

RADIO TEST REPORT

Test Report No. 14854382S-AA-R1

Customer	Murata Manufacturing Co., Ltd.
Description of EUT	Communication Module
Model Number of EUT	2CX
FCC ID	VPYLBEE5QG2CX
Test Regulation	FCC Part 15 Subpart C
Test Result	Complied
Issue Date	September 18, 2024
Remarks	Wireless LAN (2.4 GHz band) and Bluetooth Low Energy part(s)

Representative Test Engineer



Kenichi Adachi
Engineer

Approved By



Kazutaka Takeyama
Leader



CERTIFICATE 1266.03

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

Report Cover Page - Form-ULID-003532 (DCS:13-EM-F0429) Issue# 23.0

ANNOUNCEMENT

- This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
- The results in this report apply only to the sample tested. (Laboratory was not involved in sampling.)
- This sample tested is in compliance with the limits of the above regulation.
- The test results in this test report are traceable to the national or international standards.
- This test report must not be used by the customer to claim product certification, approval, or endorsement by the A2LA accreditation body.
- This test report covers Radio technical requirements.
It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
- The all test items in this test report are conducted by UL Japan, Inc. Shonan EMC Lab.
- The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan, Inc. has been accredited.
- The information provided by the customer for this report is identified in SECTION 1.
- The laboratory is not responsible for information provided by the customer which can impact the validity of the results.
- For test report(s) referred in this report, the latest version (including any revisions) is always referred.

REVISION HISTORY

Original Test Report No.: 14854382S-AA

This report is a revised version of 14854382S-AA. 14854382S-AA is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents																																																																																				
- (Original)	14854382S-AA	August 27, 2024	-																																																																																				
1	14854382S-AA-R1	September 18, 2024	Clause 2.2 Corrected transmission patterns from; <table><tr><th>Port</th><th>Mode</th><th>Config 1</th><th>Config 2</th><th>Config 3</th><th>Config 5</th><th>Config 6</th></tr><tr><td>2G_CH0</td><td>Bluetooth</td><td>-</td><td>-</td><td>Transmit</td><td>Transmit *1)</td><td>Transmit</td></tr><tr><td>5G_CH0</td><td>2.4 GHz</td><td>-</td><td>Transmit</td><td>-</td><td>Transmit *1)</td><td>-</td></tr><tr><td>5G_CH0</td><td>5 GHz / 6 GHz</td><td>Transmit</td><td>-</td><td>Transmit</td><td>-</td><td>-</td></tr><tr><td>2G_CH1</td><td>2.4 GHz</td><td>-</td><td>Transmit</td><td>-</td><td>Transmit *1)</td><td>-</td></tr><tr><td>5G_CH1</td><td>5 GHz / 6 GHz</td><td>Transmit</td><td>-</td><td>Transmit</td><td>-</td><td>-</td></tr></table> to; <table><tr><th>Port</th><th>Mode</th><th>Config 1</th><th>Config 2</th><th>Config 3</th><th>Config 4</th><th>Config 5</th></tr><tr><td>2G_CH0</td><td>Bluetooth</td><td>-</td><td>-</td><td>Transmit</td><td>Transmit</td><td>Transmit *1)</td></tr><tr><td>5G_CH0</td><td>2.4 GHz</td><td>-</td><td>Transmit</td><td>-</td><td>-</td><td>Transmit *1)</td></tr><tr><td>5G_CH0</td><td>5 GHz / 6 GHz</td><td>Transmit</td><td>-</td><td>-</td><td>Transmit</td><td>-</td></tr><tr><td>2G_CH1</td><td>2.4 GHz</td><td>-</td><td>Transmit</td><td>-</td><td>-</td><td>Transmit *1)</td></tr><tr><td>5G_CH1</td><td>5 GHz / 6 GHz</td><td>Transmit</td><td>-</td><td>-</td><td>Transmit</td><td>-</td></tr></table>	Port	Mode	Config 1	Config 2	Config 3	Config 5	Config 6	2G_CH0	Bluetooth	-	-	Transmit	Transmit *1)	Transmit	5G_CH0	2.4 GHz	-	Transmit	-	Transmit *1)	-	5G_CH0	5 GHz / 6 GHz	Transmit	-	Transmit	-	-	2G_CH1	2.4 GHz	-	Transmit	-	Transmit *1)	-	5G_CH1	5 GHz / 6 GHz	Transmit	-	Transmit	-	-	Port	Mode	Config 1	Config 2	Config 3	Config 4	Config 5	2G_CH0	Bluetooth	-	-	Transmit	Transmit	Transmit *1)	5G_CH0	2.4 GHz	-	Transmit	-	-	Transmit *1)	5G_CH0	5 GHz / 6 GHz	Transmit	-	-	Transmit	-	2G_CH1	2.4 GHz	-	Transmit	-	-	Transmit *1)	5G_CH1	5 GHz / 6 GHz	Transmit	-	-	Transmit	-
Port	Mode	Config 1	Config 2	Config 3	Config 5	Config 6																																																																																	
2G_CH0	Bluetooth	-	-	Transmit	Transmit *1)	Transmit																																																																																	
5G_CH0	2.4 GHz	-	Transmit	-	Transmit *1)	-																																																																																	
5G_CH0	5 GHz / 6 GHz	Transmit	-	Transmit	-	-																																																																																	
2G_CH1	2.4 GHz	-	Transmit	-	Transmit *1)	-																																																																																	
5G_CH1	5 GHz / 6 GHz	Transmit	-	Transmit	-	-																																																																																	
Port	Mode	Config 1	Config 2	Config 3	Config 4	Config 5																																																																																	
2G_CH0	Bluetooth	-	-	Transmit	Transmit	Transmit *1)																																																																																	
5G_CH0	2.4 GHz	-	Transmit	-	-	Transmit *1)																																																																																	
5G_CH0	5 GHz / 6 GHz	Transmit	-	-	Transmit	-																																																																																	
2G_CH1	2.4 GHz	-	Transmit	-	-	Transmit *1)																																																																																	
5G_CH1	5 GHz / 6 GHz	Transmit	-	-	Transmit	-																																																																																	
			Clause 3.2 FCC Part 15.31 (e) Deleted “regardless of input voltage”. FCC Part 15.203 Antenna requirement Corrected sentence from; “The EUT has a unique coupling/antenna connector (U.FL).” to; “The EUT has an external antenna connector, but it is installed inside the end product by the professionals.”																																																																																				

Revision	Test Report No.	Date	Page Revised Contents
			Appendix 1 (Test Data) <u>99% Occupied Bandwidth</u> Corrected data of 11g (2462 MHz) from "16798.4" to "16789.4". <u>Average output power</u> Deleted e.i.r.p data from Average output power data of 11ax (OFDMA). <u>Average output power (worst data ratecheck)</u> Corrected sentence from; "The check in this mode was omitted, since the trend was the same in both High power mode and Standard power mode, a representative check to find the worst data rate was performed in High power mode. And this mode referred to the worst rate check result in High power mode." to; "Worst rate check was performed High power mode, since High power mode and Standard power mode were same trend of output power." <u>Burst rate confirmation</u> Corrected mode name from "Tx 11ax-20(OFDM)(SDM)" to "Tx". <u>Radiated Emission</u> Corrected test dates from; "May 6, 2023" and "May 7, 2023" to; "September 6, 2023" and "September 7, 2023", respectively. Appendix 2 (Test Instruments) Deleted *1) and the following note: "The expiration*1) This test equipment was used for the tests before the expiration date of the calibration."

Reference: Abbreviations (Including words undescribed in this report)

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

CONTENTS	PAGE
SECTION 1: Customer Information	6
SECTION 2: Equipment Under Test (EUT).....	6
SECTION 3: Test Specification, Procedures & Results	9
SECTION 4: Operation of EUT during testing	12
SECTION 5: Conducted Emission.....	17
SECTION 6: Radiated Spurious Emission.....	18
SECTION 7: Antenna Terminal Conducted Tests	21
APPENDIX 1: Test Data	22
Conducted Emission	22
99 % Occupied Bandwidth and 6 dB Bandwidth.....	25
Maximum Peak Output Power	46
Average Output Power.....	73
Burst rate confirmation.....	92
Radiated Spurious Emission.....	97
Conducted Spurious Emission.....	242
Power Density	244
APPENDIX 2: Test Instruments	327
APPENDIX 3: Photographs of Test Setup	330
Conducted Emission	330
Radiated Spurious Emission.....	332
Precheck of Worst Case Position	333
Antenna Terminal Conducted Tests	334

SECTION 1: Customer Information

Company Name	Murata Manufacturing Co., Ltd.
Address	1-10-1 Higashikotari, Nagaokakyo-shi, Kyoto 617-8555 Japan
Telephone Number	+81-50-1737-2801
Contact Person	Kenji Hayashikoshi

The information provided by the customer is as follows;

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

SECTION 2: Equipment Under Test (EUT)

2.1 Identification of EUT

Description	Communication Module
Model Number	2CX
Serial Number	Refer to SECTION 4.2
Condition	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	June 16, 2023
Test Date	June 27, 2023 to July 1, 2024

2.2 Product Description

General Specification

Rating	VPH_PA_2G_CH0	: 3.85 V (typical) (3.00 V to 4.60 V)
	VPH_PA_2G_CH1	: 3.85 V (typical) (3.00 V to 4.60 V)
	VPH_PA_5G_CH0	: 3.85 V (typical) (3.00 V to 4.60 V)
	VPH_PA_5G_CH1	: 3.85 V (typical) (3.00 V to 4.60 V)
	VDD18_DIG_IO	: 1.80 V (typical) (1.71 V to 2.10 V)
	AON_RFACMN_LDO_IN	: 0.95 V (typical) (0.90 V to 2.10 V)
	WLCX_BT_LDO_IN / WLMX_LDO_IN	: 0.95 V (typical) (0.90 V to 2.10 V)
	RFA0P8_LDO_IN	: 0.95 V (typical) (0.90 V to 2.10 V)
	RFA12_LDO_IN	: 1.35 V (typical) (1.30 V to 2.10 V)
	RFA17_LDO_IN	: 1.90 V (typical) (1.85 V to 2.10 V)
	PCIE0P92_LDO_IN	: 1.35 V (typical) (1.28 V to 2.10 V)
	PCIE18_LDO_IN	: 1.90 V (typical) (1.85 V to 2.10 V)
Operating temperature	-30 deg. C to +85 deg. C	

Radio Specification

This report contains data provided by the customer which can impact the validity of results. UL Japan, Inc. is only responsible for the validity of results after the integration of the data provided by the customer. The data provided by the customer is marked "a)" in the table below.

Bluetooth (BR/EDR/BTLE)

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	FHSS, GFSK / $\pi/4$ -DQPSK, 8DPSK / GFSK
Antenna Type	Monopole Antenna
Antenna Gain ^{a)}	2G_CH0: -0.23 dBi

WLAN (IEEE802.11b/11g/11n-20/11ax-20)

Equipment Type	Transceiver
Frequency of Operation	2412 MHz to 2462 MHz
Type of Modulation	CCK, DSSS, OFDM OFDMA: (IEEE802.11ax only 20 MHz band): 26/52/106/242-tone RU
Antenna Type	Monopole Antenna, Slot antenna
Antenna Gain ^{a)}	2G_CH0: -0.23 dBi (monopole antenna) 2G_CH1: +1.60 dBi (monopole antenna) +1.65 dBi (slot antenna)

WLAN (IEEE802.11a/11n-20/11ac-20/11ax-20/11n-40/11ac-40/11ax-40/11ac-80/11ax-80/11ax-160)

Equipment Type	Transceiver	
Frequency of Operation	20 MHz Band:	5180 MHz to 5240 MHz 5260 MHz to 5320 MHz 5500 MHz to 5720 MHz 5745 MHz to 5825 MHz 5955 MHz to 6415 MHz 6435 MHz to 6515 MHz 6535 MHz to 6875 MHz (*6875 MHz:straddle ch) 6895 MHz to 7095 MHz
	40 MHz Band	5190 MHz to 5230 MHz 5270 MHz to 5310 MHz 5510 MHz to 5710 MHz 5755 MHz to 5795 MHz 5965 MHz to 6405 MHz 6445 MHz to 6525 MHz (*6525 MHz:straddle ch) 6565 MHz to 6885 MHz (*6885 MHz:straddle ch) 6925 MHz to 7085 MHz
	80 MHz band	5210 MHz 5290 MHz 5530 MHz to 5690 MHz 5775 MHz 5985 MHz to 6385 MHz 6465 MHz to 6545 MHz (*6545 MHz:straddle ch) 6625 MHz to 6865 MHz (*6865 MHz:straddle ch) 6945 MHz to 7025 MHz
	160 MHz band	5250 MHz 5570 MHz 6025 MHz to 6345 MHz 6505 MHz (*6505 MHz:straddle ch) 6665 MHz to 6825 MHz (*6825 MHz:straddle ch) 6985 MHz
Type of Modulation	OFDM	
	OFDMA	(20 MHz band): 26/52/106/242-tone RU
	(IEEE802.11ax only)	(40 MHz band): 26/52/106/242/484-tone RU
		(80 MHz band): 26/52/106/242/484/996-tone RU
		(160 MHz band): 26/52/106/242/484/996/2x996-tone RU
Antenna Type	Monopole Antenna, Slot antenna	
Antenna Gain ^{a)}	U-NII-1, -2A, -2C, -3, 5180 MHz to 5825 MHz	5G_CH0: +0.51 dBi (monopole antenna) 5G_CH1: +0.57 dBi (monopole antenna) +1.13 dBi (slot antenna)
	U-NII-5, -6, -7, -8, 5955 MHz to 7095 MHz	5G_CH0: -1.36 dBi (monopole antenna) 5G_CH1: -1.25 dBi (monopole antenna) -1.14 dBi (slot antenna)

Transmission patterns

Port	Mode	Config.1	Config.2	Config.3	Config.4	Config.5
2G_CH0	Bluetooth	-	-	Transmit	Transmit	Transmit *1)
5G_CH0	2.4 GHz	-	Transmit	-	-	Transmit *1)
5G_CH0	5 GHz / 6 GHz	Transmit	-	-	Transmit	-
2G_CH1	2.4 GHz	-	Transmit	-	-	Transmit *1)
5G_CH1	5 GHz / 6 GHz	Transmit	-	-	Transmit	-

*1) WLAN and Bluetooth do not transmit simultaneously.

SECTION 3: Test Specification, Procedures & Results

3.1 Test Specification

Test Specification	FCC Part 15 Subpart C The latest version on the first day of the testing period
Title	FCC 47 CFR Part 15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

3.2 Procedures and Results

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.10-2013 6. Standard test methods ISED: RSS-Gen 8.8	FCC: Section 15.207 ISED: RSS-Gen 8.8	17.2 dB, 0.58959 MHz, N, AV, Mode: Tx 11ax-20 2462 MHz 2G_CH0: monopole, 2G_CH1: slot	Complied	-
6dB Bandwidth	FCC: KDB 558074 D01 15.247 Meas Guidance v05r02 ISED: -	FCC: Section 15.247(a)(2) ISED: RSS-247 5.2(a)	See data.	Complied	Conducted
Maximum Peak Output Power	FCC: KDB 558074 D01 15.247 Meas Guidance v05r02 ISED: RSS-Gen 6.12	FCC: Section 15.247(b)(3) ISED: RSS-247 5.4(d)		Complied	Conducted
Power Density	FCC: KDB 558074 D01 15.247 Meas Guidance v05r02 ISED: -	FCC: Section 15.247(e) ISED: RSS-247 5.2(b)		Complied	Conducted
Spurious Emission Restricted Band Edges	FCC: KDB 558074 D01 15.247 Meas Guidance v05r02 ISED: RSS-Gen 6.13	FCC: Section 15.247(d) ISED: RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10	WLAN 1.6 dB 2390.000 MHz, AV,Hori, Mode: Tx 11n-20 (CDD), 2412 MHz 2G_CH0: monopole, 2G_CH1: monopole BT LE 3.6 dB 4960.000 MHz, AV, Vert, Mode: Tx BT LE (1M- PHY), 2402 MHz	Complied	Conducted (below 30 MHz)/ Radiated (above 30 MHz) *1)
Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593. * In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred. *1) Radiated test was selected over 30 MHz based on section 15.247(d) and KDB 558074 D01 15.247 Meas Guidance v05r02 8.5 and 8.6.					

FCC Part 15.31 (e)

The module is constantly provided with the stable voltage from the host device. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

The EUT has an external antenna connector, but it is installed inside the end product by the professionals. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.3 Addition to Standard

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
99% Occupied Bandwidth	ISED: RSS-Gen 6.7	ISED: -	N/A	-	Conducted

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

3.4 Uncertainty

Measurement uncertainty is not taken into account when stating conformity with a specified requirement.
Note: When margins obtained from test results are less than the measurement uncertainty, the test results may exceed the limit.

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

Item	Frequency range	Uncertainty (+/-)
Conducted Emission (AC Mains) LISN	150 kHz to 30 MHz	3.2 dB
Radiated Emission (Measurement distance: 3 m)	9 kHz to 30 MHz	3.3 dB
	30 MHz to 200 MHz	4.9 dB
	200 MHz to 1 GHz	6.2 dB
	1 GHz to 6 GHz	4.7 dB
	6 GHz to 18 GHz	5.3 dB
	18 GHz to 40 GHz	5.5 dB
Radiated Emission (Measurement distance: 1 m)	1 GHz to 18 GHz	5.6 dB
	18 GHz to 40 GHz	5.8 dB

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)	1.3 dB
Power Measurement above 1 GHz (Peak Detector)	1.8 dB
Spurious Emission (Conducted) below 1 GHz	0.91 dB
Conducted Emissions Power Density Measurement 1 GHz to 3 GHz	1.3 dB
Conducted Emissions Power Density Measurement 3 GHz to 18 GHz	2.5 dB
Spurious Emission (Conducted) 18 GHz to 26.5 GHz	2.8 dB
Spurious Emission (Conducted) 26.5 GHz to 40 GHz	2.6 dB
Bandwidth Measurement	0.012 %
Duty Cycle and Time Measurement	0.27 %
Temperature	2.2 deg.C.
Humidity	4.0 %
Voltage	0.74 %

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

A2LA Certificate Number: 1266.03

(FCC test firm registration number: 626366, ISED lab company number: 2973D / CAB identifier: JP0001)

Test room	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber (SAC1)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber (SAC2)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber (SAC3)	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber (SAC4)	8.1 x 5.1 x 3.55	8.1 x 5.1	-
Wireless anechoic chamber 1 (WAC1)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
Wireless anechoic chamber 2 (WAC2)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
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	-	-
No.2 Measurement room	4.5 x 3.5 x 2.5	-	-
Wireless shielded room 1	3.0 x 4.5 x 2.7	3.0 x 4.5	-
Wireless shielded room 2	3.0 x 4.5 x 2.7	3.0 x 4.5	-

3.6 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

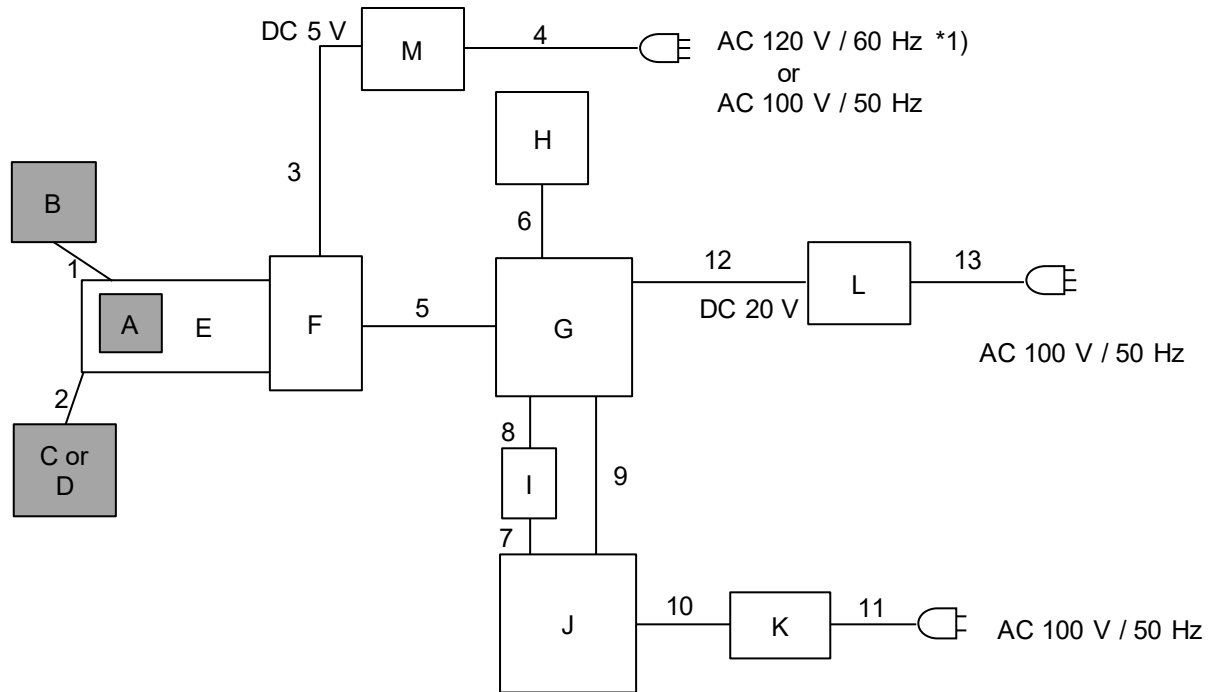
Mode	Remarks*
IEEE 802.11b CDD (11b(CDD))	11 Mbps, PN9
IEEE 802.11g CDD (11g(CDD))	48 Mbps, PN9
IEEE 802.11n MIMO (CDD) 20 MHz BW (11n-20(CDD))	MCS 5 (1SS)(1 Stream), PN9
IEEE 802.11n MIMO (SDM) 20 MHz BW (11n-20(SDM))	MCS 15 (2SS)(2 Stream), PN9
IEEE 802.11ax MIMO (CDD) 20 MHz BW, (11ax-20)	MCS 10 (1SS)(1 Stream), PN9
IEEE 802.11ax MIMO (SDM) 20 MHz BW, (11ax-20)	MCS 10 (2SS)(2 Stream), PN9
Bluetooth Low Energy (BT LE)	1M-PHY Uncoded PHY (1M-PHY), Maximum Packet Size, PRBS9
	2M-PHY Uncoded PHY (2M-PHY), Maximum Packet Size, PRBS9
	Coded PHY S=8, 125 kbps (Coded S=8), Maximum Packet Size, PRBS9
	Coded PHY S=2, 500 kbps (Coded S=2), Maximum Packet Size, PRBS9
The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel) (SS: Spatial Stream)	
*Power of the EUT was set by the software as follows; Power Setting: WLAN *1) Refer to [Appendix 1: Test Data (Maximum Peak Out Power and Average Output Power)]. BT LE :10 dBm Software: WLAN QSPR (Qualcomm Sequence Profiling Resource) Version: 5.0-00202 (Date: 2023.06 19, Storage location: Driven by connected PC) BT LE QRCT Version: 4.0.210.0 (Date: 2022.10 17, Storage location: Driven by connected PC) *1) Actual measurement output power and set-up output power are different. *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. 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/ax mode by the pre-test.	

* Details of Operating Mode(s)

Test Item	Operating Mode	Tested Antenna	Tested Frequency
Conducted Emission, Radiated Spurious Emission (Below 1 GHz) Conducted Spurious Emission	Tx 11ax-20(OFDM)(CDD) *1)	2G_CH0 + 2G_CH1	2462 MHz
	Tx BT LE 2M-PHY *1)	2G_CH0	2402 MHz
Maximum Peak Output Power	Tx 11b Tx 11g, Tx 11n-20, Tx 11ax-20 (OFDM), Tx 11ax-20 (OFDMA),	2G_CH0 + 2G_CH1	2412 MHz 2437 MHz 2462 MHz
	Tx BT LE 1M-PHY Tx BT LE Coded S=8 Tx BT LE Coded S=2 Tx BT LE 2M-PHY	2G_CH0	2402 MHz 2440 MHz 2480 MHz
6 dB Bandwidth, 99 % Occupied Bandwidth	Tx 11b Tx 11g, Tx 11n-20, Tx 11ax-20 (OFDM), Tx 11ax-20 (OFDMA)	2G_CH0	2412 MHz 2437 MHz 2462 MHz
	Tx BT LE 1M-PHY Tx BT LE Coded S=8 Tx BT LE Coded S=2 Tx BT LE 2M-PHY	2G_CH0	2402 MHz 2440 MHz 2480 MHz
Radiated Spurious Emission (Above 1 GHz)	Tx 11b Tx 11g, Tx 11n-20, Tx 11ax-20 (OFDM), Tx 11ax-20 (OFDMA) *2)	2G_CH0 + 2G_CH1	2412 MHz 2437 MHz 2462 MHz
	Tx BT LE 1M-PHY Tx BT LE 2M-PHY	2G_CH0	2402 MHz 2440 MHz 2480 MHz
Power Density	Tx 11b, Tx 11g, Tx 11n-20, Tx 11ax-20 (OFDM), Tx 11ax-20 (OFDMA)	2G_CH0 + 2G_CH1	2412 MHz 2437 MHz 2462 MHz
	Tx BT LE 1M-PHY Tx BT LE Coded S=8 Tx BT LE Coded S=2 Tx BT LE 2M-PHY	2G_CH0	2402 MHz 2440 MHz 2480 MHz
*1) The mode was tested as a representative, because it had the highest power at antenna terminal test. Conducted emissions and Spurious emissions for frequencies below 1 GHz were limited to the channel that had the highest power during the antenna terminal test, as preliminary testing indicated that changing the operating frequency had no significant impact on the emissions in those frequency bands. *2) OFDMA configuration tests were conducted only at the band edge since preliminary testing indicated that the other spurious emission was lower than OFDM			

4.2 Configuration and Peripherals

<For Conducted Emission and Radiated Emission Tests>



*1) For Conducted Emission test.

* 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	Communication Module	2CX	#01 A-1 *1)	Murata	EUT
B	Antenna (monopole)	chain0_monopole_2.4GHz	#12	SONY	EUT
C	Antenna (monopole)	chain1_monopole_2.4GHz	#8	SONY	EUT
D	Antenna (slot)	chain1_monopole_2.4GHz	#4	SONY	EUT
E	Jig Board	P2ML10932	#01	Murata	-
F	LDO Board	P2ML8516	#01	Murata	-
G	Mini PC	Brix	1449631682	GIGABYTE	-
H	SSD	SSD370S	C78637-2668	Transcend	-
I	Ethernet-USB Adaptor	ETG5-US3	BC500102349C	I/O DATA	-
J	Laptop PC	HQAMB407	2F4A7B36-42D1-4E7B-9A50-E92517A62729	Dynabook Inc.	-
K	AC Adaptor	PA5177U-1ACA	K80611667CGD	Dynabook Inc.	-
L	DC Power supply	PAN35-10A	CY003459	Kikusui Electronics Corp.	-
M	DC Power supply	PAN35-10A	CY002947	Kikusui Electronics Corp.	-

*1) Used for Conducted Emission test for BT LE.

List of Cables Used

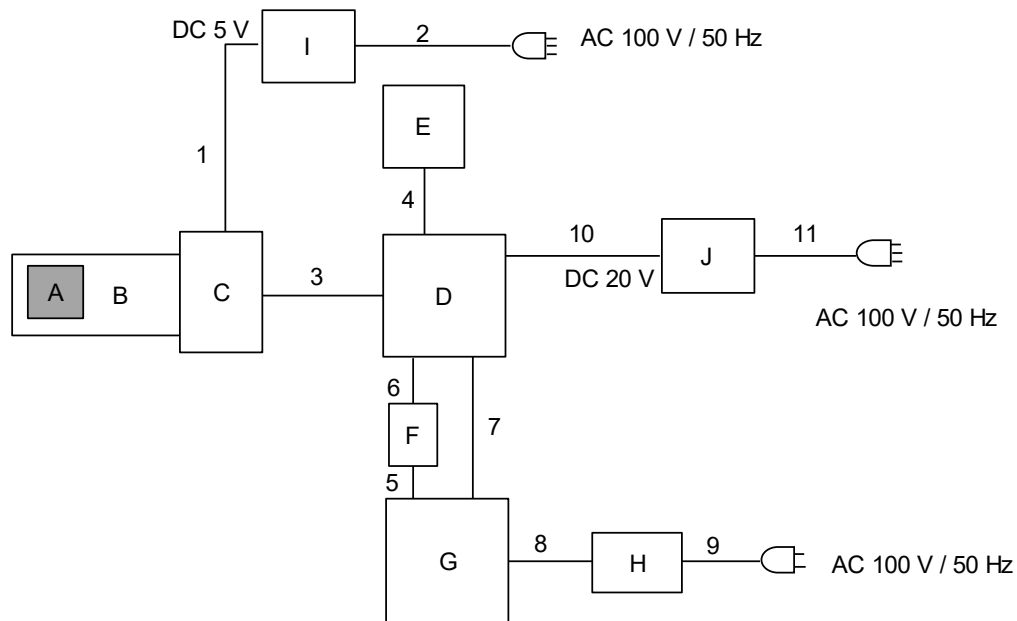
No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Antenna	0.1	Shielded	Shielded	-
2	Antenna	0.1	Shielded	Shielded	-
3	DC	1.7	Unshielded	Unshielded	-
4	AC	2.8	Unshielded	Unshielded	-
5	Signal	1.0 *1) *3) 0.15 *2)	Unshielded	Unshielded	-
6	Signal	0.1	Shielded	Shielded	-
7	USB	0.06	Shielded	Shielded	-
8	Ether	2.0	Unshielded	Unshielded	-
9	USB	0.5 *1) 2.5 *2) *3)	Shielded	Shielded	-
10	DC	0.4	Unshielded	Unshielded	-
11	AC	1.7	Unshielded	Unshielded	-
12	DC	1.0 *1) *3) 2.5 *2)	Unshielded	Unshielded	-
13	AC	2.8	Unshielded	Unshielded	-

*1) Used for Radiated Emission test for Above 1 GHz.

*2) Used for Radiated Emission test for Below 1 GHz.

*3) Used for Conducted Emission test.

<For Antenna Terminal Conducted Test>



Description of EUT and Support Equipment

No.	Item	Model Number	Serial Number	Manufacturer	Remarks
A	Communication Module	2CX	A-2	Murata	EUT
B	Jig Board	P2ML10932	A-2	Murata	-
C	LDO Board	P2ML8516	A-2	Murata	-
D	Mini PC	Brix	1505631984	GIGABYTE	-
E	SSD	SSD370S	C78637-2668	Transcend	-
F	Ethernet-USB Adaptor	ETG5-US3	BC500102349C	I/O DATA	-
G	Laptop PC	HQAMB407	2F4A7B36-42D1-4E7B-9A50-E92517A62729	Dynabook Inc.	-
H	AC Adaptor	PA5177U-1ACA	K80611667CGD	Dynabook Inc.	-
I	DC Power supply	PWR800M	QJ003485	Kikusui Electronics Corp.	-
J	DC power supply	PW8-5ADPS	14086035	TEXIO	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	1.7	Unshielded	Unshielded	-
2	AC	2.8	Unshielded	Unshielded	-
3	Signal	0.15	Unshielded	Unshielded	-
4	Signal	0.1	Shielded	Shielded	-
5	USB	0.06	Shielded	Shielded	-
6	Ether	1.0	Unshielded	Unshielded	-
7	USB	0.5	Shielded	Shielded	-
8	DC	0.4	Unshielded	Unshielded	-
9	AC	1.7	Unshielded	Unshielded	-
10	DC	1.0	Unshielded	Unshielded	-
11	AC	2.8	Unshielded	Unshielded	-

SECTION 5: Conducted Emission

Test Procedure and Conditions

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

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

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

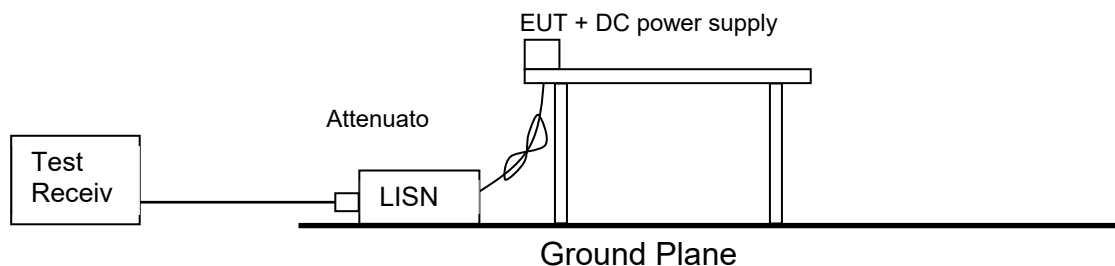
The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Shielded Room. The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

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

Detector	: QP and CISPR AV
Measurement Range	: 0.15 MHz to 30 MHz
Test Data	: APPENDIX
Test Result	: Pass

Figure 1: Test Setup



SECTION 6: Radiated Spurious Emission

Test Procedure

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

[For below 1 GHz]

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

[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. 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 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.

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

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

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

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

Test Antennas are used as below;

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

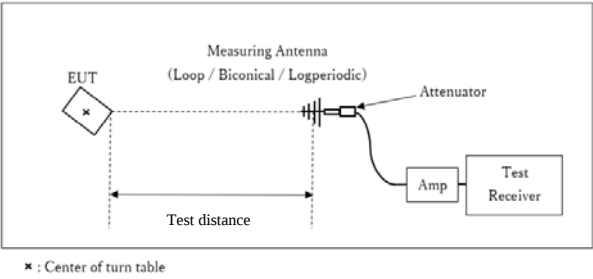
In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired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

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

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

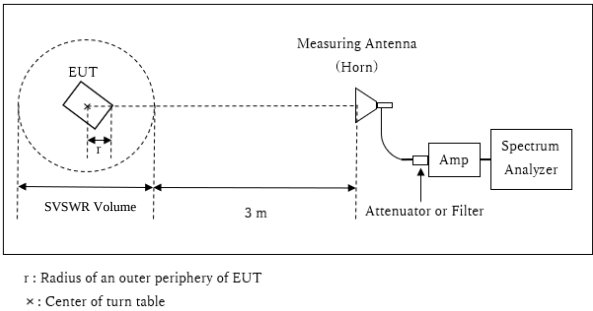
Figure 2: Test Setup

Below 1 GHz



Test Distance: 3 m

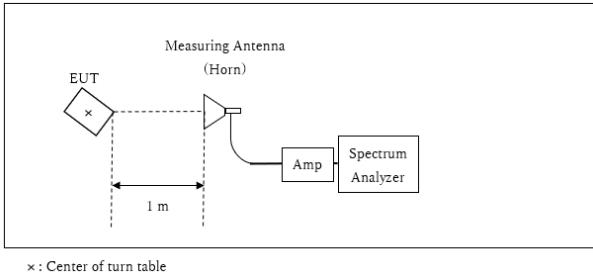
1 GHz to 10 GHz



Distance Factor: $20 \times \log (3.86 \text{ m} / 3.0 \text{ m}) = 2.19 \text{ dB}$
* Test Distance: $(3 + \text{SVSWR Volume} / 2) - r = 3.86 \text{ m}$

SVSWR Volume : 2.0 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
 $r = 0.14 \text{ m}$

10 GHz to 26.5 GHz



Distance Factor: $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$
*Test Distance: 1 m

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

WLAN

(2G_CH0: monopole antenna, 2G_CH1: monopole antenna)

	Antenna polarization	Carrier	Spurious (30 MHz - 1 GHz)	Spurious (1 GHz - 2.8 GHz)	Spurious (2.8 GHz - 10 GHz)	Spurious (10 GHz - 18 GHz)	Spurious (18 GHz - 26.5 GHz)
Module	Horizontal	Y	X	Y	Y	X	X
	Vertical	Y	Z	Y	Y	X	X
Antenna (2G_CH0)	Horizontal	X	X	X	X	X	X
	Vertical	Y	X	Y	Y	X	X
Antenna (2G_CH1)	Horizontal	X	X	X	X	X	X
	Vertical	Y	X	Y	Y	X	X

(2G_CH0: monopole antenna, 2G_CH1: slot antenna)

	Antenna polarization	Carrier	Spurious (30 MHz - 1 GHz)	Spurious (1 GHz - 2.8 GHz)	Spurious (2.8 GHz - 10 GHz)	Spurious (10 GHz - 18 GHz)	Spurious (18 GHz - 26.5 GHz)
Module	Horizontal	Y	X	Y	Y	X	X
	Vertical	Y	Z	Y	Y	X	X
Antenna (2G_CH0)	Horizontal	X	X	X	X	X	X
	Vertical	Y	X	Y	Y	X	X
Antenna (2G_CH1)	Horizontal	Y	X	Y	Y	X	X
	Vertical	Z	X	Z	Z	X	X

BT LE

	Antenna polarization	Carrier	Spurious (30 MHz - 1 GHz)	Spurious (1 GHz - 2.8 GHz)	Spurious (2.8 GHz - 10 GHz)	Spurious (10 GHz - 18 GHz)	Spurious (18 GHz - 26.5 GHz)
Module	Horizontal	Y	X	Y	Y	X	X
	Vertical	Y	Z	Y	Y	X	X
Antenna (2G_CH0)	Horizontal	X	X	X	X	X	X
	Vertical	Y	X	Y	Y	X	X

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

Measurement Range : 30 MHz to 26.5 GHz
Test Data : APPENDIX
Test Result : Pass

SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument Used
6dB Bandwidth	50 MHz	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth *1)	Enough width to display emission skirts	1 to 5 % of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak/ Average *2)	-	Power Meter (Sensor: 160 MHz BW)
Peak Power Density	1.5 times the 6dB Bandwidth	3 kHz	9.1 kHz	Auto	Peak	Mx Hold	Spectrum Analyzer *3)
Conducted Spurious Emission *4) *5)	9 kHz to 150 kHz 150 kHz to 30 MHz	200 Hz 10 kHz	620 Hz 30 kHz	Auto	Peak	Max Hold	Spectrum Analyzer

*1) Peak hold was applied as Worst-case measurement.

*2) Reference data

*3) Section 11.10.2 Method PKPSD (peak PSD) of "ANSI C63.10-2013".

*4) In the frequency range below 30MHz, RBW was narrowed to separate the noise contents. Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.

(9 kHz - 150 kHz: RBW = 200 Hz, 150 kHz - 30 MHz: RBW = 9.1 kHz)

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

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

Test Data : APPENDIX
Test Result : Pass

APPENDIX 1: Test Data

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.2 Shielded Room
Date : 2024/06/24

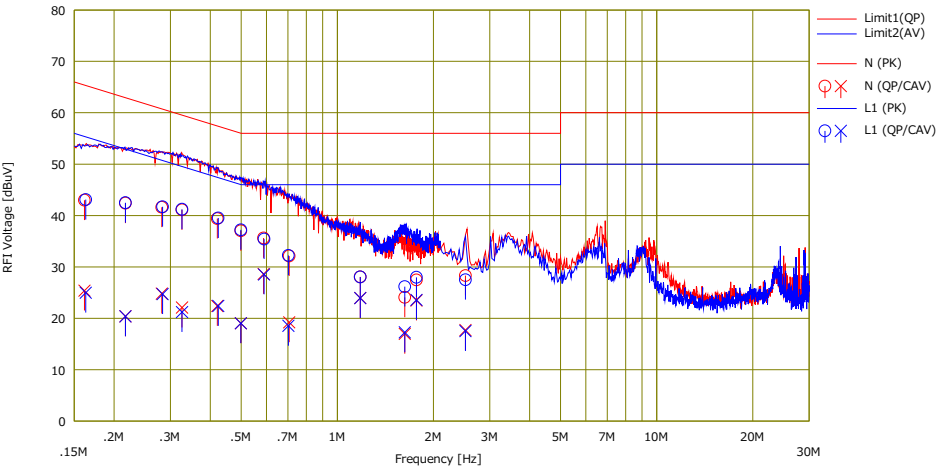
Mode : Tx 11ax-20 2462 MHz

Power : DC 5 V
Temp./Humi. : 24 deg.C / 37 %RH

Remarks : mono

Limit : FCC_Part 15 Subpart C(15.207)

Engineer : Yasumasa Owaki



No.	Freq. [MHz]	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		(QP)	(CAV)		(QP)	(CAV)	(QP)	(AV)	(QP)	(AV)		
		[dBuV]	[dBuV]		[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]		
1	0.16152	27.60	10.00	15.40	43.00	25.40	65.39	55.39	22.3	29.9	N	
2	0.21708	27.00	5.00	15.39	42.39	20.39	62.93	52.93	20.5	32.5	N	
3	0.28207	26.20	9.40	15.41	41.61	24.81	60.75	50.75	19.1	25.9	N	
4	0.32642	25.70	6.70	15.40	41.10	22.10	59.54	49.54	18.4	27.4	N	
5	0.42114	24.00	7.00	15.40	39.40	22.40	57.43	47.43	18.0	25.0	N	
6	0.49901	21.60	3.60	15.43	37.03	19.03	56.02	46.02	18.9	26.9	N	
7	0.58789	20.20	13.20	15.43	35.63	28.63	56.00	46.00	20.3	17.3	N	
8	0.70677	16.70	3.80	15.43	32.13	19.23	56.00	46.00	23.8	26.7	N	
9	1.18015	12.60	8.50	15.46	28.06	23.96	56.00	46.00	27.9	22.0	N	
10	1.62668	8.60	1.50	15.47	24.07	16.97	56.00	46.00	31.9	29.0	N	
11	1.76939	12.00	8.00	15.47	27.47	23.47	56.00	46.00	28.5	22.5	N	
12	2.52067	12.80	2.20	15.52	28.32	17.72	56.00	46.00	27.6	28.2	N	
13	0.16312	27.70	9.60	15.39	43.09	24.99	65.30	55.30	22.2	30.3	L1	
14	0.21708	27.10	5.00	15.39	42.49	20.39	62.93	52.93	20.4	32.5	L1	
15	0.28373	26.30	9.30	15.41	41.71	24.71	60.71	50.71	19.0	26.0	L1	
16	0.32642	25.80	5.80	15.41	41.21	21.21	59.54	49.54	18.3	28.3	L1	
17	0.42379	24.10	7.00	15.41	39.51	22.41	57.37	47.37	17.8	24.9	L1	
18	0.49901	21.80	3.60	15.42	37.22	19.02	56.02	46.02	18.8	27.0	L1	
19	0.59002	20.00	13.10	15.42	35.42	28.52	56.00	46.00	20.5	17.4	L1	
20	0.70248	16.80	3.10	15.44	32.24	18.54	56.00	46.00	23.7	27.4	L1	
21	1.18003	12.60	8.50	15.45	28.05	23.95	56.00	46.00	27.9	22.0	L1	
22	1.62668	10.70	1.80	15.46	26.16	17.26	56.00	46.00	29.8	28.7	L1	
23	1.76900	12.50	8.10	15.48	27.98	23.58	56.00	46.00	28.0	22.4	L1	
24	2.52067	12.00	2.00	15.51	27.51	17.51	56.00	46.00	28.4	28.4	L1	

Calculation: Result[dBuV]=Reading[dBuV]+C.Fac(LISN(AMN)+Cable+ATT)[dB]
LISN(AMN)=145548/145549

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.2 Shielded Room
Date : 2024/06/24

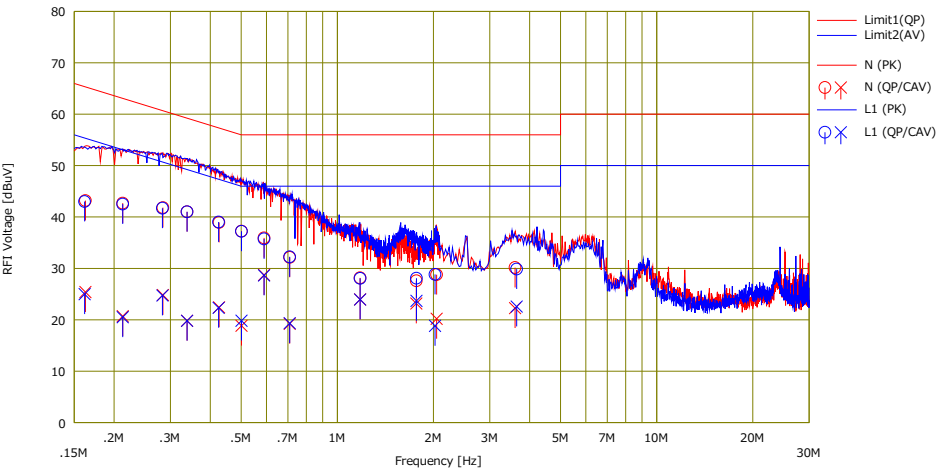
Mode : Tx 11ax-20 2462 MHz

Power : DC 5 V
Temp./Humi. : 24 deg.C / 37 %RH

Remarks : slot

Limit : FCC_Part 15 Subpart C(15.207)

Engineer : Yasumasa Owaki



No.	Freq. [MHz]	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		(QP)	(CAV)		(QP)	(CAV)	(QP)	(AV)	(QP)	(AV)		
		[dBuV]	[dBuV]		[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.16259	27.80	10.00	15.40	43.20	25.40	65.33	55.33	22.1	29.9	N	
2	0.21281	27.30	5.30	15.39	42.69	20.69	63.09	53.09	20.4	32.4	N	
3	0.28447	26.40	9.40	15.41	41.81	24.81	60.68	50.68	18.8	25.8	N	
4	0.33842	25.60	4.40	15.40	41.00	19.80	59.24	49.24	18.2	29.4	N	
5	0.42617	23.50	7.00	15.41	38.91	22.41	57.33	47.33	18.4	24.9	N	
6	0.50095	21.80	3.40	15.43	37.23	18.83	56.00	46.00	18.7	27.1	N	
7	0.58959	20.50	13.30	15.43	35.93	28.73	56.00	46.00	20.0	17.2	N	
8	0.70992	16.70	3.80	15.43	32.13	19.23	56.00	46.00	23.8	26.7	N	
9	1.17831	12.70	8.50	15.46	28.16	23.96	56.00	46.00	27.8	22.0	N	
10	1.76846	12.10	7.70	15.47	27.57	23.17	56.00	46.00	28.4	22.8	N	
11	2.04668	13.30	4.70	15.48	28.78	20.18	56.00	46.00	27.2	25.8	N	
12	3.60201	14.60	6.70	15.56	30.16	22.26	56.00	46.00	25.8	23.7	N	
13	0.16172	27.60	9.60	15.39	42.99	24.99	65.38	55.38	22.3	30.3	L1	
14	0.21281	27.10	5.10	15.39	42.49	20.49	63.09	53.09	20.6	32.6	L1	
15	0.28339	26.30	9.30	15.41	41.71	24.71	60.72	50.72	19.0	26.0	L1	
16	0.33842	25.60	4.40	15.40	41.00	19.80	59.24	49.24	18.2	29.4	L1	
17	0.42514	23.60	6.90	15.41	39.01	22.31	57.35	47.35	18.3	25.0	L1	
18	0.50095	21.80	4.40	15.42	37.22	19.82	56.00	46.00	18.7	26.1	L1	
19	0.58968	20.30	13.20	15.42	35.72	28.62	56.00	46.00	20.2	17.3	L1	
20	0.70915	16.80	3.90	15.44	32.24	19.34	56.00	46.00	23.7	26.6	L1	
21	1.17942	12.60	8.50	15.45	28.05	23.95	56.00	46.00	27.9	22.0	L1	
22	1.76933	12.60	8.20	15.48	28.08	23.68	56.00	46.00	27.9	22.3	L1	
23	2.02369	13.30	3.30	15.51	28.81	18.81	56.00	46.00	27.1	27.1	L1	
24	3.64301	14.30	7.00	15.56	29.86	22.56	56.00	46.00	26.1	23.4	L1	

Calculation: Result[dBuV]=Reading[dBuV]+C.Fac(LISN(AMN))+Cable+ATT[dB]
LISN(AMN)=145548/145549

Conducted Emission

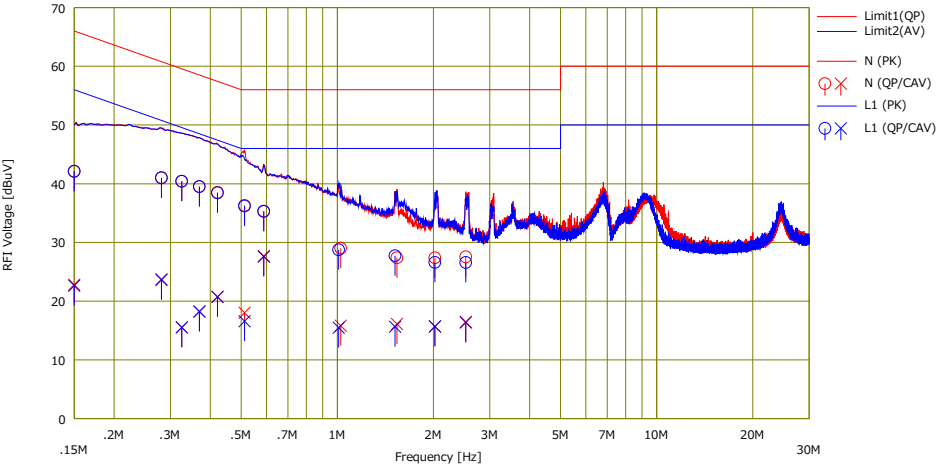
DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2024/07/01

Mode : Tx, BT LE (2M-PHY) 2402 MHz
Power : DC 5.0 V (AC 120 V / 60 Hz)
Temp./Humi. : 23 deg.C. / 39 %RH

Remarks : -

Limit : FCC_Part 15 Subpart C(15.207)
Engineer : Yusuke Tanikawara



No.	Freq. [MHz]	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		(QP)	(CAV)		(QP)	(CAV)	(QP)	(AV)	(QP)	(AV)		
		[dBuV]	[dBuV]		[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15003	26.74	7.42	15.39	42.13	22.81	66.00	56.00	23.8	33.1	N	
2	0.28135	25.64	8.33	15.41	41.05	23.74	60.78	50.78	19.7	27.0	N	
3	0.32575	25.01	0.13	15.40	40.41	15.53	59.56	49.56	19.1	34.0	N	
4	0.36983	24.12	2.81	15.40	39.52	18.21	58.50	48.50	18.9	30.2	N	
5	0.42168	23.12	5.33	15.40	38.52	20.73	57.41	47.41	18.8	26.6	N	
6	0.51221	20.88	2.60	15.43	36.31	18.03	56.00	46.00	19.6	27.9	N	
7	0.58882	19.91	12.25	15.43	35.34	27.68	56.00	46.00	20.6	18.3	N	
8	1.02496	13.57	0.37	15.45	29.02	15.82	56.00	46.00	26.9	30.1	N	
9	1.53780	11.92	0.65	15.47	27.39	16.12	56.00	46.00	28.6	29.8	N	
10	2.02208	11.91	0.20	15.48	27.39	15.68	56.00	46.00	28.6	30.3	N	
11	2.52627	12.02	0.96	15.52	27.54	16.48	56.00	46.00	28.4	29.5	N	
12	0.15003	26.69	7.25	15.40	42.09	22.65	66.00	56.00	23.9	33.3	L1	
13	0.28135	25.56	8.22	15.41	40.97	23.63	60.78	50.78	19.8	27.1	L1	
14	0.32575	25.01	0.13	15.41	40.42	15.54	59.56	49.56	19.1	34.0	L1	
15	0.36983	24.10	2.85	15.40	39.50	18.25	58.50	48.50	19.0	30.2	L1	
16	0.42168	23.03	5.33	15.41	38.44	20.74	57.41	47.41	18.9	26.6	L1	
17	0.51221	20.76	1.16	15.42	36.18	16.58	56.00	46.00	19.8	29.4	L1	
18	0.58882	19.85	12.17	15.42	35.27	27.59	56.00	46.00	20.7	18.4	L1	
19	1.01038	13.32	0.07	15.43	28.75	15.50	56.00	46.00	27.2	30.5	L1	
20	1.51621	12.28	0.20	15.45	27.73	15.65	56.00	46.00	28.2	30.3	L1	
21	2.02208	11.09	0.21	15.51	26.60	15.72	56.00	46.00	29.4	30.2	L1	
22	2.52627	11.08	0.85	15.51	26.59	16.36	56.00	46.00	29.4	29.6	L1	

Calculation: Result[dBuV]=Reading[dBuV]+C.Fac(LISN(AMN)+Cable+ATT)[dB]
LISN(AMN)=145542

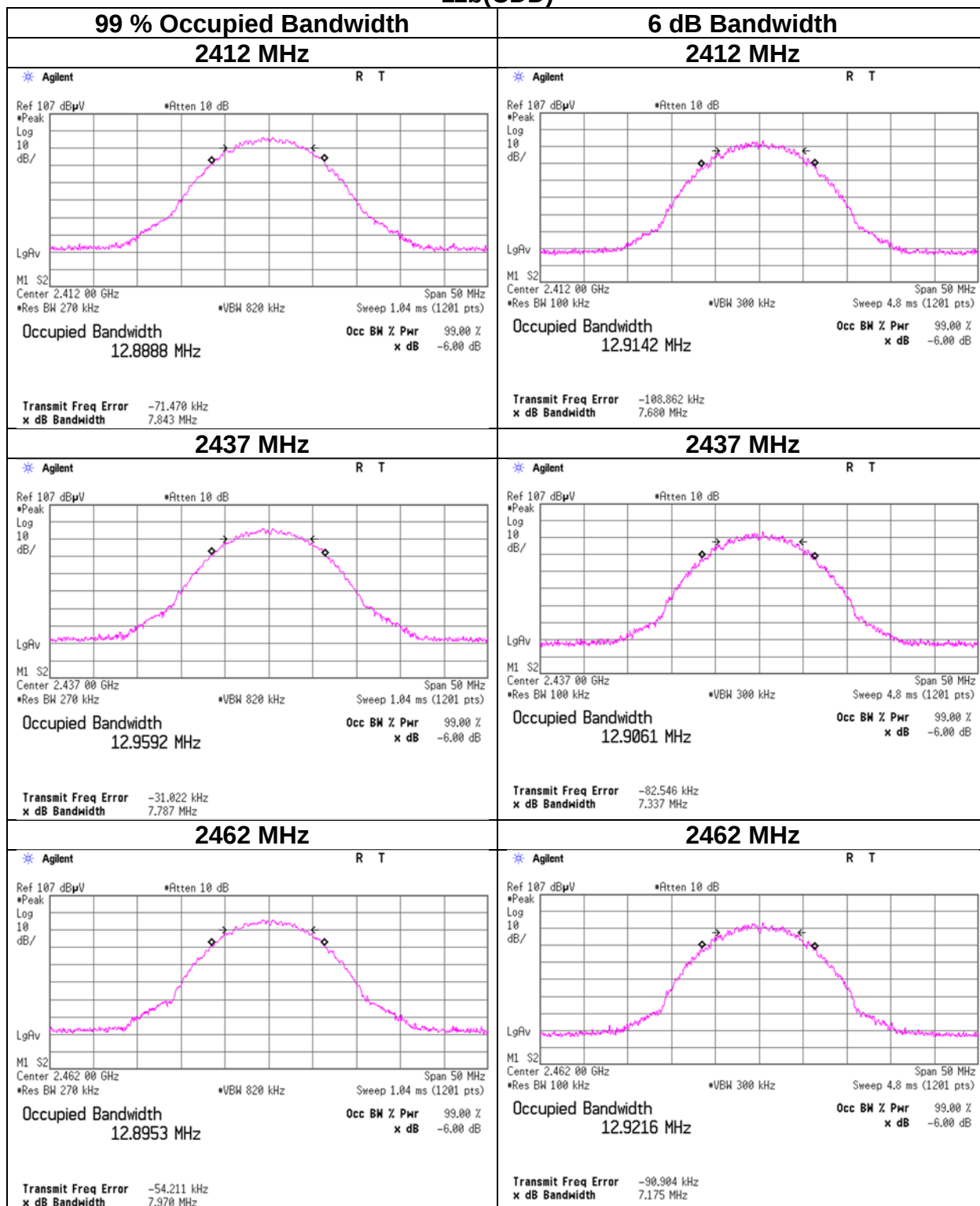
99 % Occupied Bandwidth and 6 dB Bandwidth

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 31, 2023
Temperature / 23 deg. C / 57 % RH
Humidity
Engineer Kouki Yamada
Mode Tx

Mode	Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
11b	2412	12888.8	7.680	> 0.5000
	2437	12959.2	7.337	> 0.5000
	2462	12895.3	7.175	> 0.5000
11g	2412	16810.0	16.536	> 0.5000
	2437	16788.2	16.574	> 0.5000
	2462	16789.4	16.552	> 0.5000
11n-20	2412	18184.0	17.794	> 0.5000
	2437	18202.6	17.781	> 0.5000
	2462	18199.2	17.820	> 0.5000
11ax-20 (OFDM)	2412	19211.4	19.149	> 0.5000
	2437	19216.4	19.153	> 0.5000
	2462	19237.8	19.145	> 0.5000

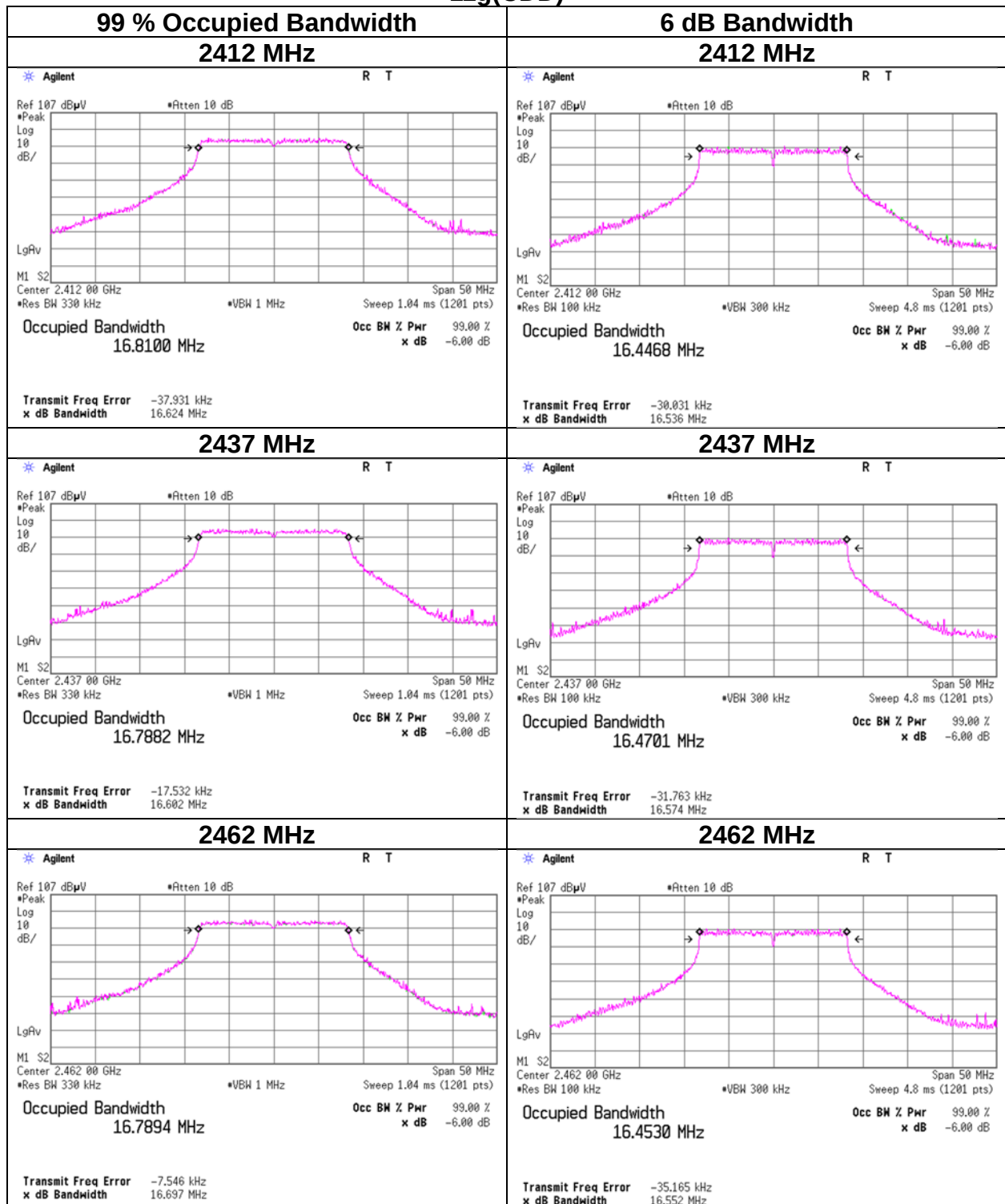
99 % Occupied Bandwidth and 6 dB Bandwidth

11b(CDD)



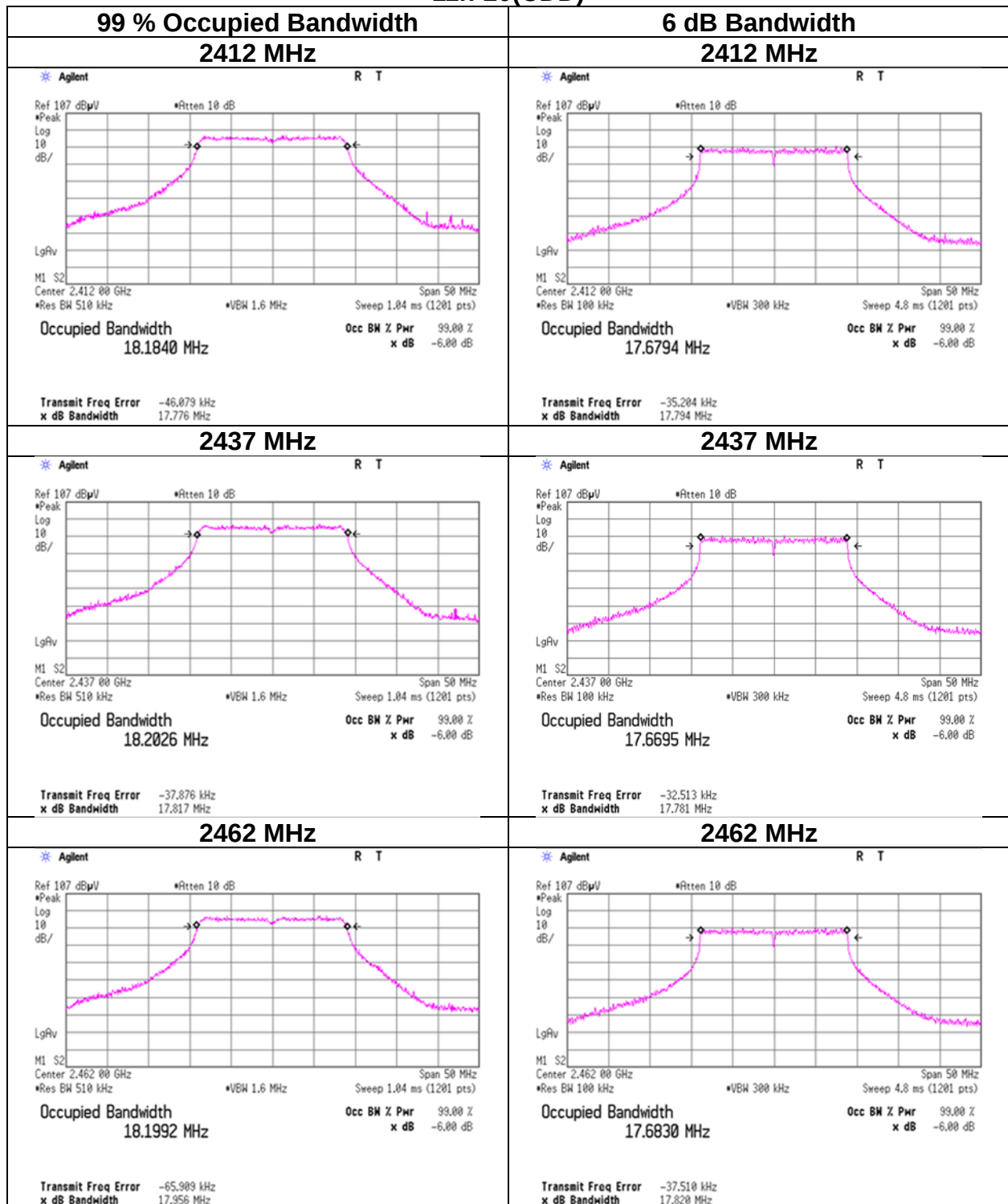
99 % Occupied Bandwidth and 6 dB Bandwidth

11g(CDD)



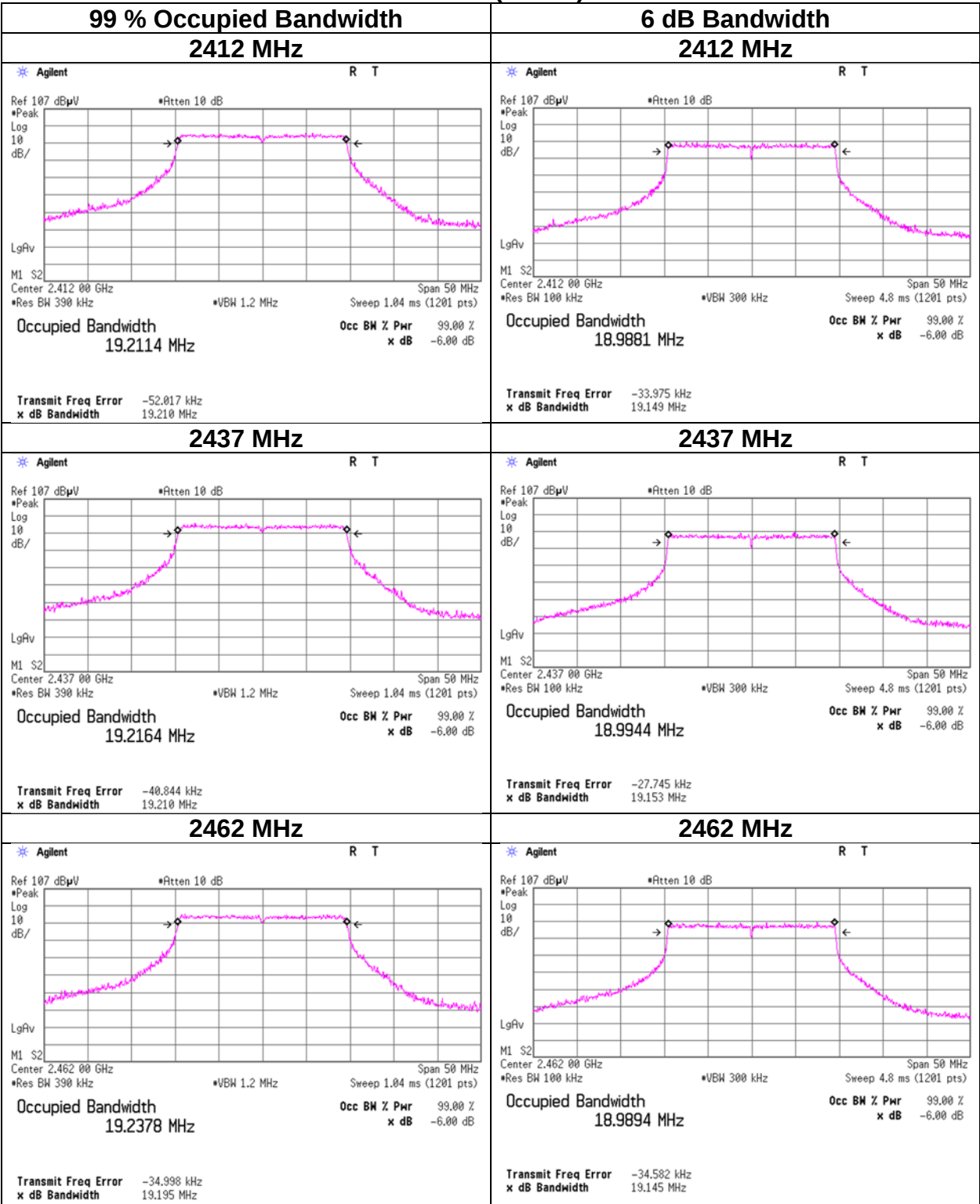
99 % Occupied Bandwidth and 6 dB Bandwidth

11n-20(CDD)



99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDM)



99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Shonan EMC Lab. No.5 Shielded Room		
Date	September 4, 2023	September 25, 2023	September 27, 2023
Temperature / Humidity	23 deg. C / 53 % RH	23 deg. C / 47 % RH	24 deg. C / 49 % RH
Engineer	Miku Ikudome	Miku Ikudome	Miku Ikudome
Mode	Tx 11ax-20(OFDMA)		

Mode	Frequency [MHz]	RU index	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
26-tone RU	2412	0	19073.7	2.060	> 0.5000
		4	17467.8	2.657	> 0.5000
		8	19006.6	2.055	> 0.5000
	2437	0	19027.5	2.069	> 0.5000
		4	17454.0	2.656	> 0.5000
		8	19054.1	2.088	> 0.5000
	2462	0	19103.9	2.082	> 0.5000
		4	17468.9	2.662	> 0.5000
		8	19040.6	2.050	> 0.5000
52-tone RU	2412	37	18498.9	4.081	> 0.5000
		38	17492.0	4.150	> 0.5000
		40	18384.5	4.062	> 0.5000
	2437	37	18543.5	4.085	> 0.5000
		38	17443.6	4.117	> 0.5000
		40	18603.9	4.128	> 0.5000
	2462	37	18542.2	4.071	> 0.5000
		38	17488.4	4.138	> 0.5000
		40	18366.5	4.067	> 0.5000
106-tone RU	2412	53	18649.0	8.440	> 0.5000
		54	18420.9	8.391	> 0.5000
	2437	53	18474.0	8.440	> 0.5000
		54	18413.2	8.361	> 0.5000
	2462	53	18527.8	8.433	> 0.5000
		54	18390.9	8.368	> 0.5000
242-tone RU	2412	61	19134.6	19.093	> 0.5000
	2437	61	19161.0	19.087	> 0.5000
	2462	61	19108.3	19.085	> 0.5000

99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 26-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	2412 MHz
RU Index 0	RU Index 0
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.412 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Span 50 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 19.0737 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -877.859 kHz x dB Bandwidth 2.422 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.404 000 GHz *Res BW 100 kHz *VBW 300 kHz Span 5 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.0866 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 272.565 kHz x dB Bandwidth 2.060 MHz
RU Index 4	RU Index 4
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.412 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Span 50 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 17.4678 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -39.650 kHz x dB Bandwidth 2.715 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.412 000 GHz *Res BW 100 kHz *VBW 300 kHz Span 5 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.7785 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 61.273 kHz x dB Bandwidth 2.657 MHz
RU Index 8	RU Index 8
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.412 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Span 50 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 19.0066 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 758.789 kHz x dB Bandwidth 2.245 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.420 000 GHz *Res BW 100 kHz *VBW 300 kHz Span 5 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 3.9620 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -353.542 kHz x dB Bandwidth 2.055 MHz

99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 26-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2437 MHz	2437 MHz
RU Index 0	RU Index 0
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Center 2.437 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 19.0275 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -877.775 kHz x dB Bandwidth 2.220 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Center 2.429 000 GHz *Res BW 100 kHz *VBW 300 kHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.1736 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 220.268 kHz x dB Bandwidth 2.069 MHz
RU Index 4	RU Index 4
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Center 2.437 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 17.4540 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -32.632 kHz x dB Bandwidth 2.761 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Center 2.437 000 GHz *Res BW 100 kHz *VBW 300 kHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.7792 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 60.697 kHz x dB Bandwidth 2.656 MHz
RU Index 8	RU Index 8
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Center 2.437 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 19.0541 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 782.031 kHz x dB Bandwidth 2.194 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Center 2.445 000 GHz *Res BW 100 kHz *VBW 300 kHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 3.9959 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -341.577 kHz x dB Bandwidth 2.068 MHz

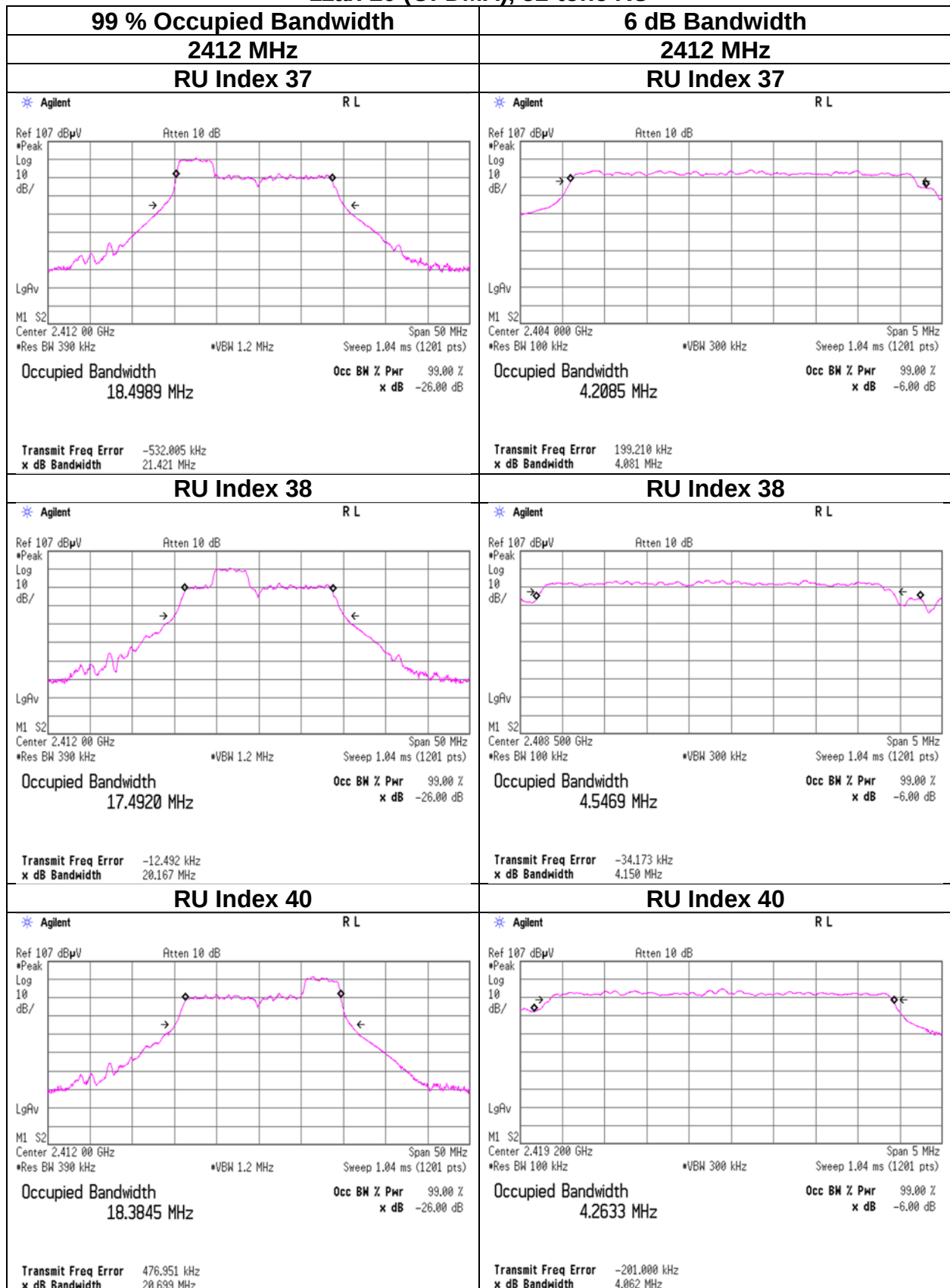
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 26-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2462 MHz	2462 MHz
RU Index 0	RU Index 0
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.462 00 GHz *Res BW 390 kHz Span 50 MHz *VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 19.1039 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -917.890 kHz x dB Bandwidth 2.178 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.454 000 GHz *Res BW 100 kHz Span 5 MHz *VBW 300 kHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.0624 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 282.009 kHz x dB Bandwidth 2.082 MHz
RU Index 4	RU Index 4
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.462 00 GHz *Res BW 390 kHz Span 50 MHz *VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 17.4689 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -44.166 kHz x dB Bandwidth 2.734 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.462 000 GHz *Res BW 100 kHz Span 5 MHz *VBW 300 kHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.7751 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 62.294 kHz x dB Bandwidth 2.662 MHz
RU Index 8	RU Index 8
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.462 00 GHz *Res BW 390 kHz Span 50 MHz *VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 19.0406 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 768.289 kHz x dB Bandwidth 2.194 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.470 000 GHz *Res BW 100 kHz Span 5 MHz *VBW 300 kHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 3.9557 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -363.662 kHz x dB Bandwidth 2.050 MHz

99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 52-tone RU



99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 52-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2437 MHz	2437 MHz
RU Index 37	RU Index 37
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.437 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Span 50 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 18.5435 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -588.794 kHz x dB Bandwidth 21.407 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.429 000 GHz *Res BW 100 kHz *VBW 300 kHz Span 5 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.2437 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 176.438 kHz x dB Bandwidth 4.085 MHz
RU Index 38	RU Index 38
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.437 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Span 50 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 17.4436 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -19.776 kHz x dB Bandwidth 20.043 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.433 500 GHz *Res BW 100 kHz *VBW 300 kHz Span 5 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.5720 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -48.389 kHz x dB Bandwidth 4.117 MHz
RU Index 40	RU Index 40
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.437 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Span 50 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 18.6039 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 572.615 kHz x dB Bandwidth 21.149 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.444 200 GHz *Res BW 100 kHz *VBW 300 kHz Span 5 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.3456 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -161.204 kHz x dB Bandwidth 4.128 MHz

99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 52-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2462 MHz	2462 MHz
RU Index 37	RU Index 37
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.462 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Span 50 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 18.5422 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -581.194 kHz x dB Bandwidth 21.302 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.454 000 GHz *Res BW 100 kHz *VBW 300 kHz Span 5 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.2395 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error 179.481 kHz x dB Bandwidth 4.071 MHz
RU Index 38	RU Index 38
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.462 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Span 50 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 17.4884 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -20.623 kHz x dB Bandwidth 20.144 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.458 500 GHz *Res BW 100 kHz *VBW 300 kHz Span 5 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.5487 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -41.211 kHz x dB Bandwidth 4.138 MHz
RU Index 40	RU Index 40
Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.462 00 GHz *Res BW 390 kHz *VBW 1.2 MHz Span 50 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 18.3665 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 443.455 kHz x dB Bandwidth 20.815 MHz	Agilent R L Ref 107 dBμV *Peak Log 10 dB/ LgAv Atten 10 dB M1 S2 Center 2.463 200 GHz *Res BW 100 kHz *VBW 300 kHz Span 5 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 4.2453 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -207.534 kHz x dB Bandwidth 4.067 MHz

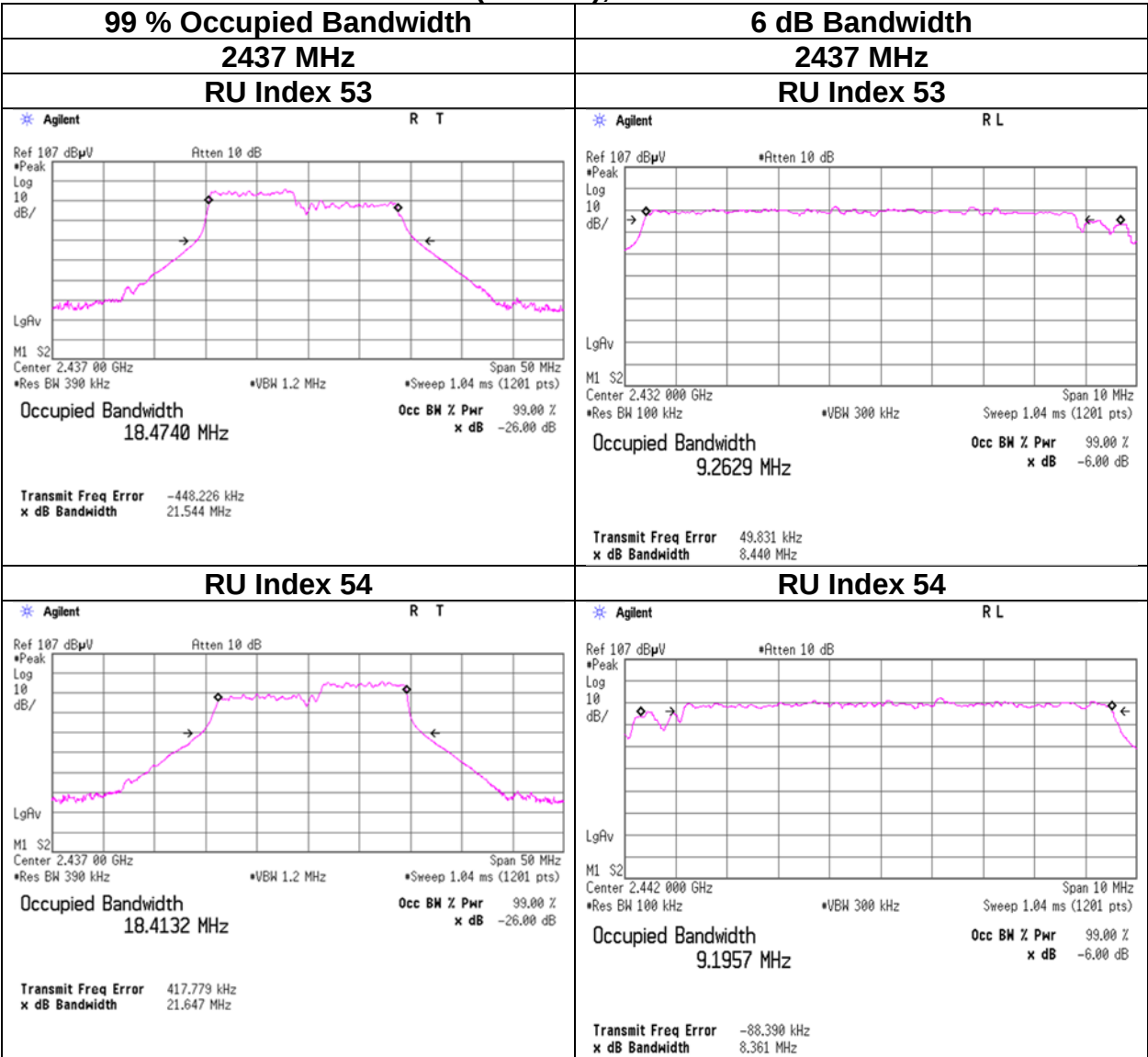
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 106-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	2412 MHz
RU Index 53	RU Index 53
Agilent R T Ref 107 dBμV Atten 10 dB M1 S2 Center 2.412 00 GHz Res BW 390 kHz Span 50 MHz VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 18.6490 MHz Transmit Freq Error -515.100 kHz x dB Bandwidth 22.564 MHz	Agilent R L Ref 107 dBμV Atten 10 dB M1 S2 Center 2.406 000 GHz Res BW 100 kHz Span 10 MHz VBW 300 kHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 8.3801 MHz Transmit Freq Error 597.160 kHz x dB Bandwidth 8.440 MHz
RU Index 54	RU Index 54
Agilent R T Ref 107 dBμV Atten 10 dB M1 S2 Center 2.412 00 GHz Res BW 390 kHz Span 50 MHz VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 18.4209 MHz Transmit Freq Error 421.849 kHz x dB Bandwidth 21.573 MHz	Agilent R L Ref 107 dBμV Atten 10 dB M1 S2 Center 2.418 000 GHz Res BW 100 kHz Span 10 MHz VBW 300 kHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 8.3550 MHz Transmit Freq Error -654.985 kHz x dB Bandwidth 8.391 MHz

99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 106-tone RU



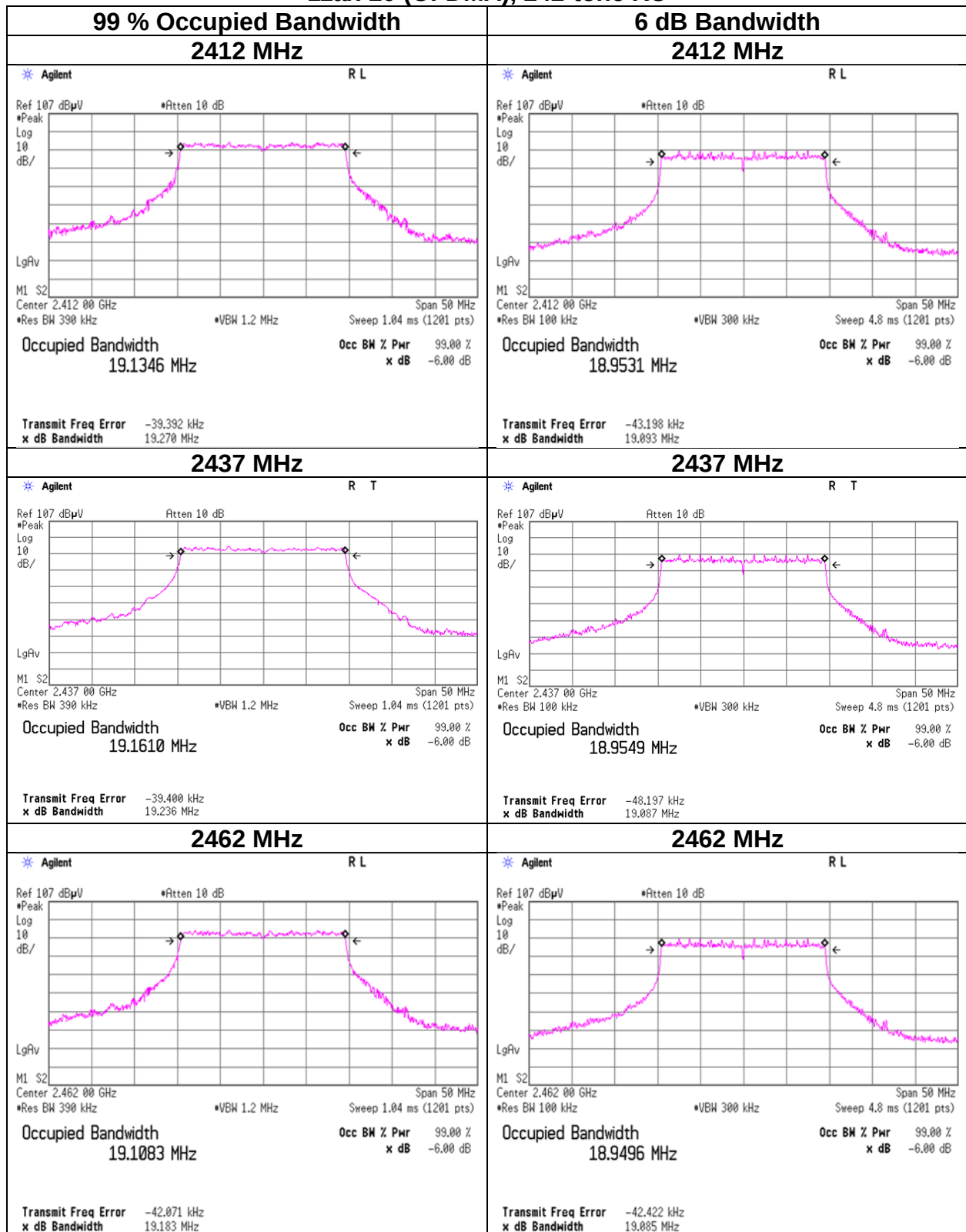
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 106-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2462 MHz	2462 MHz
RU Index 53	RU Index 53
Agilent R T Ref 107 dBμV Atten 10 dB Peak Log 10 dB/ LgAv M1 S2 Center 2.462 00 GHz Res BW 390 kHz VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Span 50 MHz Occupied Bandwidth 18.5278 MHz Transmit Freq Error -502.500 kHz x dB Bandwidth 21.956 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB	Agilent R L Ref 107 dBμV Atten 10 dB Peak Log 10 dB/ LgAv M1 S2 Center 2.457 000 GHz Res BW 100 kHz VBW 300 kHz Sweep 1.04 ms (1201 pts) Span 10 MHz Occupied Bandwidth 9.2488 MHz Transmit Freq Error 30.339 kHz x dB Bandwidth 8.433 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB
RU Index 54	RU Index 54
Agilent R T Ref 107 dBμV Atten 10 dB Peak Log 10 dB/ LgAv M1 S2 Center 2.462 00 GHz Res BW 390 kHz VBW 1.2 MHz Sweep 1.04 ms (1201 pts) Span 50 MHz Occupied Bandwidth 18.3909 MHz Transmit Freq Error 403.367 kHz x dB Bandwidth 21.660 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB	Agilent R L Ref 107 dBμV Atten 10 dB Peak Log 10 dB/ LgAv M1 S2 Center 2.467 000 GHz Res BW 100 kHz VBW 300 kHz Sweep 1.04 ms (1201 pts) Span 10 MHz Occupied Bandwidth 9.1842 MHz Transmit Freq Error -96.156 kHz x dB Bandwidth 8.368 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB

99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 242-tone RU



99 % Occupied Bandwidth and 6 dB Bandwidth

Test place Shonan EMC Lab. No.5 Shielded Room
Date September 16, 2023
Temperature / Humidity 26 deg. C / 45 % RH
Engineer Kenichi Adachi
Mode Tx BT LE

BT LE 1M-PHY

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2402	1023.7	0.668	> 0.5000
2440	1017.9	0.669	> 0.5000
2480	1017.9	0.670	> 0.5000

BT LE Coded S=8 (125 kbps)

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2402	1044.9	0.627	> 0.5000
2440	1047.6	0.630	> 0.5000
2480	1047.5	0.628	> 0.5000

BT LE Coded S=2 (500 kbps)

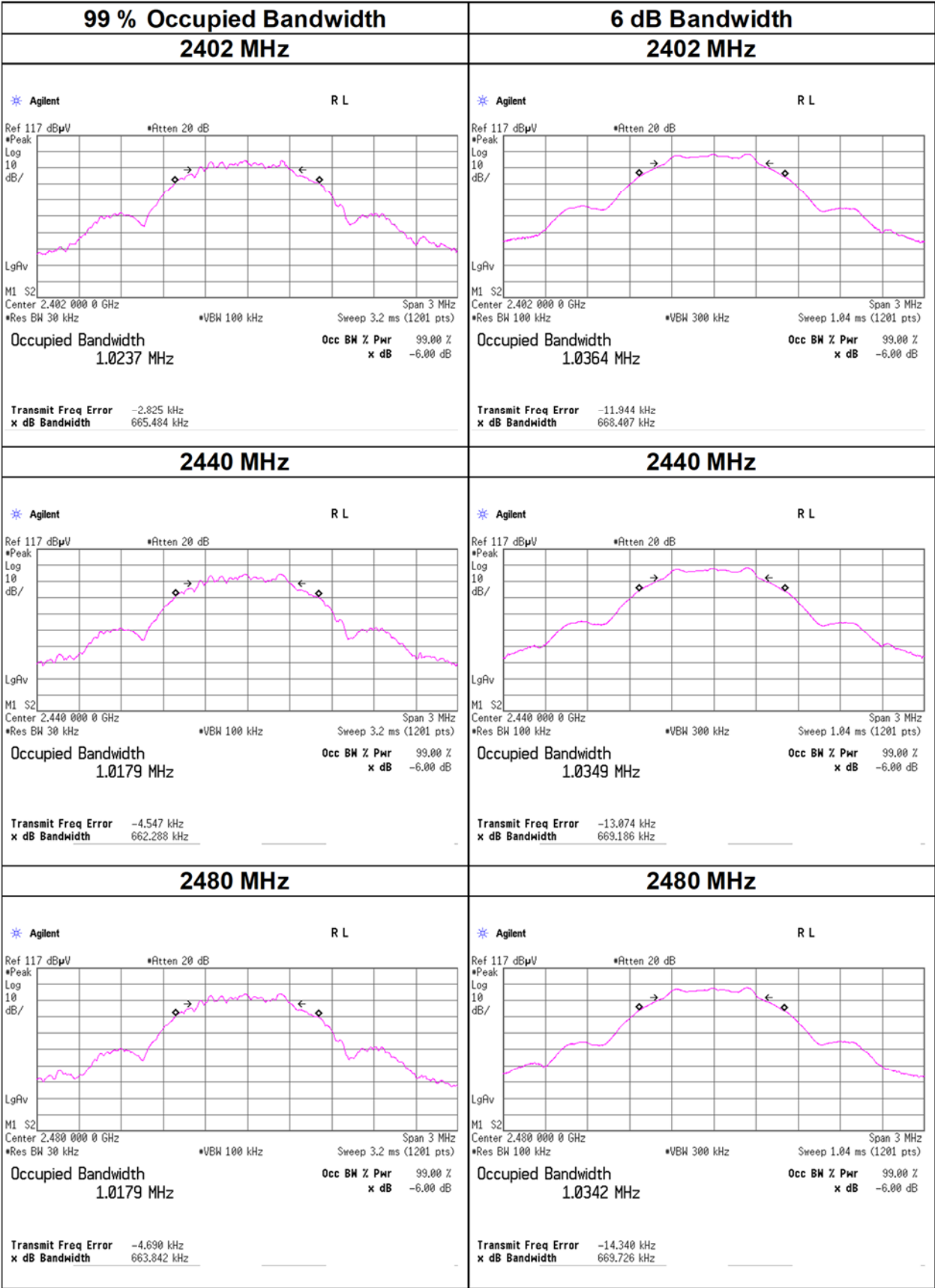
Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2402	1017.7	0.669	> 0.5000
2440	1019.1	0.671	> 0.5000
2480	1020.5	0.670	> 0.5000

BT LE 2M-PHY

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2402	2020.8	1.176	> 0.5000
2440	2021.3	1.174	> 0.5000
2480	2020.7	1.173	> 0.5000

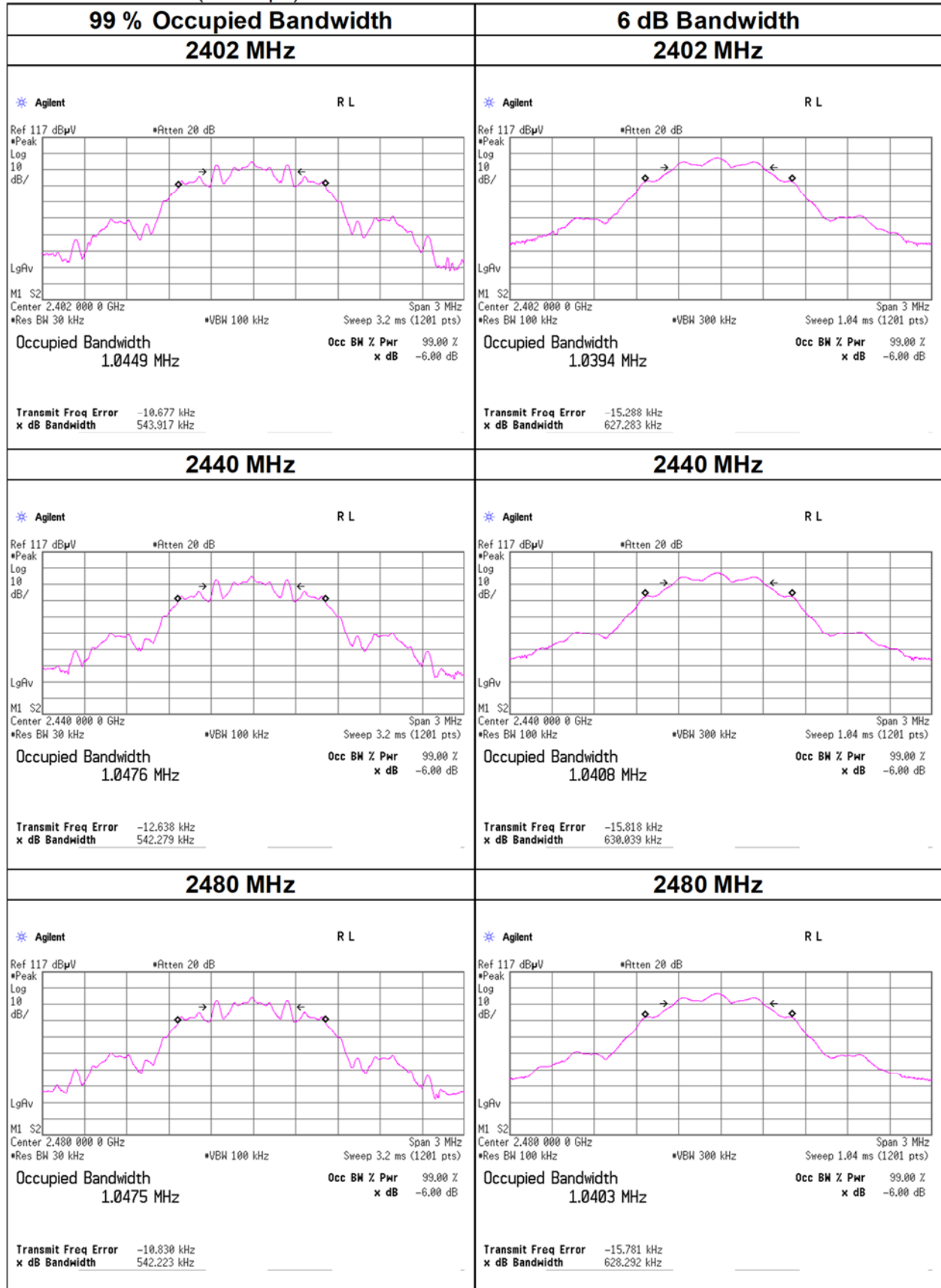
99 % Occupied Bandwidth and 6 dB Bandwidth

BT LE 1M-PHY



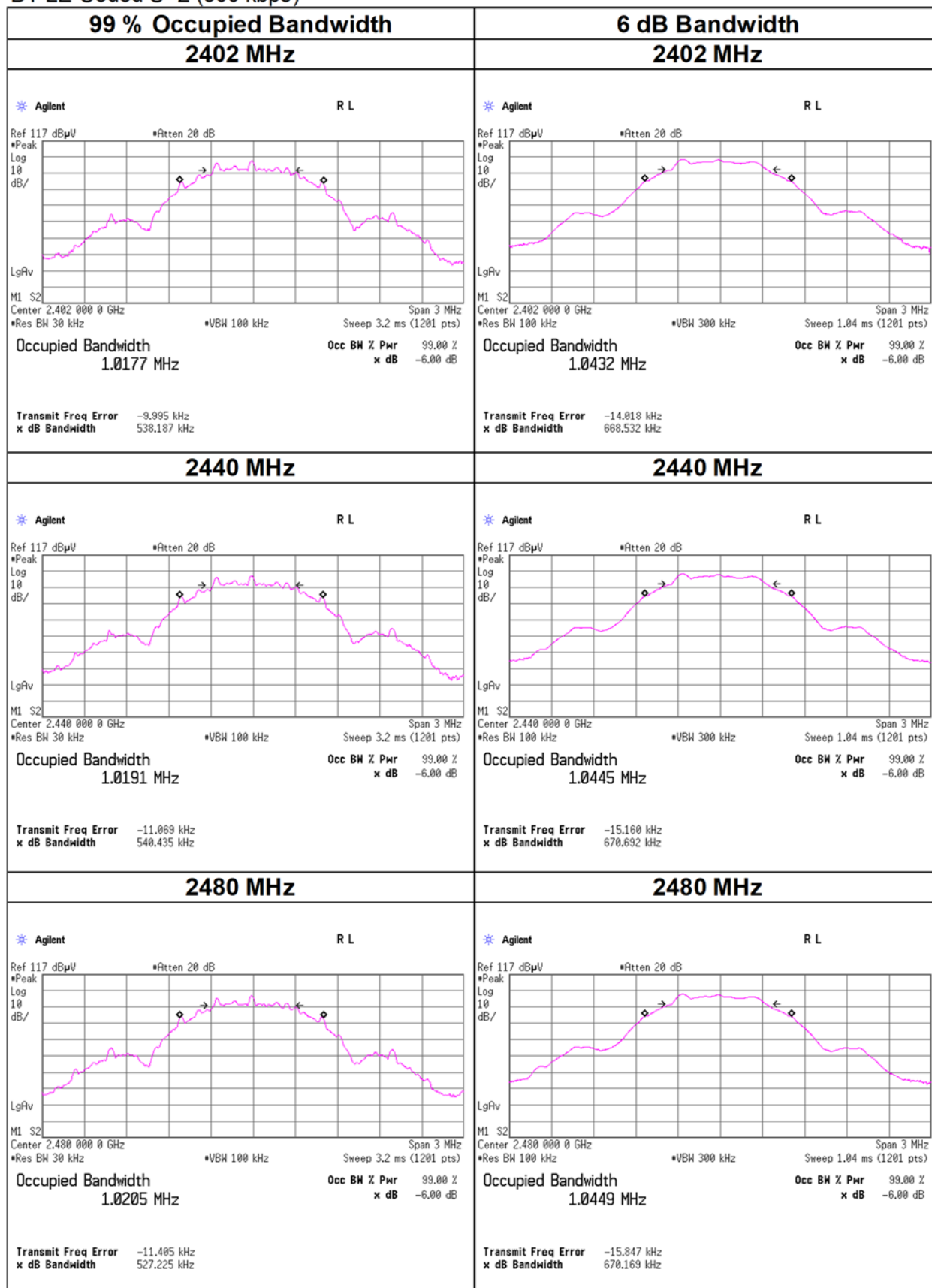
99 % Occupied Bandwidth and 6 dB Bandwidth

BT LE Coded S=8 (125 kbps)



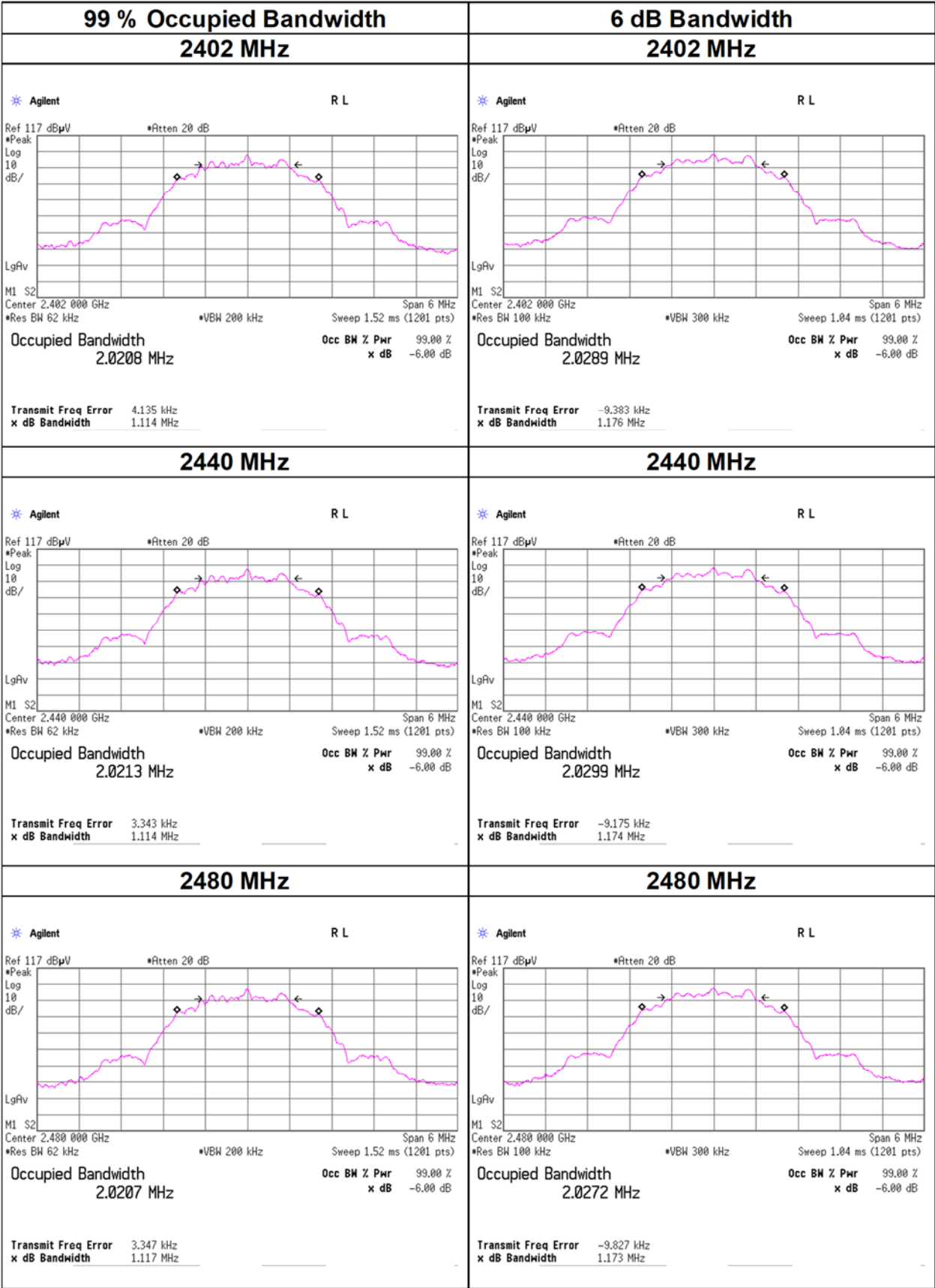
99 % Occupied Bandwidth and 6 dB Bandwidth

BT LE Coded S=2 (500 kbps)



99 % Occupied Bandwidth and 6 dB Bandwidth

BT LE 2M-PHY



Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 29, 2023
Temperature / Humidity 25 deg. C / 45 % RH
Engineer Yohsuke Matsuzawa
Mode Tx 11b(CDD), High power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq. [MHz]	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin [dB]	Result		Limit		Margin [dB]
			[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	38.64	36.90	18.78	75.53	30.00	1000	11.22	20.43	110.44	36.02	4000.00	15.59
2437	38.82	35.65	18.72	74.46	30.00	1000	11.28	20.37	108.87	36.02	4000.00	15.65
2462	38.64	35.40	18.69	74.04	30.00	1000	11.31	20.34	108.25	36.02	4000.00	15.68

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	-5.57	1.28	20.16	15.87	38.64	1.65	17.52	56.49	13.50
2437	-5.55	1.28	20.16	15.89	38.82	1.65	17.54	56.75	13.50
2462	-5.58	1.29	20.16	15.87	38.64	1.65	17.52	56.49	13.50

2G_CH1			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	-5.71	1.22	20.16	15.67	36.90	1.65	17.32	53.95	13.50
2437	-5.88	1.24	20.16	15.52	35.65	1.65	17.17	52.12	13.50
2462	-5.91	1.24	20.16	15.49	35.40	1.65	17.14	51.76	13.50

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

Worst Rate Check (2412 MHz)

Rate [Mbps]	2G_CH0					2G_CH1					Total Result Power		Remark
	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		[dBm]	[mW]	
1	-5.73	1.28	20.16	15.71	37.24	-5.91	1.22	20.16	15.47	35.24	18.60	72.48	-
2 (long)	-5.70	1.28	20.16	15.74	37.50	-5.89	1.22	20.16	15.49	35.40	18.63	72.90	-
5.5 (long)	-5.68	1.28	20.16	15.76	37.67	-5.86	1.22	20.16	15.52	35.65	18.65	73.32	-
11 (long)	-5.79	1.28	20.16	15.65	36.73	-5.93	1.22	20.16	15.45	35.08	18.56	71.80	-
2 (short)	-5.57	1.28	20.16	15.87	38.64	-5.76	1.22	20.16	15.62	36.48	18.76	75.11	-
5.5 (short)	-5.66	1.28	20.16	15.78	37.84	-5.85	1.22	20.16	15.53	35.73	18.67	73.57	-
11 (short)	-5.57	1.28	20.16	15.87	38.64	-5.71	1.22	20.16	15.67	36.90	18.78	75.53	*

*Worst Rate

Sample Calculation:

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

Total Result = 2G_CH0 Result + 2G_CH1 Result

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date July 4, 2023
Temperature / Humidity 25 deg. C / 45 % RH
Engineer Ken Fujita
Mode Tx 11b(CDD), Standard power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq. [MHz]	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin [dB]	Result		Limit		Margin [dB]
			[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	18.03	15.49	15.25	33.52	30.00	1000	14.75	16.90	49.01	36.02	4000.00	19.12
2437	18.24	14.52	15.15	32.76	30.00	1000	14.85	16.80	47.90	36.02	4000.00	19.22
2462	17.26	16.03	15.22	33.29	30.00	1000	14.78	16.87	48.68	36.02	4000.00	19.15

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	-8.88	1.28	20.16	12.56	18.03	1.65	14.21	26.36	10.0
2437	-8.83	1.28	20.16	12.61	18.24	1.65	14.26	26.67	10.0
2462	-9.08	1.29	20.16	12.37	17.26	1.65	14.02	25.23	10.0

2G_CH1			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	-9.48	1.22	20.16	11.90	15.49	1.65	13.55	22.65	10.0
2437	-9.78	1.24	20.16	11.62	14.52	1.65	13.27	21.23	10.0
2462	-9.35	1.24	20.16	12.05	16.03	1.65	13.70	23.44	10.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both High power mode and Standard power mode, a representative check to find the worst data rate was performed in High power mode.
And this mode referred to the worst rate check result in High power mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 29, 2023 July 4, 2023
Temperature / Humidity 25 deg. C / 45 % RH 24 deg. C / 49 % RH
Engineer Yohsuke Matsuzawa Ken Fujita
Mode Tx 11g(CDD), High power mode

2G_CH0 + 2G_CH1			Conducted Power						e.i.r.p.					
Freq.	2G_CH0 Result	2G_CH1 Result	Result		Limit		Margin	Result		Limit		Margin		
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]		
2412	309.74	271.64	27.64	581.39	30.00	1000	2.36	29.29	850.09	36.02	4000.00	6.73		
2437	281.19	263.63	27.36	544.82	30.00	1000	2.64	29.01	796.63	36.02	4000.00	7.01		
2462	283.14	264.24	27.38	547.38	30.00	1000	2.62	29.03	800.37	36.02	4000.00	6.99		

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0 *1)									
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	3.47	1.28	20.16	24.91	309.74	1.65	26.56	452.90	14.0
2437	3.05	1.28	20.16	24.49	281.19	1.65	26.14	411.15	14.0
2462	3.07	1.29	20.16	24.52	283.14	1.65	26.17	414.00	14.0

2G_CH1 *1)									
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	2.96	1.22	20.16	24.34	271.64	1.65	25.99	397.19	14.0
2437	2.81	1.24	20.16	24.21	263.63	1.65	25.86	385.48	14.0
2462	2.82	1.24	20.16	24.22	264.24	1.65	25.87	386.37	14.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

Worst Rate Check (2412 MHz)

Rate [Mbps]	2G_CH0					2G_CH1					Total Result Power		Remark
	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		[dBm]	[mW]	
6	0.29	1.28	20.16	21.73	148.94	-0.01	1.22	20.16	21.37	137.09	24.56	286.02	-
9	0.41	1.28	20.16	21.85	153.11	0.50	1.22	20.16	21.88	154.17	24.88	307.28	-
12	0.79	1.28	20.16	22.23	167.11	0.31	1.22	20.16	21.69	147.57	24.98	314.68	-
18	0.78	1.28	20.16	22.22	166.72	0.18	1.22	20.16	21.56	143.22	24.91	309.94	-
24	3.22	1.28	20.16	24.66	292.42	2.60	1.22	20.16	23.98	250.03	27.34	542.45	-
36	2.90	1.28	20.16	24.34	271.64	2.98	1.22	20.16	24.36	272.90	27.36	544.54	-
48	3.47	1.28	20.16	24.91	309.74	2.96	1.22	20.16	24.34	271.64	27.64	581.39	*
54	2.91	1.28	20.16	24.35	272.27	2.73	1.22	20.16	24.11	257.63	27.24	529.90	-

*Worst Rate

Sample Calculation:

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

Total Result = 2G_CH0 Result + 2G_CH1 Result

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date July 4, 2023
Temperature / Humidity 24 deg. C / 49 % RH
Engineer Ken Fujita
Mode Tx 11g(CDD), Standard power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq. [MHz]	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
			[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	114.55	101.62	23.35	216.18	30.00	1000	6.65	25.00	316.09	36.02	4000.00	11.02
2437	109.40	84.72	22.88	194.12	30.00	1000	7.12	24.53	283.84	36.02	4000.00	11.49
2462	117.76	108.64	23.55	226.40	30.00	1000	6.45	25.20	331.04	36.02	4000.00	10.82

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	-0.85	1.28	20.16	20.59	114.55	1.65	22.24	167.49	10.0
2437	-1.05	1.28	20.16	20.39	109.40	1.65	22.04	159.96	10.0
2462	-0.74	1.29	20.16	20.71	117.76	1.65	22.36	172.19	10.0

2G_CH1			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	-1.31	1.22	20.16	20.07	101.62	1.65	21.72	148.59	10.0
2437	-2.12	1.24	20.16	19.28	84.72	1.65	20.93	123.88	10.0
2462	-1.04	1.24	20.16	20.36	108.64	1.65	22.01	158.85	10.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both High power mode and Standard power mode, a representative check to find the worst data rate was performed in High power mode.
And this mode referred to the worst rate check result in High power mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 29, 2023 July 4, 2023
Temperature / Humidity 25 deg. C / 45 % RH 24 deg. C / 49 % RH
Engineer Yohsuke Matsuzawa Ken Fujita
Mode Tx 11n-20(CDD), High power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq.	2G_CH0 Result	2G_CH1 Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	322.85	284.45	27.83	607.30	30.00	1000	2.17	29.48	887.97	36.02	4000.00	6.54
2437	320.63	278.61	27.78	599.24	30.00	1000	2.22	29.43	876.19	36.02	4000.00	6.59
2462	325.84	286.42	27.87	612.25	30.00	1000	2.13	29.52	895.22	36.02	4000.00	6.50

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p)

2G_CH0			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	3.65	1.28	20.16	25.09	322.85	1.65	26.74	472.06	14.0
2437	3.62	1.28	20.16	25.06	320.63	1.65	26.71	468.81	14.0
2462	3.68	1.29	20.16	25.13	325.84	1.65	26.78	476.43	14.0

2G_CH1			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	3.16	1.22	20.16	24.54	284.45	1.65	26.19	415.91	14.0
2437	3.05	1.24	20.16	24.45	278.61	1.65	26.10	407.38	14.0
2462	3.17	1.24	20.16	24.57	286.42	1.65	26.22	418.79	14.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

Worst Rate Check (2412 MHz)

Worst-Case Check (2412 MHz)													
MCS	2G_CH0					2G_CH1					Total		Remark
	Reading	Cable Loss	Atten. Loss	Result		Reading	Cable Loss	Atten. Loss	Result		Result Power		
				[dBm]	[mW]				[dBm]	[mW]	[dBm]	[mW]	
0 (1SS)	1.35	1.28	20.16	22.79	190.11	0.07	1.22	20.16	21.45	139.64	25.18	329.74	-
1 (1SS)	1.25	1.28	20.16	22.69	185.78	-0.02	1.22	20.16	21.36	136.77	25.09	322.55	-
2 (1SS)	1.20	1.28	20.16	22.64	183.65	0.39	1.22	20.16	21.77	150.31	25.24	333.97	-
3 (1SS)	1.10	1.28	20.16	22.54	179.47	0.03	1.22	20.16	21.41	138.36	25.02	317.83	-
4 (1SS)	3.96	1.28	20.16	25.40	346.74	2.63	1.22	20.16	24.01	251.77	27.77	598.50	-
5 (1SS)	3.65	1.28	20.16	25.09	322.85	3.16	1.22	20.16	24.54	284.45	27.83	607.30	*
6 (1SS)	3.13	1.28	20.16	24.57	286.42	2.34	1.22	20.16	23.72	235.50	27.18	521.92	-
7 (1SS)	3.84	1.28	20.16	25.28	337.29	2.39	1.22	20.16	23.77	238.23	27.60	575.52	-

*Worst Rate

Sample Calculation:

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

Total Result = 2G_CH0 Result + 2G_CH1 Result

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date July 4, 2023
Temperature / Humidity 24 deg. C / 49 % RH
Engineer Ken Fujita
Mode Tx 11n-20(CDD), Standard power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq. [MHz]	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
			[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	152.05	116.14	24.28	268.20	30.00	1000	5.72	25.93	392.16	36.02	4000.00	10.09
2437	145.21	114.29	24.14	259.50	30.00	1000	5.86	25.79	379.43	36.02	4000.00	10.23
2462	131.83	128.82	24.16	260.65	30.00	1000	5.84	25.81	381.12	36.02	4000.00	10.21

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	0.38	1.28	20.16	21.82	152.05	1.65	23.47	222.33	10.0
2437	0.18	1.28	20.16	21.62	145.21	1.65	23.27	212.32	10.0
2462	-0.25	1.29	20.16	21.20	131.83	1.65	22.85	192.75	10.0

2G_CH1			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	-0.73	1.22	20.16	20.65	116.14	1.65	22.30	169.82	10.0
2437	-0.82	1.24	20.16	20.58	114.29	1.65	22.23	167.11	10.0
2462	-0.30	1.24	20.16	21.10	128.82	1.65	22.75	188.36	10.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both High power mode and Standard power mode, a representative check to find the worst data rate was performed in High power mode.
And this mode referred to the worst rate check result in High power mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 29, 2023 July 5, 2023
Temperature / Humidity 25 deg. C / 45 % RH 25 deg. C / 47 % RH
Engineer Yohsuke Matsuzawa Ken Fujita
Mode Tx 11n-20(SDM), High power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq. [MHz]	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin [dB]	Result		Limit		Margin [dB]
			[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	329.61	315.50	28.10	645.11	30.00	1000	1.90	28.89	773.93	36.02	4000.00	7.13
2437	297.17	264.85	27.50	562.02	30.00	1000	2.50	28.25	669.10	36.02	4000.00	7.77
2462	323.59	277.97	27.79	601.56	30.00	1000	2.21	28.53	713.35	36.02	4000.00	7.49

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p)

2G_CH0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	3.74	1.28	20.16	25.18	329.61	-0.23	24.95	312.61	14.0
2437	3.29	1.28	20.16	24.73	297.17	-0.23	24.50	281.84	14.0
2462	3.65	1.29	20.16	25.10	323.59	-0.23	24.87	306.90	14.0

2G_CH1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	3.61	1.22	20.16	24.99	315.50	1.65	26.64	461.32	14.0
2437	2.83	1.24	20.16	24.23	264.85	1.65	25.88	387.26	14.0
2462	3.04	1.24	20.16	24.44	277.97	1.65	26.09	406.44	14.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna Gain

Worst Rate Check (2412 MHz)

MCS	2G_CH0					2G_CH1					Total		Remark
	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Result Power		
				[dBm]	[mW]				[dBm]	[mW]	[dBm]	[mW]	
8 (2SS)	0.08	1.28	20.16	21.52	141.91	0.42	1.22	20.16	21.80	151.36	24.67	293.26	-
9 (2SS)	0.48	1.28	20.16	21.92	155.60	0.39	1.22	20.16	21.77	150.31	24.86	305.91	-
10 (2SS)	0.51	1.28	20.16	21.95	156.68	0.31	1.22	20.16	21.69	147.57	24.83	304.25	-
11 (2SS)	-0.04	1.28	20.16	21.40	138.04	0.32	1.22	20.16	21.70	147.91	24.56	285.95	-
12 (2SS)	3.01	1.28	20.16	24.45	278.61	3.00	1.22	20.16	24.38	274.16	27.43	552.77	-
13 (2SS)	3.15	1.28	20.16	24.59	287.74	3.23	1.22	20.16	24.61	289.07	27.61	576.81	-
14 (2SS)	3.79	1.28	20.16	25.23	333.43	3.35	1.22	20.16	24.73	297.17	28.00	630.59	-
15 (2SS)	3.74	1.28	20.16	25.18	329.61	3.61	1.22	20.16	24.99	315.50	28.10	645.11	*

*Worst Rate

Sample Calculation:

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

Total Result = 2G_CH0 Result + 2G_CH1 Result

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date July 5, 2023
Temperature / Humidity 25 deg. C / 47 % RH
Engineer Ken Fujita
Mode Tx 11n-20(SDM), Standard power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq. [MHz]	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
			[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	156.31	125.89	24.51	282.21	30.00	1000	5.49	25.22	332.33	36.02	4000.00	10.80
2437	152.05	121.06	24.36	273.11	30.00	1000	5.64	25.07	321.22	36.02	4000.00	10.95
2462	150.31	127.06	24.43	277.37	30.00	1000	5.57	25.16	328.34	36.02	4000.00	10.86

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	0.50	1.28	20.16	21.94	156.31	-0.23	21.71	148.25	10.0
2437	0.38	1.28	20.16	21.82	152.05	-0.23	21.59	144.21	10.0
2462	0.32	1.29	20.16	21.77	150.31	-0.23	21.54	142.56	10.0

2G_CH1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	-0.38	1.22	20.16	21.00	125.89	1.65	22.65	184.08	10.0
2437	-0.57	1.24	20.16	20.83	121.06	1.65	22.48	177.01	10.0
2462	-0.36	1.24	20.16	21.04	127.06	1.65	22.69	185.78	10.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna gain

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both High power mode and Standard power mode, a representative check to find the worst data rate was performed in High power mode.
And this mode referred to the worst rate check result in High power mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 27, 2023
Temperature / Humidity 25 deg. C / 47 % RH
Engineer Kenichi Adachi
Mode Tx 11ax-20(OFDM)(CDD), High power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq. [MHz]	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
			[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	408.32	334.97	28.71	743.28	30.00	1000	1.29	30.36	1086.81	36.02	4000.00	5.66
2437	424.62	345.14	28.86	769.76	30.00	1000	1.14	30.51	1125.53	36.02	4000.00	5.51
2462	453.94	343.56	29.02	797.50	30.00	1000	0.98	30.67	1166.09	36.02	4000.00	5.35

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	4.67	1.28	20.16	26.11	408.32	1.65	27.76	597.04	13.5
2437	4.84	1.28	20.16	26.28	424.62	1.65	27.93	620.87	13.5
2462	5.12	1.29	20.16	26.57	453.94	1.65	28.22	663.74	13.5

2G_CH1			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	3.87	1.22	20.16	25.25	334.97	1.65	26.90	489.78	13.5
2437	3.98	1.24	20.16	25.38	345.14	1.65	27.03	504.66	13.5
2462	3.96	1.24	20.16	25.36	343.56	1.65	27.01	502.34	13.5

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

Worst Rate Check (2412 MHz)

MCS	2G_CH0					2G_CH1					Total		Remark
	Reading	Cable Loss	Atten. Loss	Result		Reading	Cable Loss	Atten. Loss	Result		Result Power		
				[dBm]	[mW]				[dBm]	[mW]	[dBm]	[mW]	
0 (1SS)	1.73	1.28	20.16	23.17	207.49	0.91	1.22	20.16	22.29	169.43	25.76	376.93	-
1 (1SS)	1.12	1.28	20.16	22.56	180.30	0.20	1.22	20.16	21.58	143.88	25.11	324.18	-
2 (1SS)	1.59	1.28	20.16	23.03	200.91	0.78	1.22	20.16	22.16	164.44	25.63	365.35	-
3 (1SS)	1.53	1.28	20.16	22.97	198.15	0.66	1.22	20.16	22.04	159.96	25.54	358.11	-
4 (1SS)	4.23	1.28	20.16	25.67	368.98	3.49	1.22	20.16	24.87	306.90	28.30	675.88	-
5 (1SS)	3.96	1.28	20.16	25.40	346.74	2.75	1.22	20.16	24.13	258.82	27.82	605.56	-
6 (1SS)	3.97	1.28	20.16	25.41	347.54	3.37	1.22	20.16	24.75	298.54	28.10	646.07	-
7 (1SS)	3.89	1.28	20.16	25.33	341.19	3.19	1.22	20.16	24.57	286.42	27.98	627.61	-
8 (1SS)	3.29	1.28	20.16	24.73	297.17	2.49	1.22	20.16	23.87	243.78	27.33	540.95	-
9 (1SS)	3.69	1.28	20.16	25.13	325.84	2.87	1.22	20.16	24.25	266.07	27.72	591.91	-
10 (1SS)	4.67	1.28	20.16	26.11	408.32	3.87	1.22	20.16	25.25	334.97	28.71	743.28	*
11 (1SS)	3.80	1.28	20.16	25.24	334.20	3.23	1.22	20.16	24.61	289.07	27.95	623.26	-

*Worst Rate

Sample Calculation:

(*SS: Spatial Stream)

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

Total Result = 2G_CH0 Result + 2G_CH1 Result

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 27, 2023
Temperature / Humidity 25 deg. C / 47 % RH
Engineer Kenichi Adachi
Mode Tx 11ax-20(OFDM)(CDD), Standard power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq. [MHz]	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin [dB]	Result		Limit		Margin [dB]
			[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	188.80	159.59	25.42	348.39	30.00	1000	4.58	27.07	509.40	36.02	4000.00	8.95
2437	167.49	143.88	24.93	311.37	30.00	1000	5.07	26.58	455.28	36.02	4000.00	9.44
2462	185.78	171.00	25.52	356.78	30.00	1000	4.48	27.17	521.68	36.02	4000.00	8.85

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	1.32	1.28	20.16	22.76	188.80	1.65	24.41	276.06	10.0
2437	0.80	1.28	20.16	22.24	167.49	1.65	23.89	244.91	10.0
2462	1.24	1.29	20.16	22.69	185.78	1.65	24.34	271.64	10.0

2G_CH1			*1)						
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
				[dBm]	[mW]		[dBm]	[mW]	
2412	0.65	1.22	20.16	22.03	159.59	1.65	23.68	233.35	10.0
2437	0.18	1.24	20.16	21.58	143.88	1.65	23.23	210.38	10.0
2462	0.93	1.24	20.16	22.33	171.00	1.65	23.98	250.03	10.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both High power mode and Standard power mode, a representative check to find the worst data rate was performed in High power mode.
And this mode referred to the worst rate check result in High power mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 27, 2023
Temperature / Humidity 25 deg. C / 47 % RH
Engineer Kenichi Adachi
Mode Tx 11ax-20(OFDM)(SDM), High power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq.	2G_CH0 Result	2G_CH1 Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	388.15	320.63	28.51	708.78	30.00	1000	1.49	29.23	836.94	36.02	4000.00	6.79
2437	407.38	314.05	28.58	721.43	30.00	1000	1.42	29.27	845.56	36.02	4000.00	6.75
2462	408.32	331.89	28.69	740.21	30.00	1000	1.31	29.41	872.55	36.02	4000.00	6.61

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)		power setting
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]
2412	4.45	1.28	20.16	25.89	388.15	-0.23	25.66	368.13	14.0
2437	4.66	1.28	20.16	26.10	407.38	-0.23	25.87	386.37	14.0
2462	4.66	1.29	20.16	26.11	408.32	-0.23	25.88	387.26	14.0

2G_CH1

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)		power setting
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]
2412	3.68	1.22	20.16	25.06	320.63	1.65	26.71	468.81	14.0
2437	3.57	1.24	20.16	24.97	314.05	1.65	26.62	459.20	14.0
2462	3.81	1.24	20.16	25.21	331.89	1.65	26.86	485.29	14.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna Gain

Worst Rate Check (2412 MHz)

MCS	2G_CH0					2G_CH1					Total Result Power		Remark
	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		[dBm]	[mW]	
0 (2SS)	2.46	1.28	20.16	23.90	245.47	1.38	1.22	20.16	22.76	188.80	26.38	434.27	-
1 (2SS)	2.06	1.28	20.16	23.50	223.87	1.24	1.22	20.16	22.62	182.81	26.09	406.68	-
2 (2SS)	1.94	1.28	20.16	23.38	217.77	1.26	1.22	20.16	22.64	183.65	26.04	401.42	-
3 (2SS)	1.98	1.28	20.16	23.42	219.79	1.37	1.22	20.16	22.75	188.36	26.11	408.15	-
4 (2SS)	4.04	1.28	20.16	25.48	353.18	3.23	1.22	20.16	24.61	289.07	28.08	642.25	-
5 (2SS)	4.05	1.28	20.16	25.49	354.00	2.92	1.22	20.16	24.30	269.15	27.95	623.15	-
6 (2SS)	4.24	1.28	20.16	25.68	369.83	3.06	1.22	20.16	24.44	277.97	28.11	647.80	-
7 (2SS)	4.46	1.28	20.16	25.90	389.05	2.89	1.22	20.16	24.27	267.30	28.17	656.35	-
8 (2SS)	4.45	1.28	20.16	25.89	388.15	3.23	1.22	20.16	24.61	289.07	28.31	677.22	-
9 (2SS)	4.29	1.28	20.16	25.73	374.11	3.45	1.22	20.16	24.83	304.09	28.31	678.20	-
10 (2SS)	4.45	1.28	20.16	25.89	388.15	3.68	1.22	20.16	25.06	320.63	28.51	708.78	*
11 (2SS)	4.40	1.28	20.16	25.84	383.71	3.32	1.22	20.16	24.70	295.12	28.32	678.83	-

*Worst Rate

Sample Calculation:

(*SS: Spatial Stream)

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

Total Result = 2G_CH0 Result + 2G_CH1 Result

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 27, 2023
Temperature / Humidity 25 deg. C / 47 % RH
Engineer Kenichi Adachi
Mode Tx 11ax-20(OFDM)(SDM), Standard power mode

2G_CH0 + 2G_CH1			Conducted Power					e.i.r.p.				
Freq.	2G_CH0 Result	2G_CH1 Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	160.69	125.60	24.57	286.30	30.00	1000	5.43	25.26	336.06	36.02	4000.00	10.76
2437	159.22	116.14	24.40	275.37	30.00	1000	5.60	25.06	320.83	36.02	4000.00	10.96
2462	155.96	120.23	24.41	276.18	30.00	1000	5.59	25.10	323.70	36.02	4000.00	10.92

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)		power setting
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]
2412	0.62	1.28	20.16	22.06	160.69	-0.23	21.83	152.41	10.0
2437	0.58	1.28	20.16	22.02	159.22	-0.23	21.79	151.01	10.0
2462	0.48	1.29	20.16	21.93	155.96	-0.23	21.70	147.91	10.0

2G_CH1

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)		power setting
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]
2412	-0.39	1.22	20.16	20.99	125.60	1.65	22.64	183.65	10.0
2437	-0.75	1.24	20.16	20.65	116.14	1.65	22.30	169.82	10.0
2462	-0.60	1.24	20.16	20.80	120.23	1.65	22.45	175.79	10.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna Gain

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both High power mode and Standard power mode, a representative check to find the worst data rate was performed in High power mode.
And this mode referred to the worst rate check result in High power mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 29, 2023
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Ken Fujita
Mode Tx 11ax-20(OFDMA)(CDD) 26-tone RU,
High power mode / Standard power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	0	110.92	87.90	22.98	198.82	30.00	1000	7.02	24.63	290.71	36.02	4000.00	11.39
	4	108.39	88.10	22.93	196.50	30.00	1000	7.07	24.58	287.31	36.02	4000.00	11.44
	8	111.69	89.13	23.03	200.81	30.00	1000	6.97	24.68	293.62	36.02	4000.00	11.34
2437	0	103.04	88.51	22.82	191.55	30.00	1000	7.18	24.47	280.08	36.02	4000.00	11.55
	4	108.64	87.70	22.93	196.34	30.00	1000	7.07	24.58	287.09	36.02	4000.00	11.44
	8	109.14	84.72	22.88	193.87	30.00	1000	7.12	24.53	283.47	36.02	4000.00	11.50
2462	0	99.31	95.50	22.90	194.81	30.00	1000	7.10	24.55	284.85	36.02	4000.00	11.47
	4	104.95	93.33	22.97	198.28	30.00	1000	7.03	24.62	289.92	36.02	4000.00	11.40
	8	103.28	94.84	22.97	198.12	30.00	1000	7.03	24.62	289.68	36.02	4000.00	11.40

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0		(Peak)			*1)					
Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Directional Gain	Result (e.i.r.p)		power setting
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]
2412	0	-0.99	1.28	20.16	20.45	110.92	1.65	22.10	162.18	9.0
	4	-1.09	1.28	20.16	20.35	108.39	1.65	22.00	158.49	9.0
	8	-0.96	1.28	20.16	20.48	111.69	1.65	22.13	163.31	9.0
2437	0	-1.31	1.28	20.16	20.13	103.04	1.65	21.78	150.66	9.0
	4	-1.08	1.28	20.16	20.36	108.64	1.65	22.01	158.85	9.0
	8	-1.06	1.28	20.16	20.38	109.14	1.65	22.03	159.59	9.0
2462	0	-1.48	1.29	20.16	19.97	99.31	1.65	21.62	145.21	9.0
	4	-1.24	1.29	20.16	20.21	104.95	1.65	21.86	153.46	9.0
	8	-1.31	1.29	20.16	20.14	103.28	1.65	21.79	151.01	9.0

2G_CH1					(Peak)		*1)				
Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Directional Gain	Result (e.i.r.p)		power setting	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]	
2412	0	-1.94	1.22	20.16	19.44	87.90	1.65	21.09	128.53	9.0	
	4	-1.93	1.22	20.16	19.45	88.10	1.65	21.10	128.82	9.0	
	8	-1.88	1.22	20.16	19.50	89.13	1.65	21.15	130.32	9.0	
2437	0	-1.93	1.24	20.16	19.47	88.51	1.65	21.12	129.42	9.0	
	4	-1.97	1.24	20.16	19.43	87.70	1.65	21.08	128.23	9.0	
	8	-2.12	1.24	20.16	19.28	84.72	1.65	20.93	123.88	9.0	
2462	0	-1.60	1.24	20.16	19.80	95.50	1.65	21.45	139.64	9.0	
	4	-1.70	1.24	20.16	19.70	93.33	1.65	21.35	136.46	9.0	
	8	-1.63	1.24	20.16	19.77	94.84	1.65	21.42	138.68	9.0	

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.

And this mode referred to the worst rate check result in OFDM (SU) mode.

* This data for this mode is described as one mode, since the power setting is the same in High power mode and Standard power mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date October 14, 2023
Temperature / Humidity 23 deg. C / 41 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(CDD) 52-tone RU, High power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq.	RU Index	2G_CH0 Result	2G_CH1 Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	37	210.62	164.72	25.74	375.34	30.00	1000	4.26	27.39	548.81	36.02	4000.00	8.63
	38	210.13	166.63	25.76	376.76	30.00	1000	4.24	27.41	550.89	36.02	4000.00	8.61
	40	212.57	166.24	25.78	378.81	30.00	1000	4.22	27.43	553.89	36.02	4000.00	8.59
2437	37	209.37	165.54	25.74	374.91	30.00	1000	4.26	27.39	548.18	36.02	4000.00	8.63
	38	212.28	164.40	25.76	376.68	30.00	1000	4.24	27.41	550.78	36.02	4000.00	8.61
	40	216.73	166.69	25.84	383.41	30.00	1000	4.16	27.49	560.62	36.02	4000.00	8.53
2462	37	214.79	159.73	25.73	374.51	30.00	1000	4.27	27.38	547.61	36.02	4000.00	8.64
	38	209.90	157.54	25.65	367.43	30.00	1000	4.35	27.30	537.25	36.02	4000.00	8.72
	40	207.97	157.54	25.63	365.51	30.00	1000	4.37	27.28	534.44	36.02	4000.00	8.74

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0		(Peak)			*1)					
Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Directional Gain	Result (e.i.r.p.)		power setting
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]
2412	37	1.45	1.62	20.16	23.23	210.62	1.65	24.88	307.96	11.5
	38	1.44	1.62	20.16	23.22	210.13	1.65	24.87	307.25	11.5
	40	1.49	1.62	20.16	23.27	212.57	1.65	24.92	310.81	11.5
2437	37	1.42	1.63	20.16	23.21	209.37	1.65	24.86	306.14	11.5
	38	1.48	1.63	20.16	23.27	212.28	1.65	24.92	310.40	11.5
	40	1.57	1.63	20.16	23.36	216.73	1.65	25.01	316.90	11.5
2462	37	1.52	1.64	20.16	23.32	214.79	1.65	24.97	314.05	11.5
	38	1.42	1.64	20.16	23.22	209.90	1.65	24.87	306.91	11.5
	40	1.38	1.64	20.16	23.18	207.97	1.65	24.83	304.09	11.5

2G_CH1		(Peak)			*1)					
Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Directional Gain	Result (e.i.r.p.)		power setting
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]
2412	37	0.46	1.54	20.16	22.17	164.72	1.65	23.82	240.85	11.5
	38	0.51	1.54	20.16	22.22	166.63	1.65	23.87	243.64	11.5
	40	0.50	1.54	20.16	22.21	166.24	1.65	23.86	243.08	11.5
2437	37	0.47	1.56	20.16	22.19	165.54	1.65	23.84	242.05	11.5
	38	0.44	1.56	20.16	22.16	164.40	1.65	23.81	240.38	11.5
	40	0.50	1.56	20.16	22.22	166.69	1.65	23.87	243.72	11.5
2462	37	0.31	1.56	20.16	22.03	159.73	1.65	23.68	233.55	11.5
	38	0.25	1.56	20.16	21.97	157.54	1.65	23.62	230.35	11.5
	40	0.25	1.56	20.16	21.97	157.54	1.65	23.62	230.35	11.5

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 29, 2023
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Ken Fujita
Mode Tx 11ax-20(OFDMA)(CDD) 52-tone RU, Standard power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	37	110.92	87.90	22.98	198.82	30.00	1000	7.02	24.63	290.71	36.02	4000.00	11.39
	38	108.39	88.10	22.93	196.50	30.00	1000	7.07	24.58	287.31	36.02	4000.00	11.44
	40	111.69	89.13	23.03	200.81	30.00	1000	6.97	24.68	293.62	36.02	4000.00	11.34
2437	37	103.04	88.51	22.82	191.55	30.00	1000	7.18	24.47	280.08	36.02	4000.00	11.55
	38	108.64	87.70	22.93	196.34	30.00	1000	7.07	24.58	287.09	36.02	4000.00	11.44
	40	109.14	84.72	22.88	193.87	30.00	1000	7.12	24.53	283.47	36.02	4000.00	11.50
2462	37	99.31	95.50	22.90	194.81	30.00	1000	7.10	24.55	284.85	36.02	4000.00	11.47
	38	104.95	93.33	22.97	198.28	30.00	1000	7.03	24.62	289.92	36.02	4000.00	11.40
	40	103.28	94.84	22.97	198.12	30.00	1000	7.03	24.62	289.68	36.02	4000.00	11.40

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0		(Peak)			*1)					
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	37	-0.99	1.28	20.16	20.45	110.92	1.65	22.10	162.18	10.0
	38	-1.09	1.28	20.16	20.35	108.39	1.65	22.00	158.49	10.0
	40	-0.96	1.28	20.16	20.48	111.69	1.65	22.13	163.31	10.0
2437	37	-1.31	1.28	20.16	20.13	103.04	1.65	21.78	150.66	10.0
	38	-1.08	1.28	20.16	20.36	108.64	1.65	22.01	158.85	10.0
	40	-1.06	1.28	20.16	20.38	109.14	1.65	22.03	159.59	10.0
2462	37	-1.48	1.29	20.16	19.97	99.31	1.65	21.62	145.21	10.0
	38	-1.24	1.29	20.16	20.21	104.95	1.65	21.86	153.46	10.0
	40	-1.31	1.29	20.16	20.14	103.28	1.65	21.79	151.01	10.0

2G_CH1		(Peak)			*1)					
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	37	-1.94	1.22	20.16	19.44	87.90	1.65	21.09	128.53	10.0
	38	-1.93	1.22	20.16	19.45	88.10	1.65	21.10	128.82	10.0
	40	-1.88	1.22	20.16	19.50	89.13	1.65	21.15	130.32	10.0
2437	37	-1.93	1.24	20.16	19.47	88.51	1.65	21.12	129.42	10.0
	38	-1.97	1.24	20.16	19.43	87.70	1.65	21.08	128.23	10.0
	40	-2.12	1.24	20.16	19.28	84.72	1.65	20.93	123.88	10.0
2462	37	-1.60	1.24	20.16	19.80	95.50	1.65	21.45	139.64	10.0
	38	-1.70	1.24	20.16	19.70	93.33	1.65	21.35	136.46	10.0
	40	-1.63	1.24	20.16	19.77	94.84	1.65	21.42	138.68	10.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 30, 2023
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Kenichi Adachi
Mode Tx 11ax-20(OFDMA)(CDD) 106-tone RU, High power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq.	RU Index	2G_CH0 Result	2G_CH1 Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	53	324.34	292.42	27.90	616.75	30.00	1000	2.10	29.55	901.80	36.02	4000.00	6.47
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	319.15	285.10	27.81	604.26	30.00	1000	2.19	29.46	883.53	36.02	4000.00	6.56
2437	53	325.84	277.97	27.81	603.81	30.00	1000	2.19	29.46	882.87	36.02	4000.00	6.56
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	320.63	282.49	27.80	603.11	30.00	1000	2.20	29.45	881.86	36.02	4000.00	6.57
2462	53	319.89	271.02	27.72	590.91	30.00	1000	2.28	29.37	864.01	36.02	4000.00	6.66
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	318.42	266.69	27.67	585.11	30.00	1000	2.33	29.32	855.53	36.02	4000.00	6.70

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0		(Peak)			*1)						
Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Directional Gain	Result (e.i.r.p)		power setting	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]	
2412	53	3.67	1.28	20.16	25.11	324.34	1.65	26.76	474.24	13.5	
	-	-	-	-	-	-	-	-	-	-	
	54	3.60	1.28	20.16	25.04	319.15	1.65	26.69	466.66	13.5	
2437	53	3.69	1.28	20.16	25.13	325.84	1.65	26.78	476.43	13.5	
	-	-	-	-	-	-	-	-	-	-	
	54	3.62	1.28	20.16	25.06	320.63	1.65	26.71	468.81	13.5	
2462	53	3.60	1.29	20.16	25.05	319.89	1.65	26.70	467.74	13.5	
	-	-	-	-	-	-	-	-	-	-	
	54	3.58	1.29	20.16	25.03	318.42	1.65	26.68	465.59	13.5	

2G_CH1		(Peak)			*1)						
Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Directional Gain	Result (e.i.r.p)		power setting	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]	
2412	53	3.28	1.22	20.16	24.66	292.42	1.65	26.31	427.56	13.5	
	-	-	-	-	-	-	-	-	-	-	
	54	3.17	1.22	20.16	24.55	285.10	1.65	26.20	416.87	13.5	
2437	53	3.04	1.24	20.16	24.44	277.97	1.65	26.09	406.44	13.5	
	-	-	-	-	-	-	-	-	-	-	
	54	3.11	1.24	20.16	24.51	282.49	1.65	26.16	413.05	13.5	
2462	53	2.93	1.24	20.16	24.33	271.02	1.65	25.98	396.28	13.5	
	-	-	-	-	-	-	-	-	-	-	
	54	2.86	1.24	20.16	24.26	266.69	1.65	25.91	389.94	13.5	

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 30, 2023
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Kenichi Adachi
Mode Tx 11ax-20(OFDMA)(CDD) 106-tone RU, Standard power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	53	126.47	101.39	23.58	227.86	30.00	1000	6.42	25.23	333.18	36.02	4000.00	10.79
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	125.60	100.46	23.54	226.06	30.00	1000	6.46	25.19	330.55	36.02	4000.00	10.83
2437	53	126.18	101.39	23.57	227.57	30.00	1000	6.43	25.22	332.75	36.02	4000.00	10.80
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	124.45	100.23	23.52	224.68	30.00	1000	6.48	25.17	328.52	36.02	4000.00	10.85
2462	53	128.23	106.17	23.70	234.40	30.00	1000	6.30	25.35	342.74	36.02	4000.00	10.67
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	127.64	105.68	23.68	233.33	30.00	1000	6.32	25.33	341.16	36.02	4000.00	10.69

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0		(Peak)			*1)					
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	53	-0.42	1.28	20.16	21.02	126.47	1.65	22.67	184.93	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-0.45	1.28	20.16	20.99	125.60	1.65	22.64	183.65	9.5
2437	53	-0.43	1.28	20.16	21.01	126.18	1.65	22.66	184.50	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-0.49	1.28	20.16	20.95	124.45	1.65	22.60	181.97	9.5
2462	53	-0.37	1.29	20.16	21.08	128.23	1.65	22.73	187.50	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-0.39	1.29	20.16	21.06	127.64	1.65	22.71	186.64	9.5

2G_CH1		(Peak)			*1)					
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	53	-1.32	1.22	20.16	20.06	101.39	1.65	21.71	148.25	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-1.36	1.22	20.16	20.02	100.46	1.65	21.67	146.89	9.5
2437	53	-1.34	1.24	20.16	20.06	101.39	1.65	21.71	148.25	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-1.39	1.24	20.16	20.01	100.23	1.65	21.66	146.55	9.5
2462	53	-1.14	1.24	20.16	20.26	106.17	1.65	21.91	155.24	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-1.16	1.24	20.16	20.24	105.68	1.65	21.89	154.53	9.5

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(CDD) 242-tone RU, High power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	61	324.34	285.10	27.85	609.44	30.00	1000	2.15	29.50	891.11	36.02	4000.00	6.52
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
2437	61	309.74	276.06	27.68	585.80	30.00	1000	2.32	29.33	856.54	36.02	4000.00	6.69
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
2462	61	314.05	264.24	27.62	578.29	30.00	1000	2.38	29.27	845.56	36.02	4000.00	6.75
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0		(Peak)			*1)					
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	61	3.33	1.62	20.16	25.11	324.34	1.65	26.76	474.24	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2437	61	3.12	1.63	20.16	24.91	309.74	1.65	26.56	452.90	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2462	61	3.17	1.64	20.16	24.97	314.05	1.65	26.62	459.20	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

2G_CH1		(Peak)			*1)					
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	61	2.85	1.54	20.16	24.55	285.10	1.65	26.20	416.87	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2437	61	2.69	1.56	20.16	24.41	276.06	1.65	26.06	403.65	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2462	61	2.50	1.56	20.16	24.22	264.24	1.65	25.87	386.37	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(CDD) 242-tone RU, Standard power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	61	127.64	99.77	23.57	227.41	30.00	1000	6.43	25.22	332.52	36.02	4000.00	10.80
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
2437	61	120.23	99.08	23.41	219.31	30.00	1000	6.59	25.06	320.67	36.02	4000.00	10.96
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
2462	61	120.78	104.47	23.53	225.25	30.00	1000	6.47	25.18	329.36	36.02	4000.00	10.84
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0		(Peak)			*1)					
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	61	-0.72	1.62	20.16	21.06	127.64	1.65	22.71	186.64	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2437	61	-0.99	1.63	20.16	20.80	120.23	1.65	22.45	175.79	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2462	61	-0.98	1.64	20.16	20.82	120.78	1.65	22.47	176.60	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

2G_CH1		(Peak)			*1)					
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Directional Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	61	-1.71	1.54	20.16	19.99	99.77	1.65	21.64	145.88	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2437	61	-1.76	1.56	20.16	19.96	99.08	1.65	21.61	144.88	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2462	61	-1.53	1.56	20.16	20.19	104.47	1.65	21.84	152.76	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

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

Result(e.i.r.p.) = Result + Directional Gain

*1) Directional gain = G (ANT) + Array gain, G (ANT) = set equal to the gain of the antenna having the highest gain, Array gain = 0 dB for N (ANT) < 4 (N (ANT)=2)

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 29, 2023
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Kouki Yamada
Mode Tx 11ax-20(OFDMA)(SDM) 26-tone RU,
High power mode/ Standard power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	0	107.77	88.87	22.94	196.64	30.00	1000	7.06	23.66	232.15	36.02	4000.00	12.36
	4	109.77	87.45	22.95	197.22	30.00	1000	7.05	23.65	231.97	36.02	4000.00	12.37
	8	109.27	87.85	22.95	197.12	30.00	1000	7.05	23.66	232.09	36.02	4000.00	12.36
2437	0	109.63	87.48	22.95	197.10	30.00	1000	7.05	23.65	231.88	36.02	4000.00	12.37
	4	106.88	87.28	22.88	194.16	30.00	1000	7.12	23.60	228.99	36.02	4000.00	12.42
	8	110.39	87.88	22.97	198.27	30.00	1000	7.03	23.68	233.19	36.02	4000.00	12.34
2462	0	101.63	91.28	22.85	192.91	30.00	1000	7.15	23.61	229.85	36.02	4000.00	12.41
	4	102.33	94.49	22.94	196.82	30.00	1000	7.06	23.71	235.21	36.02	4000.00	12.31
	8	102.57	92.77	22.91	195.33	30.00	1000	7.09	23.67	232.91	36.02	4000.00	12.35

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0		(Peak)		Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
Freq. [MHz]	RU Index	Reading [dBm]	Reading [dBm]			[dBm]	[mW]		[dBm]	[mW]	
2412	0	-1.46	1.62	20.16	20.32	107.77		-0.23	20.09	102.21	9.0
	4	-1.38	1.62	20.16	20.40	109.77		-0.23	20.17	104.11	9.0
	8	-1.40	1.62	20.16	20.38	109.27		-0.23	20.15	103.63	9.0
2437	0	-1.39	1.63	20.16	20.40	109.63		-0.23	20.17	103.97	9.0
	4	-1.50	1.63	20.16	20.29	106.88		-0.23	20.06	101.37	9.0
	8	-1.36	1.63	20.16	20.43	110.39		-0.23	20.20	104.69	9.0
2462	0	-1.73	1.64	20.16	20.07	101.63		-0.23	19.84	96.38	9.0
	4	-1.70	1.64	20.16	20.10	102.33		-0.23	19.87	97.05	9.0
	8	-1.69	1.64	20.16	20.11	102.57		-0.23	19.88	97.28	9.0

2G_CH1		(Peak)		Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
Freq. [MHz]	RU Index	Reading [dBm]	Reading [dBm]			[dBm]	[mW]		[dBm]	[mW]	
2412	0	-2.22	1.54	20.16	19.49	88.87		1.65	21.14	129.94	9.0
	4	-2.29	1.54	20.16	19.42	87.45		1.65	21.07	127.86	9.0
	8	-2.27	1.54	20.16	19.44	87.85		1.65	21.09	128.45	9.0
2437	0	-2.30	1.56	20.16	19.42	87.48		1.65	21.07	127.91	9.0
	4	-2.31	1.56	20.16	19.41	87.28		1.65	21.06	127.61	9.0
	8	-2.28	1.56	20.16	19.44	87.88		1.65	21.09	128.50	9.0
2462	0	-2.12	1.56	20.16	19.60	91.28		1.65	21.25	133.47	9.0
	4	-1.97	1.56	20.16	19.75	94.49		1.65	21.40	138.16	9.0
	8	-2.05	1.56	20.16	19.67	92.77		1.65	21.32	135.64	9.0

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna Gain

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.

And this mode referred to the worst rate check result in OFDM (SU) mode.

* This data for this mode is described as one mode, since the power setting is the same in High power mode and Standard power mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date October 14, 2023
Temperature / Humidity 23 deg. C / 41 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 52-tone RU, High power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq.	RU Index	2G_CH0 Result	2G_CH1 Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	37	214.04	167.01	25.81	381.05	30.00	1000	4.19	26.51	447.20	36.02	4000.00	9.52
	38	215.52	164.72	25.80	380.24	30.00	1000	4.20	26.49	445.26	36.02	4000.00	9.53
	40	209.65	168.56	25.78	378.21	30.00	1000	4.22	26.49	445.30	36.02	4000.00	9.53
2437	37	214.74	167.07	25.82	381.81	30.00	1000	4.18	26.51	447.95	36.02	4000.00	9.51
	38	214.25	164.40	25.78	378.65	30.00	1000	4.22	26.47	443.58	36.02	4000.00	9.55
	40	210.82	168.23	25.79	379.05	30.00	1000	4.21	26.49	445.93	36.02	4000.00	9.53
2462	37	212.82	160.84	25.72	373.65	30.00	1000	4.28	26.40	437.01	36.02	4000.00	9.62
	38	211.84	160.10	25.70	371.94	30.00	1000	4.30	26.38	435.00	36.02	4000.00	9.64
	40	218.28	161.58	25.80	379.85	30.00	1000	4.20	26.47	443.27	36.02	4000.00	9.55

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0		(Peak)								
Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)		power setting
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]
2412	37	1.52	1.62	20.16	23.30	214.04	-0.23	23.07	203.00	11.5
	38	1.55	1.62	20.16	23.33	215.52	-0.23	23.10	204.41	11.5
	40	1.43	1.62	20.16	23.21	209.65	-0.23	22.98	198.84	11.5
2437	37	1.53	1.63	20.16	23.32	214.74	-0.23	23.09	203.66	11.5
	38	1.52	1.63	20.16	23.31	214.25	-0.23	23.08	203.20	11.5
	40	1.45	1.63	20.16	23.24	210.82	-0.23	23.01	199.95	11.5
2462	37	1.48	1.64	20.16	23.28	212.82	-0.23	23.05	201.84	11.5
	38	1.46	1.64	20.16	23.26	211.84	-0.23	23.03	200.91	11.5
	40	1.59	1.64	20.16	23.39	218.28	-0.23	23.16	207.02	11.5

2G_CH1		(Peak)								
Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)		power setting
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]
2412	37	0.52	1.54	20.16	22.23	167.01	1.65	23.88	244.20	11.5
	38	0.46	1.54	20.16	22.17	164.72	1.65	23.82	240.85	11.5
	40	0.56	1.54	20.16	22.27	168.56	1.65	23.92	246.46	11.5
2437	37	0.51	1.56	20.16	22.23	167.07	1.65	23.88	244.29	11.5
	38	0.44	1.56	20.16	22.16	164.40	1.65	23.81	240.38	11.5
	40	0.54	1.56	20.16	22.26	168.23	1.65	23.91	245.98	11.5
2462	37	0.34	1.56	20.16	22.06	160.84	1.65	23.71	235.17	11.5
	38	0.32	1.56	20.16	22.04	160.10	1.65	23.69	234.09	11.5
	40	0.36	1.56	20.16	22.08	161.58	1.65	23.73	236.26	11.5

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna Gain

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 29, 2023
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Kouki Yamada
Mode Tx 11ax-20(OFDMA)(SDM) 52-tone RU, Standard power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	37	126.18	100.00	23.54	226.18	30.00	1000	6.46	24.25	265.89	36.02	4000.00	11.77
	38	125.31	99.54	23.52	224.85	30.00	1000	6.48	24.22	264.40	36.02	4000.00	11.80
	40	126.18	100.00	23.54	226.18	30.00	1000	6.46	24.25	265.89	36.02	4000.00	11.77
2437	37	124.74	99.54	23.51	224.28	30.00	1000	6.49	24.21	263.85	36.02	4000.00	11.81
	38	124.74	97.95	23.48	222.69	30.00	1000	6.52	24.18	261.52	36.02	4000.00	11.85
	40	125.89	98.63	23.51	224.52	30.00	1000	6.49	24.21	263.61	36.02	4000.00	11.81
2462	37	126.47	105.68	23.66	232.16	30.00	1000	6.34	24.39	274.48	36.02	4000.00	11.64
	38	127.35	104.71	23.66	232.06	30.00	1000	6.34	24.38	273.89	36.02	4000.00	11.64
	40	128.82	106.41	23.72	235.24	30.00	1000	6.28	24.44	277.78	36.02	4000.00	11.58

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0 (Peak)										
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	37	-0.43	1.28	20.16	21.01	126.18	-0.23	20.78	119.67	9.5
	38	-0.46	1.28	20.16	20.98	125.31	-0.23	20.75	118.85	9.5
	40	-0.43	1.28	20.16	21.01	126.18	-0.23	20.78	119.67	9.5
2437	37	-0.48	1.28	20.16	20.96	124.74	-0.23	20.73	118.30	9.5
	38	-0.48	1.28	20.16	20.96	124.74	-0.23	20.73	118.30	9.5
	40	-0.44	1.28	20.16	21.00	125.89	-0.23	20.77	119.40	9.5
2462	37	-0.43	1.29	20.16	21.02	126.47	-0.23	20.79	119.95	9.5
	38	-0.40	1.29	20.16	21.05	127.35	-0.23	20.82	120.78	9.5
	40	-0.35	1.29	20.16	21.10	128.82	-0.23	20.87	122.18	9.5

2G_CH1 (Peak)										
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	37	-1.38	1.22	20.16	20.00	100.00	1.65	21.65	146.22	9.5
	38	-1.40	1.22	20.16	19.98	99.54	1.65	21.63	145.55	9.5
	40	-1.38	1.22	20.16	20.00	100.00	1.65	21.65	146.22	9.5
2437	37	-1.42	1.24	20.16	19.98	99.54	1.65	21.63	145.55	9.5
	38	-1.49	1.24	20.16	19.91	97.95	1.65	21.56	143.22	9.5
	40	-1.46	1.24	20.16	19.94	98.63	1.65	21.59	144.21	9.5
2462	37	-1.16	1.24	20.16	20.24	105.68	1.65	21.89	154.53	9.5
	38	-1.20	1.24	20.16	20.20	104.71	1.65	21.85	153.11	9.5
	40	-1.13	1.24	20.16	20.27	106.41	1.65	21.92	155.60	9.5

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna Gain

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 106-tone RU, High power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Conducted Power					e.i.r.p.				
				Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	53	321.37	279.25	27.79	600.62	30.00	1000	2.21	28.53	713.11	36.02	4000.00	7.49
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	287.08	283.79	27.57	570.87	30.00	1000	2.43	28.37	687.22	36.02	4000.00	7.65
2437	53	316.96	279.25	27.75	596.21	30.00	1000	2.25	28.51	708.93	36.02	4000.00	7.51
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	300.61	285.10	27.68	585.71	30.00	1000	2.32	28.46	701.97	36.02	4000.00	7.56
2462	53	276.69	270.40	27.38	547.09	30.00	1000	2.62	28.18	657.79	36.02	4000.00	7.84
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	309.03	265.46	27.59	574.49	30.00	1000	2.41	28.33	681.24	36.02	4000.00	7.69

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0 (Peak)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	53	3.29	1.62	20.16	25.07	321.37	-0.23	24.84	304.79	13.5
	-	-	-	-	-	-	-	-	-	-
	54	2.80	1.62	20.16	24.58	287.08	-0.23	24.35	272.27	13.5
2437	53	3.22	1.63	20.16	25.01	316.96	-0.23	24.78	300.61	13.5
	-	-	-	-	-	-	-	-	-	-
	54	2.99	1.63	20.16	24.78	300.61	-0.23	24.55	285.10	13.5
2462	53	2.62	1.64	20.16	24.42	276.69	-0.23	24.19	262.42	13.5
	-	-	-	-	-	-	-	-	-	-
	54	3.10	1.64	20.16	24.90	309.03	-0.23	24.67	293.09	13.5

2G_CH1 (Peak)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	53	2.76	1.54	20.16	24.46	279.25	1.65	26.11	408.32	13.5
	-	-	-	-	-	-	-	-	-	-
	54	2.83	1.54	20.16	24.53	283.79	1.65	26.18	414.95	13.5
2437	53	2.74	1.56	20.16	24.46	279.25	1.65	26.11	408.32	13.5
	-	-	-	-	-	-	-	-	-	-
	54	2.83	1.56	20.16	24.55	285.10	1.65	26.20	416.87	13.5
2462	53	2.60	1.56	20.16	24.32	270.40	1.65	25.97	395.37	13.5
	-	-	-	-	-	-	-	-	-	-
	54	2.52	1.56	20.16	24.24	265.46	1.65	25.89	388.15	13.5

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna Gain

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 106-tone RU, Standard power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	53	124.17	97.27	23.45	221.44	30.00	1000	6.55	24.15	259.99	36.02	4000.00	11.87
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	125.03	98.17	23.49	223.20	30.00	1000	6.51	24.19	262.13	36.02	4000.00	11.84
2437	53	121.06	98.86	23.42	219.92	30.00	1000	6.58	24.14	259.36	36.02	4000.00	11.88
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	126.18	95.28	23.45	221.46	30.00	1000	6.55	24.13	258.99	36.02	4000.00	11.89
2462	53	117.49	100.23	23.38	217.72	30.00	1000	6.62	24.12	257.98	36.02	4000.00	11.90
	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	114.02	89.74	23.09	203.77	30.00	1000	6.91	23.79	239.36	36.02	4000.00	12.23

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p.) + 2G_CH1 Result (e.i.r.p.)

2G_CH0 (Peak)										
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	53	-0.84	1.62	20.16	20.94	124.17	-0.23	20.71	117.76	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-0.81	1.62	20.16	20.97	125.03	-0.23	20.74	118.58	9.5
2437	53	-0.96	1.63	20.16	20.83	121.06	-0.23	20.60	114.82	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-0.78	1.63	20.16	21.01	126.18	-0.23	20.78	119.67	9.5
2462	53	-1.10	1.64	20.16	20.70	117.49	-0.23	20.47	111.43	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-1.23	1.64	20.16	20.57	114.02	-0.23	20.34	108.14	9.5

2G_CH1 (Peak)										
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p.)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	53	-1.82	1.54	20.16	19.88	97.27	1.65	21.53	142.23	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-1.78	1.54	20.16	19.92	98.17	1.65	21.57	143.55	9.5
2437	53	-1.77	1.56	20.16	19.95	98.86	1.65	21.60	144.54	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-1.93	1.56	20.16	19.79	95.28	1.65	21.44	139.32	9.5
2462	53	-1.71	1.56	20.16	20.01	100.23	1.65	21.66	146.55	9.5
	-	-	-	-	-	-	-	-	-	-
	54	-2.19	1.56	20.16	19.53	89.74	1.65	21.18	131.22	9.5

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna Gain

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 242-tone RU, High power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	61	309.03	285.76	27.74	594.79	30.00	1000	2.26	28.52	710.92	36.02	4000.00	7.50
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
2437	61	320.63	267.92	27.70	588.54	30.00	1000	2.30	28.43	695.83	36.02	4000.00	7.60
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
2462	61	311.89	264.85	27.61	576.74	30.00	1000	2.39	28.34	683.06	36.02	4000.00	7.68
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0 (Peak)										
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	61	3.12	1.62	20.16	24.90	309.03	-0.23	24.67	293.09	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2437	61	3.27	1.63	20.16	25.06	320.63	-0.23	24.83	304.09	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2462	61	3.14	1.64	20.16	24.94	311.89	-0.23	24.71	295.80	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

2G_CH1 (Peak)										
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	61	2.86	1.54	20.16	24.56	285.76	1.65	26.21	417.83	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2437	61	2.56	1.56	20.16	24.28	267.92	1.65	25.93	391.74	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2462	61	2.51	1.56	20.16	24.23	264.85	1.65	25.88	387.26	13.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

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

Result(e.i.r.p.) = Result + Antenna Gain

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 242-tone RU, Standard power mode

2G_CH0 + 2G_CH1				Conducted Power					e.i.r.p.				
Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result		Limit		Margin	Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	[dBm]	[mW]	
2412	61	134.90	115.61	23.99	250.51	30.00	1000	6.01	24.73	296.98	36.02	4000.00	11.29
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
2437	61	104.23	96.38	23.02	200.61	30.00	1000	6.98	23.80	239.78	36.02	4000.00	12.22
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
2462	61	112.98	103.51	23.35	216.49	30.00	1000	6.65	24.12	258.51	36.02	4000.00	11.90
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

e.i.r.p. Result = 2G_CH0 Result (e.i.r.p) + 2G_CH1 Result (e.i.r.p)

2G_CH0 (Peak)										
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	61	-0.48	1.62	20.16	21.30	134.90	-0.23	21.07	127.94	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2437	61	-1.61	1.63	20.16	20.18	104.23	-0.23	19.95	98.86	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2462	61	-1.27	1.64	20.16	20.53	112.98	-0.23	20.30	107.15	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

2G_CH1 (Peak)										
Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Antenna Gain [dBi]	Result (e.i.r.p)		power setting [dBm]
					[dBm]	[mW]		[dBm]	[mW]	
2412	61	-1.07	1.54	20.16	20.63	115.61	1.65	22.28	169.04	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2437	61	-1.88	1.56	20.16	19.84	96.38	1.65	21.49	140.93	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
2462	61	-1.57	1.56	20.16	20.15	103.51	1.65	21.80	151.36	9.5
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

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

Result(e.i.r.p) = Result + Antenna Gain

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode.
And this mode referred to the worst rate check result in OFDM (SU) mode.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 16, 2023
Temperature / Humidity 26 deg. C / 45 % RH
Engineer Kenichi Adachi
Mode Tx BT LE

BT LE 1M-PHY

Maximum peak output power

Maximum peak output power				Conducted Power					e.i.r.p. for RSS-247					
Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2402	-1.45	1.62	9.88	10.05	10.12	30.00	1000	19.95	-0.23	9.82	9.59	36.02	4000	26.20
2440	-1.62	1.63	9.88	9.89	9.75	30.00	1000	20.11	-0.23	9.66	9.25	36.02	4000	26.36
2480	-2.07	1.66	9.89	9.48	8.87	30.00	1000	20.52	-0.23	9.25	8.41	36.02	4000	26.77

BT LE 2M-PHY

Maximum peak output power

				Conducted Power					e.i.r.p. for RSS-247					
Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2402	-1.29	1.62	9.88	10.21	10.50	30.00	1000	19.79	-0.23	9.98	9.95	36.02	4000	26.04
2440	-1.46	1.63	9.88	10.05	10.12	30.00	1000	19.95	-0.23	9.82	9.59	36.02	4000	26.20
2480	-1.88	1.66	9.89	9.67	9.27	30.00	1000	20.33	-0.23	9.44	8.79	36.02	4000	26.58

BT LE Coded S=8 (125 kbps)

Maximum peak output power

				Conducted Power					e.i.r.p. for RSS-247					
Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2402	-1.45	1.62	9.88	10.05	10.12	30.00	1000	19.95	-0.23	9.82	9.59	36.02	4000	26.20
2440	-1.65	1.63	9.88	9.86	9.68	30.00	1000	20.14	-0.23	9.63	9.18	36.02	4000	26.39
2480	-2.10	1.66	9.89	9.45	8.81	30.00	1000	20.55	-0.23	9.22	8.36	36.02	4000	26.80

BT LE Coded S=2 (500 kbps)

Maximum peak output power

				Conducted Power					e.i.r.p. for RSS-247					
Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2402	-1.45	1.62	9.88	10.05	10.12	30.00	1000	19.95	-0.23	9.82	9.59	36.02	4000	26.20
2440	-1.64	1.63	9.88	9.87	9.71	30.00	1000	20.13	-0.23	9.64	9.20	36.02	4000	26.38
2480	-2.09	1.66	9.89	9.46	8.83	30.00	1000	20.54	-0.23	9.23	8.38	36.02	4000	26.79

Sample Calculation:

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

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

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

Average Output Power (Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.5 Shielded Room		
Date	June 27, 2023	June 30, 2023	July 4, 2023
Temperature / Humidity	25 deg. C / 47 % RH	25 deg. C / 48 % RH	24 deg. C / 49 % RH
Engineer	Kenichi Adachi	Ken Fujita	Ken Fujita
Mode	Tx, High power mode		
11b(CDD)	11 Mbps (short)		

		2G CH0					2G CH1					Total Power				power setting [dBm]
Frequency	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)				
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]			
2412	0.00	-8.22	1.28	20.16	13.22	20.99	-8.29	1.22	20.16	13.09	20.37	16.17	41.36			
2437	0.00	-8.21	1.28	20.16	13.23	21.04	-8.51	1.24	20.16	12.89	19.45	16.07	40.49			
2462	0.00	-8.25	1.29	20.16	13.20	20.89	-8.55	1.24	20.16	12.85	19.28	16.04	40.17			

11g(CDD) 48 Mbps

		2G CH0					2G CH1					Total Power				power setting [dBm]
Frequency [MHz]	Duty factor *1) [dB]	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Result (Average)				
					[dBm]	[mW]				[dBm]	[mW]	[dBm]	[mW]			
		2412	0.00	-7.69	1.28	20.16	13.75	23.71	-8.34	1.22	20.16	13.04	20.14	16.42	43.85	
2437	0.00	-7.72	1.28	20.16	13.72	23.55	-8.71	1.24	20.16	12.69	18.58	16.25	42.13	14.0		
2462	0.00	-7.67	1.29	20.16	13.78	23.88	-8.68	1.24	20.16	12.72	18.71	16.29	42.58	14.0		

11n-20(CDD) MCS 5

		2G CH0					2G CH1					Total Power				power setting [dBm]
Frequency	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)				
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]			
2412	0.00	-7.52	1.28	20.16	13.92	24.66	-8.37	1.22	20.16	13.01	20.00	16.50	44.66			
2437	0.00	-7.59	1.28	20.16	13.85	24.27	-8.56	1.24	20.16	12.84	19.23	16.38	43.50			
2462	0.00	-7.63	1.29	20.16	13.82	24.08	-8.57	1.24	20.16	12.83	19.19	16.36	43.27			

11n-20(SDM) MCS 15

		2G CH0					2G CH1					Total Power		power setting
Frequency	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)		
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
2412	0.00	-7.66	1.28	20.16	13.78	23.88	-8.26	1.22	20.16	13.12	20.51	16.47	44.39	14.0
2437	0.00	-7.72	1.28	20.16	13.72	23.55	-8.72	1.24	20.16	12.68	18.54	16.24	42.09	14.0
2462	0.00	-7.78	1.29	20.16	13.67	23.28	-8.70	1.24	20.16	12.70	18.62	16.22	41.90	14.0

11ax-20(OFDM)(CDD) MCS 10 (1SS)

		2G CH0					2G CH1					Total Power		power setting
Frequency	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)		
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
2412	0.00	-8.15	1.28	20.16	13.29	21.33	-8.70	1.22	20.16	12.68	18.54	16.01	39.87	13.5
2437	0.00	-7.86	1.28	20.16	13.58	22.80	-8.63	1.24	20.16	12.77	18.92	16.20	41.73	13.5
2462	0.00	-7.84	1.29	20.16	13.61	22.96	-8.28	1.24	20.16	13.12	20.51	16.38	43.47	13.5

11ax-20(OFDM)(SDM) MCS 10 (2SS)

Max 2G (GSM) (CH0) - Max 2G (GSM) (CH1) - Max 4G (LTE)																
2G CH0							2G CH1							Total Power		power setting
Frequency	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)				
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dBm]		
2412	0.00	-7.71	1.28	20.16	13.73	23.60	-8.89	1.22	20.16	12.49	17.74	16.16	41.35	14.0		
2437	0.00	-7.68	1.28	20.16	13.76	23.77	-9.32	1.24	20.16	12.08	16.14	16.01	39.91	14.0		
2462	0.00	-7.64	1.29	20.16	13.81	24.04	-9.08	1.24	20.16	12.32	17.06	16.14	41.10	14.0		

Sample Calculation:

(* SS: Spatial Stream)

Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor

Total Result = 2G_CH0 Result + 2G_CH1 Result

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

*1) Power meter was measured with using the gate function of power meter.

It was means that the intervals during which the transmitter is off or is transmitting at reduced power level is not the average.

Therefore, there is no need to add duty cycle correction to the result.

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 27, 2023 June 30, 2023
Temperature / Humidity 25 deg. C / 47 % RH 25 deg. C / 48 % RH
Engineer Kenichi Adachi Ken Fujita
Mode Tx, Standard power mode

11b(CDD) 11 Mbps

		2G CH0					2G CH1					Total Power		power setting [dBm]
Frequency [MHz]	Duty factor *1) [dB]	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Result (Average)		
					[dBm]	[mW]				[dBm]	[mW]	[dBm]	[mW]	
2412	0.00	-11.71	1.28	20.16	9.73	9.40	-12.32	1.22	20.16	9.06	8.05	12.42	17.45	10.0
2437	0.00	-11.62	1.28	20.16	9.82	9.59	-12.52	1.24	20.16	8.88	7.73	12.39	17.32	10.0
2462	0.00	-11.83	1.29	20.16	9.62	9.16	-12.18	1.24	20.16	9.22	8.36	12.43	17.52	10.0

11g(CDD) 48 Mbps

		2G CH0					2G CH1					Total Power		power setting [dBm]
Frequency [MHz]	Duty factor *1) [dB]	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Result (Average)		
					[dBm]	[mW]				[dBm]	[mW]	[dBm]	[mW]	
		2412	0.00	-11.73	1.28	20.16	9.71	9.35	-12.51	1.22	20.16	8.87	7.71	
2437	0.00	-11.83	1.28	20.16	9.61	9.14	-12.69	1.24	20.16	8.71	7.43	12.19	16.57	
2462	0.00	-11.99	1.29	20.16	9.46	8.83	-12.47	1.24	20.16	8.93	7.82	12.21	16.65	

11n-20(CDD) MCS 5

		2G CH0					2G CH1					Total Power		power setting [dBm]	
Frequency	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)			
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]	[dBm]		[mW]
2412	0.00	-11.61	1.28	20.16	9.83	9.62	-12.36	1.22	20.16	9.02	7.98	12.45	17.60		10.0
2437	0.00	-11.68	1.28	20.16	9.76	9.46	-12.71	1.24	20.16	8.69	7.40	12.27	16.86	10.0	
2462	0.00	-11.83	1.29	20.16	9.62	9.16	-12.36	1.24	20.16	9.04	8.02	12.35	17.18	10.0	

11n-20(SDM) MCS 15

		2G_CH0					2G_CH1					Total Power		power setting [dBm]
Frequency	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)		
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]	[dBm]	
2412	0.00	-11.66	1.28	20.16	9.78	9.51	-12.54	1.22	20.16	8.84	7.66	12.35	17.16	10.0
2437	0.00	-11.77	1.28	20.16	9.67	9.27	-12.74	1.24	20.16	8.66	7.35	12.20	16.61	10.0
2462	0.00	-11.97	1.29	20.16	9.48	8.87	-12.46	1.24	20.16	8.94	7.83	12.23	16.71	10.0

11ax-20(OFDM)(CDD) MCS 10 (1SS)

		2G_CH0					2G_CH1					Total Power		power setting [dBm]	
Frequency	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)			
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]	[dBm]		[mW]
2412	0.00	-11.58	1.28	20.16	9.86	9.68	-12.43	1.22	20.16	8.95	7.85	12.44	17.54		10.0
2437	0.00	-11.94	1.28	20.16	9.50	8.91	-12.55	1.24	20.16	8.85	7.67	12.20	16.59	10.0	
2462	0.00	-11.50	1.29	20.16	9.95	9.89	-12.43	1.24	20.16	8.97	7.89	12.50	17.77	10.0	

11ax-20(OFDM)(SDM) MCS 10 (2SS)

Max 25 (0.01m)(0.01m) Mod 10 (255)														
		2G_CH0					2G_CH1					Total Power		
Frequency	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)		power setting
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0.00	-11.80	1.28	20.16	9.64	9.20	-13.12	1.22	20.16	8.26	6.70	12.01	15.90	10.0
2437	0.00	-11.72	1.28	20.16	9.72	9.38	-13.35	1.24	20.16	8.05	6.38	11.98	15.76	10.0
2462	0.00	-11.93	1.29	20.16	9.52	8.95	-12.84	1.24	20.16	8.56	7.18	12.08	16.13	10.0

Sample Calculation:

(* SS: Spatial Stream)

Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor

Total Result = 2G_CH0 Result + 2G_CH1 Result

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

*1) Power meter was measured with using the gate function of power meter.

It was means that the intervals during which the transmitter is off or is transmitting at reduced power level is not the average.
Therefore, there is no need to add duty cycle correction to the result.

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 29, 2023
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Ken Fujita
Mode Tx 11ax-20(OFDMA)(CDD) 26-tone RU,
High power mode/ Standard power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	0	7.98	6.47	11.60	14.45
	4	7.08	5.81	11.10	12.89
	8	8.11	6.53	11.66	14.64
2437	0	7.87	6.43	11.55	14.30
	4	7.08	5.82	11.11	12.90
	8	7.82	6.40	11.53	14.21
2462	0	7.64	6.92	11.63	14.56
	4	6.71	6.14	11.09	12.85
	8	7.46	6.73	11.52	14.19

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	0	-12.42	1.28	20.16	9.02	7.98	9.0
	4	-12.94	1.28	20.16	8.50	7.08	9.0
	8	-12.35	1.28	20.16	9.09	8.11	9.0
2437	0	-12.48	1.28	20.16	8.96	7.87	9.0
	4	-12.94	1.28	20.16	8.50	7.08	9.0
	8	-12.51	1.28	20.16	8.93	7.82	9.0
2462	0	-12.62	1.29	20.16	8.83	7.64	9.0
	4	-13.18	1.29	20.16	8.27	6.71	9.0
	8	-12.72	1.29	20.16	8.73	7.46	9.0

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	0	-13.27	1.22	20.16	8.11	6.47	9.0
	4	-13.74	1.22	20.16	7.64	5.81	9.0
	8	-13.23	1.22	20.16	8.15	6.53	9.0
2437	0	-13.32	1.24	20.16	8.08	6.43	9.0
	4	-13.75	1.24	20.16	7.65	5.82	9.0
	8	-13.34	1.24	20.16	8.06	6.40	9.0
2462	0	-13.00	1.24	20.16	8.40	6.92	9.0
	4	-13.52	1.24	20.16	7.88	6.14	9.0
	8	-13.12	1.24	20.16	8.28	6.73	9.0

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date October 14, 2023
Temperature / Humidity 23 deg. C / 41 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(CDD) 52-tone RU, High power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	37	14.44	11.80	14.19	26.23
	38	13.72	11.16	13.96	24.89
	40	14.60	11.69	14.20	26.29
2437	37	14.35	11.72	14.16	26.07
	38	13.77	11.27	13.99	25.04
	40	14.59	11.67	14.19	26.25
2462	37	14.62	11.36	14.15	25.98
	38	13.90	10.95	13.95	24.85
	40	14.22	11.05	14.03	25.27

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	37	-10.19	1.62	20.16	11.59	14.44	11.5
	38	-10.41	1.62	20.16	11.37	13.72	11.5
	40	-10.14	1.62	20.16	11.64	14.60	11.5
2437	37	-10.22	1.63	20.16	11.57	14.35	11.5
	38	-10.40	1.63	20.16	11.39	13.77	11.5
	40	-10.15	1.63	20.16	11.64	14.59	11.5
2462	37	-10.15	1.64	20.16	11.65	14.62	11.5
	38	-10.37	1.64	20.16	11.43	13.90	11.5
	40	-10.27	1.64	20.16	11.53	14.22	11.5

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	37	-10.99	1.54	20.16	10.72	11.80	11.5
	38	-11.23	1.54	20.16	10.48	11.16	11.5
	40	-11.03	1.54	20.16	10.68	11.69	11.5
2437	37	-11.03	1.56	20.16	10.69	11.72	11.5
	38	-11.20	1.56	20.16	10.52	11.27	11.5
	40	-11.05	1.56	20.16	10.67	11.67	11.5
2462	37	-11.17	1.56	20.16	10.55	11.36	11.5
	38	-11.33	1.56	20.16	10.39	10.95	11.5
	40	-11.29	1.56	20.16	10.43	11.05	11.5

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 29, 2023
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Ken Fujita
Mode Tx 11ax-20(OFDMA)(CDD) 52-tone RU, Standard power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	37	8.02	6.55	11.63	14.56
	38	7.13	5.90	11.15	13.03
	40	7.96	6.52	11.61	14.48
2437	37	7.94	6.59	11.62	14.54
	38	7.16	5.78	11.12	12.94
	40	7.82	6.15	11.45	13.97
2462	37	7.64	6.56	11.52	14.20
	38	6.67	6.25	11.11	12.92
	40	7.55	6.59	11.51	14.14

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	37	-12.40	1.28	20.16	9.04	8.02	10.0
	38	-12.91	1.28	20.16	8.53	7.13	10.0
	40	-12.43	1.28	20.16	9.01	7.96	10.0
2437	37	-12.44	1.28	20.16	9.00	7.94	10.0
	38	-12.89	1.28	20.16	8.55	7.16	10.0
	40	-12.51	1.28	20.16	8.93	7.82	10.0
2462	37	-12.62	1.29	20.16	8.83	7.64	10.0
	38	-13.21	1.29	20.16	8.24	6.67	10.0
	40	-12.67	1.29	20.16	8.78	7.55	10.0

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	37	-13.22	1.22	20.16	8.16	6.55	10.0
	38	-13.67	1.22	20.16	7.71	5.90	10.0
	40	-13.24	1.22	20.16	8.14	6.52	10.0
2437	37	-13.21	1.24	20.16	8.19	6.59	10.0
	38	-13.78	1.24	20.16	7.62	5.78	10.0
	40	-13.51	1.24	20.16	7.89	6.15	10.0
2462	37	-13.23	1.24	20.16	8.17	6.56	10.0
	38	-13.44	1.24	20.16	7.96	6.25	10.0
	40	-13.21	1.24	20.16	8.19	6.59	10.0

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 30, 2023
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Kenichi Adachi
Mode Tx 11ax-20(OFDMA)(CDD) 106-tone RU, High power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	53	21.33	19.45	16.10	40.78
	-	-	-	-	-
	54	21.13	19.54	16.09	40.68
2437	53	21.18	18.45	15.98	39.63
	-	-	-	-	-
	54	20.75	18.37	15.92	39.11
2462	53	20.94	17.95	15.90	38.89
	-	-	-	-	-
	54	20.84	17.86	15.88	38.71

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	53	-8.15	1.28	20.16	13.29	21.33	13.5
	-	-	-	-	-	-	-
	54	-8.19	1.28	20.16	13.25	21.13	13.5
2437	53	-8.18	1.28	20.16	13.26	21.18	13.5
	-	-	-	-	-	-	-
	54	-8.27	1.28	20.16	13.17	20.75	13.5
2462	53	-8.24	1.29	20.16	13.21	20.94	13.5
	-	-	-	-	-	-	-
	54	-8.26	1.29	20.16	13.19	20.84	13.5

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	53	-8.49	1.22	20.16	12.89	19.45	13.5
	-	-	-	-	-	-	-
	54	-8.47	1.22	20.16	12.91	19.54	13.5
2437	53	-8.74	1.24	20.16	12.66	18.45	13.5
	-	-	-	-	-	-	-
	54	-8.76	1.24	20.16	12.64	18.37	13.5
2462	53	-8.86	1.24	20.16	12.54	17.95	13.5
	-	-	-	-	-	-	-
	54	-8.88	1.24	20.16	12.52	17.86	13.5

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 30, 2023
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Kenichi Adachi
Mode Tx 11ax-20(OFDMA)(CDD) 106-tone RU, Standard power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	53	8.71	7.05	11.97	15.76
	-	-	-	-	-
	54	8.69	6.97	11.95	15.66
2437	53	8.61	7.03	11.94	15.64
	-	-	-	-	-
	54	8.47	6.93	11.88	15.41
2462	53	8.83	7.48	12.13	16.31
	-	-	-	-	-
	54	8.63	7.28	12.02	15.91

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	53	-12.04	1.28	20.16	9.40	8.71	9.5
	-	-	-	-	-	-	-
	54	-12.05	1.28	20.16	9.39	8.69	9.5
2437	53	-12.09	1.28	20.16	9.35	8.61	9.5
	-	-	-	-	-	-	-
	54	-12.16	1.28	20.16	9.28	8.47	9.5
2462	53	-11.99	1.29	20.16	9.46	8.83	9.5
	-	-	-	-	-	-	-
	54	-12.09	1.29	20.16	9.36	8.63	9.5

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	53	-12.90	1.22	20.16	8.48	7.05	9.5
	-	-	-	-	-	-	-
	54	-12.95	1.22	20.16	8.43	6.97	9.5
2437	53	-12.93	1.24	20.16	8.47	7.03	9.5
	-	-	-	-	-	-	-
	54	-12.99	1.24	20.16	8.41	6.93	9.5
2462	53	-12.66	1.24	20.16	8.74	7.48	9.5
	-	-	-	-	-	-	-
	54	-12.78	1.24	20.16	8.62	7.28	9.5

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(CDD) 242-tone RU, High power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	61	21.38	19.19	16.08	40.57
	-	-	-	-	-
	-	-	-	-	-
2437	61	20.42	18.11	15.86	38.53
	-	-	-	-	-
	-	-	-	-	-
2462	61	20.23	17.42	15.76	37.65
	-	-	-	-	-
	-	-	-	-	-

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	61	-8.48	1.62	20.16	13.30	21.38	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2437	61	-8.69	1.63	20.16	13.10	20.42	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2462	61	-8.74	1.64	20.16	13.06	20.23	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	61	-8.87	1.54	20.16	12.83	19.19	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2437	61	-9.14	1.56	20.16	12.58	18.11	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2462	61	-9.31	1.56	20.16	12.41	17.42	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(CDD) 242-tone RU, Standard power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	61	8.83	6.98	11.99	15.81
	-	-	-	-	-
	-	-	-	-	-
2437	61	8.71	6.93	11.94	15.64
	-	-	-	-	-
	-	-	-	-	-
2462	61	8.26	7.18	11.89	15.44
	-	-	-	-	-
	-	-	-	-	-

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	61	-12.32	1.62	20.16	9.46	8.83	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2437	61	-12.39	1.63	20.16	9.40	8.71	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2462	61	-12.63	1.64	20.16	9.17	8.26	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	61	-13.26	1.54	20.16	8.44	6.98	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2437	61	-13.31	1.56	20.16	8.41	6.93	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2462	61	-13.16	1.56	20.16	8.56	7.18	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 29, 2023
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Kouki Yamada
Tx 11ax-20(OFDMA)(SDM) 26-tone RU,
High power mode /Standard power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	0	7.90	6.48	11.58	14.38
	4	7.09	5.69	11.06	12.77
	8	7.86	6.35	11.53	14.21
2437	0	7.89	6.35	11.53	14.24
	4	7.23	5.71	11.12	12.94
	8	7.81	6.31	11.50	14.12
2462	0	7.52	6.92	11.60	14.44
	4	6.50	6.07	10.99	12.57
	8	7.41	6.80	11.53	14.21

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	0	-12.81	1.62	20.16	8.97	7.90	9.0
	4	-13.28	1.62	20.16	8.50	7.09	9.0
	8	-12.83	1.62	20.16	8.95	7.86	9.0
2437	0	-12.82	1.63	20.16	8.97	7.89	9.0
	4	-13.20	1.63	20.16	8.59	7.23	9.0
	8	-12.86	1.63	20.16	8.93	7.81	9.0
2462	0	-13.04	1.64	20.16	8.76	7.52	9.0
	4	-13.67	1.64	20.16	8.13	6.50	9.0
	8	-13.10	1.64	20.16	8.70	7.41	9.0

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	0	-13.59	1.54	20.16	8.12	6.48	9.0
	4	-14.16	1.54	20.16	7.55	5.69	9.0
	8	-13.68	1.54	20.16	8.03	6.35	9.0
2437	0	-13.69	1.56	20.16	8.03	6.35	9.0
	4	-14.15	1.56	20.16	7.57	5.71	9.0
	8	-13.72	1.56	20.16	8.00	6.31	9.0
2462	0	-13.32	1.56	20.16	8.40	6.92	9.0
	4	-13.89	1.56	20.16	7.83	6.07	9.0
	8	-13.40	1.56	20.16	8.32	6.80	9.0

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date October 14, 2023
Temperature / Humidity 23 deg. C / 41 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 52-tone RU, High power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	37	14.57	11.88	14.22	26.45
	38	13.76	11.19	13.97	24.94
	40	14.40	11.69	14.17	26.09
2437	37	14.32	11.69	14.15	26.01
	38	13.67	11.17	13.95	24.84
	40	14.39	11.56	14.14	25.94
2462	37	14.89	11.47	14.21	26.36
	38	13.71	10.77	13.89	24.48
	40	14.19	11.13	14.03	25.32

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	37	-10.15	1.62	20.16	11.63	14.57	11.5
	38	-10.40	1.62	20.16	11.38	13.76	11.5
	40	-10.20	1.62	20.16	11.58	14.40	11.5
2437	37	-10.23	1.63	20.16	11.56	14.32	11.5
	38	-10.43	1.63	20.16	11.36	13.67	11.5
	40	-10.21	1.63	20.16	11.58	14.39	11.5
2462	37	-10.07	1.64	20.16	11.73	14.89	11.5
	38	-10.43	1.64	20.16	11.37	13.71	11.5
	40	-10.28	1.64	20.16	11.52	14.19	11.5

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	37	-10.96	1.54	20.16	10.75	11.88	11.5
	38	-11.22	1.54	20.16	10.49	11.19	11.5
	40	-11.03	1.54	20.16	10.68	11.69	11.5
2437	37	-11.04	1.56	20.16	10.68	11.69	11.5
	38	-11.24	1.56	20.16	10.48	11.17	11.5
	40	-11.09	1.56	20.16	10.63	11.56	11.5
2462	37	-11.13	1.56	20.16	10.59	11.47	11.5
	38	-11.40	1.56	20.16	10.32	10.77	11.5
	40	-11.26	1.56	20.16	10.46	11.13	11.5

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 29, 2023
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Kouki Yamada
Mode Tx 11ax-20(OFDMA)(SDM) 52-tone RU, Standard power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	37	8.63	7.08	11.96	15.71
	38	8.22	6.55	11.69	14.77
	40	8.69	6.98	11.95	15.67
2437	37	8.41	6.98	11.87	15.40
	38	8.20	6.53	11.68	14.73
	40	8.47	6.87	11.86	15.34
2462	37	8.69	7.38	12.06	16.07
	38	8.18	6.78	11.75	14.96
	40	8.59	7.11	11.96	15.70

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	37	-12.08	1.28	20.16	9.36	8.63	9.5
	38	-12.29	1.28	20.16	9.15	8.22	9.5
	40	-12.05	1.28	20.16	9.39	8.69	9.5
2437	37	-12.19	1.28	20.16	9.25	8.41	9.5
	38	-12.30	1.28	20.16	9.14	8.20	9.5
	40	-12.16	1.28	20.16	9.28	8.47	9.5
2462	37	-12.06	1.29	20.16	9.39	8.69	9.5
	38	-12.32	1.29	20.16	9.13	8.18	9.5
	40	-12.11	1.29	20.16	9.34	8.59	9.5

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	37	-12.88	1.22	20.16	8.50	7.08	9.5
	38	-13.22	1.22	20.16	8.16	6.55	9.5
	40	-12.94	1.22	20.16	8.44	6.98	9.5
2437	37	-12.96	1.24	20.16	8.44	6.98	9.5
	38	-13.25	1.24	20.16	8.15	6.53	9.5
	40	-13.03	1.24	20.16	8.37	6.87	9.5
2462	37	-12.72	1.24	20.16	8.68	7.38	9.5
	38	-13.09	1.24	20.16	8.31	6.78	9.5
	40	-12.88	1.24	20.16	8.52	7.11	9.5

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 106-tone RU, High power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	53	21.73	18.75	16.07	40.48
	-	-	-	-	-
	54	21.63	18.75	16.06	40.38
2437	53	21.88	18.32	16.04	40.20
	-	-	-	-	-
	54	21.43	17.95	15.95	39.38
2462	53	20.70	17.54	15.83	38.24
	-	-	-	-	-
	54	20.89	17.22	15.81	38.11

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	53	-8.41	1.62	20.16	13.37	21.73	13.5
	-	-	-	-	-	-	-
	54	-8.43	1.62	20.16	13.35	21.63	13.5
2437	53	-8.39	1.63	20.16	13.40	21.88	13.5
	-	-	-	-	-	-	-
	54	-8.48	1.63	20.16	13.31	21.43	13.5
2462	53	-8.64	1.64	20.16	13.16	20.70	13.5
	-	-	-	-	-	-	-
	54	-8.60	1.64	20.16	13.20	20.89	13.5

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	53	-8.97	1.54	20.16	12.73	18.75	13.5
	-	-	-	-	-	-	-
	54	-8.97	1.54	20.16	12.73	18.75	13.5
2437	53	-9.09	1.56	20.16	12.63	18.32	13.5
	-	-	-	-	-	-	-
	54	-9.18	1.56	20.16	12.54	17.95	13.5
2462	53	-9.28	1.56	20.16	12.44	17.54	13.5
	-	-	-	-	-	-	-
	54	-9.36	1.56	20.16	12.36	17.22	13.5

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 106-tone RU, Standard power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	53	8.79	6.73	11.91	15.52
	-	-	-	-	-
	54	8.89	6.70	11.93	15.59
2437	53	8.89	6.82	11.96	15.72
	-	-	-	-	-
	54	8.83	6.73	11.92	15.56
2462	53	8.63	7.06	11.96	15.69
	-	-	-	-	-
	54	8.55	6.97	11.91	15.52

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	53	-12.34	1.62	20.16	9.44	8.79	9.5
	-	-	-	-	-	-	-
	54	-12.29	1.62	20.16	9.49	8.89	9.5
2437	53	-12.30	1.63	20.16	9.49	8.89	9.5
	-	-	-	-	-	-	-
	54	-12.33	1.63	20.16	9.46	8.83	9.5
2462	53	-12.44	1.64	20.16	9.36	8.63	9.5
	-	-	-	-	-	-	-
	54	-12.48	1.64	20.16	9.32	8.55	9.5

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	53	-13.42	1.54	20.16	8.28	6.73	9.5
	-	-	-	-	-	-	-
	54	-13.44	1.54	20.16	8.26	6.70	9.5
2437	53	-13.38	1.56	20.16	8.34	6.82	9.5
	-	-	-	-	-	-	-
	54	-13.44	1.56	20.16	8.28	6.73	9.5
2462	53	-13.23	1.56	20.16	8.49	7.06	9.5
	-	-	-	-	-	-	-
	54	-13.29	1.56	20.16	8.43	6.97	9.5

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 242-tone RU, High power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	61	21.18	19.01	16.04	40.19
	-	-	-	-	-
	-	-	-	-	-
2437	61	20.65	18.20	15.89	38.85
	-	-	-	-	-
	-	-	-	-	-
2462	61	19.10	17.46	15.63	36.56
	-	-	-	-	-
	-	-	-	-	-

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	61	-8.52	1.62	20.16	13.26	21.18	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2437	61	-8.64	1.63	20.16	13.15	20.65	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2462	61	-8.99	1.64	20.16	12.81	19.10	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	61	-8.91	1.54	20.16	12.79	19.01	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2437	61	-9.12	1.56	20.16	12.60	18.20	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2462	61	-9.30	1.56	20.16	12.42	17.46	13.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 22, 2023
Temperature / Humidity 23 deg. C / 58 % RH
Engineer Yosuke Murakami
Mode Tx 11ax-20(OFDMA)(SDM) 242-tone RU, Standard power mode

2G_CH0 + 2G_CH1

Freq. [MHz]	RU Index	2G_CH0 Result [mW]	2G_CH1 Result [mW]	Result	
				[dBm]	[mW]
2412	61	7.93	7.41	11.86	15.34
	-	-	-	-	-
	-	-	-	-	-
2437	61	7.43	6.79	11.53	14.22
	-	-	-	-	-
	-	-	-	-	-
2462	61	6.61	7.05	11.35	13.65
	-	-	-	-	-
	-	-	-	-	-

Sample Calculation:

Result = 2G_CH0 Result + 2G_CH1 Result

2G_CH0 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	61	-12.79	1.62	20.16	8.99	7.93	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2437	61	-13.07	1.62	20.16	8.71	7.43	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2462	61	-13.58	1.62	20.16	8.20	6.61	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

2G_CH1 (Average)

Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		power setting [dBm]
					[dBm]	[mW]	
2412	61	-13.00	1.54	20.16	8.70	7.41	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2437	61	-13.40	1.56	20.16	8.32	6.79	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
2462	61	-13.24	1.56	20.16	8.48	7.05	9.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

Sample Calculation:

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

Average Output Power (Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.2 Measurement Room
Date	September 16, 2023
Temperature / Humidity	26 deg. C / 45 % RH
Engineer	Kenichi Adachi
Mode	Tx BT LE

BT LE 1M-PHY

Average power

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty factor [dB]	Result (Burst power average)	
				[dBm]	[mW]		[dBm]	[mW]
2402	-2.32	1.62	9.88	9.18	8.28	0.65	9.83	9.62
2440	-2.49	1.63	9.88	9.02	7.98	0.65	9.67	9.27
2480	-2.96	1.66	9.89	8.59	7.23	0.65	9.24	8.39

BT LE 2M-PHY

Average power

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty factor [dB]	Result (Burst power average)	
				[dBm]	[mW]		[dBm]	[mW]
2402	-3.96	1.62	9.88	7.54	5.68	2.31	9.85	9.66
2440	-4.15	1.63	9.88	7.36	5.45	2.31	9.67	9.27
2480	-4.65	1.66	9.89	6.90	4.90	2.31	9.21	8.33

BT LE Coded S=8 (125 kbps)

Average power

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty factor [dB]	Result (Burst power average)	
				[dBm]	[mW]		[dBm]	[mW]
2402	-1.79	1.62	9.88	9.71	9.35	0.11	9.82	9.58
2440	-1.96	1.63	9.88	9.55	9.02	0.11	9.66	9.24
2480	-2.43	1.66	9.89	9.12	8.17	0.11	9.23	8.37

BT LE Coded S=2 (500 kbps)

Average power

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty factor [dB]	Result (Burst power average)	
				[dBm]	[mW]		[dBm]	[mW]
2402	-2.06	1.62	9.88	9.44	8.79	0.38	9.82	9.60
2440	-2.24	1.63	9.88	9.27	8.45	0.38	9.65	9.23
2480	-2.71	1.66	9.89	8.84	7.66	0.38	9.22	8.36

Sample Calculation:

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

Result (Burst power average) = Result (Time average) + Duty factor

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

Average Output Power (Reference data for RF Exposure)

Test place Shonan EMC Lab. No.5 Shielded Room
Date June 29, 2023
Temperature / Humidity 25 deg. C / 45 % RH
Engineer Yohsuke Matsuzawa
Mode Tx, High power mode

Worst Rate Check (2412 MHz)
11b(CDD)

		2G_CH0						2G_CH1						Total Power		Remarks
Rate	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)				
[Mbps]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]			
1	0.00	-8.38	1.28	20.16	13.06	20.23	-8.53	1.22	20.16	12.85	19.28	15.97	39.51	-		
2 (long)	0.00	-8.32	1.28	20.16	13.12	20.51	-8.49	1.22	20.16	12.89	19.45	16.02	39.97	-		
5.5 (long)	0.00	-8.30	1.28	20.16	13.14	20.61	-8.50	1.22	20.16	12.88	19.41	16.02	40.02	-		
11 (long)	0.00	-8.44	1.28	20.16	13.00	19.95	-8.49	1.22	20.16	12.89	19.45	15.96	39.41	-		
2 (short)	0.00	-8.22	1.28	20.16	13.22	20.99	-8.31	1.22	20.16	13.07	20.28	16.16	41.27	-		
5.5 (short)	0.00	-8.26	1.28	20.16	13.18	20.80	-8.31	1.22	20.16	13.07	20.28	16.14	41.07	-		
11 (short)	0.00	-8.22	1.28	20.16	13.22	20.99	-8.29	1.22	20.16	13.09	20.37	16.17	41.36	*		

11g(CDD)

		2G_CH0						2G_CH1						Total Power		Remarks
Rate	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)				
[Mbps]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]			
6	0.00	-7.70	1.28	20.16	13.74	23.66	-8.34	1.22	20.16	13.04	20.14	16.41	43.80	-		
9	0.00	-7.78	1.28	20.16	13.66	23.23	-8.40	1.22	20.16	12.98	19.86	16.34	43.09	-		
12	0.00	-7.82	1.28	20.16	13.62	23.01	-8.44	1.22	20.16	12.94	19.68	16.30	42.69	-		
18	0.00	-7.74	1.28	20.16	13.70	23.44	-8.40	1.22	20.16	12.98	19.86	16.37	43.30	-		
24	0.00	-7.71	1.28	20.16	13.73	23.60	-8.39	1.22	20.16	12.99	19.91	16.39	43.51	-		
36	0.00	-7.66	1.28	20.16	13.78	23.88	-8.39	1.22	20.16	12.99	19.91	16.41	43.78	-		
48	0.00	-7.69	1.28	20.16	13.75	23.71	-8.34	1.22	20.16	13.04	20.14	16.42	43.85	*		
54	0.00	-7.65	1.28	20.16	13.79	23.93	-8.40	1.22	20.16	12.98	19.86	16.41	43.79	-		

Sample Calculation:

Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor

Total Result = 2G_CH0 Result + 2G_CH1 Result

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

(*1) Power meter was measured with using the gate function of power meter.

It was means that the intervals during which the transmitter is off or is transmitting at reduced power level is not the average.

Therefore, there is no need to add duty cycle correction to the result.

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* Worst rate check was performed High power mode, since High power mode and Standard power mode were same trend of output power.

Average Output Power (Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	June 27, 2023	June 29, 2023
Temperature / Humidity	25 deg. C / 47 % RH	25 deg. C / 45 % RH
Engineer	Kenichi Adachi	Yohsuke Matsuzawa
Mode	Tx, High power mode	

Worst Rate Check (2412 MHz)
11n-20

		2G_CH0					2G_CH1					Total Power		Remarks	
MCS	Duty factor *1) [dB]	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Result (Average)			
					[dBm]	[mW]				[dBm]	[mW]	[dBm]	[mW]		
0 (1SS)	0.00	-7.90	1.28	20.16	13.54	22.59	-8.64	1.22	20.16	12.74	18.79	16.17	41.39	-	(CDD)
1 (1SS)	0.00	-7.91	1.28	20.16	13.53	22.54	-8.63	1.22	20.16	12.75	18.84	16.17	41.38	-	
2 (1SS)	0.00	-7.86	1.28	20.16	13.58	22.80	-8.67	1.22	20.16	12.71	18.66	16.18	41.47	-	
3 (1SS)	0.00	-7.89	1.28	20.16	13.55	22.65	-8.62	1.22	20.16	12.76	18.88	16.18	41.53	-	
4 (1SS)	0.00	-7.61	1.28	20.16	13.83	24.15	-8.52	1.22	20.16	12.86	19.32	16.38	43.47	-	
5 (1SS)	0.00	-7.52	1.28	20.16	13.92	24.66	-8.37	1.22	20.16	13.01	20.00	16.50	44.66	**	
6 (1SS)	0.00	-7.64	1.28	20.16	13.80	23.99	-8.42	1.22	20.16	12.96	19.77	16.41	43.76	-	
7 (1SS)	0.00	-7.63	1.28	20.16	13.81	24.04	-8.45	1.22	20.16	12.93	19.63	16.40	43.68	-	
8 (2SS)	0.00	-8.05	1.28	20.16	13.39	21.83	-8.54	1.22	20.16	12.84	19.23	16.13	41.06	-	
9 (2SS)	0.00	-8.01	1.28	20.16	13.43	22.03	-8.53	1.22	20.16	12.85	19.28	16.16	41.30	-	
10 (2SS)	0.00	-7.95	1.28	20.16	13.49	22.34	-8.52	1.22	20.16	12.86	19.32	16.20	41.66	-	
11 (2SS)	0.00	-8.02	1.28	20.16	13.42	21.98	-8.50	1.22	20.16	12.88	19.41	16.17	41.39	-	
12 (2SS)	0.00	-7.74	1.28	20.16	13.70	23.44	-8.35	1.22	20.16	13.03	20.09	16.39	43.53	-	
13 (2SS)	0.00	-7.78	1.28	20.16	13.66	23.23	-8.27	1.22	20.16	13.11	20.46	16.40	43.69	-	
14 (2SS)	0.00	-7.85	1.28	20.16	13.59	22.86	-8.35	1.22	20.16	13.03	20.09	16.33	42.95	-	
15 (2SS)	0.00	-7.66	1.28	20.16	13.78	23.88	-8.26	1.22	20.16	13.12	20.51	16.47	44.39	*	(SDM)

11ax-20(OFDM)

		2G_CH0					2G_CH1					Total Power		Remarks
MCS	Duty factor *1) [dB]	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Average)		Result (Average)		
					[dBm]	[mW]				[dBm]	[mW]	[dBm]	[mW]	
0 (1SS)	0.00	-8.43	1.28	20.16	13.01	20.00	-8.93	1.22	20.16	12.45	17.58	15.75	37.58	-
1 (1SS)	0.00	-8.47	1.28	20.16	12.97	19.82	-8.95	1.22	20.16	12.43	17.50	15.72	37.31	-
2 (1SS)	0.00	-8.46	1.28	20.16	12.98	19.86	-8.96	1.22	20.16	12.42	17.46	15.72	37.32	-
3 (1SS)	0.00	-8.40	1.28	20.16	13.04	20.14	-8.92	1.22	20.16	12.46	17.62	15.77	37.76	-
4 (1SS)	0.00	-8.16	1.28	20.16	13.28	21.28	-8.74	1.22	20.16	12.64	18.37	15.98	39.65	-
5 (1SS)	0.00	-8.17	1.28	20.16	13.27	21.23	-8.78	1.22	20.16	12.60	18.20	15.96	39.43	-
6 (1SS)	0.00	-8.16	1.28	20.16	13.28	21.28	-8.80	1.22	20.16	12.58	18.11	15.95	39.39	-
7 (1SS)	0.00	-8.26	1.28	20.16	13.18	20.80	-8.74	1.22	20.16	12.64	18.37	15.93	39.16	-
8 (1SS)	0.00	-8.18	1.28	20.16	13.26	21.18	-8.75	1.22	20.16	12.63	18.32	15.97	39.51	-
9 (1SS)	0.00	-8.15	1.28	20.16	13.29	21.33	-8.74	1.22	20.16	12.64	18.37	15.99	39.70	-
10 (1SS)	0.00	-8.15	1.28	20.16	13.29	21.33	-8.70	1.22	20.16	12.68	18.54	16.01	39.87	**
11 (1SS)	0.00	-8.17	1.28	20.16	13.27	21.23	-8.76	1.22	20.16	12.62	18.28	15.97	39.51	-
0 (2SS)	0.00	-8.09	1.28	20.16	13.35	21.63	-9.08	1.22	20.16	12.30	16.98	15.87	38.61	-
1 (2SS)	0.00	-8.11	1.28	20.16	13.33	21.53	-9.12	1.22	20.16	12.26	16.83	15.84	38.35	-
2 (2SS)	0.00	-8.12	1.28	20.16	13.32	21.48	-9.11	1.22	20.16	12.27	16.87	15.84	38.34	-
3 (2SS)	0.00	-8.07	1.28	20.16	13.37	21.73	-9.11	1.22	20.16	12.27	16.87	15.87	38.59	-
4 (2SS)	0.00	-7.77	1.28	20.16	13.67	23.28	-8.88	1.22	20.16	12.50	17.78	16.13	41.06	-
5 (2SS)	0.00	-7.84	1.28	20.16	13.60	22.91	-8.96	1.22	20.16	12.42	17.46	16.06	40.37	-
6 (2SS)	0.00	-7.84	1.28	20.16	13.60	22.91	-8.90	1.22	20.16	12.48	17.70	16.09	40.61	-
7 (2SS)	0.00	-7.77	1.28	20.16	13.67	23.28	-8.91	1.22	20.16	12.47	17.66	16.12	40.94	-
8 (2SS)	0.00	-7.78	1.28	20.16	13.66	23.23	-8.92	1.22	20.16	12.46	17.62	16.11	40.85	-
9 (2SS)	0.00	-7.75	1.28	20.16	13.69	23.39	-8.87	1.22	20.16	12.51	17.82	16.15	41.21	-
10 (2SS)	0.00	-7.71	1.28	20.16	13.73	23.60	-8.89	1.22	20.16	12.49	17.74	16.16	41.35	*
11 (2SS)	0.00	-7.81	1.28	20.16	13.63	23.07	-8.95	1.22	20.16	12.43	17.50	16.08	40.57	-

Sample Calculation: (*SS: Spatial Stream)
 Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor
 Total Result = 2G_CH0 Result + 2G_CH1 Result

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

(*1) Power meter was measured with using the gate function of power meter.

It was means that the intervals during which the transmitter is off or is transmitting at reduced power level is not the average.

Therefore, there is no need to add duty cycle correction to the result.

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

* Worst rate check was performed High power mode, since High power mode and Standard power mode were same trend of output power.

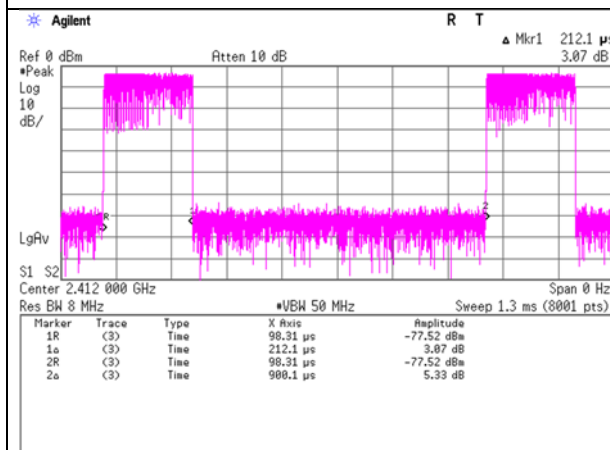
* The check in this mode was omitted, since the trend was the same in both OFDM (SU) mode and OFDMA (RU) mode, a representative check to find the worst data rate was performed in OFDM (SU) mode. And this mode referred to the worst rate check result in OFDM (SU) mode.

Burst rate confirmation (For Radiated Emission)

Test place	Shonan EMC Lab. No.2 Measurement Room
Date	August 30, 2023
Temperature / Humidity	26 deg. C / 47 % RH
Engineer	Kenichi Adachi
Mode	Tx

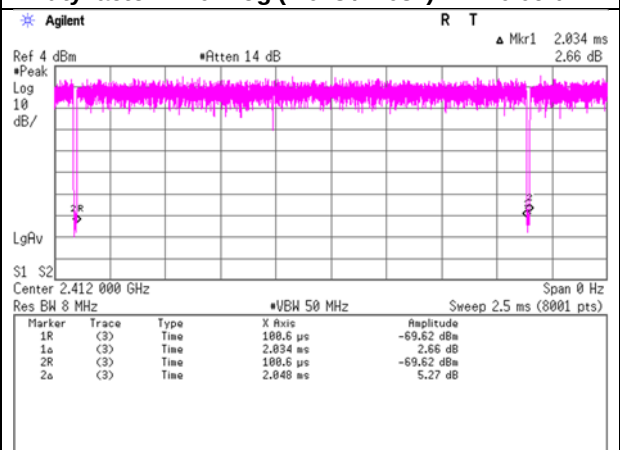
11b(CDD) 11 Mbps

Reduce VBW = 1/T (T on) = 1 / 0.212 ms = 4.715 kHz
(setting VBW = 5.1 kHz)
(* The duty of this continuous transmission mode is not constant.)



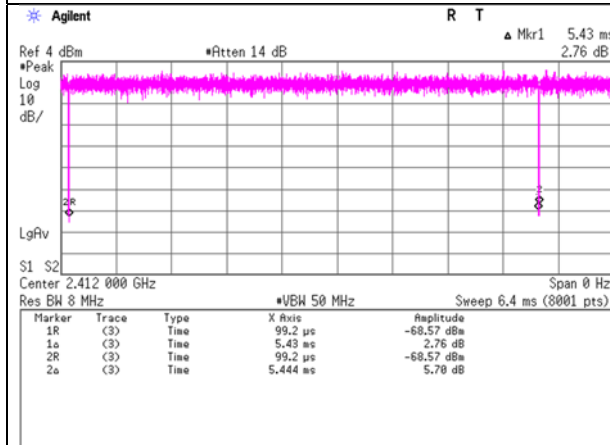
11g(CDD) 48 Mbps *2)

Tx on / (Tx on + Tx off) = 0.993
Tx on / (Tx on + Tx off) * 100 = 99.3 %
Duty factor = 20 * log (2.048 / 2.034) = 0.06 dB



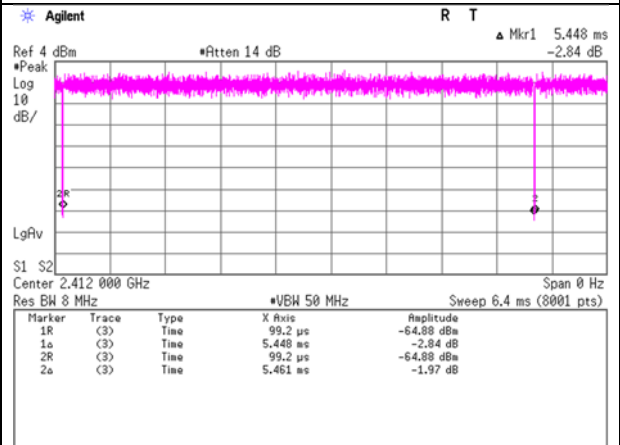
11n-20(CDD) MCS 5 *2)

Tx on / (Tx on + Tx off) = 0.997
Tx on / (Tx on + Tx off) * 100 = 99.7 %
Duty factor = 20 * log (5.444 / 5.43) = 0.02 dB



11ax-20 (OFDM)(CDD) MCS 10 (1SS) *2)

Tx on / (Tx on + Tx off) = 0.998
Tx on / (Tx on + Tx off) * 100 = 99.8 %
Duty factor = 20 * log (5.461 / 5.448) = 0.02 dB

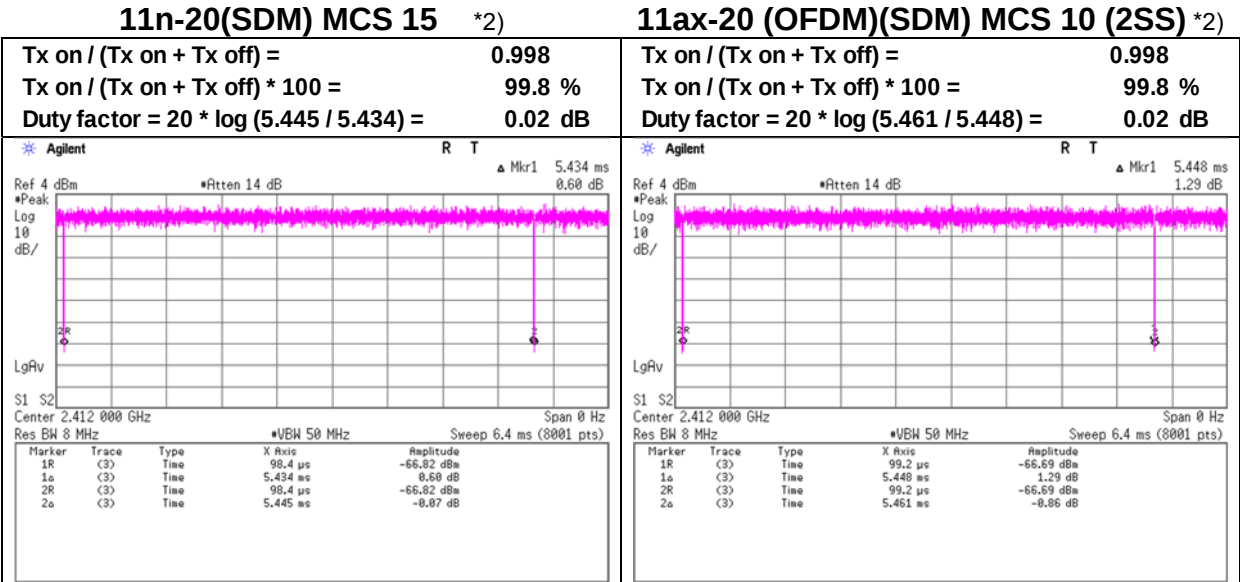


*1) Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

*2) However, the duty factor is not applied for spurious emissions test, since the duty is 98 % or more.

Burst rate confirmation
(For Radiated Emission)

Test place Shonan EMC Lab. No.2 Measurement Room
Date August 30, 2023
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Kenichi Adachi
Mode Tx

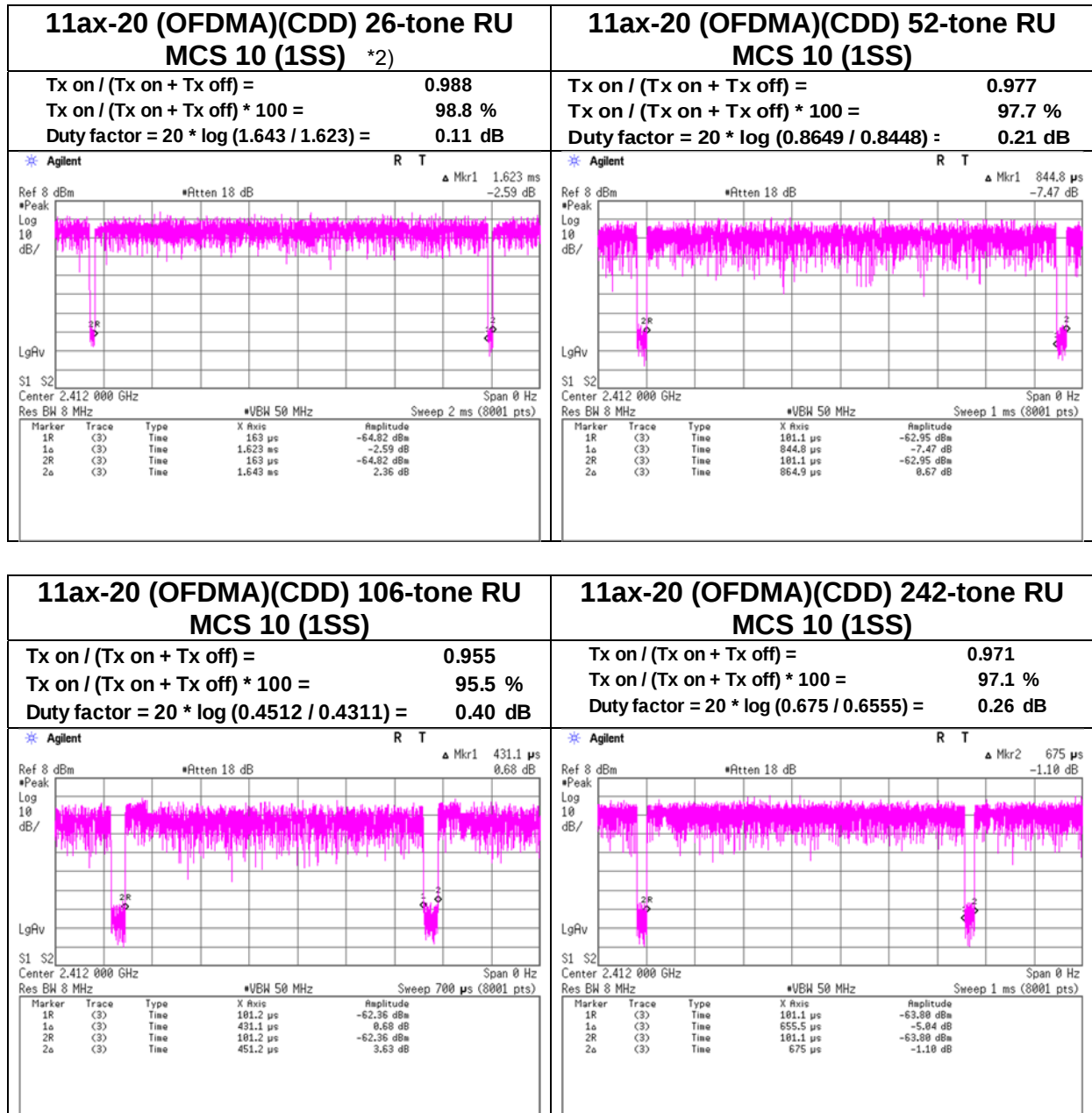


*1) Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

*2) However, the duty factor is not applied for spurious emissions test, since the duty is 98 % or more.

Burst rate confirmation (For Radiated Emission)

Test place	Shonan EMC Lab. No.2 Measurement Room	
Date	August 30, 2023	October 11, 2023
Temperature / Humidity	26 deg. C / 47 % RH	23 deg. C / 50 % RH
Engineer	Kenichi Adachi	Yosuke Murakami
Mode	Tx 11ax-20(OFDMA)(CDD)	

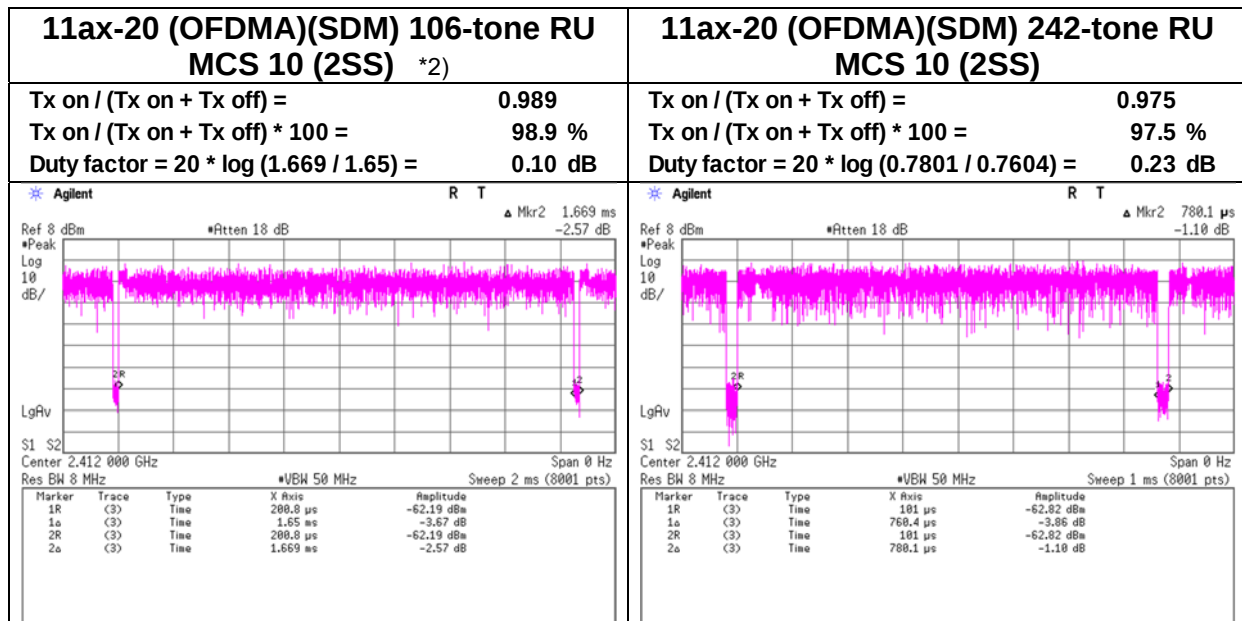
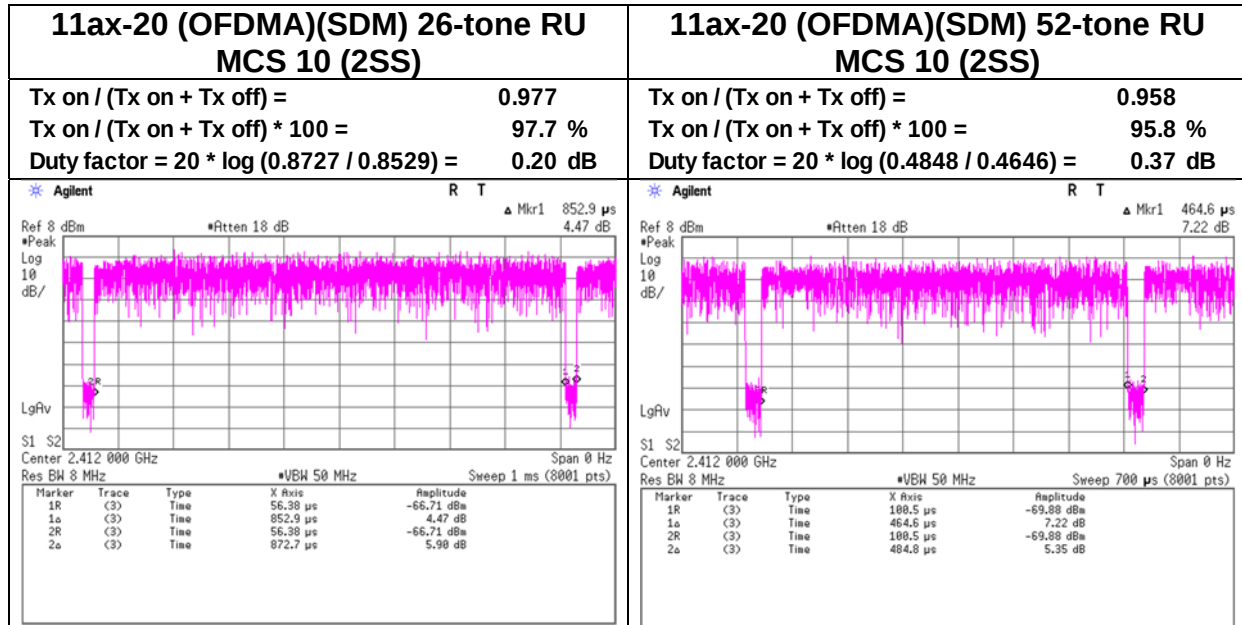


*1) Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

*2) However, the duty factor is not applied for spurious emissions test, since the duty is 98 % or more.

Burst rate confirmation (For Radiated Emission)

Test place	Shonan EMC Lab. No.2 Measurement Room
Date	August 30, 2023 October 11, 2023
Temperature / Humidity	26 deg. C / 47 % RH 23 deg. C / 50 % RH
Engineer	Kenichi Adachi Yosuke Murakami
Mode	Tx 11ax-20(OFDMA)(SDM)



*1) Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

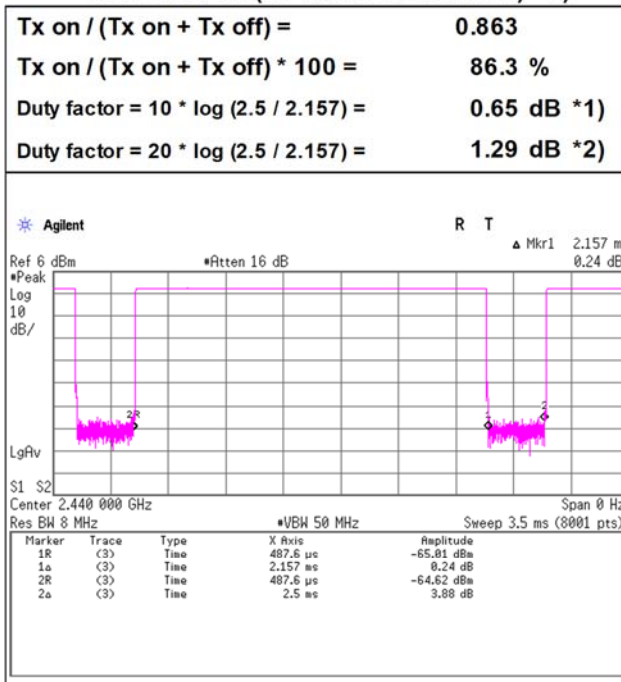
*2) However, the duty factor is not applied for spurious emissions test, since the duty is 98 % or more.

Burst rate confirmation

Test place Shonan EMC Lab. No.2 Measurement Room
Date September 16, 2023
Temperature / Humidity 26 deg. C / 45 % RH
Engineer Kenichi Adachi
Mode Tx BT LE

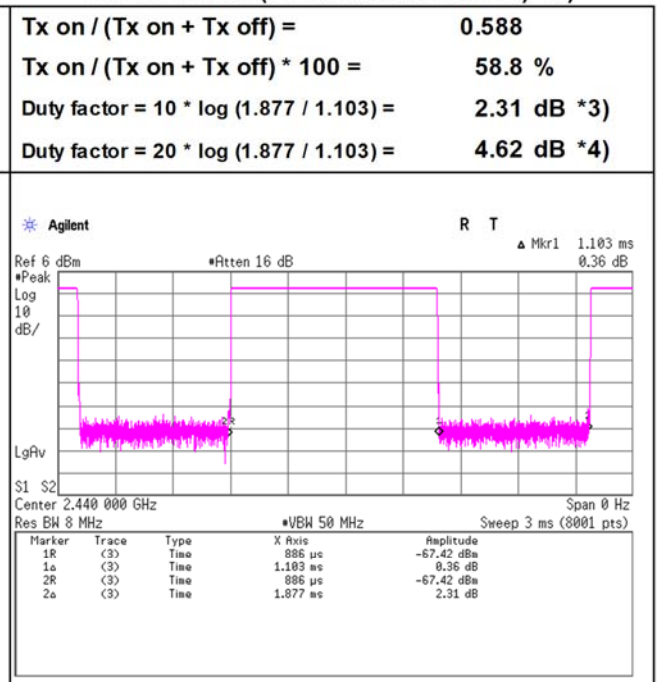
BT LE 1M-PHY (for Average power) *1)

BT LE 1M-PHY (for Radiated emission) *2)



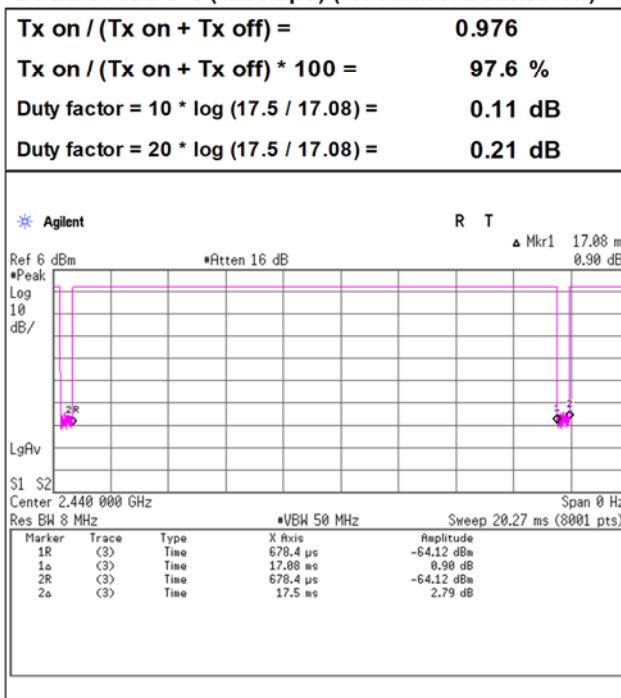
BT LE 2M-PHY (for Average power) *3)

BT LE 2M-PHY (for Radiated emission) *4)



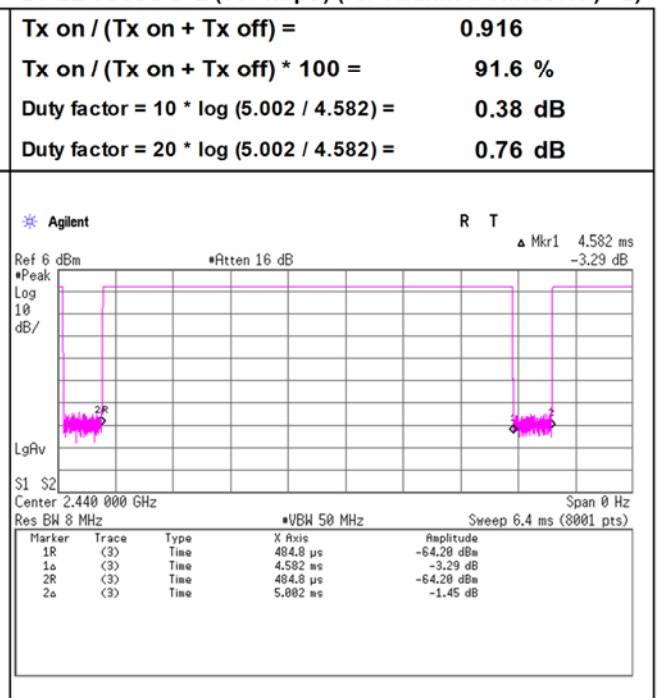
BT LE Coded S=8 (125 kbps) (for Average power) *1)

BT LE Coded S=8 (125 kbps) (for Radiated emission) *2)



BT LE Coded S=2 (500 kbps) (for Average power) *1)

BT LE Coded S=2 (500 kbps) (for Radiated emission) *2)



Radiated Spurious Emission

Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	SAC 3	WAC 1	WAC 1
Date	September 1, 2023	September 7, 2023	September 6, 2023
Temperature / Humidity	23 deg. C / 53 % RH	25 deg. C / 58 % RH	26 deg. C / 45 % RH
Engineer	Takahiro Suzuki	Makoto Hosaka	Yosuke Murakami
	(1 GHz -10 GHz)	(10 GHz -18 GHz)	(18 -26.5 GHz)
Mode	Tx 11b(CDD), 2412 MHz		
Antenna	2G_CH0: monopole, 2G_CH1: monopole		

(* 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.	2257.993	PK	50.63	28.23	14.36	41.57	2.19	53.84	73.9	20.0	138	32	-
Hori.	2390.000	PK	49.52	27.98	14.49	41.61	2.19	52.57	73.9	21.3	192	142	-
Hori.	2567.771	PK	51.55	27.91	14.67	41.65	2.19	54.67	73.9	19.2	143	28	-
Hori.	2880.012	PK	52.18	28.48	6.68	41.72	2.19	47.81	73.9	26.0	119	162	-
Hori.	4824.000	PK	55.67	31.41	7.06	42.87	2.19	53.46	73.9	20.4	235	325	-
Hori.	7236.000	PK	49.28	37.15	8.48	43.36	2.19	53.74	73.9	20.1	150	0	-
Hori.	9648.000	PK	49.03	38.72	9.70	43.09	2.19	56.55	73.9	17.3	150	0	-
Hori.	2257.993	AV	41.87	28.23	14.36	41.57	2.19	45.08	53.9	8.8	138	32	VBW:5.1kHz
Hori.	2390.000	AV	37.68	27.98	14.49	41.61	2.19	40.73	53.9	13.1	192	142	VBW:5.1kHz
Hori.	2567.771	AV	41.08	27.91	14.67	41.65	2.19	44.20	53.9	9.7	143	28	VBW:5.1kHz
Hori.	2880.012	AV	44.24	28.48	6.68	41.72	2.19	39.87	53.9	14.0	119	162	VBW:5.1kHz
Hori.	4824.000	AV	49.24	31.41	7.06	42.87	2.19	47.03	53.9	6.8	235	325	VBW:5.1kHz
Hori.	7236.000	AV	38.37	37.15	8.48	43.36	2.19	42.83	53.9	11.0	150	0	Floor noise
Hori.	9648.000	AV	38.25	38.72	9.70	43.09	2.19	45.77	53.9	8.1	150	0	Floor noise
Vert.	2257.622	PK	51.27	28.23	14.36	41.57	2.19	54.48	73.9	19.4	142	29	-
Vert.	2390.000	PK	51.54	27.98	14.49	41.61	2.19	54.59	73.9	19.3	187	102	-
Vert.	2567.781	PK	50.47	27.91	14.67	41.65	2.19	53.59	73.9	20.3	127	23	-
Vert.	2880.012	PK	49.31	28.48	6.68	41.72	2.19	44.94	73.9	28.9	131	204	-
Vert.	4824.000	PK	56.79	31.41	7.06	42.87	2.19	54.58	73.9	19.3	145	250	-
Vert.	7236.000	PK	48.78	37.15	8.48	43.36	2.19	53.24	73.9	20.6	150	0	-
Vert.	9648.000	PK	48.66	38.72	9.70	43.09	2.19	56.18	73.9	17.7	150	0	-
Vert.	2257.622	AV	41.33	28.23	14.36	41.57	2.19	44.54	53.9	9.3	142	29	VBW:5.1kHz
Vert.	2390.000	AV	38.97	27.98	14.49	41.61	2.19	42.02	53.9	11.8	187	102	VBW:5.1kHz
Vert.	2567.781	AV	42.25	27.91	14.67	41.65	2.19	45.37	53.9	8.5	127	23	VBW:5.1kHz
Vert.	2880.012	AV	44.00	28.48	6.68	41.72	2.19	39.63	53.9	14.2	131	204	VBW:5.1kHz
Vert.	4824.000	AV	50.59	31.41	7.06	42.87	2.19	48.38	53.9	5.5	145	250	VBW:5.1kHz
Vert.	7236.000	AV	38.54	37.15	8.48	43.36	2.19	43.00	53.9	10.9	150	0	Floor noise
Vert.	9648.000	AV	38.35	38.72	9.70	43.09	2.19	45.87	53.9	8.0	150	0	Floor noise

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

Distance factor : 1 GHz - 10 GHz : 20log (3.86 m / 3.0 m) = 2.19 dB

10 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	98.48	27.95	14.52	41.61	2.19	101.53	-	-	Carrier
Hori.	2400.000	PK	46.67	27.97	14.50	41.61	2.19	49.72	81.5	31.7	-
Vert.	2412.000	PK	99.35	27.95	14.52	41.61	2.19	102.40	-	-	Carrier
Vert.	2400.000	PK	48.05	27.97	14.50	41.61	2.19	51.10	82.4	31.3	-

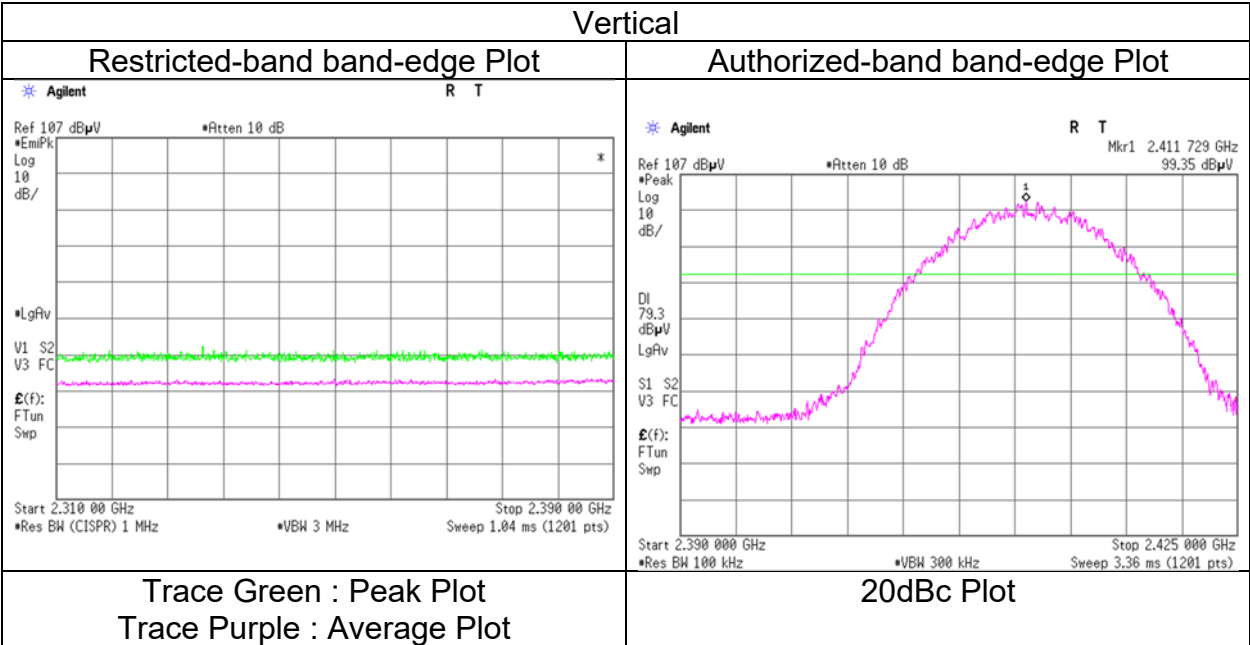
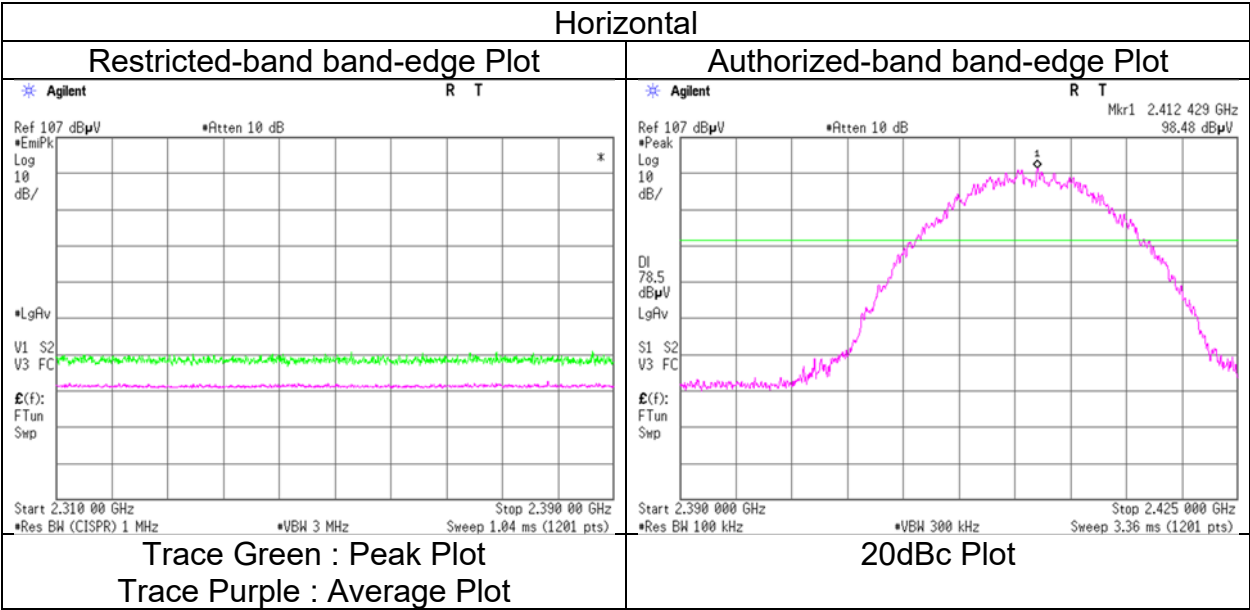
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 10 GHz : 20log (3.86 m / 3.0 m) = 2.19 dB

10 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	SAC 3
Date	September 1, 2023
Temperature / Humidity	23 deg. C / 53 % RH
Engineer	Takahiro Suzuki
Mode	Tx 11b(CDD), 2412 MHz
Antenna	2G_CH0: monopole, 2G_CH1: monopole



* 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 Spurious Emission

Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	SAC 3	WAC 1	WAC 1
Date	September 1, 2023	September 7, 2023	September 6, 2023
Temperature / Humidity	23 deg. C / 53 % RH	25 deg. C / 58 % RH	26 deg. C / 45 % RH
Engineer	Takahiro Suzuki	Makoto Hosaka	Yosuke Murakami
	(1 GHz -10 GHz)	(10 GHz -18 GHz)	(18 -26.5 GHz)
Mode	Tx 11b(CDD), 2437 MHz		
Antenna	2G_CH0: monopole, 2G_CH1: monopole		

(* 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.	2284.916	PK	49.96	28.22	14.39	41.58	2.19	53.18	73.9	20.7	135	34	-
Hori.	2589.562	PK	50.09	27.92	14.69	41.66	2.19	53.23	73.9	20.6	149	38	-
Hori.	2894.813	PK	52.36	28.50	6.62	41.72	2.19	47.95	73.9	25.9	109	146	-
Hori.	4874.000	PK	55.97	31.50	7.09	42.88	2.19	53.87	73.9	20.0	134	11	-
Hori.	7311.000	PK	49.75	37.24	8.51	43.41	2.19	54.28	73.9	19.6	150	0	-
Hori.	9748.000	PK	49.63	39.00	9.74	43.02	2.19	57.54	73.9	16.3	150	0	-
Hori.	2284.916	AV	41.45	28.22	14.39	41.58	2.19	44.67	53.9	9.2	135	34	VBW:5.1kHz
Hori.	2589.562	AV	42.18	27.92	14.69	41.66	2.19	45.32	53.9	8.5	149	38	VBW:5.1kHz
Hori.	2894.813	AV	44.75	28.50	6.62	41.72	2.19	40.34	53.9	13.5	109	146	VBW:5.1kHz
Hori.	4874.000	AV	48.70	31.50	7.09	42.88	2.19	46.60	53.9	7.3	134	11	VBW:5.1kHz
Hori.	7311.000	AV	38.38	37.24	8.51	43.41	2.19	42.91	53.9	10.9	150	0	Floor noise
Hori.	9748.000	AV	38.31	39.00	9.74	43.02	2.19	46.22	53.9	7.6	150	0	Floor noise
Vert.	2284.017	PK	51.31	28.22	14.39	41.58	2.19	54.53	73.9	19.3	141	21	-
Vert.	2589.905	PK	51.05	27.92	14.69	41.66	2.19	54.19	73.9	19.7	123	14	-
Vert.	2880.012	PK	50.13	28.48	6.68	41.72	2.19	45.76	73.9	28.1	137	217	-
Vert.	4874.000	PK	57.15	31.50	7.09	42.88	2.19	55.05	73.9	18.8	157	169	-
Vert.	7311.000	PK	48.95	37.24	8.51	43.41	2.19	53.48	73.9	20.4	150	0	-
Vert.	9748.000	PK	48.79	39.00	9.74	43.02	2.19	56.70	73.9	17.2	150	0	-
Vert.	2284.017	AV	42.15	28.22	14.39	41.58	2.19	45.37	53.9	8.5	141	21	VBW:5.1kHz
Vert.	2589.905	AV	42.76	27.92	14.69	41.66	2.19	45.90	53.9	8.0	123	14	VBW:5.1kHz
Vert.	2880.012	AV	44.34	28.48	6.68	41.72	2.19	39.97	53.9	13.9	137	217	VBW:5.1kHz
Vert.	4874.000	AV	50.45	31.50	7.09	42.88	2.19	48.35	53.9	5.5	157	169	VBW:5.1kHz
Vert.	7311.000	AV	38.78	37.24	8.51	43.41	2.19	43.31	53.9	10.5	150	0	Floor noise
Vert.	9748.000	AV	38.54	39.00	9.74	43.02	2.19	46.45	53.9	7.4	150	0	Floor noise

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

Distance factor : 1 GHz - 10 GHz : 20log (3.86 m / 3.0 m) = 2.19 dB

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

Radiated Spurious Emission

Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	SAC 3	WAC 1	WAC 1
Date	September 1, 2023	September 7, 2023	September 6, 2023
Temperature / Humidity	23 deg. C / 53 % RH	25 deg. C / 58 % RH	26 deg. C / 45 % RH
Engineer	Takahiro Suzuki	Makoto Hosaka	Yosuke Murakami
	(1 GHz -10 GHz)	(10 GHz -18 GHz)	(18 -26.5 GHz)
Mode	Tx 11b(CDD), 2462 MHz		
Antenna	2G_CH0: monopole, 2G_CH1: monopole		

(* 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.	2309.340	PK	51.34	28.17	14.41	41.58	2.19	54.53	73.9	19.3	132	68	-
Hori.	2483.500	PK	49.58	27.89	14.60	41.64	2.19	52.62	73.9	21.2	118	64	-
Hori.	2616.647	PK	51.53	27.95	14.72	41.66	2.19	54.73	73.9	19.1	122	79	-
Hori.	2880.012	PK	48.93	28.48	6.68	41.72	2.19	44.56	73.9	29.3	156	47	-
Hori.	4924.000	PK	55.71	31.61	7.12	42.89	2.19	53.74	73.9	20.1	203	154	-
Hori.	7386.000	PK	49.85	37.36	8.54	43.46	2.19	54.48	73.9	19.4	150	0	-
Hori.	9848.000	PK	49.37	39.06	9.80	42.94	2.19	57.48	73.9	16.4	150	0	-
Hori.	2309.340	AV	41.67	28.17	14.41	41.58	2.19	44.86	53.9	9.0	132	68	VBW:5.1kHz
Hori.	2483.500	AV	38.38	27.89	14.60	41.64	2.19	41.42	53.9	12.4	118	64	VBW:5.1kHz
Hori.	2616.647	AV	42.09	27.95	14.72	41.66	2.19	45.29	53.9	8.6	122	79	VBW:5.1kHz
Hori.	2880.012	AV	38.51	28.48	6.68	41.72	2.19	34.14	53.9	19.7	156	47	VBW:5.1kHz
Hori.	4924.000	AV	49.61	31.61	7.12	42.89	2.19	47.64	53.9	6.2	203	154	VBW:5.1kHz
Hori.	7386.000	AV	39.71	37.36	8.54	43.46	2.19	44.34	53.9	9.5	150	0	Floor noise
Hori.	9848.000	AV	39.52	39.06	9.80	42.94	2.19	47.63	53.9	6.2	150	0	Floor noise
Vert.	2308.842	PK	49.87	28.17	14.41	41.58	2.19	53.06	73.9	20.8	123	165	-
Vert.	2483.500	PK	48.83	27.89	14.60	41.64	2.19	51.87	73.9	22.0	130	33	-
Vert.	2616.657	PK	50.53	27.95	14.72	41.66	2.19	53.73	73.9	20.1	155	179	-
Vert.	2880.012	PK	48.52	28.48	6.68	41.72	2.19	44.15	73.9	29.7	134	75	-
Vert.	4924.000	PK	56.19	31.61	7.12	42.89	2.19	54.22	73.9	19.6	180	76	-
Vert.	7386.000	PK	49.79	37.36	8.54	43.46	2.19	54.42	73.9	19.4	150	0	-
Vert.	9848.000	PK	49.53	39.06	9.80	42.94	2.19	57.64	73.9	16.2	150	0	-
Vert.	2308.842	AV	41.00	28.17	14.41	41.58	2.19	44.19	53.9	9.7	123	165	VBW:5.1kHz
Vert.	2483.500	AV	37.65	27.89	14.60	41.64	2.19	40.69	53.9	13.2	130	33	VBW:5.1kHz
Vert.	2616.657	AV	41.15	27.95	14.72	41.66	2.19	44.35	53.9	9.5	155	179	VBW:5.1kHz
Vert.	2880.012	AV	39.00	28.48	6.68	41.72	2.19	34.63	53.9	19.2	134	75	VBW:5.1kHz
Vert.	4924.000	AV	49.66	31.61	7.12	42.89	2.19	47.69	53.9	6.2	180	76	VBW:5.1kHz
Vert.	7386.000	AV	39.76	37.36	8.54	43.46	2.19	44.39	53.9	9.5	150	0	Floor noise
Vert.	9848.000	AV	39.23	39.06	9.80	42.94	2.19	47.34	53.9	6.5	150	0	Floor noise

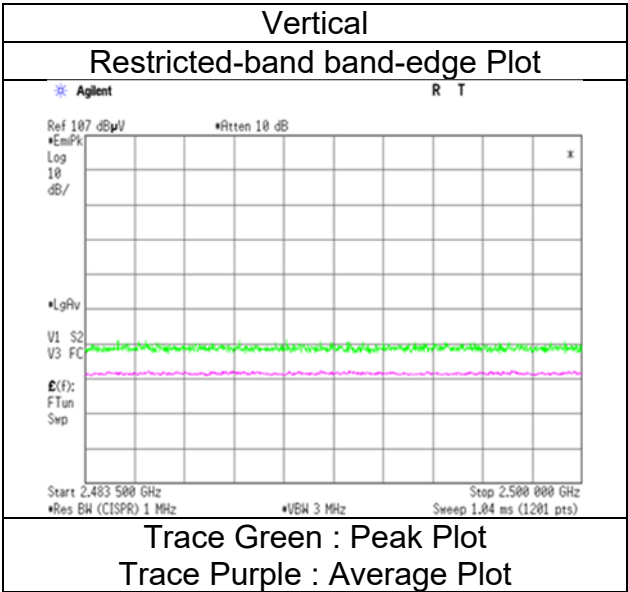
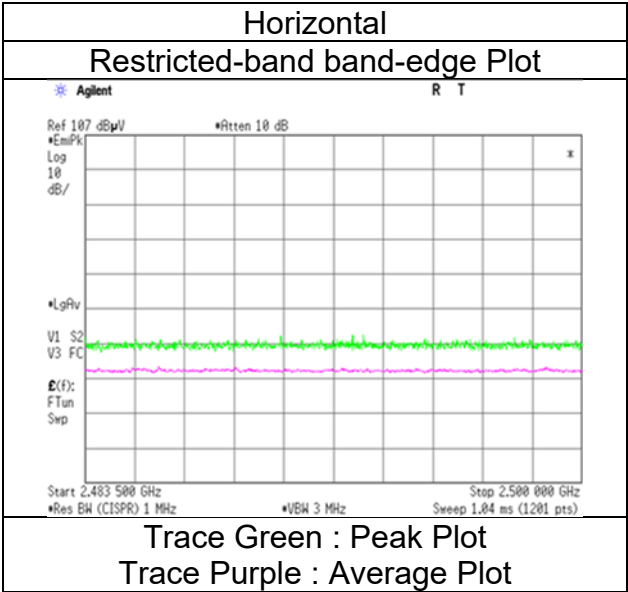
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 10 GHz : $20\log(3.86\text{ m} / 3.0\text{ m}) = 2.19\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	SAC 3
Date	September 1, 2023
Temperature / Humidity	23 deg. C / 53 % RH
Engineer	Takahiro Suzuki
Mode	Tx 11b(CDD), 2462 MHz
Antenna	2G_CH0: monopole, 2G_CH1: monopole



* 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 Spurious Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber SAC 3 WAC 1 WAC 1
Date August 27, 2023 September 7, 2023 September 6, 2023
Temperature / Humidity 24 deg.C, 53 %RH 25 deg.C, 58 %RH 26 deg.C, 45 %RH
Engineer Ken Fujita Makoto Hosaka Yosuke Murakami
(1 GHz -10 GHz) (10 GHz -18 GHz) (18 GHz -26.5 GHz)
Mode Tx 11g(CDD), 2412 MHz
Antenna 2G_CH0: monopole, 2G_CH1: monopole

(* 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.	2262.598	PK	52.68	28.23	14.36	41.57	2.19	55.89	73.9	18.0	158	72	-
Hori.	2386.470	PK	63.41	27.99	14.49	41.61	2.19	66.47	73.9	7.4	162	84	-
Hori.	2390.000	PK	66.43	27.98	14.49	41.61	2.19	69.48	73.9	4.4	162	84	-
Hori.	2559.080	PK	52.24	27.90	14.66	41.65	2.19	55.34	73.9	18.5	152	81	-
Hori.	2879.895	PK	50.12	28.48	6.68	41.72	2.19	45.75	73.9	28.1	157	73	-
Hori.	4824.000	PK	52.92	31.41	7.06	42.87	2.19	50.71	73.9	23.1	178	155	-
Hori.	7236.000	PK	48.43	37.15	8.48	43.36	2.19	52.89	73.9	21.0	150	0	-
Hori.	9648.000	PK	49.33	38.72	9.70	43.09	2.19	56.85	73.9	17.0	150	0	-
Hori.	2262.598	AV	43.32	28.23	14.36	41.57	2.19	46.53	53.9	7.3	158	72	-
Hori.	2386.470	AV	42.65	27.99	14.49	41.61	2.19	45.71	53.9	8.1	162	84	-
Hori.	2390.000	AV	45.90	27.98	14.49	41.61	2.19	48.95	53.9	4.9	162	84	-
Hori.	2559.080	AV	42.01	27.90	14.66	41.65	2.19	45.11	53.9	8.7	152	81	-
Hori.	2879.895	AV	42.96	28.48	6.68	41.72	2.19	38.59	53.9	15.3	157	73	-
Hori.	4824.000	AV	44.08	31.41	7.06	42.87	2.19	41.87	53.9	12.0	178	155	-
Hori.	7236.000	AV	39.66	37.15	8.48	43.36	2.19	44.12	53.9	9.7	150	0	Floor noise
Hori.	9648.000	AV	40.23	38.72	9.70	43.09	2.19	47.75	53.9	6.1	150	0	Floor noise
Vert.	2262.598	PK	51.28	28.23	14.36	41.57	2.19	54.49	73.9	19.4	155	64	-
Vert.	2386.470	PK	62.57	27.99	14.49	41.61	2.19	65.63	73.9	8.2	143	119	-
Vert.	2390.000	PK	64.94	27.98	14.49	41.61	2.19	67.99	73.9	5.9	143	119	-
Vert.	2559.080	PK	52.15	27.90	14.66	41.65	2.19	55.25	73.9	18.6	168	78	-
Vert.	2879.895	PK	50.78	28.48	6.68	41.72	2.19	46.41	73.9	27.4	161	79	-
Vert.	4824.000	PK	56.50	31.41	7.06	42.87	2.19	54.29	73.9	19.6	100	0	-
Vert.	7236.000	PK	48.36	37.15	8.48	43.36	2.19	52.82	73.9	21.0	100	0	-
Vert.	9648.000	PK	49.18	38.72	9.70	43.09	2.19	56.70	73.9	17.2	100	0	-
Vert.	2262.598	AV	43.19	28.23	14.36	41.57	2.19	46.40	53.9	7.5	155	64	-
Vert.	2386.470	AV	42.06	27.99	14.49	41.61	2.19	45.12	53.9	8.7	143	119	-
Vert.	2390.000	AV	45.49	27.98	14.49	41.61	2.19	48.54	53.9	5.3	143	119	-
Vert.	2559.080	AV	43.84	27.90	14.66	41.65	2.19	46.94	53.9	6.9	168	78	-
Vert.	2879.895	AV	42.49	28.48	6.68	41.72	2.19	38.12	53.9	15.7	161	79	-
Vert.	4824.000	AV	46.97	31.41	7.06	42.87	2.19	44.76	53.9	9.1	100	0	-
Vert.	7236.000	AV	39.67	37.15	8.48	43.36	2.19	44.13	53.9	9.7	100	0	Floor noise
Vert.	9648.000	AV	40.25	38.72	9.70	43.09	2.19	47.77	53.9	6.1	100	0	Floor noise

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

Distance factor : 1 GHz - 10 GHz: 20log (3.86 m / 3.0 m) = 2.19 dB

10 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	101.32	27.95	14.52	41.61	2.19	104.37	-	-	Carrier
Hori.	2400.000	PK	66.20	27.97	14.50	41.61	2.19	69.25	84.3	15.0	-
Vert.	2412.000	PK	99.86	27.95	14.52	41.61	2.19	102.91	-	-	Carrier
Vert.	2400.000	PK	66.57	27.97	14.50	41.61	2.19	69.62	82.9	13.2	-

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

Distance factor : 1 GHz - 10 GHz: 20log (3.86 m / 3.0 m) = 2.19 dB

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