41.62	2.26	54.99	73.90	18.9	239	148	
Hori.	2483.500	AV	42.37	27.65	14.22	41.62	2.26	44.88	53.90	9.0	239	148	
Vert.	2483.500	PK	54.68	27.65	14.22	41.62	2.26	57.19	73.90	16.7	146	106	
Vert.	2483.500	AV	43.79	27.65	14.22	41.62	2.26	46.30	53.90	**7.6**	146	106	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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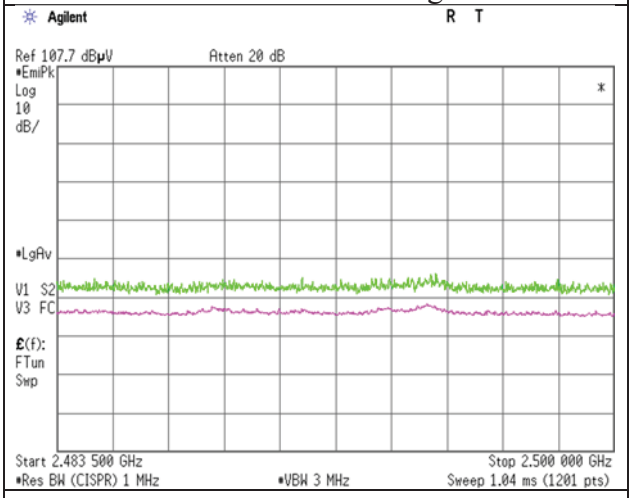
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11n HT40 (MIMO) , 2457 MHz

Horizontal

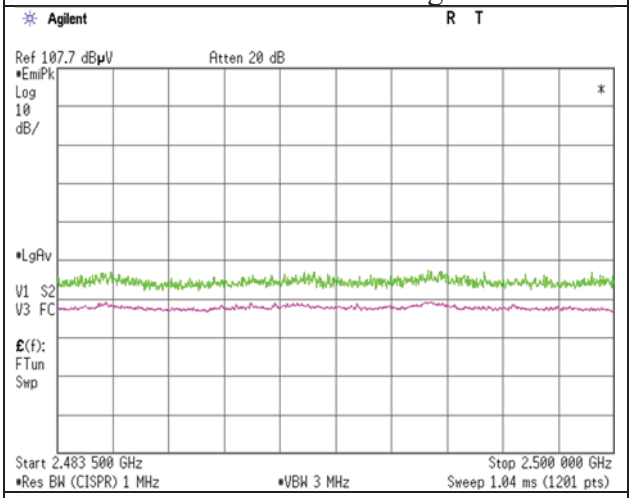
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

Radiated Emission

Report No.		
Test place	Shonan EMC Lab.	
Semi Anechoic Chamber	No.3	No.3
Date	April 2, 2019	April 4, 2019
Temperature / Humidity	20 deg.C / 38 %RH	20 deg.C / 38 %RH
Engineer	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz -2.8 GHz)	(2.8 GHz - 13 GHz)
Mode	Tx, 2462 MHz	
	Tx, IEEE802.11n HT40 (MIMO)	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	56.74	27.65	14.22	41.62	2.26	59.25	73.90	14.6	212	270	
Hori.	2483.500	AV	44.23	27.65	14.22	41.62	2.26	46.74	53.90	7.1	212	270	
Vert.	2483.500	PK	56.82	27.65	14.22	41.62	2.26	59.33	73.90	14.5	150	108	
Vert.	9848.000	PK	48.00	39.12	9.28	42.92	2.26	55.74	73.90	18.1	150	0	
Vert.	2483.500	AV	44.54	27.65	14.22	41.62	2.26	47.05	53.90	**6.8**	150	108	
Vert.	9848.000	AV	38.50	39.12	9.28	42.92	2.26	46.24	53.90	7.6	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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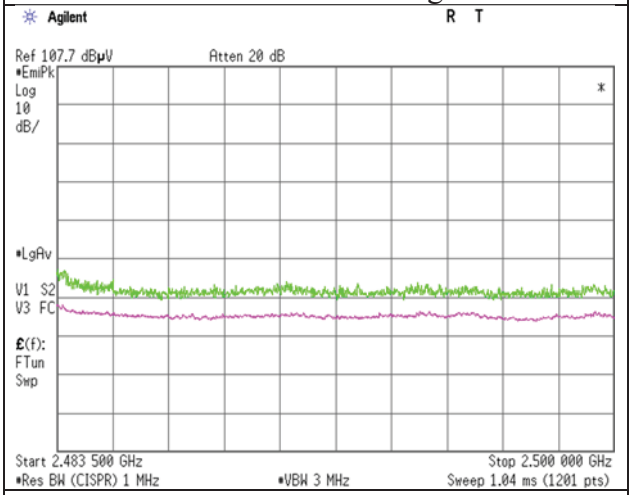
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 2, 2019
Temperature / Humidity	20 deg.C / 38 %RH
Engineer	Makoto Hosaka
	(1 GHz – 2.8 GHz)
Mode	Tx, IEEE802.11n HT40 (MIMO) , 2462 MHz

Horizontal

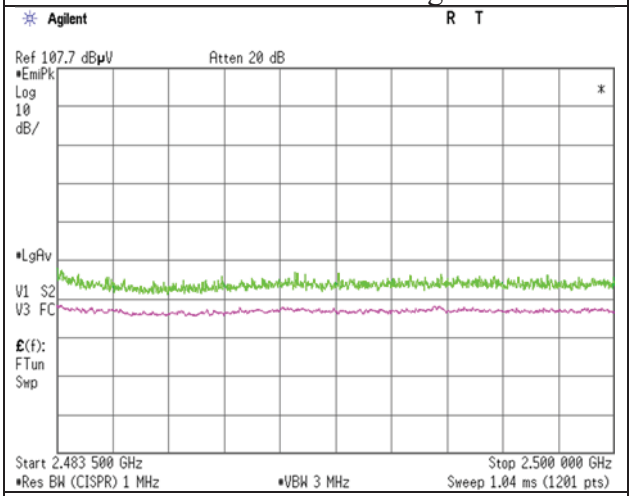
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* 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.

APPENDIX 2

Test Instruments

EMI test equipment

Local ID	Test Name	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Due Date	Calibration Interval (Month)
SAT10-16	AT	160494	Attenuator	Weinschel Corp.	54A-10	83406	2018/12/6	2019/12/30	12
SCC-G13	AT	145166	Coaxial Cable	Suhner	SUCOFLEX 102	31599/2	2018/12/25	2019/12/31	12
SOS-06	AT	146294	Humidity Indicator	A&D	AD-5681	4062118	2018/12/5	2019/12/31	12
SPM-06	AT	146267	Power Meter	ANRITSU	ML2495A	850009	2019/5/22	2020/5/31	12
SPSS-03	AT	146309	Power sensor	ANRITSU	MA2411B	917063	2019/5/22	2020/5/31	12
SSA-02	AT	145800	Spectrum Analyzer	AGILENT	E4448A	MY48250106	2019/4/4	2020/4/31	12
STM-G7	AT	171614	Terminator	Weinschel - API Technologies Corp	M1459A	88995	2019/7/4	2020/7/31	12
STS-03	AT	146210	Digital Hitester	HIOKI	3805-50	80997823	2018/10/16	2019/10/31	12

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:
AT: Antenna terminal conducted test

EMI test equipment

Local ID	Test Name	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Due Date	Calibration Interval (Month)
SAT10-15	AT	160493	Attenuator	Weinschel Corp.	54A-10	83406	2018/12/6	2019/12/30	12
SCC-G13	AT	145166	Coaxial Cable	Suhner	SUCOFLEX 102	31599/2	2018/12/25	2019/12/31	12
SOS-13	AT	146321	Humidity Indicator	CUSTOM	CTH-202	Q.C.17	2018/12/5	2019/12/31	12
SPM-07	AT	146247	Power Meter	AGILENT	8990B	MY51002712	2018/7/13	2019/7/31	12 *1
SPSS-04	AT	146310	Power sensor	AGILENT	N1923A	MY53260009	2018/7/13	2019/7/31	12 *1
SSA-03	AT	145801	Spectrum Analyzer	AGILENT	E4448A	MY48250152	2018/8/30	2019/8/31	12
STM-G7	AT	171614	Terminator	WEINSCHEL	M1459A	88995	2018/7/10	2019/7/31	12 *1
KJM-09	RE	145929	Measure	KOMELON	KMC-36	-	-	-	-
KSA-08	RE	145089	Spectrum Analyzer	AGILENT	E4446A	MY46180525	2018/10/7	2019/10/31	12
SAEC-03(SVSWR)	RE	145566	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	2018/7/17	2019/7/31	12
SAF-04	RE	145127	Pre Amplifier	Toyo Corporation	TPA0118-36	2072554	2018/6/26	2019/6/30	12
SAF-06	RE	145005	Pre Amplifier	Toyo Corporation	TPA0118-36	1440491	2019/2/8	2020/2/29	12
SAT10-05	RE	145136	Attenuator(above1 GHz)	AGILENT	8493C-010	74864	2018/11/25	2019/11/30	12
SCC-G40	RE	166491	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S005	2019/1/25	2020/1/31	12
SCC-G43	RE	156380	Coaxial Cable	HUBER+SUNER	SUCOFLEX_104_E	SN MY 13406/4E	2018/7/10	2019/7/31	12
SCC-G44	RE	168300	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	800070/4A	2019/3/26	2020/3/31	12
SHA-03	RE	145501	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	2018/7/23	2019/7/31	12
SOS-05	RE	146293	Humidity Indicator	A&D	AD-5681	4062518	2018/10/25	2019/10/31	12
STS-01	RE	145792	Digital Hitester	HIOKI	3805-50	80997812	2018/10/16	2019/10/31	12

*1) This test equipment was used for the tests before the expiration date of the calibration.
*Hyphens for Last Calibration Date, Calibration Due Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

The expiration date of the calibration is the end of the expired month.
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards
Test Item:

RE: Radiated emission,
AT: Antenna terminal conducted test