RADIO TEST REPORT

Test Report No. 15148509H-A-R1

Customer	**Sony Interactive Entertainment Inc.**
Description of EUT	**Wireless communication module**
Model Number of EUT	**J20H106**
FCC ID	**AK8M23TFU1**
Test Regulation	**FCC Part 15 Subpart C**
Test Result	**Complied**
Issue Date	**March 27, 2024**
Remarks	**Wireless LAN (2.4 GHz band) and Bluetooth Low Energy part(s)**

Representative Test Engineer	**Approved By**
Tetsuro Yoshida Engineer	Takayuki Shimada Leader

CERTIFICATE 5107.02

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

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

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REVISION HISTORY

Original Test Report No.: 15148509H-A

This report is a revised version of 15148509H-A. 15148509H-A is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15148509H-A	February 29, 2024	-
1	15148509H-A-R1	March 27, 2024	**Clause 4.1** - Corrected Operating Mode(s): 11ax-20 → 11be-20 - Changed original *4) to *5) in the table of The Details of Operating Mode(s) for WLAN, and added explanatory note *4)
			SECTION 6 Figure 2 - Corrected SVSWR Volume for 1 GHz to 10 GHz in WLAN and BT LE: 2.0 m → 1.5 m
			SECTION 7 - Corrected Span of 6 dB Bandwidth: 20 MHz → 3 MHz, 4.5 MHz, 5 MHz, 9 MHz, 20 MHz
			APPENDIX 1 **Data for 99 % Occupied Bandwidth and 6 dB Bandwidth** - Modified the table of OFDMA: Mode: 11ax-20 → 11be-20 Frequency (242-tone RU): 2363.000 → 2462.000 - Modified data for 6 dB Bandwidth of 11be-20 [26, 52, 106-tone RU]
			APPENDIX 4 - Corrected information for Item E and Cable No.5 in the tables of Conducted Emission and Radiated Spurious Emission - Added explanatory note *1) and *2) to the table Antenna Terminal Conducted Tests

Reference: Abbreviations (Including words undescribed in this report)

A2LA	The American Association for Laboratory Accreditation	IEEE	Institute of Electrical and Electronics Engineers
AC	Alternating Current	IF	Intermediate Frequency
AFH	Adaptive Frequency Hopping	ILAC	International Laboratory Accreditation Conference
AM	Amplitude Modulation	ISED	Innovation, Science and Economic Development Canada
Amp, AMP	Amplifier	ISO	International Organization for Standardization
ANSI	American National Standards Institute	JAB	Japan Accreditation Board
Ant, ANT	Antenna	LAN	Local Area Network
AP	Access Point	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	P/M	Power meter
Ch., CH	Channel	PCB	Printed Circuit Board
CISPR	Comite International Special des Perturbations Radioelectriques	PER	Packet Error Rate
CW	Continuous Wave	PHY	Physical Layer
DBPSK	Differential BPSK	PK	Peak
DC	Direct Current	PN	Pseudo random Noise
D-factor	Distance factor	PRBS	Pseudo-Random Bit Sequence
DFS	Dynamic Frequency Selection	PSD	Power Spectral Density
DQPSK	Differential QPSK	QAM	Quadrature Amplitude Modulation
DSSS	Direct Sequence Spread Spectrum	QP	Quasi-Peak
EDR	Enhanced Data Rate	QPSK	Quadri-Phase Shift Keying
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power	RBW	Resolution Band Width
EMC	ElectroMagnetic Compatibility	RDS	Radio Data System
EMI	ElectroMagnetic Interference	RE	Radio Equipment
EN	European Norm	RF	Radio Frequency
ERP, e.r.p.	Effective Radiated Power	RMS	Root Mean Square
EU	European Union	RSS	Radio Standards Specifications
EUT	Equipment Under Test	Rx	Receiving
Fac.	Factor	SA, S/A	Spectrum Analyzer
FCC	Federal Communications Commission	SG	Signal Generator
FHSS	Frequency Hopping Spread Spectrum	SVSWR	Site-Voltage Standing Wave Ratio
FM	Frequency Modulation	TR	Test Receiver
Freq.	Frequency	Tx	Transmitting
FSK	Frequency Shift Keying	VBW	Video BandWidth
GFSK	Gaussian Frequency-Shift Keying	Vert.	Vertical
GNSS	Global Navigation Satellite System	WLAN	Wireless LAN
GPS	Global Positioning System	-	-
Hori.	Horizontal	AT	Antenna Terminal Conducted test
ICES	Interference-Causing Equipment Standard	CE	Conducted Emission
IEC	International Electrotechnical Commission	RE	Radiated Emission

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SECTION 1: Customer Information

Company Name	Sony Interactive Entertainment Inc.
Brand Name	SONY
Address	1-7-1 Konan, Minato-ku, Tokyo, 108-0075 Japan
Telephone Number	+81-50-3807-5639
Contact Person	Miho Nakamura

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	Wireless communication module
Model Number	J20H106
Serial Number	Refer to SECTION 4.2
Condition	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	January 22, 2024
Test Date	January 23 to February 26, 2024

2.2 Product Description

General Specification

Rating	DC 3.3 V

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.

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

Equipment Type	Transceiver	
Frequency of Operation	2412 MHz to 2462 MHz	
Type of Modulation	DSSS, OFDM	
	OFDMA	20 MHz: 26/52/106/242-tone RU
Antenna Type	PIFA	
Antenna Gain[a)]	Antenna 1: 4.0 dBi Antenna 2: 4.0 dBi	
Directional Gain[a)] *1)	7.01 dBi	

WLAN (IEEE802.11a/11n-20/11ac-20/11ax-20/11be-20/11n-40/11ac-40/11ax-40/11be-40/ 11ac-80/11ax-80/11be-80/11ac-160/11ax-160/11be-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	
	40 MHz Band:	5190 MHz to 5230 MHz 5270 MHz to 5310 MHz 5510 MHz to 5710 MHz 5755 MHz to 5795 MHz	
	80 MHz Band:	5210 MHz 5290 MHz 5530 MHz to 5690 MHz 5775 MHz	
	160 MHz Band:	5250 MHz 5570 MHz	
Type of Modulation	OFDM		
	OFDMA	20 MHz: 26/52/106/242-tone RU	
		40 MHz: 26/52/106/242/484-tone RU	
		80 MHz: 26/52/106/242/484/996-tone RU	
		160 MHz: 26/52/106/242/484/996/2x996-tone RU	
Antenna Type	PIFA		IFA
Antenna Gain	Antenna 1: 5.5 dBi		Antenna 3: 5.0 dBi
Directional Gain *1)	8.26 dBi		

WLAN (IEEE802.11ax-20/11be-20/11ax-40/11be-40/11ax-80/11be-80/11ax-160/11be-160)

Equipment Type	Transceiver		
Frequency of Operation	20 MHz Band:	5955 MHz to 7095 MHz	
	40 MHz Band:	5965 MHz to 7085 MHz	
	80 MHz Band:	5985 MHz to 7025 MHz	
	160 MHz Band:	6025 MHz to 6985 MHz	
Type of Modulation	OFDM		
	OFDMA	20 MHz: 26/52/106/242-tone RU	
		40 MHz: 26/52/106/242/484-tone RU	
		80 MHz: 26/52/106/242/484/996-tone RU	
		160 MHz: 26/52/106/242/484/996/2x996-tone RU	
Antenna Type	PIFA		IFA
Antenna Gain	Antenna 1: 6.5 dBi		Antenna 3: 6.8 dBi
Directional Gain *1)	9.66 dBi		

* Preamble puncturing options are not supported.

BT1: Bluetooth (BR / EDR / Low Energy)

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	BT: FHSS (GFSK, π/4DQPSK, 8DPSK) BT LE: GFSK
Antenna Type	IFA
Antenna Gain[a)]	Antenna 3: 4.0 dBi

BT2: Bluetooth (BR / EDR / Low Energy)

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	BT: FHSS (GFSK, π/4DQPSK, 8DPSK) BT LE: GFSK
Antenna Type	IFA
Antenna Gain[a)]	Antenna 4: 3.5 dBi

*1) Directional antenna gain = $10\log\left(\left(10^{\frac{Gain(Ant1)}{20}} + 10^{\frac{Gain(Ant2\ or\ Ant3)}{20}}\right)^2/2\right)$

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	**FCC:** Section 15.207	14.88 dB, 0.20185 MHz, L	Complied	-
	ISED: RSS-Gen 8.8	**ISED:** RSS-Gen 8.8			
6dB Bandwidth	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r02	**FCC:** Section 15.247(a)(2)	See data.	Complied	Conducted
	ISED: -	**ISED:** RSS-247 5.2(a)			
Maximum Peak Output Power	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r02	**FCC:** Section 15.247(b)(3)		Complied	Conducted
	ISED: RSS-Gen 6.12	**ISED:** RSS-247 5.4(d)			
Power Density	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r02	**FCC:** Section 15.247(e)		Complied	Conducted
	ISED: -	**ISED:** RSS-247 5.2(b)			
Spurious Emission Restricted Band Edges	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r02	**FCC:** Section15.247(d)	5.9 dB 907.2 MHz, QP, Horizontal	Complied	Conducted (below 30 MHz)/ Radiated (above 30 MHz) *1)
	ISED: RSS-Gen 6.13	**ISED:** RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10			

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 stable voltage will be supplied by the end product, which will be required to have a power supply regulator. Therefore, the EUT complies with the requirement.

FCC Part 15.203/212 Antenna requirement
[Antenna 1 and 2] The EUT has unique coupling/antenna connector (U.FL).
[Antenna 3 and 4] The antenna is not removable from the EUT.
Therefore, the equipment complies with the antenna requirement of Section 15.203/212.

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.

Conducted emission

Item	Frequency range	Unit	Calculated Uncertainty (+/-)
AMN (LISN)	0.009 MHz to 0.15 MHz	dB	3.7
	0.15 MHz to 30 MHz	dB	3.3

Radiated emission

Measurement distance	Frequency range		Unit	Calculated Uncertainty (+/-)
3 m	9 kHz to 30 MHz		dB	3.3
10 m			dB	3.1
3 m	30 MHz to 200 MHz	Horizontal	dB	4.8
		Vertical	dB	5.0
	200 MHz to 1000 MHz	Horizontal	dB	5.1
		Vertical	dB	6.2
10 m	30 MHz to 200 MHz	Horizontal	dB	4.8
		Vertical	dB	4.8
	200 MHz to 1000 MHz	Horizontal	dB	4.9
		Vertical	dB	5.0
3 m	1 GHz to 6 GHz	Test Receiver	dB	5.1
		Spectrum Analyzer	dB	4.9
	6 GHz to 18 GHz	Test Receiver	dB	5.4
		Spectrum Analyzer	dB	5.2
1 m	10 GHz to 18 GHz	Spectrum analyzer	dB	5.0
	18 GHz to 26.5 GHz	Spectrum analyzer	dB	5.6
	26.5 GHz to 40 GHz	Spectrum analyzer	dB	4.9
0.5 m	26.5 GHz to 40 GHz	Spectrum analyzer	dB	4.9
10 m	1 GHz to 18 GHz	Test Receiver	dB	5.4

Antenna Terminal Conducted

Item	Unit	Calculated Uncertainty (+/-)
Antenna terminated conducted emission / Power density / Burst power	dB	3.47
Adjacent channel power (ACP)	dB	2.28
Bandwidth (OBW)	%	0.96
Time readout (time span upto 100 msec)	%	0.11
Time readout (time span upto 1000 msec)	%	0.11
Time readout (time span upto 60 sec)	%	0.02
Power measurement (Power meter < 8 GHz)	dB	1.46
Power measurement (Call box < 6 GHz)	dB	1.69
Frequency readout (Frequency counter)	ppm	0.67
Frequency readout (Spectrum analyzer frequency readout function)	ppm	2.13
Temperature (constant temperature bath)	deg. C	0.69
Humidity (constant temperature bath)	%RH	2.98
Modulation characteristics	%	6.93
Frequency for mobile	ppm	0.08
Contention-based protocol	dB	2.26

3.5 Test Location

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

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

* Size of vertical conducting plane (for Conducted Emission test): 2.0 x 2.0 m for No.1, No.2, No.3, No.4, and No.5 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

[WLAN]

Mode	Remarks*
IEEE 802.11b (11b)	1 Mbps (Long preamble), PN9
IEEE 802.11g (11g)	6 Mbps, PN9
IEEE 802.11n MIMO 20 MHz BW (11n-20)	MCS 0 (Mixed mode), PN9
IEEE 802.11ax MIMO 20 MHz BW (11ax-20)	MCS 0 (1TX), PN9
IEEE 802.11be MIMO 20 MHz BW (11be-20)	MCS 0 (1TX), PN9

*The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel)

*Power of the EUT was set by the software as follows;
Power Setting: 11b, 11g, 11n-20: 20
11ax-20, 11be-20: 19
OFDMA: 2 (26-tone RU), 8 (52-tone RU)
13 (106-tone RU), 19 (242-tone RU)
Software: autotest.sh Version: R1.01
(Date: January 22, 2024 / Storage location: Driven by connected PC)

*This setting of software is the worst case.
Any conditions under the normal use do not exceed the condition of setting.
In addition, end users cannot change the settings of the output power of the product.
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 802.11ax/be mode by the pre-test.

*The 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 11be-20 [OFDM] *1)	Antenna 1 + 2	2437 MHz
Radiated Spurious Emission (Above 1 GHz)	Tx 11b Tx 11be-20 [OFDM] *2) Tx 11be-20 [OFDMA] *3)	Antenna 1 + 2	2412 MHz 2437 MHz 2462 MHz
Maximum Peak Output Power *4), Power Density *4)	Tx 11b Tx 11g Tx 11n-20 Tx 11be-20 [OFDM] Tx 11be-20 [OFDMA]	Antenna 1 Antenna 2 Antenna 1 + 2	2412 MHz 2437 MHz 2462 MHz
99% Occupied Bandwidth *4), 6dB Bandwidth*4)	Tx 11b Tx 11g Tx 11n-20 Tx 11be-20 [OFDM] Tx 11be-20 [OFDMA]	Antenna 2 *5)	2412 MHz 2437 MHz 2462 MHz

*1) The mode was tested as a representative, because it had the highest power at antenna terminal test.
*2) Since 11g, 11n-20, 11ax-20, and 11be-20 have the same modulation method and no differences in transmitting specification, test was performed on the representative mode that had the highest output power.
*3) OFDMA configuration tests were conducted only at the band edge since preliminary testing indicated that the other spurious emission was lower than OFDM.
*4) Since 11ax and 11be have same modulation method and no differences in transmitting specification, the test was performed on the representative mode that had the highest output power.
*5) The test was conducted with the antenna that had the highest power as a representative.

[BT LE]

Mode	Remarks*
Bluetooth Low Energy (BT LE)	Uncoded 1M-PHY (1M), Maximum Packet Size, PRBS9
Bluetooth Low Energy (BT LE)	Uncoded 2M-PHY (2M), Maximum Packet Size, PRBS9

*Power of the EUT was set by the software as follows;
Power Setting: 2 dBm
Software: MT_TEST_Tool Version: R1.01
(Date: January 22, 2024 / Storage location: Driven by connected PC)

*This setting of software is the worst case.
Any conditions under the normal use do not exceed the condition of setting.
In addition, end users cannot change the settings of the output power of the product.

*The Details of Operating Mode(s)

Test Item	Operating Mode	Tested Antenna	Tested Frequency
Conducted Emission, Radiated Spurious Emission (Below 1 GHz)	Tx BT LE 2M *1)	Antenna 3 (BT1)	2480 MHz
		Antenna 4 (BT2)	2440 MHz
Radiated Spurious Emission (Above 1 GHz), Maximum Peak Output Power, Power Density, 6dB Bandwidth, 99% Occupied Bandwidth, Conducted Spurious Emission	Tx BT LE 1M Tx BT LE 2M	Antenna 3 (BT1) Antenna 4 (BT2)	2402 MHz 2440 MHz 2480 MHz

*1) 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.

Simultaneous transmission
(Only Antenna 3 simultaneously transmits BT1 and WLAN 5 GHz on a signal antenna.)

Test Item	Mode *1)	Antenna type
Radiated Spurious Emission	Tx BT LE 2M 2480 MHz + 11be-80 [OFDM] 5775 MHz	Antenna 3 (BT1)

*1) The test was conducted on representative mode, the worst mode of GHz band at Spurious emission test for BT1 and the mode had the highest power at Antenna terminal conducted test for WLAN 5 GHz band and 6 GHz band.

4.2 Configuration and Peripherals

This clause has been submitted for separate exhibit (refer to APPENDIX 4).

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.

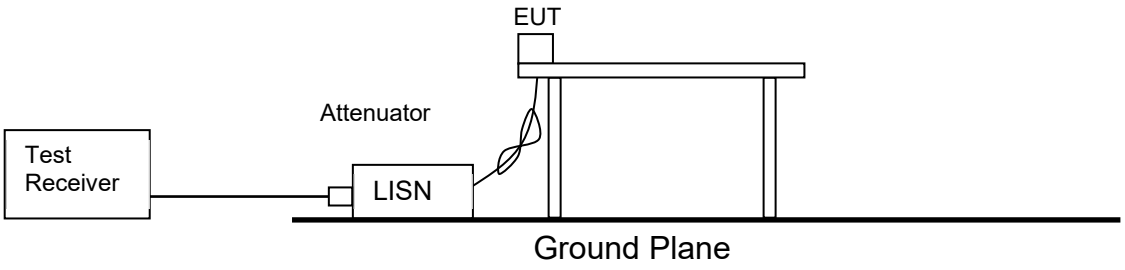
For the tests on EUT with other peripherals (as a whole system)
I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane. All unused 50ohm connectors of the LISN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

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

Test results are rounded off and limit are rounded down, 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 1.0 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

[For above 1 GHz]
EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane. 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

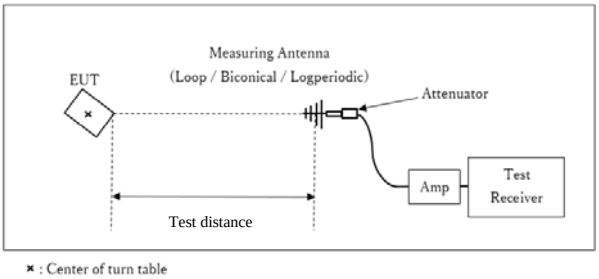
In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired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

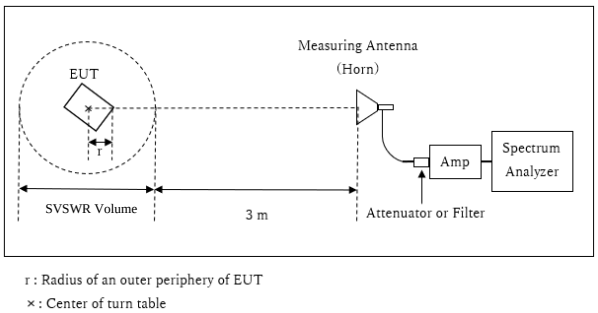
Figure 2: Test Setup

Below 1 GHz



Test Distance: 3 m

1 GHz to 10 GHz



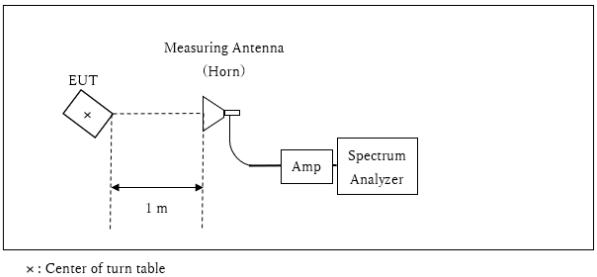
[WLAN]
Distance Factor: 20 x log (3.7 m / 3.0 m) = 1.83 dB
Test Distance: (3 + SVSWR Volume /2) - r = 3.7 m
SVSWR Volume : 1.5 m

r = 0.05 m

[BT LE]
Distance Factor: 20 x log (3.75 m / 3.0 m) = 1.94 dB
Test Distance: (3 + SVSWR Volume /2) - r = 3.75 m
SVSWR Volume : 1.5 m

r = 0.0 m
* The test was performed with r = 0.0 m since EUT is small and it was the rather conservative condition.

10 GHz to 26.5 GHz



Distance Factor: 20 x log (1.0 m / 3.0 m) = -9.5 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.

Test results are rounded off and limit are rounded down, 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	3 MHz, 4.5 MHz, 5 MHz, 9 MHz, 20 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: 50 MHz BW)
Peak Power Density	1.5 times the 6dB Bandwidth	3 kHz	10 kHz	Auto	Peak	Max Hold	Spectrum Analyzer *3)
Conducted Spurious Emission *4) *5)	9 kHz to 150 kHz	200 Hz	620 Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150 kHz to 30 MHz	10 kHz	30 kHz				

*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 low enough as shown in the chart.
(9 kHz - 150 kHz: RBW = 200 Hz, 150 kHz - 30 MHz: RBW = 10 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 Ohmes. For example, the measurement at frequency 9 kHz resulted in a level of 45.5 dBuV/m, which is equivalent to 45.5 - 51.5 = -6.0 dBuA/m, which has the same margin, 3 dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

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

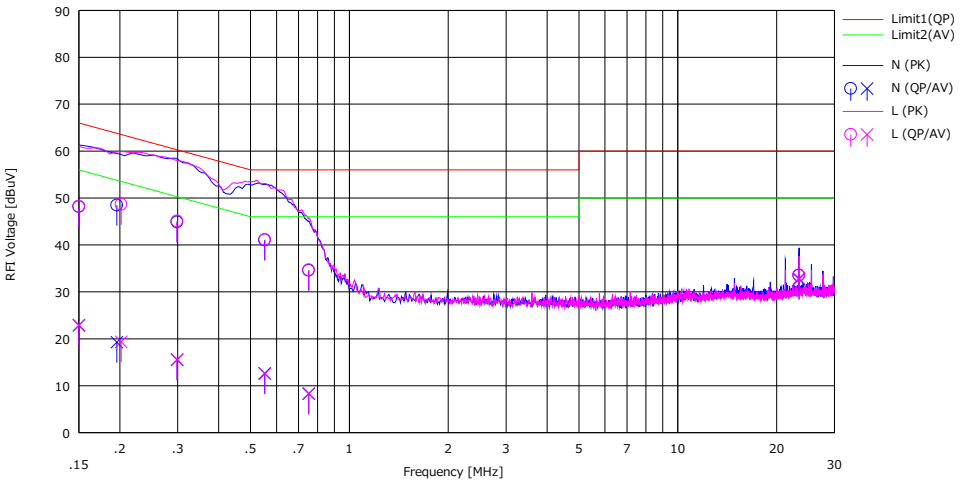
Test Data : **APPENDIX**
Test Result : **Pass**

APPENDIX 1: Test Data

Conducted Emission
(WLAN)

Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	February 8, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Ken Fujita
Mode	Tx 11be-20 [OFDM] 2437 MHz

Limit : FCC_Part 15 Subpart C(15.207)



No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		(QP)	(AV)			(QP)	(AV)	(QP)	(AV)	(QP)	(AV)		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	35.00	9.70	0.06	13.10	48.16	22.86	66.00	56.00	17.84	33.14	N	
2	0.19590	35.30	6.10	0.06	13.11	48.47	19.27	63.78	53.78	15.31	34.51	N	
3	0.29875	31.70	2.30	0.06	13.14	44.90	15.50	60.28	50.28	15.38	34.78	N	
4	0.55205	27.80	-0.60	0.06	13.18	41.04	12.64	56.00	46.00	14.96	33.36	N	
5	0.75180	21.30	-5.00	0.07	13.21	34.58	8.28	56.00	46.00	21.42	37.72	N	
6	23.40000	18.60	17.80	0.51	14.40	33.51	32.71	60.00	50.00	26.49	17.29	N	
7	0.15000	35.10	9.80	0.03	13.10	48.23	22.93	66.00	56.00	17.77	33.07	L	
8	0.20185	35.50	6.20	0.04	13.11	48.65	19.35	63.53	53.53	14.88	34.18	L	
9	0.29875	31.90	2.40	0.04	13.14	45.08	15.58	60.28	50.28	15.20	34.70	L	
10	0.55290	27.90	-0.70	0.04	13.18	41.12	12.52	56.00	46.00	14.88	33.48	L	
11	0.75265	21.40	-4.90	0.05	13.21	34.66	8.36	56.00	46.00	21.34	37.64	L	
12	23.40000	18.70	18.00	0.48	14.40	33.58	32.88	60.00	50.00	26.42	17.12	L	

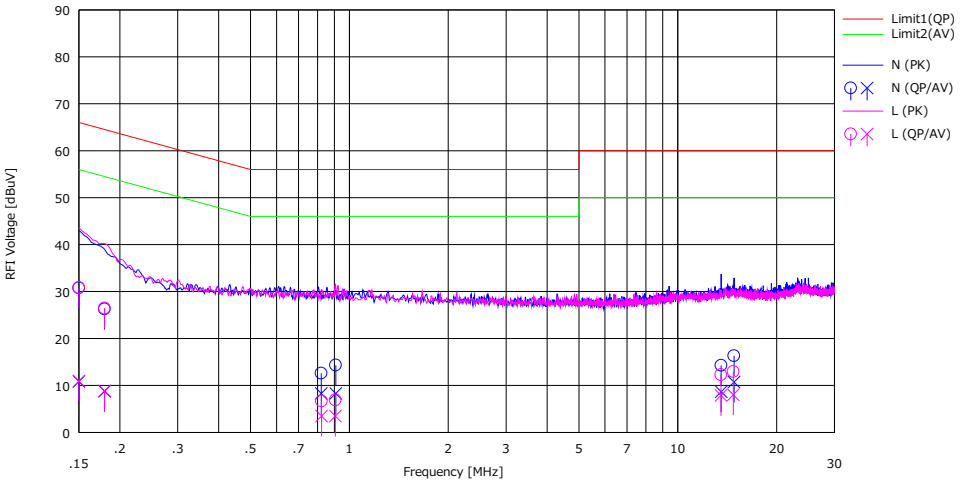
CHART: WITH FACTOR Peak hold data. CALCULATION : RESULT = READING + LISN + LOSS (CABLE + ATT)
Except for the above table: adequate margin data below the limits.

Conducted Emission

(BT1)

Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	February 8, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Ken Fujita
Mode	Tx BT LE 2M 2480 MHz

Limit : FCC_Part 15 Subpart C(15.207)



No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		(QP)	(AV)			(QP)	(AV)	(QP)	(AV)	(QP)	(AV)		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	17.60	-2.30	0.06	13.10	30.76	10.86	66.00	56.00	35.24	45.14	N	
2	0.17975	13.10	-4.40	0.06	13.11	26.27	8.77	64.50	54.50	38.23	45.73	N	
3	0.82065	-0.70	-5.00	0.07	13.22	12.59	8.29	56.00	46.00	43.41	37.71	N	
4	0.90905	1.00	-5.00	0.08	13.23	14.31	8.31	56.00	46.00	41.69	37.69	N	
5	13.56000	-0.10	-5.70	0.33	14.03	14.26	8.66	60.00	50.00	45.74	41.34	N	
6	14.84000	1.90	-3.70	0.34	14.08	16.32	10.72	60.00	50.00	43.68	39.28	N	
7	0.15000	17.70	-2.20	0.03	13.10	30.83	10.93	66.00	56.00	35.17	45.07	L	
8	0.17975	13.30	-4.30	0.04	13.11	26.45	8.85	64.50	54.50	38.05	45.65	L	
9	0.82320	-6.60	-9.80	0.05	13.22	6.67	3.47	56.00	46.00	49.33	42.53	L	
10	0.90650	-6.40	-9.80	0.05	13.23	6.88	3.48	56.00	46.00	49.12	42.52	L	
11	13.54000	-2.10	-6.50	0.34	14.03	12.27	7.87	60.00	50.00	47.73	42.13	L	
12	14.76000	-1.50	-6.40	0.35	14.08	12.93	8.03	60.00	50.00	47.07	41.97	L	

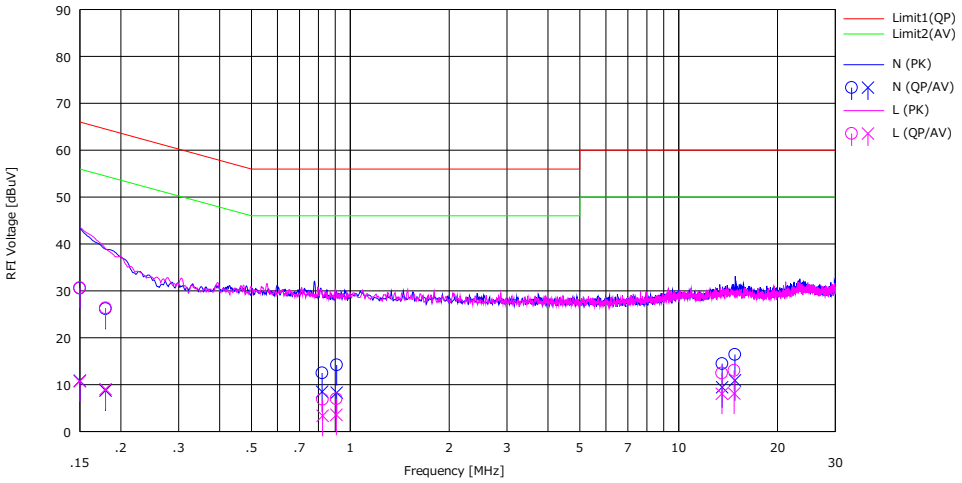
CHART: WITH FACTOR Peak hold data. CALCULATION : RESULT = READING + LISN + LOSS (CABLE + ATT)
Except for the above table: adequate margin data below the limits.

Conducted Emission

(BT2)

Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	February 8, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Ken Fujita
Mode	Tx BT LE 2M 2440 MHz

Limit : FCC_Part 15 Subpart C(15.207)



No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		(QP)	(AV)			(QP)	(AV)	(QP)	(AV)	(QP)	(AV)		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	17.40	-2.30	0.06	13.10	30.56	10.86	66.00	56.00	35.44	45.14	N	
2	0.17975	13.00	-4.40	0.06	13.11	26.17	8.77	64.50	54.50	38.33	45.73	N	
3	0.82065	-0.80	-4.80	0.07	13.22	12.49	8.49	56.00	46.00	43.51	37.51	N	
4	0.90905	0.90	-5.00	0.08	13.23	14.21	8.31	56.00	46.00	41.79	37.69	N	
5	13.56000	0.10	-4.90	0.33	14.03	14.46	9.46	60.00	50.00	45.54	40.54	N	
6	14.84000	2.00	-3.50	0.34	14.08	16.42	10.92	60.00	50.00	43.58	39.08	N	
7	0.15000	17.50	-2.40	0.03	13.10	30.63	10.73	66.00	56.00	35.37	45.27	L	
8	0.17975	13.20	-4.10	0.04	13.11	26.35	9.05	64.50	54.50	38.15	45.45	L	
9	0.82320	-6.40	-9.90	0.05	13.22	6.87	3.37	56.00	46.00	49.13	42.63	L	
10	0.90650	-6.30	-9.70	0.05	13.23	6.98	3.58	56.00	46.00	49.02	42.42	L	
11	13.54000	-1.90	-6.30	0.34	14.03	12.47	8.07	60.00	50.00	47.53	41.93	L	
12	14.76000	-1.40	-6.30	0.35	14.08	13.03	8.13	60.00	50.00	46.97	41.87	L	

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

99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Ise EMC Lab. No.8 Measurement Room		
Date	January 25, 2024	January 26, 2024	March 22, 2024
Temperature / Humidity	22 deg. C / 39 % RH	20 deg. C / 40 % RH	24 deg. C / 38 % RH
Engineer	Tetsuro Yoshida	Tetsuro Yoshida	Takafumi Noguchi
Mode	Tx		

Mode	Frequency [MHz]	99% Occupied Bandwidth [kHz]	6dB Bandwidth [MHz]	Limit for 6dB Bandwidth [MHz]
11b	2412	12834.9	8.080	> 0.5000
	2437	***12840.7***	8.021	> 0.5000
	2462	12840.5	8.056	> 0.5000
11g	2412	***16706.0***	16.380	> 0.5000
	2437	16695.1	16.403	> 0.5000
	2462	16692.6	16.383	> 0.5000
11n-20	2412	17693.5	17.602	> 0.5000
	2437	***17709.4***	17.610	> 0.5000
	2462	17702.5	17.598	> 0.5000
11be-20 [OFDM]	2412	19003.0	19.001	> 0.5000
	2437	19009.3	19.016	> 0.5000
	2462	***19023.7***	19.011	> 0.5000

Mode	Frequency [MHz]	RU Type	RU Index	99% Occupied Bandwidth [kHz]	6dB Bandwidth [MHz]	Limit for 6dB Bandwidth [MHz]
11be-20 [OFDMA]	2412.000	26-tone RU	0	18411.5	2.083	> 0.5000
	2437.000		4	17098.8	2.620	> 0.5000
	2462.000		8	***18429.6***	2.070	> 0.5000
	2412.000	52-tone RU	37	***18373.3***	4.056	> 0.5000
	2437.000		38	17179.8	4.130	> 0.5000
	2462.000		40	18290.9	4.067	> 0.5000
	2412.000	106-tone RU	53	18196.8	8.345	> 0.5000
	2437.000		53	18171.2	8.352	> 0.5000
	2462.000		54	***18247.9***	8.360	> 0.5000
	2412.000	242-tone RU	61	19062.2	19.014	> 0.5000
	2437.000		61	***19091.4***	18.919	> 0.5000
	2462.000		61	18951.3	18.918	> 0.5000

99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 25, 2024
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE

BT1

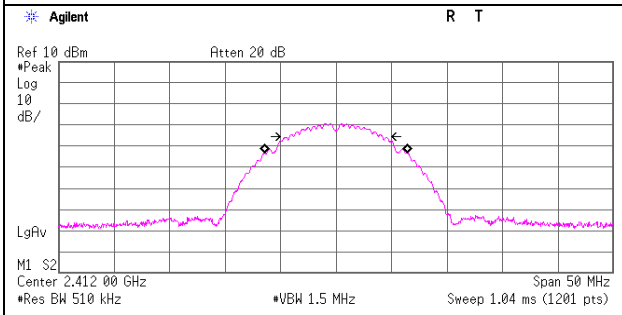
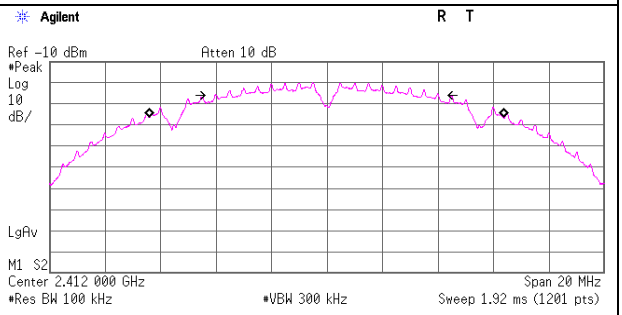
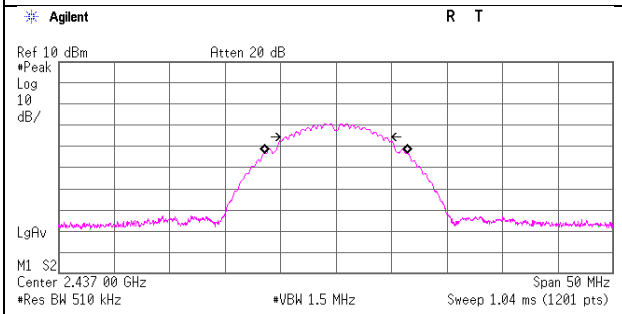
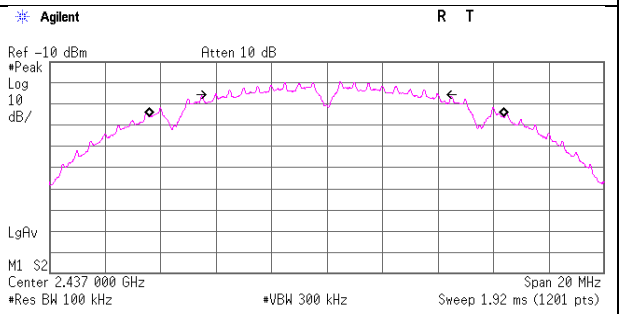
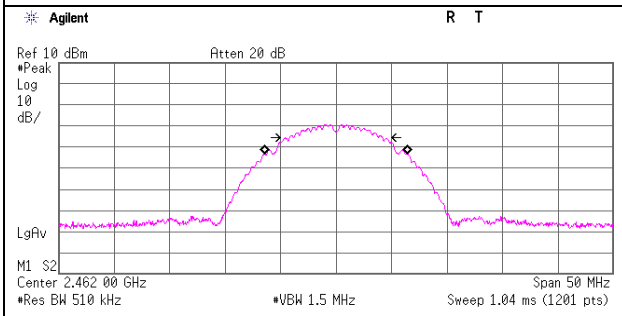
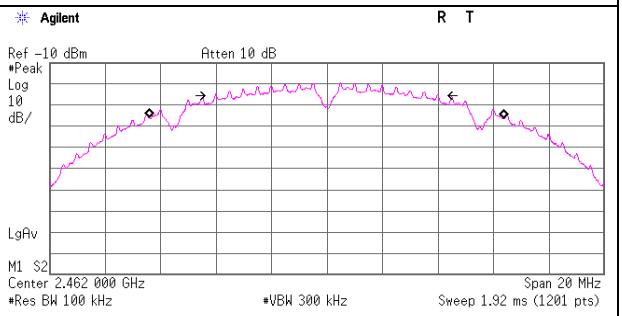
Mode	Frequency [MHz]	99% Occupied Bandwidth [kHz]	6dB Bandwidth [MHz]	Limit for 6dB Bandwidth [MHz]
1M-PHY	2402	1038.6	0.701	> 0.5000
	2440	1039.2	0.660	> 0.5000
	2480	***1039.9***	0.662	> 0.5000
2M-PHY	2402	2071.2	1.189	> 0.5000
	2440	2072.1	1.253	> 0.5000
	2480	***2073.1***	1.207	> 0.5000

BT2

Mode	Frequency [MHz]	99% Occupied Bandwidth [kHz]	6dB Bandwidth [MHz]	Limit for 6dB Bandwidth [MHz]
1M-PHY	2402	1038.7	0.710	> 0.5000
	2440	1038.4	0.663	> 0.5000
	2480	***1038.9***	0.661	> 0.5000
2M-PHY	2402	2072.2	1.202	> 0.5000
	2440	2069.1	1.182	> 0.5000
	2480	***2072.6***	1.210	> 0.5000

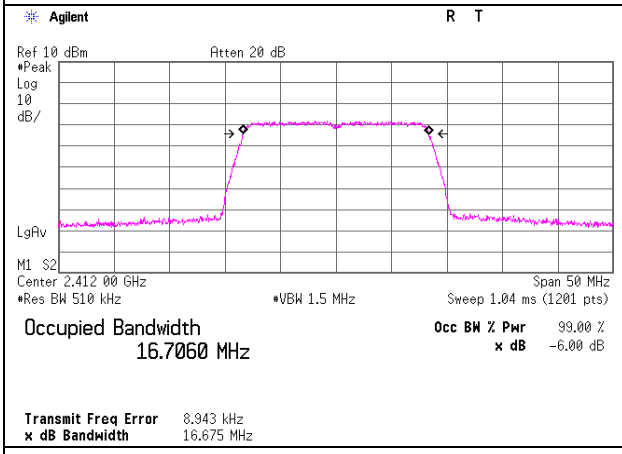
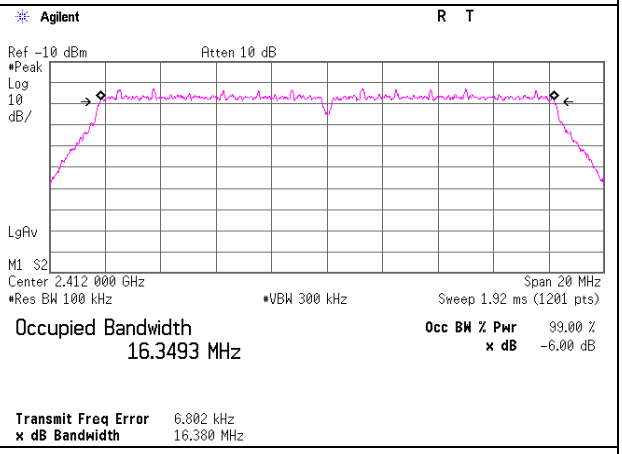
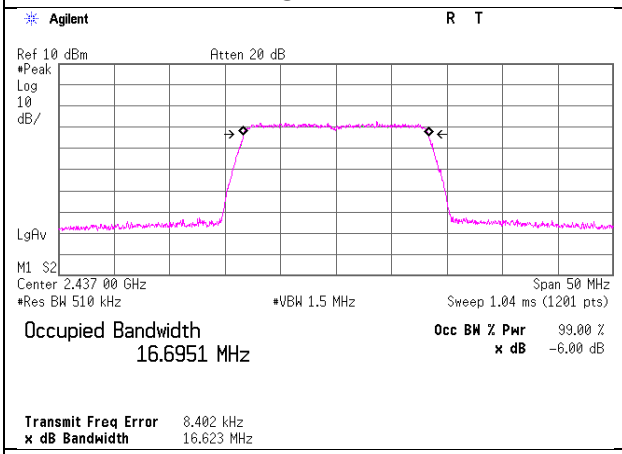
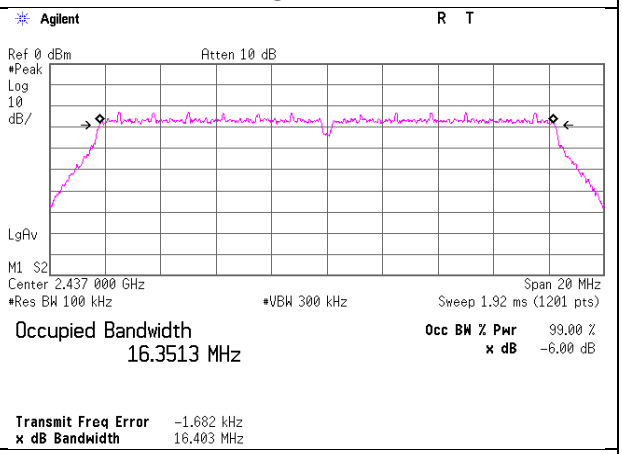
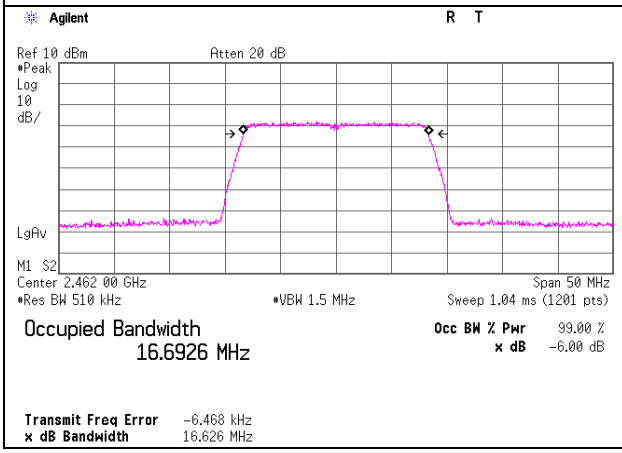
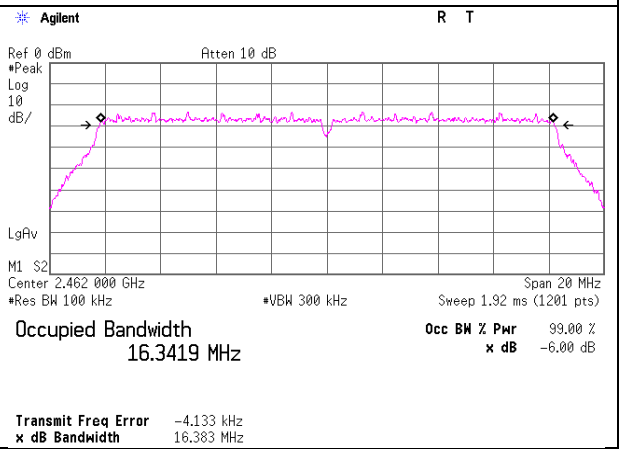
99 % Occupied Bandwidth and 6 dB Bandwidth

11b

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	**2412 MHz**
	
Occupied Bandwidth 12.8349 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -15.245 kHz; x dB Bandwidth 8.337 MHz	Occupied Bandwidth 12.7607 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -19.292 kHz; x dB Bandwidth 8.080 MHz
2437 MHz	**2437 MHz**
	
Occupied Bandwidth 12.8407 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -18.932 kHz; x dB Bandwidth 8.335 MHz	Occupied Bandwidth 12.7803 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -26.283 kHz; x dB Bandwidth 8.021 MHz
2462 MHz	**2462 MHz**
	
Occupied Bandwidth 12.8405 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -19.179 kHz; x dB Bandwidth 8.337 MHz	Occupied Bandwidth 12.7744 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -17.674 kHz; x dB Bandwidth 8.056 MHz

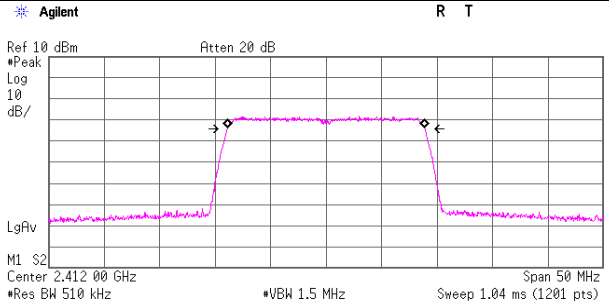
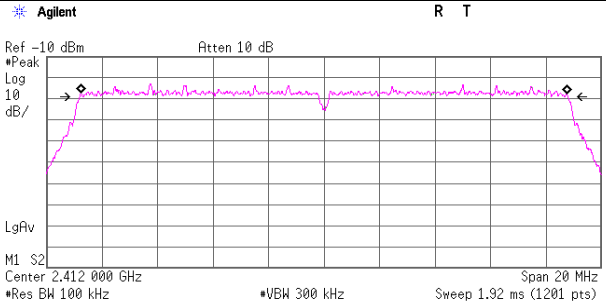
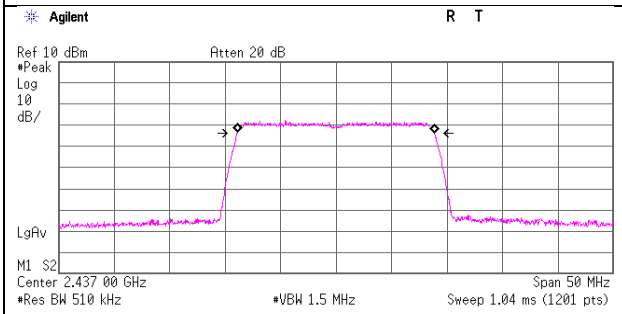
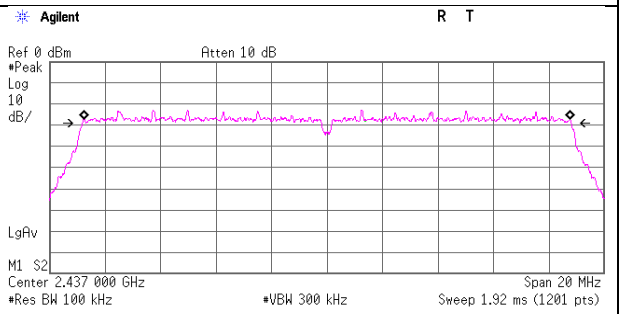
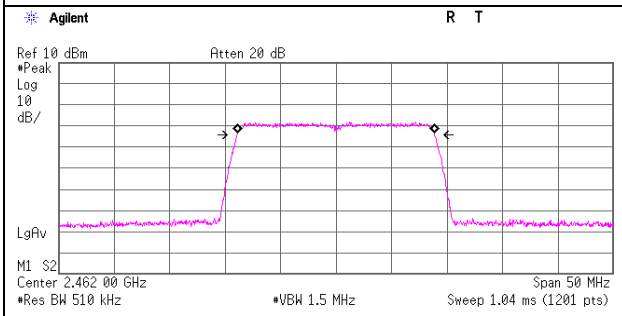
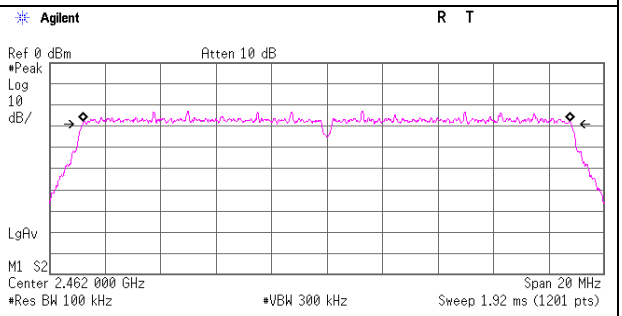
99 % Occupied Bandwidth and 6 dB Bandwidth

11g

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	**2412 MHz**
	
2437 MHz	**2437 MHz**
	
2462 MHz	**2462 MHz**
	

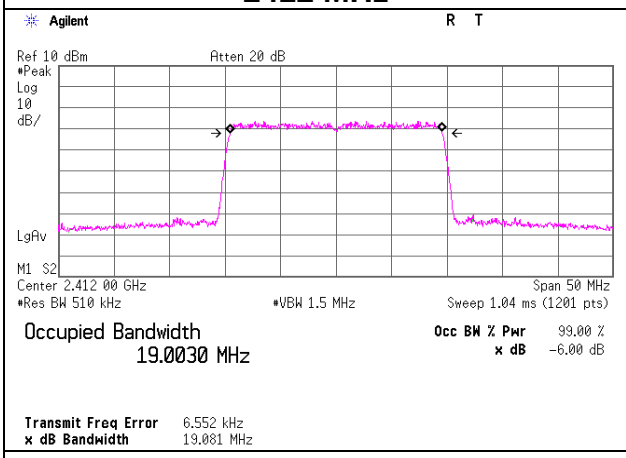
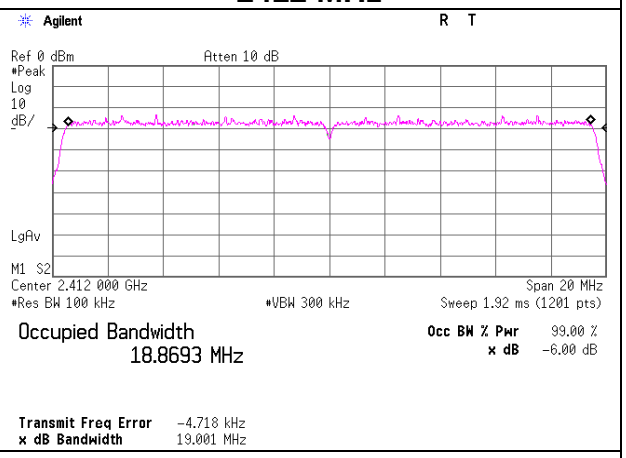
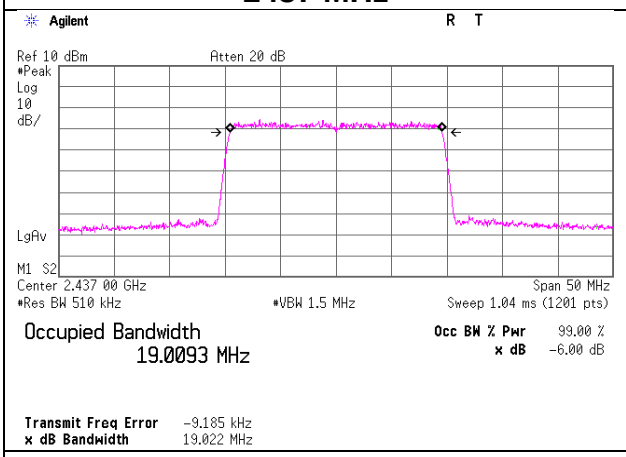
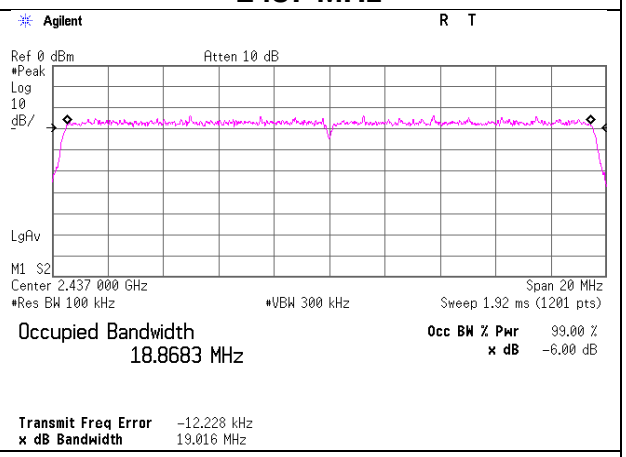
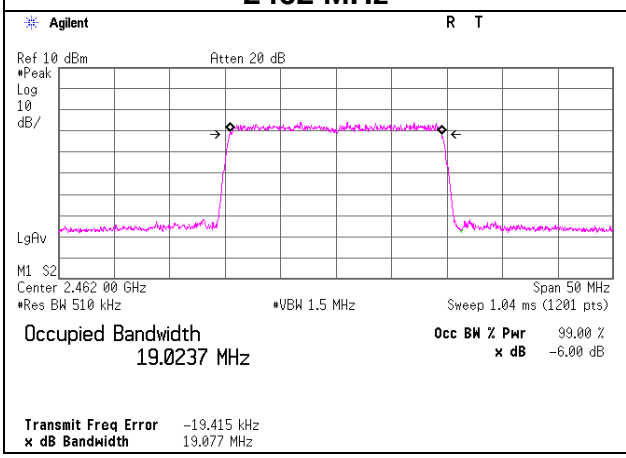
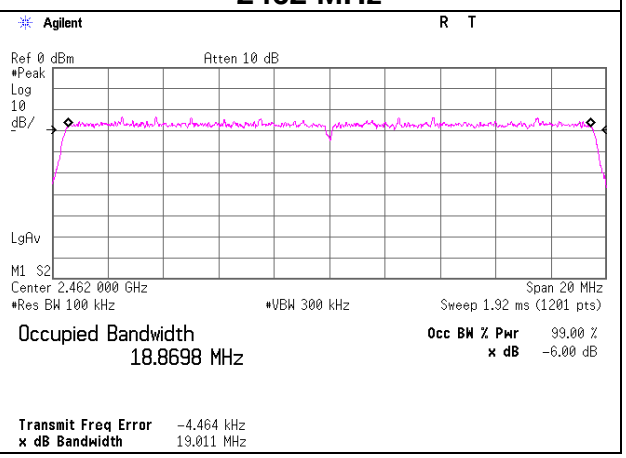
99 % Occupied Bandwidth and 6 dB Bandwidth

11n-20

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	**2412 MHz**
	
Occupied Bandwidth 17.6935 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error 1.772 kHz; x dB Bandwidth 17.781 MHz	Occupied Bandwidth 17.5321 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -9.025 kHz; x dB Bandwidth 17.602 MHz
2437 MHz	**2437 MHz**
	
Occupied Bandwidth 17.7094 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -8.628 kHz; x dB Bandwidth 17.749 MHz	Occupied Bandwidth 17.5317 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -9.227 kHz; x dB Bandwidth 17.610 MHz
2462 MHz	**2462 MHz**
	
Occupied Bandwidth 17.7025 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -14.159 kHz; x dB Bandwidth 17.825 MHz	Occupied Bandwidth 17.5318 MHz; Occ BW % Pwr 99.00 %; x dB -6.00 dB; Transmit Freq Error -10.744 kHz; x dB Bandwidth 17.598 MHz

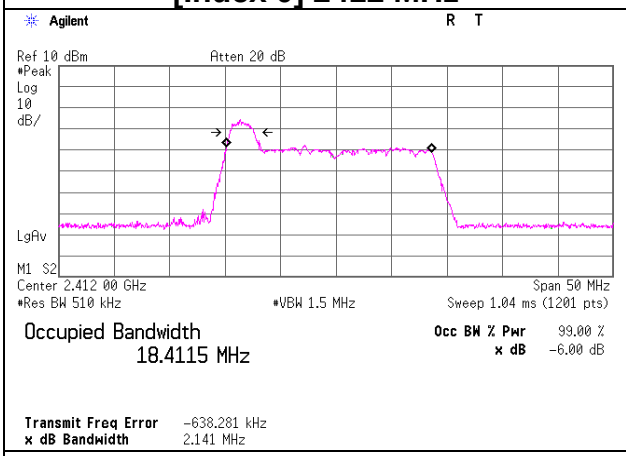
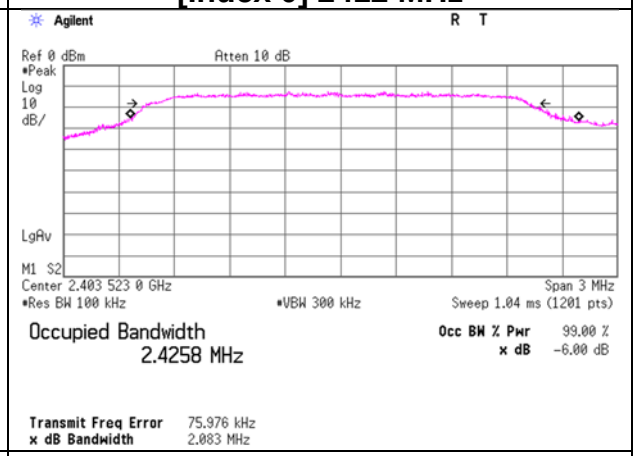
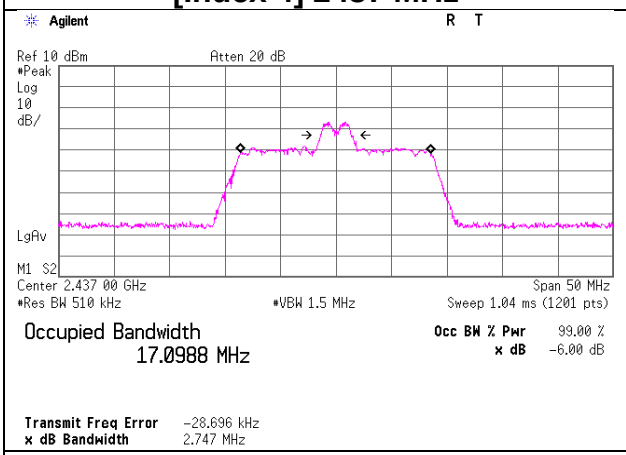
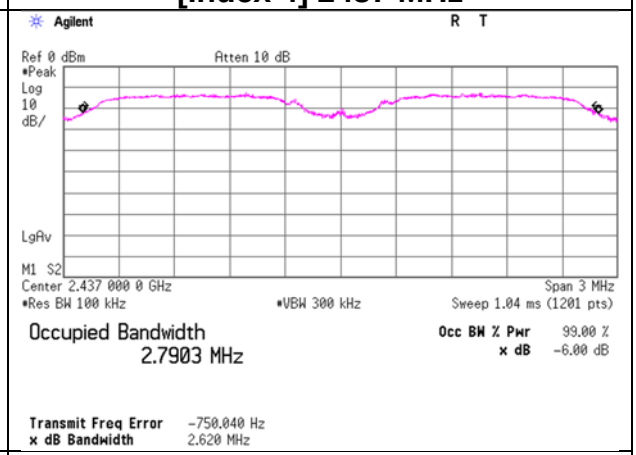
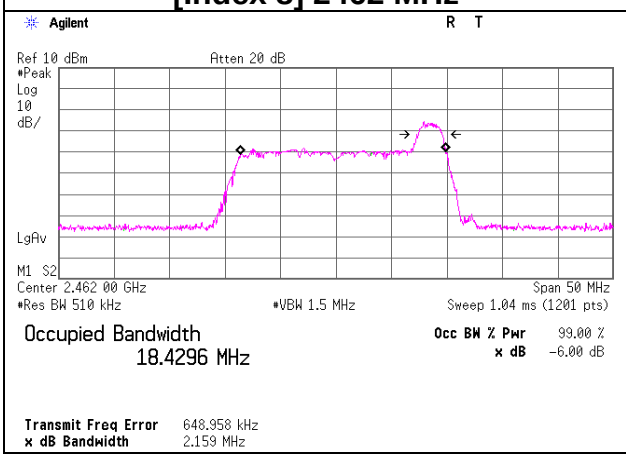
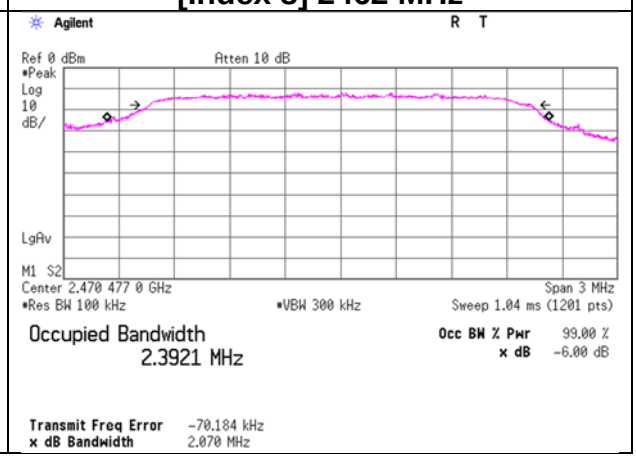
99 % Occupied Bandwidth and 6 dB Bandwidth

11be-20 [OFDM]

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	**2412 MHz**
	
2437 MHz	**2437 MHz**
	
2462 MHz	**2462 MHz**
	

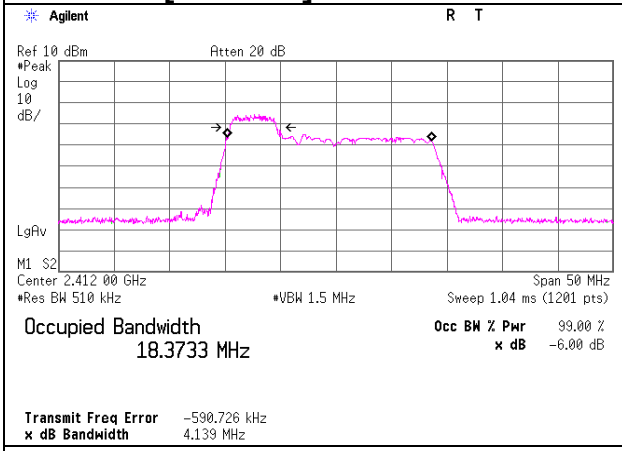
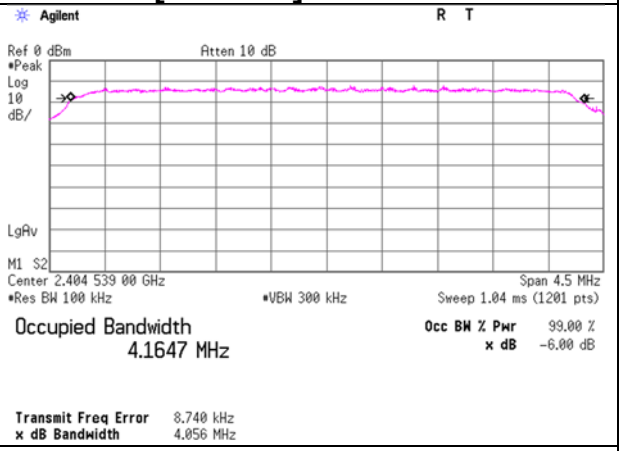
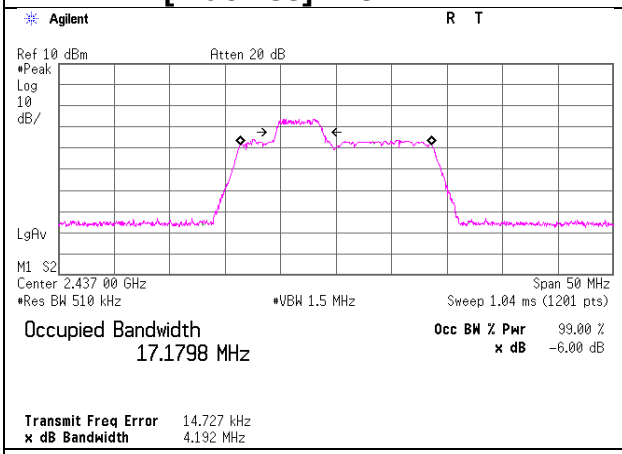
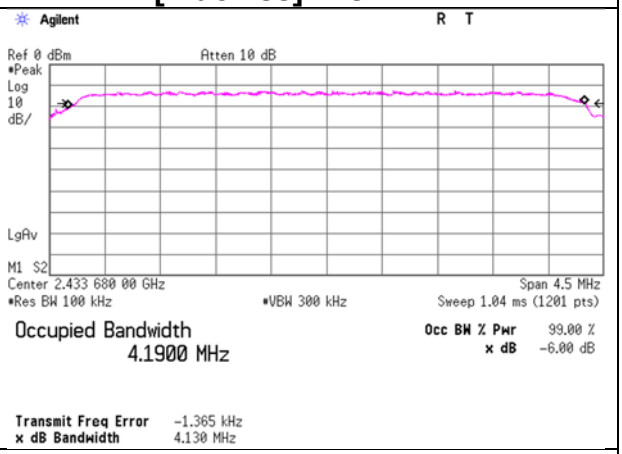
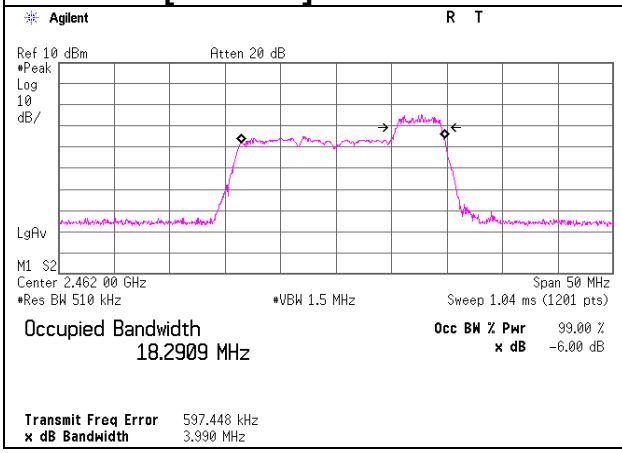
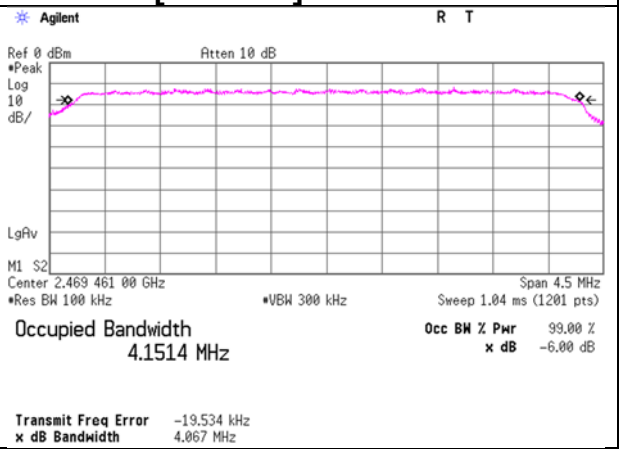
99 % Occupied Bandwidth and 6 dB Bandwidth

11be-20 [26-tone RU]

99 % Occupied Bandwidth	6 dB Bandwidth
[Index 0] 2412 MHz	[Index 0] 2412 MHz
	
[Index 4] 2437 MHz	[Index 4] 2437 MHz
	
[Index 8] 2462 MHz	[Index 8] 2462 MHz
	

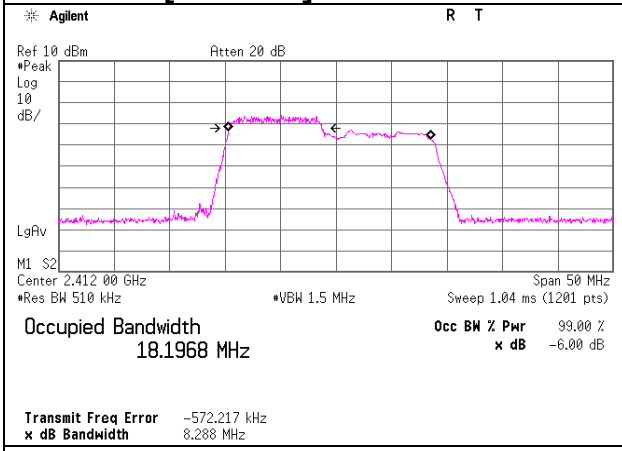
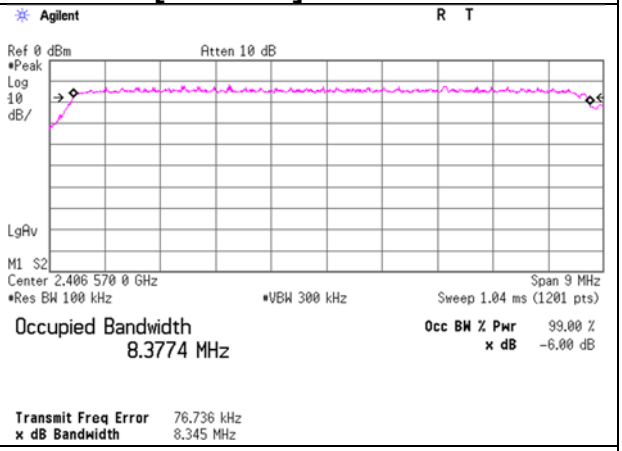
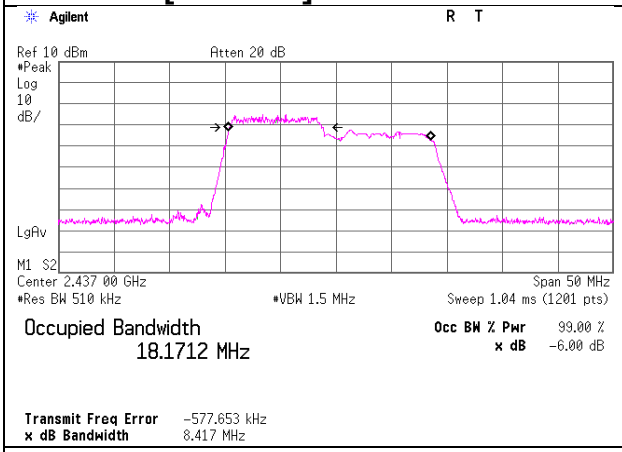
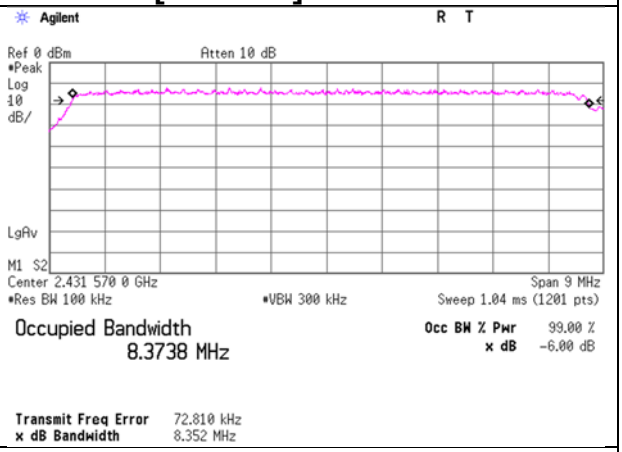
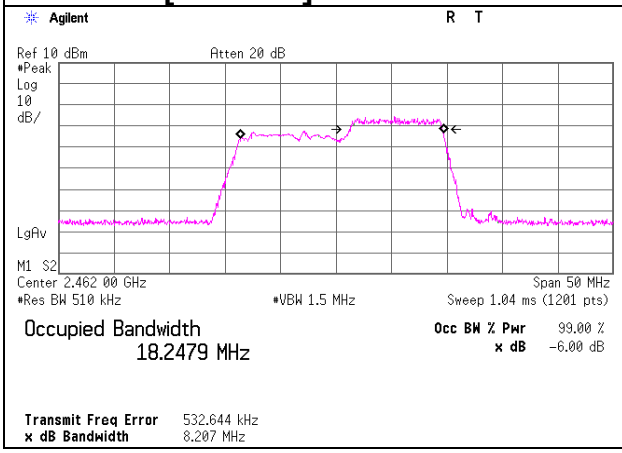
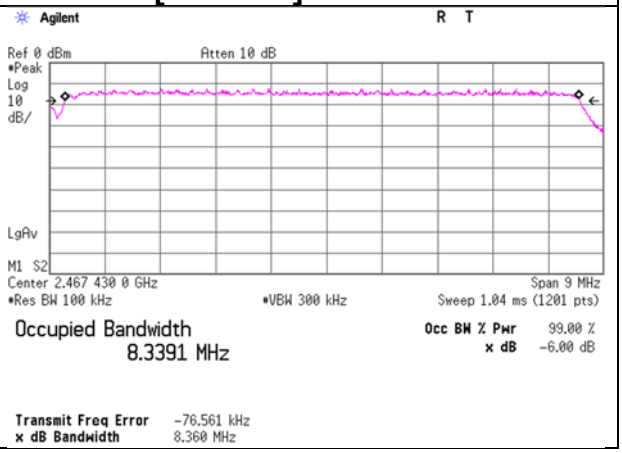
99 % Occupied Bandwidth and 6 dB Bandwidth

11be-20 [52-tone RU]

99 % Occupied Bandwidth	6 dB Bandwidth
[Index 37] 2412 MHz	[Index 37] 2412 MHz
	
[Index 38] 2437 MHz	[Index 38] 2437 MHz
	
[Index 40] 2462 MHz	[Index 40] 2462 MHz
	

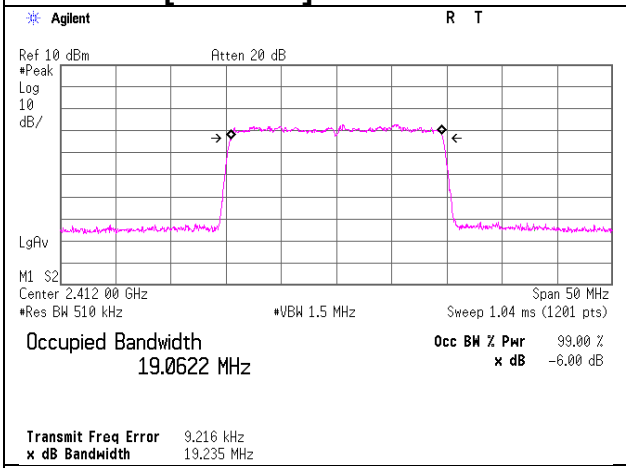
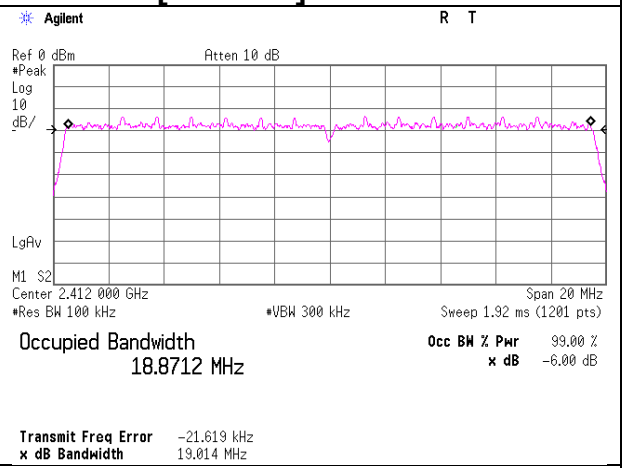
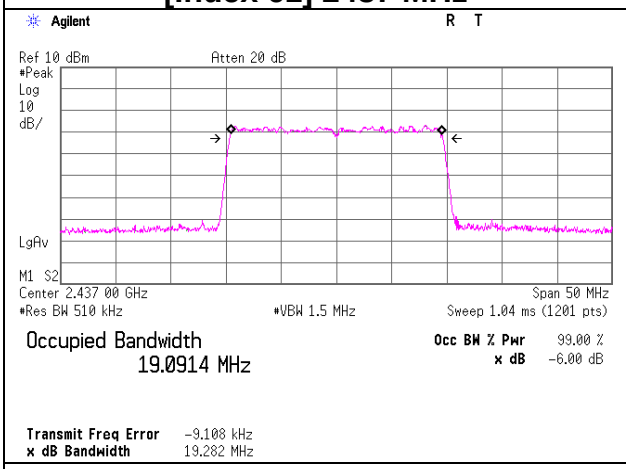
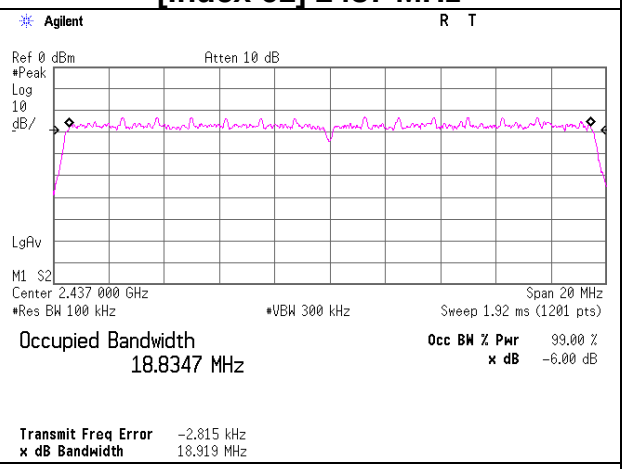
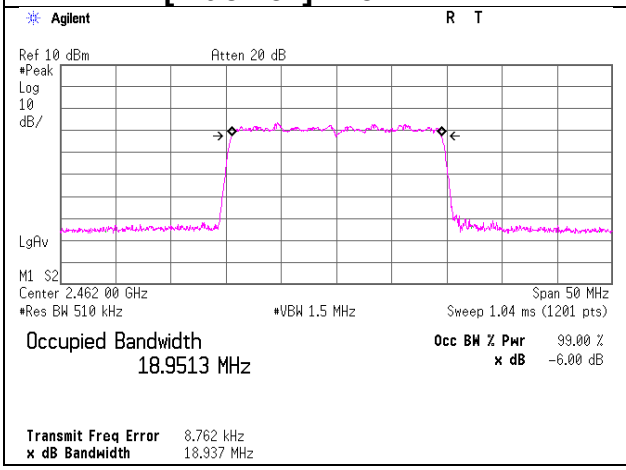
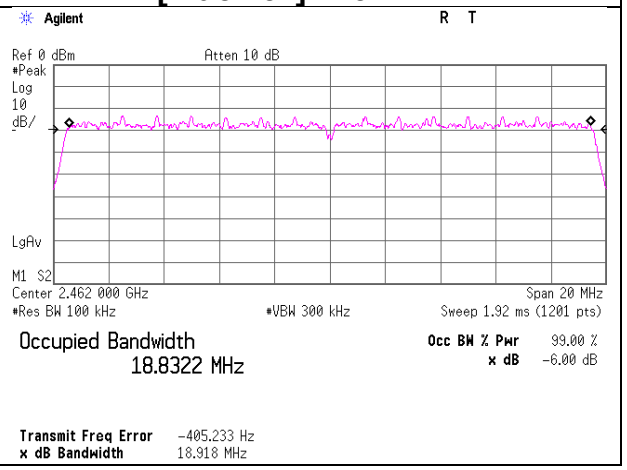
99 % Occupied Bandwidth and 6 dB Bandwidth

11be-20 [106-tone RU]

99 % Occupied Bandwidth	6 dB Bandwidth
[Index 53] 2412 MHz	[Index 53] 2412 MHz
	
[Index 53] 2437 MHz	[Index 53] 2437 MHz
	
[Index 54] 2462 MHz	[Index 54] 2462 MHz
	

99 % Occupied Bandwidth and 6 dB Bandwidth

11be-20 [242-tone RU]

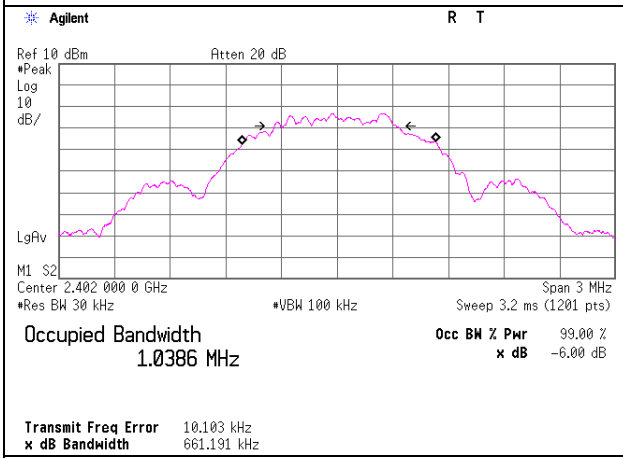
99 % Occupied Bandwidth	6 dB Bandwidth
[Index 61] 2412 MHz	[Index 61] 2412 MHz
	
[Index 61] 2437 MHz	[Index 61] 2437 MHz
	
[Index 61] 2462 MHz	[Index 61] 2462 MHz
	

99 % Occupied Bandwidth and 6 dB Bandwidth
(BT1)

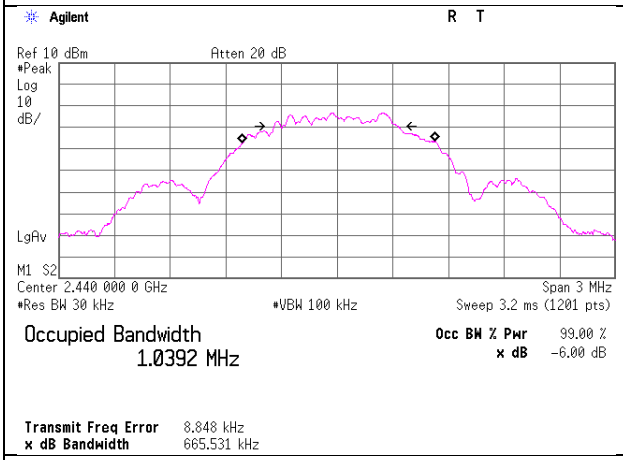
BT LE 1M

99 % Occupied Bandwidth

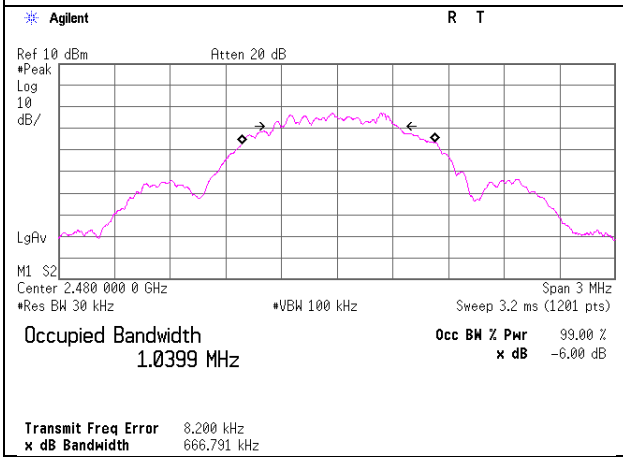
2402 MHz



2440 MHz

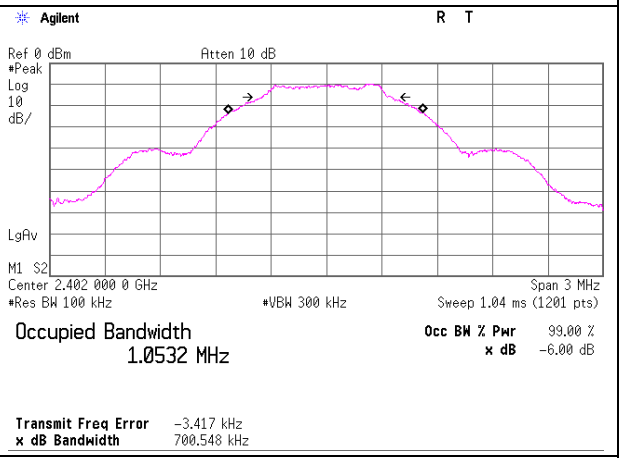


2480 MHz

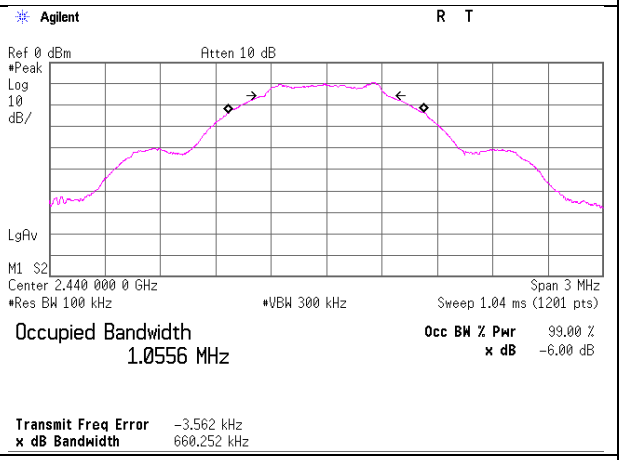


6 dB Bandwidth

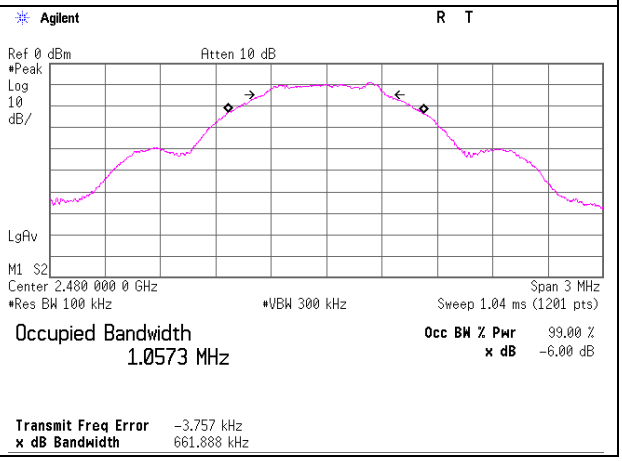
2402 MHz



2440 MHz



2480 MHz

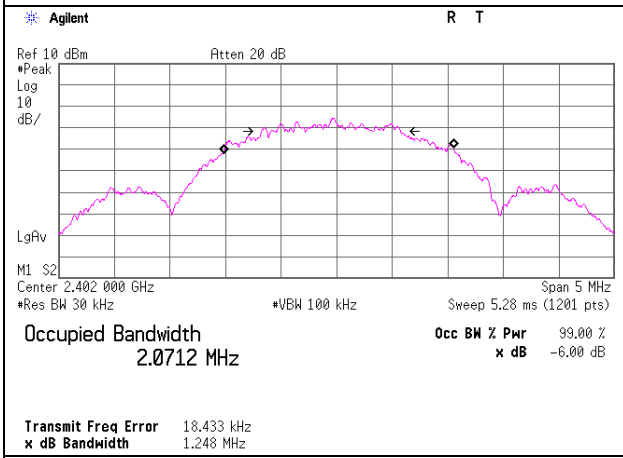


99 % Occupied Bandwidth and 6 dB Bandwidth
(BT1)

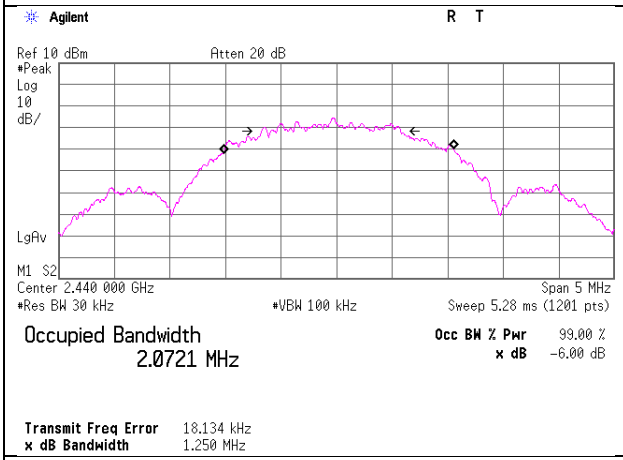
BT LE 2M

99 % Occupied Bandwidth

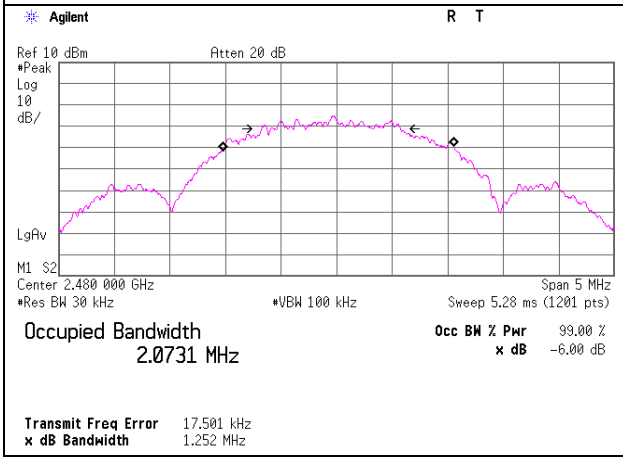
2402 MHz



2440 MHz

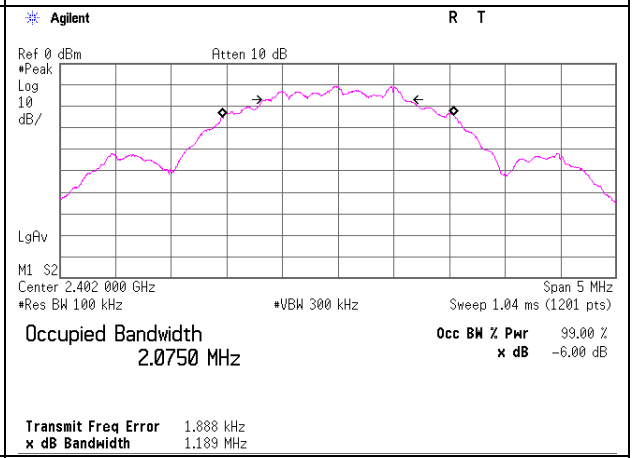


2480 MHz

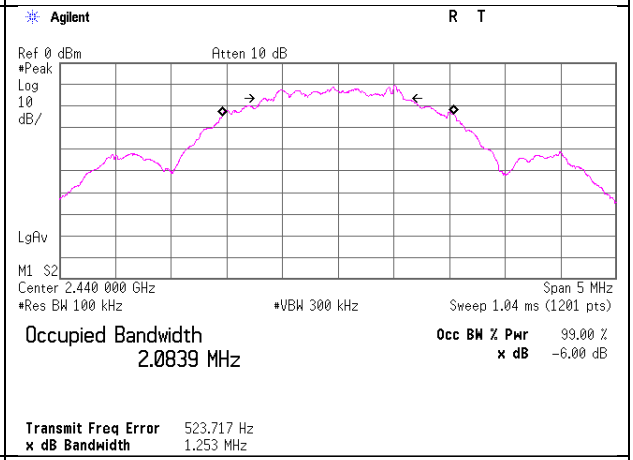


6 dB Bandwidth

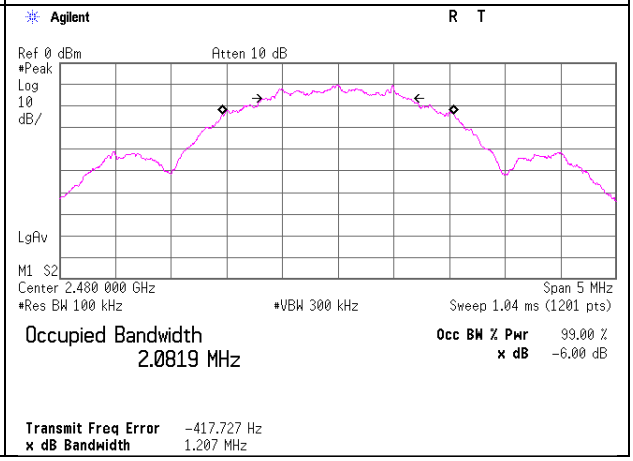
2402 MHz



2440 MHz



2480 MHz

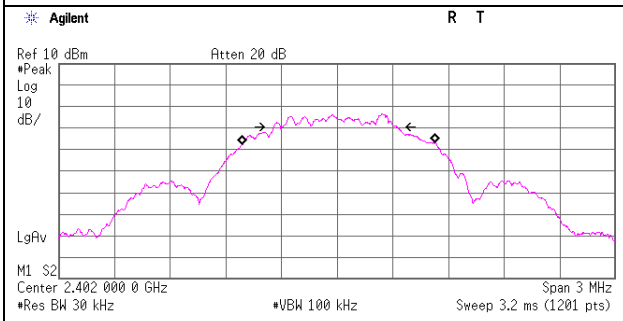


99 % Occupied Bandwidth and 6 dB Bandwidth
(BT2)

BT LE 1M

99 % Occupied Bandwidth

2402 MHz

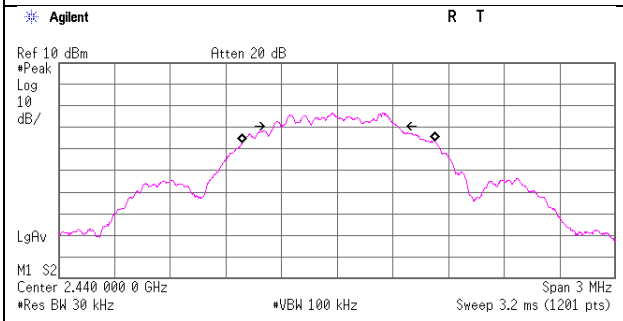


Occupied Bandwidth
1.0387 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 7.467 kHz
x dB Bandwidth 663.667 kHz

2440 MHz

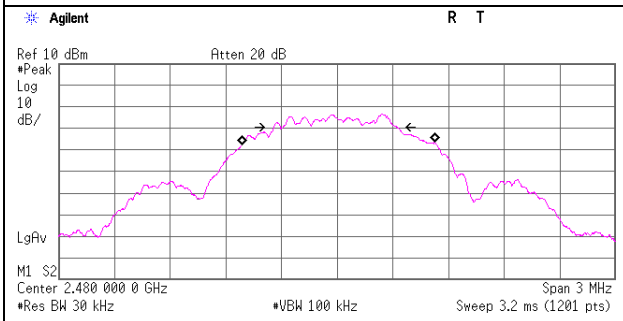


Occupied Bandwidth
1.0384 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 7.696 kHz
x dB Bandwidth 665.927 kHz

2480 MHz



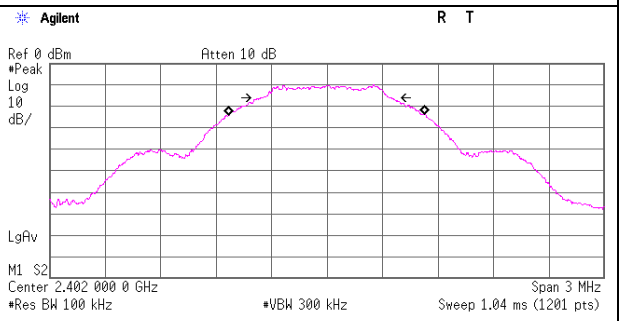
Occupied Bandwidth
1.0389 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 7.335 kHz
x dB Bandwidth 665.167 kHz

6 dB Bandwidth

2402 MHz

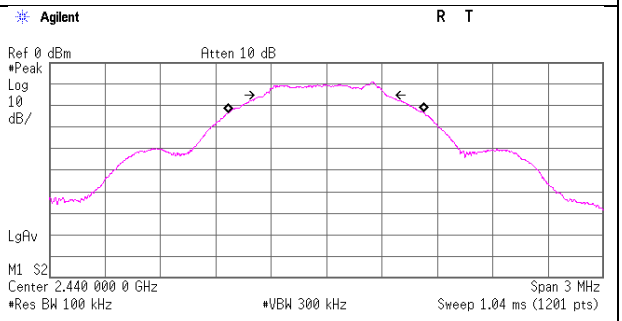


Occupied Bandwidth
1.0557 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -3.059 kHz
x dB Bandwidth 710.402 kHz

2440 MHz

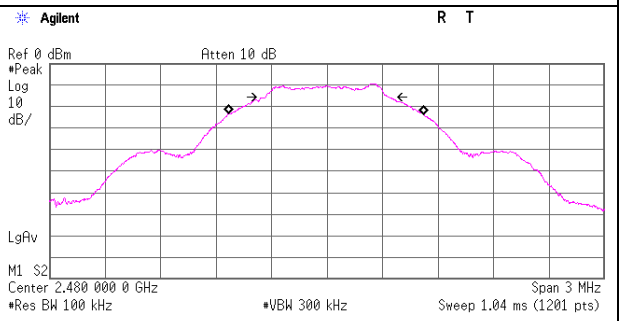


Occupied Bandwidth
1.0567 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -3.198 kHz
x dB Bandwidth 662.660 kHz

2480 MHz



Occupied Bandwidth
1.0534 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

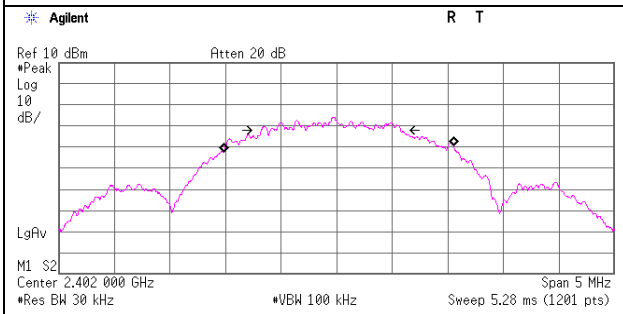
Transmit Freq Error -3.272 kHz
x dB Bandwidth 660.508 kHz

99 % Occupied Bandwidth and 6 dB Bandwidth
(BT2)

BT LE 2M

99 % Occupied Bandwidth

2402 MHz

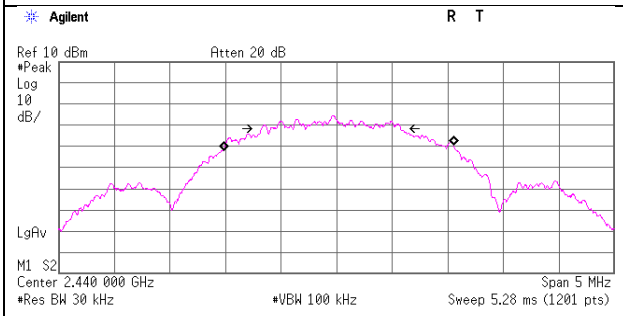


Occupied Bandwidth
2.0722 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 17.604 kHz
x dB Bandwidth 1.253 MHz

2440 MHz

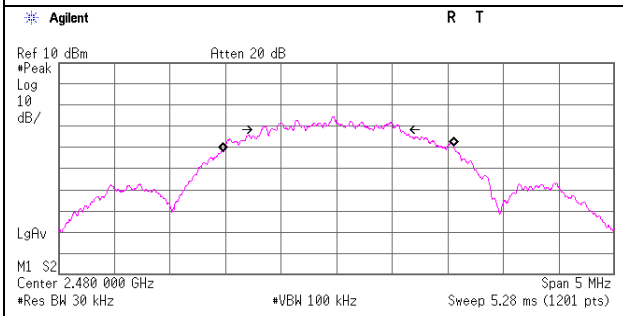


Occupied Bandwidth
2.0691 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 18.141 kHz
x dB Bandwidth 1.250 MHz

2480 MHz



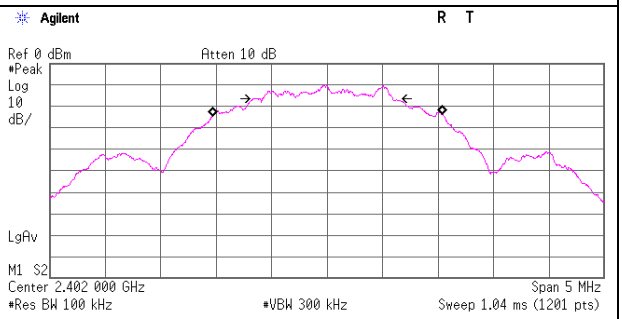
Occupied Bandwidth
2.0726 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 17.403 kHz
x dB Bandwidth 1.248 MHz

6 dB Bandwidth

2402 MHz

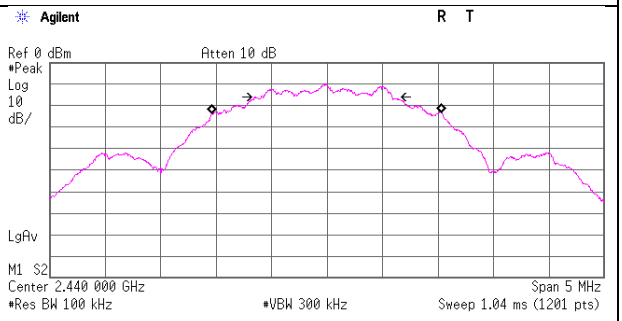


Occupied Bandwidth
2.0733 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 2.036 kHz
x dB Bandwidth 1.202 MHz

2440 MHz

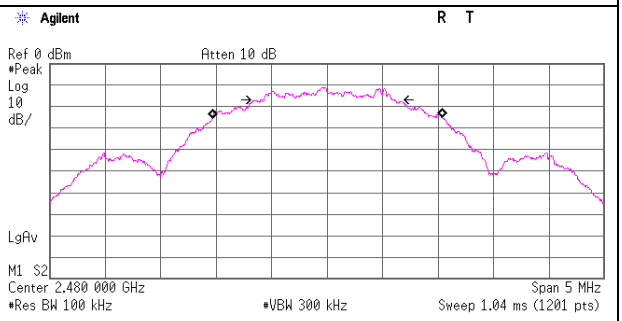


Occupied Bandwidth
2.0698 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -682.736 Hz
x dB Bandwidth 1.182 MHz

2480 MHz



Occupied Bandwidth
2.0748 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 2.539 kHz
x dB Bandwidth 1.210 MHz

Maximum Peak Output Power

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	January 23, 2024	January 24, 2024
Temperature / Humidity	23 deg. C / 40 % RH	22 deg. C / 39 % RH
Engineer	Tetsuro Yoshida	Tetsuro Yoshida
Mode	Tx 11b	

Antenna 1 + Antenna 2

Freq.	Antenna 1 Result	Antenna 2 Result	Conducted Power Result		Conducted Power Limit		Conducted Power Margin	e.i.r.p. for RSS-247 Antenna Gain	e.i.r.p. Result		e.i.r.p. Limit		e.i.r.p. Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	15.00	16.79	15.02	31.78	28.99	792	13.97	7.01	22.03	159.68	36.02	4000.00	13.99
2437	15.52	17.38	***15.17***	***32.90***	28.99	792	13.82	7.01	***22.18***	***165.29***	36.02	4000.00	13.84
2462	14.96	16.41	14.96	31.37	28.99	792	14.02	7.01	21.98	157.59	36.02	4000.00	14.05

Sample Calculation:
Result = Antenna 1 + Antenna 2
e.i.r.p. Result = Conducted Power Result + Antenna Gain
*The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna 1

Freq.	Reading	Cable Loss	Atten. Loss	Result	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	1.23	0.50	10.03	11.76	15.00
2437	1.38	0.50	10.03	***11.91***	***15.52***
2462	1.22	0.50	10.03	11.75	14.96

Antenna 2

Freq.	Reading	Cable Loss	Atten. Loss	Result	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	1.72	0.50	10.03	12.25	16.79
2437	1.87	0.50	10.03	***12.40***	***17.38***
2462	1.62	0.50	10.03	12.15	16.41

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

2437 MHz

Rate	Antenna 1 Reading Peak		Antenna 2 Reading Peak		Total Reading Power		Remark
[Mbps]	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
1	1.38	1.37	1.87	1.54	4.64	2.91	*
2	1.33	1.36	1.86	1.53	4.61	2.89	
5.5	1.32	1.36	1.86	1.53	4.61	2.89	
11	1.31	1.35	1.81	1.52	4.58	2.87	

*Worst Rate
All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	January 23, 2024	January 24, 2024
Temperature / Humidity	23 deg. C / 40 % RH	22 deg. C / 39 % RH
Engineer	Tetsuro Yoshida	Tetsuro Yoshida
Mode	Tx 11g	

Antenna 1 + Antenna 2

Freq.	Antenna 1 Result	Antenna 2 Result	Conducted Power Result		Conducted Power Limit		Conducted Power Margin	e.i.r.p. for RSS-247 Antenna Gain	e.i.r.p. Result		e.i.r.p. Limit		e.i.r.p. Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	148.94	160.69	24.91	309.63	28.99	792	4.08	7.01	31.92	1555.51	36.02	4000.00	4.10
2437	156.68	162.18	***25.04***	***318.86***	28.99	792	3.95	7.01	***32.05***	***1601.86***	36.02	4000.00	3.97
2462	148.25	159.22	24.88	307.47	28.99	792	4.11	7.01	31.89	1544.67	36.02	4000.00	4.13

Sample Calculation:
Result = Antenna 1 + Antenna 2
e.i.r.p. Result = Conducted Power Result + Antenna Gain
*The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna 1

Freq.	Reading	Cable Loss	Atten. Loss	Result	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	1.36	0.50	19.87	21.73	148.94
2437	1.58	0.50	19.87	***21.95***	***156.68***
2462	1.34	0.50	19.87	21.71	148.25

Antenna 2

Freq.	Reading	Cable Loss	Atten. Loss	Result	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	1.69	0.50	19.87	22.06	160.69
2437	1.73	0.50	19.87	***22.10***	***162.18***
2462	1.65	0.50	19.87	22.02	159.22

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

2437 MHz

Rate	Antenna 1 Reading Peak		Antenna 2 Reading Peak		Total Reading Power		Remark
[Mbps]	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
6	1.58	1.44	1.73	1.49	4.67	2.93	*
9	0.85	1.22	1.58	1.44	4.24	2.65	
12	0.54	1.13	0.79	1.20	3.68	2.33	
18	0.74	1.19	1.62	1.45	4.21	2.64	
24	0.58	1.14	1.35	1.36	3.99	2.51	
36	0.27	1.06	0.76	1.19	3.53	2.26	
48	0.23	1.05	1.13	1.30	3.71	2.35	
54	0.07	1.02	1.48	1.41	3.84	2.42	

*Worst Rate
All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	January 23, 2024	January 24, 2024
Temperature / Humidity	23 deg. C / 40 % RH	22 deg. C / 38 % RH
Engineer	Tetsuro Yoshida	Tetsuro Yoshida
Mode	Tx 11n-20	

Antenna 1 + Antenna 2

Freq.	Antenna 1 Result	Antenna 2 Result	Conducted Power Result		Conducted Power Limit		Conducted Power Margin	e.i.r.p. for RSS-247 Antenna Gain	e.i.r.p. Result		e.i.r.p. Limit		e.i.r.p. Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	155.24	155.24	24.92	310.48	28.99	792	4.07	7.01	31.93	1559.77	36.02	4000.00	4.09
2437	160.32	172.58	***25.22***	***332.91***	28.99	792	3.77	7.01	***32.23***	***1672.46***	36.02	4000.00	3.79
2462	156.31	156.31	24.95	312.63	28.99	792	4.04	7.01	31.96	1570.58	36.02	4000.00	4.06

Sample Calculation:
Result = Antenna 1 + Antenna 2
e.i.r.p. Result = Conducted Power Result + Antenna Gain
*The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna 1

Freq.	Reading	Cable Loss	Atten. Loss	Result	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	1.54	0.50	19.87	21.91	155.24
2437	1.68	0.50	19.87	***22.05***	***160.32***
2462	1.57	0.50	19.87	21.94	156.31

Antenna 2

Freq.	Reading	Cable Loss	Atten. Loss	Result	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	1.54	0.50	19.87	21.91	155.24
2437	2.00	0.50	19.87	***22.37***	***172.58***
2462	1.57	0.50	19.87	21.94	156.31

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

2437 MHz

MCS Number	Antenna 1 Reading Peak		Antenna 2 Reading Peak		Total Reading Power		Remark
	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
0	1.68	1.47	2.00	1.58	4.85	3.06	*
1	1.09	1.29	1.96	1.57	4.56	2.86	
2	0.74	1.19	1.25	1.33	4.01	2.52	
3	0.58	1.14	1.49	1.41	4.07	2.55	
4	0.69	1.17	1.52	1.42	4.14	2.59	
5	0.48	1.12	1.94	1.56	4.28	2.68	
6	0.37	1.09	1.21	1.32	3.82	2.41	
7	0.44	1.11	1.68	1.47	4.11	2.58	
8	0.66	1.16	1.67	1.47	4.20	2.63	
9	0.27	1.06	1.59	1.44	3.99	2.51	
10	0.69	1.17	1.92	1.56	4.36	2.73	
11	0.81	1.21	1.29	1.35	4.07	2.55	
12	0.61	1.15	1.42	1.39	4.04	2.54	
13	1.07	1.28	1.34	1.36	4.22	2.64	
14	0.68	1.17	0.92	1.24	3.81	2.41	
15	0.91	1.23	1.69	1.48	4.33	2.71	

*Worst MCS
All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place	Ise EMC Lab. No.8 Measurement Room	
Date	January 23, 2024	January 24, 2024
Temperature / Humidity	23 deg. C / 40 % RH	22 deg. C / 39 % RH
Engineer	Tetsuro Yoshida	Tetsuro Yoshida
Mode	Tx 11be-20 [OFDM]	

Antenna 1 + Antenna 2

Freq.	Antenna 1 Result	Antenna 2 Result	Conducted Power Result		Conducted Power Limit		Conducted Power Margin	e.i.r.p. for RSS-247 Antenna Gain	e.i.r.p. Result		e.i.r.p. Limit		e.i.r.p. Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	158.12	157.40	24.99	315.52	28.99	792	4.00	7.01	32.00	1585.12	36.02	4000.00	4.02
2437	164.06	172.98	***25.28***	***337.04***	28.99	792	3.71	7.01	***32.29***	***1693.22***	36.02	4000.00	3.73
2462	159.22	156.31	24.99	315.54	28.99	792	4.00	7.01	32.00	1585.18	36.02	4000.00	4.02

Sample Calculation:
Result = Antenna 1 + Antenna 2
e.i.r.p. Result = Conducted Power Result + Antenna Gain
*The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna 1

Freq.	Reading	Cable Loss	Atten. Loss	Result	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	1.62	0.50	19.87	21.99	158.12
2437	1.78	0.50	19.87	***22.15***	***164.06***
2462	1.65	0.50	19.87	22.02	159.22

Antenna 2

Freq.	Reading	Cable Loss	Atten. Loss	Result	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	1.60	0.50	19.87	21.97	157.40
2437	2.01	0.50	19.87	***22.38***	***172.98***
2462	1.57	0.50	19.87	21.94	156.31

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

11be-20 2437 MHz

Mode	MCS Number	Antenna 1 Reading Peak		Antenna 2 Reading Peak		Total Reading Power		Remark
		[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
1TX	0	1.75	1.50	2.28	1.69	5.03	3.19	*
	1	1.42	1.39	2.02	1.59	4.74	2.98	
	2	1.31	1.35	2.25	1.68	4.82	3.03	
	3	1.42	1.39	2.13	1.63	4.80	3.02	
	4	1.34	1.36	2.03	1.60	4.71	2.96	
	5	1.52	1.42	2.11	1.63	4.84	3.04	
	6	1.70	1.48	2.16	1.64	4.95	3.12	
	7	1.25	1.33	1.78	1.51	4.53	2.84	
	8	1.34	1.36	1.85	1.53	4.61	2.89	
	9	1.36	1.37	1.48	1.41	4.43	2.77	
	10	0.78	1.20	1.22	1.32	4.02	2.52	
	11	1.33	1.36	1.31	1.35	4.33	2.71	
	12	0.57	1.14	1.46	1.40	4.05	2.54	
	13	0.59	1.15	1.31	1.35	3.98	2.50	
2TX	0	1.65	1.46	2.14	1.64	4.91	3.10	
	1	1.28	1.34	2.01	1.59	4.67	2.93	
	2	0.97	1.25	2.08	1.61	4.57	2.86	
	3	1.31	1.35	2.05	1.60	4.71	2.96	
	4	1.63	1.46	1.45	1.40	4.55	2.85	
	5	1.13	1.30	1.79	1.51	4.48	2.81	
	6	1.05	1.27	1.78	1.51	4.44	2.78	
	7	1.43	1.39	1.50	1.41	4.48	2.80	
	8	1.20	1.32	1.80	1.51	4.52	2.83	
	9	1.35	1.36	1.72	1.49	4.55	2.85	
	10	1.23	1.33	1.23	1.33	4.24	2.65	
	11	1.29	1.35	1.62	1.45	4.47	2.80	
	12	1.12	1.29	1.24	1.33	4.19	2.62	
	13	0.62	1.15	1.31	1.35	3.99	2.51	

*Worst MCS
All comparison were carried out on same frequency and measurement factors.

11ax-20 2437 MHz

Mode	MCS Number	Antenna 1 Reading Peak		Antenna 2 Reading Peak		Total Reading Power		Remark
		[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
1TX	0	1.49	1.41	2.09	1.62	4.81	3.03	
	1	1.38	1.37	1.72	1.49	4.56	2.86	
	2	1.36	1.37	2.01	1.59	4.71	2.96	
	3	0.86	1.22	1.61	1.45	4.26	2.67	
	4	1.11	1.29	1.64	1.46	4.39	2.75	
	5	1.13	1.30	1.68	1.47	4.42	2.77	
	6	1.08	1.28	1.76	1.50	4.44	2.78	
	7	1.24	1.33	2.08	1.61	4.69	2.94	
	8	1.34	1.36	1.82	1.52	4.60	2.88	
	9	1.27	1.34	1.62	1.45	4.46	2.79	
	10	0.78	1.20	1.17	1.31	3.99	2.51	
	11	1.28	1.34	1.30	1.35	4.30	2.69	
2TX	0	1.36	1.37	1.69	1.48	4.54	2.84	
	1	1.02	1.26	1.68	1.47	4.37	2.74	
	2	0.88	1.22	1.57	1.44	4.25	2.66	
	3	1.38	1.37	1.62	1.45	4.51	2.83	
	4	1.17	1.31	1.61	1.45	4.41	2.76	
	5	1.26	1.34	1.65	1.46	4.47	2.80	
	6	1.06	1.28	2.02	1.59	4.58	2.87	
	7	1.13	1.30	1.75	1.50	4.46	2.79	
	8	1.25	1.33	1.99	1.58	4.65	2.91	
	9	1.21	1.32	1.58	1.44	4.41	2.76	
	10	0.78	1.20	1.28	1.34	4.05	2.54	
	11	1.20	1.32	1.38	1.37	4.30	2.69	

*Worst MCS
All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [26-tone RU]

Antenna 1 + Antenna 2

Freq.	RU Type	RU Index	Antenna 1 Result	Antenna 2 Result	Conducted Power					e.i.r.p.					
					Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]			[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	26-tone RU	0	20.14	29.31	16.94	49.45	28.99	792	12.05	7.01	23.95	248.41	36.02	4000.00	12.07
2437		4	23.99	28.44	17.20	52.43	28.99	792	11.79	7.01	24.21	263.41	36.02	4000.00	11.81
2462		8	25.47	27.93	***17.27***	***53.39***	28.99	792	11.71	7.01	***24.29***	268.24	36.02	4000.00	11.74

Sample Calculation:
Result = Antenna 1 + Antenna 2
e.i.r.p. Result = Conducted Power Result + Antenna Gain
*The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna 1

Freq.	RU Type	RU Index	Reading	Cable Loss	Atten. Loss	Result	
[MHz]			[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	26-tone RU	0	2.51	0.50	10.03	13.04	20.14
2437		4	3.27	0.50	10.03	13.80	23.99
2462		8	3.53	0.50	10.03	***14.06***	***25.47***

Antenna 2

Freq.	RU Type	RU Index	Reading	Cable Loss	Atten. Loss	Result	
[MHz]			[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	26-tone RU	0	4.14	0.50	10.03	***14.67***	***29.31***
2437		4	4.01	0.50	10.03	14.54	28.44
2462		8	3.93	0.50	10.03	14.46	27.93

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

Maximum Peak Output Power

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [52-tone RU]

Antenna 1 + Antenna 2

					Conducted Power					e.i.r.p.					
Freq.	RU Type	RU Index	Antenna 1 Result	Antenna 2 Result	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]			[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	52-tone RU	37	39.81	55.85	19.81	95.66	28.99	792	9.18	7.01	26.82	480.56	36.02	4000.00	9.20
2437		38	48.19	47.21	19.80	95.40	28.99	792	9.19	7.01	26.81	479.27	36.02	4000.00	9.21
2462		40	51.76	55.59	***20.31***	***107.35***	28.99	792	8.68	7.01	***27.32***	***539.31***	36.02	4000.00	8.70

Sample Calculation:
Result = Antenna 1 + Antenna 2
e.i.r.p. Result = Conducted Power Result + Antenna Gain
*The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna 1

Freq.	RU Type	RU Index	Reading	Cable Loss	Atten. Loss	Result	
[MHz]			[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	52-tone RU	37	5.47	0.50	10.03	16.00	39.81
2437		38	6.30	0.50	10.03	16.83	48.19
2462		40	6.61	0.50	10.03	***17.14***	***51.76***

Antenna 2

Freq.	RU Type	RU Index	Reading	Cable Loss	Atten. Loss	Result	
[MHz]			[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	52-tone RU	37	6.94	0.50	10.03	***17.47***	***55.85***
2437		38	6.21	0.50	10.03	16.74	47.21
2462		40	6.92	0.50	10.03	17.45	55.59

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

Maximum Peak Output Power

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [106-tone RU]

Antenna 1 + Antenna 2

					Conducted Power					e.i.r.p.					
Freq.	RU Type	RU Index	Antenna 1 Result	Antenna 2 Result	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]			[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	106-tone RU	53	72.11	79.80	21.82	151.91	28.99	792	7.17	7.01	28.83	763.16	36.02	4000.00	7.19
2437		53	77.62	87.10	***22.17***	***164.72***	28.99	792	6.82	7.01	***29.18***	***827.52***	36.02	4000.00	6.84
2462		54	70.47	78.70	21.74	149.17	28.99	792	7.25	7.01	28.75	749.42	36.02	4000.00	7.27

Sample Calculation:
Result = Antenna 1 + Antenna 2
e.i.r.p. Result = Conducted Power Result + Antenna Gain
*The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna 1

Freq.	RU Type	RU Index	Reading	Cable Loss	Atten. Loss	Result	
[MHz]			[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	106-tone RU	53	-1.79	0.50	19.87	18.58	72.11
2437		53	-1.47	0.50	19.87	***18.90***	***77.62***
2462		54	-1.89	0.50	19.87	18.48	70.47

Antenna 2

Freq.	RU Type	RU Index	Reading	Cable Loss	Atten. Loss	Result	
[MHz]			[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	106-tone RU	53	-1.35	0.50	19.87	19.02	79.80
2437		53	-0.97	0.50	19.87	***19.40***	***87.10***
2462		54	-1.41	0.50	19.87	18.96	78.70

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

Maximum Peak Output Power

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [242-tone RU]

Antenna 1 + Antenna 2

					Conducted Power					e.i.r.p.					
Freq.	RU Type	RU Index	Antenna 1 Result	Antenna 2 Result	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]			[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	242-tone RU	61	139.96	128.53	24.29	268.49	28.99	792	4.70	7.01	31.30	1348.82	36.02	4000.00	4.72
2437		61	128.23	151.71	***24.47***	***279.94***	28.99	792	4.52	7.01	***31.48***	***1406.35***	36.02	4000.00	4.54
2462		61	118.03	143.55	24.18	261.58	28.99	792	4.81	7.01	31.19	1314.12	36.02	4000.00	4.83

Sample Calculation:
Result = Antenna 1 + Antenna 2
e.i.r.p. Result = Conducted Power Result + Antenna Gain
*The conducted power limit was reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna 1

Freq.	RU Type	RU Index	Reading	Cable Loss	Atten. Loss	Result	
[MHz]			[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	242-tone RU	61	1.09	0.50	19.87	***21.46***	***139.96***
2437		61	0.71	0.50	19.87	21.08	128.23
2462		61	0.35	0.50	19.87	20.72	118.03

Antenna 2

Freq.	RU Type	RU Index	Reading	Cable Loss	Atten. Loss	Result	
[MHz]			[dBm]	[dB]	[dB]	[dBm]	[mW]
2412	242-tone RU	61	0.72	0.50	19.87	21.09	128.53
2437		61	1.44	0.50	19.87	***21.81***	***151.71***
2462		61	1.20	0.50	19.87	21.57	143.55

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

Maximum Peak Output Power

Test place	Ise EMC Lab. No.8 Measurement Room
Date	February 22, 2024
Temperature / Humidity	22 deg. C / 46 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE

BT1

Mode	Freq.	Reading	Cable Loss	Atten. Loss	Conducted Power Result		Conducted Power Limit		Conducted Power Margin	e.i.r.p. for RSS-247 Antenna Gain	e.i.r.p. Result		e.i.r.p. Limit		e.i.r.p. Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
1M-PHY	2402	-8.53	0.50	10.10	2.07	1.61	30.00	1000	27.93	4.00	6.07	4.05	36.02	4000	29.95
	2440	-8.51	0.50	10.10	2.09	1.62	30.00	1000	27.91	4.00	6.09	4.06	36.02	4000	29.93
	2480	-8.03	0.50	10.10	2.57	1.81	30.00	1000	27.43	4.00	6.57	4.54	36.02	4000	29.45
2M-PHY	2402	-8.53	0.50	10.10	2.07	1.61	30.00	1000	27.93	4.00	6.07	4.05	36.02	4000	29.95
	2440	-8.50	0.50	10.10	2.10	1.62	30.00	1000	27.90	4.00	6.10	4.07	36.02	4000	29.92
	2480	-8.02	0.50	10.10	***2.58***	***1.81***	30.00	1000	27.42	4.00	***6.58***	***4.55***	36.02	4000	29.44

BT2

Mode	Freq.	Reading	Cable Loss	Atten. Loss	Conducted Power Result		Conducted Power Limit		Conducted Power Margin	e.i.r.p. for RSS-247 Antenna Gain	e.i.r.p. Result		e.i.r.p. Limit		e.i.r.p. Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
1M-PHY	2402	-8.76	0.50	10.10	1.84	1.53	30.00	1000	28.16	3.50	5.34	3.42	36.02	4000	30.68
	2440	-8.59	0.50	10.10	2.01	1.59	30.00	1000	27.99	3.50	5.51	3.56	36.02	4000	30.51
	2480	-8.64	0.50	10.10	1.96	1.57	30.00	1000	28.04	3.50	5.46	3.52	36.02	4000	30.56
2M-PHY	2402	-8.75	0.50	10.10	1.85	1.53	30.00	1000	28.15	3.50	5.35	3.43	36.02	4000	30.67
	2440	-8.58	0.50	10.10	***2.02***	***1.59***	30.00	1000	27.98	3.50	***5.52***	***3.56***	36.02	4000	30.50
	2480	-8.62	0.50	10.10	1.98	1.58	30.00	1000	28.02	3.50	5.48	3.53	36.02	4000	30.54

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
e.i.r.p. Result = Conducted Power Result + Antenna Gain

Average Output Power
(Reference data for RF Exposure)

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 24, 2024
Temperature / Humidity	22 deg. C / 38 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11b

Antenna 1 + Antenna 2

Freq. [MHz]	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result (Burst average) [dBm]	[mW]
2412	8.51	9.46	12.55	17.97
2437	8.75	10.16	***12.77***	***18.91***
2462	8.69	9.38	12.57	18.07

11b **1 Mbps** Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	[mW]	Duty factor [dB]	Result (Burst power average) [dBm]	[mW]
2412	-1.27	0.50	10.03	9.26	8.43	0.04	9.30	8.51
2437	-1.15	0.50	10.03	***9.38***	***8.67***	0.04	***9.42***	***8.75***
2462	-1.18	0.50	10.03	9.35	8.61	0.04	9.39	8.69

11b **1 Mbps** Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	[mW]	Duty factor [dB]	Result (Burst power average) [dBm]	[mW]
2412	-0.81	0.50	10.03	9.72	9.38	0.04	9.76	9.46
2437	-0.50	0.50	10.03	***10.03***	***10.07***	0.04	***10.07***	***10.16***
2462	-0.85	0.50	10.03	9.68	9.29	0.04	9.72	9.38

Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data for RF Exposure)

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 24, 2024
Temperature / Humidity	22 deg. C / 38 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11g

Antenna 1 + Antenna 2

Freq. [MHz]	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result (Burst average) [dBm]	[mW]
2412	8.95	10.07	12.79	19.02
2437	9.12	10.30	***12.88***	***19.42***
2462	8.97	9.73	12.72	18.70

11g **6 Mbps** Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	[mW]	Duty factor [dB]	Result (Burst power average) [dBm]	[mW]
2412	-10.92	0.50	19.87	9.45	8.81	0.07	9.52	8.95
2437	-10.84	0.50	19.87	***9.53***	***8.97***	0.07	***9.60***	***9.12***
2462	-10.91	0.50	19.87	9.46	8.83	0.07	9.53	8.97

11g **6 Mbps** Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	[mW]	Duty factor [dB]	Result (Burst power average) [dBm]	[mW]
2412	-10.41	0.50	19.87	9.96	9.91	0.07	10.03	10.07
2437	-10.31	0.50	19.87	***10.06***	***10.14***	0.07	***10.13***	***10.30***
2462	-10.56	0.50	19.87	9.81	9.57	0.07	9.88	9.73

Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data for RF Exposure)

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 24, 2024
Temperature / Humidity	22 deg. C / 38 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11n-20

Antenna 1 + Antenna 2

Freq. [MHz]	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result (Burst average) [dBm]	[mW]
2412	8.93	10.19	12.81	19.12
2437	9.04	10.42	***12.89***	***19.46***
2462	8.99	9.79	12.74	18.79

11n-20 **MCS 0** Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	[mW]	Duty factor [dB]	Result (Burst power average) [dBm]	[mW]
2412	-10.90	0.50	19.87	9.47	8.85	0.04	9.51	8.93
2437	-10.85	0.50	19.87	***9.52***	***8.95***	0.04	***9.56***	***9.04***
2462	-10.87	0.50	19.87	9.50	8.91	0.04	9.54	8.99

11n-20 **MCS 0** Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	[mW]	Duty factor [dB]	Result (Burst power average) [dBm]	[mW]
2412	-10.33	0.50	19.87	10.04	10.09	0.04	10.08	10.19
2437	-10.23	0.50	19.87	***10.14***	***10.33***	0.04	***10.18***	***10.42***
2462	-10.50	0.50	19.87	9.87	9.71	0.04	9.91	9.79

Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data for RF Exposure)

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 24, 2024
Temperature / Humidity	22 deg. C / 38 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [OFDM]

Antenna 1 + Antenna 2

Freq. [MHz]	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result (Burst average) [dBm]	[mW]
2412	9.06	10.14	12.83	19.20
2437	9.12	10.54	***12.94***	***19.66***
2462	8.99	9.91	12.77	18.90

11be-20 **MCS 0** Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	[mW]	Duty factor [dB]	Result (Burst power average) [dBm]	[mW]
2412	-10.83	0.50	19.87	9.54	8.99	0.03	9.57	9.06
2437	-10.80	0.50	19.87	***9.57***	***9.06***	0.03	***9.60***	***9.12***
2462	-10.86	0.50	19.87	9.51	8.93	0.03	9.54	8.99

11be-20 **MCS 0** Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	[mW]	Duty factor [dB]	Result (Burst power average) [dBm]	[mW]
2412	-10.34	0.50	19.87	10.03	10.07	0.03	10.06	10.14
2437	-10.17	0.50	19.87	***10.20***	***10.47***	0.03	***10.23***	***10.54***
2462	-10.44	0.50	19.87	9.93	9.84	0.03	9.96	9.91

Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data for RF Exposure)

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [26-tone RU]

Antenna 1 + Antenna 2

Freq. [MHz]	RU Type	RU Index	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result (Burst average) [dBm]	Result (Burst average) [mW]
2412	26-tone RU	0	1.25	1.50	***4.39***	***2.75***
2437		4	1.28	1.46	4.36	2.73
2462		8	1.30	1.43	4.36	2.73

11be-20 **MCS 0** Antenna 1

Freq. [MHz]	RU Type	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2412	26-tone RU	0	-9.81	0.50	10.03	0.72	1.18	0.24	0.96	1.25
2437		4	-9.71	0.50	10.03	0.82	1.21	0.24	1.06	1.28
2462		8	-9.63	0.50	10.03	***0.90***	***1.23***	0.24	***1.14***	***1.30***

11be-20 **MCS 0** Antenna 2

Freq. [MHz]	RU Type	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2412	26-tone RU	0	-9.00	0.50	10.03	***1.53***	***1.42***	0.24	***1.77***	***1.50***
2437		4	-9.14	0.50	10.03	1.39	1.38	0.24	1.63	1.46
2462		8	-9.22	0.50	10.03	1.31	1.35	0.24	1.55	1.43

Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data for RF Exposure)

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [52-tone RU]

Antenna 1 + Antenna 2

Freq. [MHz]	RU Type	RU Index	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result (Burst average) [dBm]	Result (Burst average) [mW]
2412	52-tone RU	37	2.45	3.01	***7.37***	***5.46***
2437		38	2.52	2.92	7.36	5.44
2462		40	2.57	2.84	7.34	5.41

11be-20 **MCS 0** Antenna 1

Freq. [MHz]	RU Type	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2412	52-tone RU	37	-6.91	0.50	10.03	3.62	2.30	0.28	3.90	2.45
2437		38	-6.80	0.50	10.03	3.73	2.36	0.28	4.01	2.52
2462		40	-6.71	0.50	10.03	***3.82***	***2.41***	0.28	***4.10***	***2.57***

11be-20 **MCS 0** Antenna 2

Freq. [MHz]	RU Type	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2412	52-tone RU	37	-6.03	0.50	10.03	***4.50***	***2.82***	0.28	***4.78***	***3.01***
2437		38	-6.15	0.50	10.03	4.38	2.74	0.28	4.66	2.92
2462		40	-6.27	0.50	10.03	4.26	2.67	0.28	4.54	2.84

Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data for RF Exposure)

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [106-tone RU]

Antenna 1 + Antenna 2

Freq. [MHz]	RU Type	RU Index	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result (Burst average) [dBm]	Result (Burst average) [mW]
2412	106-tone RU	53	4.58	5.40	***9.99***	***9.98***
2437		53	4.53	5.37	9.96	9.90
2462		54	4.57	4.93	9.78	9.50

11be-20 **MCS 0** Antenna 1

Freq. [MHz]	RU Type	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2412	106-tone RU	53	-4.24	0.50	10.03	***6.29***	***4.26***	0.32	***6.61***	***4.58***
2437		53	-4.29	0.50	10.03	6.24	4.21	0.32	6.56	4.53
2462		54	-4.25	0.50	10.03	6.28	4.25	0.32	6.60	4.57

11be-20 **MCS 0** Antenna 2

Freq. [MHz]	RU Type	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2412	106-tone RU	53	-3.53	0.50	10.03	***7.00***	***5.01***	0.32	***7.32***	***5.40***
2437		53	-3.55	0.50	10.03	6.98	4.99	0.32	7.30	5.37
2462		54	-3.92	0.50	10.03	6.61	4.58	0.32	6.93	4.93

Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data for RF Exposure)

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [242-tone RU]

Antenna 1 + Antenna 2

Freq. [MHz]	RU Type	RU Index	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result (Burst average) [dBm]	Result (Burst average) [mW]
2412	242-tone RU	61	8.51	10.69	***12.83***	***19.20***
2437		61	8.75	10.45	12.83	19.20
2462		61	8.81	9.79	12.70	18.61

11be-20 **MCS 0** Antenna 1

Freq. [MHz]	RU Type	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2412	242-tone RU	61	-1.60	0.50	10.03	8.93	7.82	0.37	9.30	8.51
2437		61	-1.48	0.50	10.03	9.05	8.04	0.37	9.42	8.75
2462		61	-1.45	0.50	10.03	***9.08***	***8.09***	0.37	***9.45***	***8.81***

11be-20 **MCS 0** Antenna 2

Freq. [MHz]	RU Type	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
2412	242-tone RU	61	-0.61	0.50	10.03	***9.92***	***9.82***	0.37	***10.29***	***10.69***
2437		61	-0.71	0.50	10.03	9.82	9.59	0.37	10.19	10.45
2462		61	-0.99	0.50	10.03	9.54	8.99	0.37	9.91	9.79

Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data for RF Exposure)

Test place	Ise EMC Lab. No.8 Measurement Room
Date	February 22, 2024
Temperature / Humidity	22 deg. C / 46 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE

BT1

Freq. [MHz]	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
1M-PHY	2402	-9.68	0.50	10.10	0.92	1.24	0.68	1.60	1.45
	2440	-9.63	0.50	10.10	0.97	1.25	0.68	1.65	1.46
	2480	-9.10	0.50	10.10	***1.50***	***1.41***	0.68	2.18	1.65
2M-PHY	2402	-11.38	0.50	10.10	-0.78	0.84	2.38	1.60	1.45
	2440	-11.33	0.50	10.10	-0.73	0.85	2.38	1.65	1.46
	2480	-10.76	0.50	10.10	-0.16	0.96	2.38	***2.22***	***1.67***

BT2

Freq. [MHz]	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	Result (Time average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
1M-PHY	2402	-9.88	0.50	10.10	0.72	1.18	0.68	1.40	1.38
	2440	-9.68	0.50	10.10	***0.92***	***1.24***	0.68	1.60	1.45
	2480	-9.71	0.50	10.10	0.89	1.23	0.68	1.57	1.44
2M-PHY	2402	-11.58	0.50	10.10	-0.98	0.80	2.38	1.40	1.38
	2440	-11.36	0.50	10.10	-0.76	0.84	2.38	***1.62***	***1.45***
	2480	-11.40	0.50	10.10	-0.80	0.83	2.38	1.58	1.44

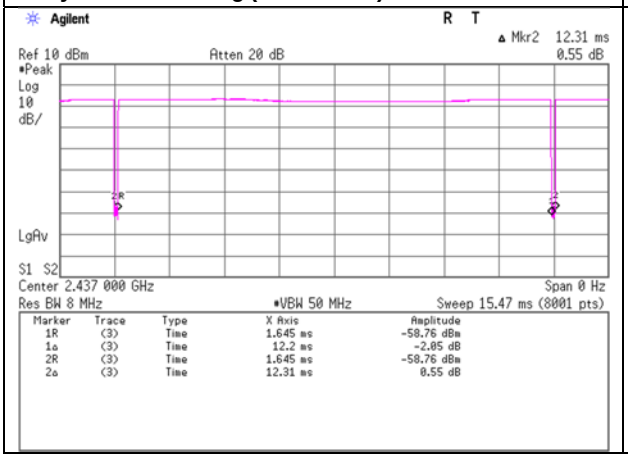
Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

Burst rate confirmation

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 23, 2024
Temperature / Humidity	23 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx

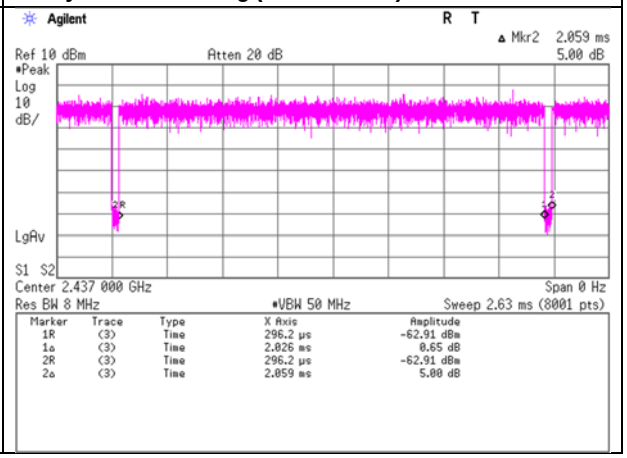
11b 1 Mbps

Tx on / (Tx on + Tx off) =	0.991
Tx on / (Tx on + Tx off) * 100 =	99.1 %
Duty factor = 10 * log (12.31 / 12.2) =	0.04 dB



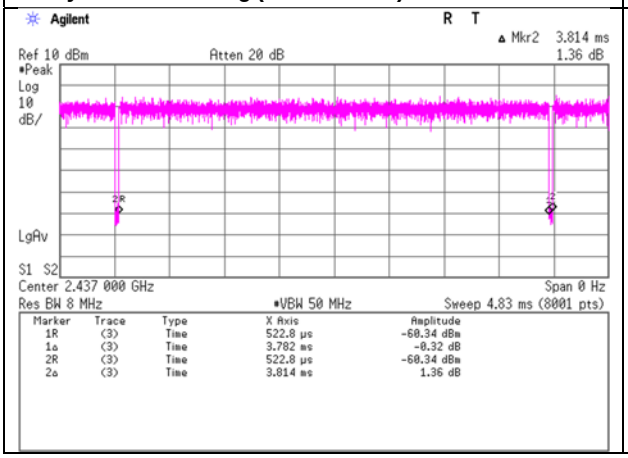
11g 6 Mbps

Tx on / (Tx on + Tx off) =	0.984
Tx on / (Tx on + Tx off) * 100 =	98.4 %
Duty factor = 10 * log (2.059 / 2.026) =	0.07 dB



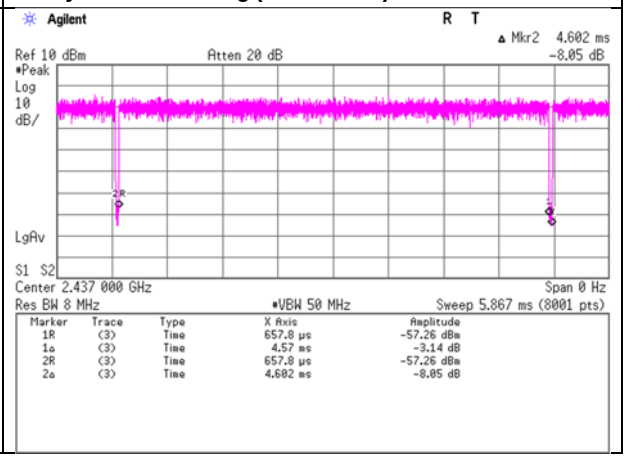
11n-20 MCS 0

Tx on / (Tx on + Tx off) =	0.992
Tx on / (Tx on + Tx off) * 100 =	99.2 %
Duty factor = 10 * log (3.814 / 3.782) =	0.04 dB



11ax-20 MCS 0

Tx on / (Tx on + Tx off) =	0.993
Tx on / (Tx on + Tx off) * 100 =	99.3 %
Duty factor = 10 * log (4.602 / 4.57) =	0.03 dB



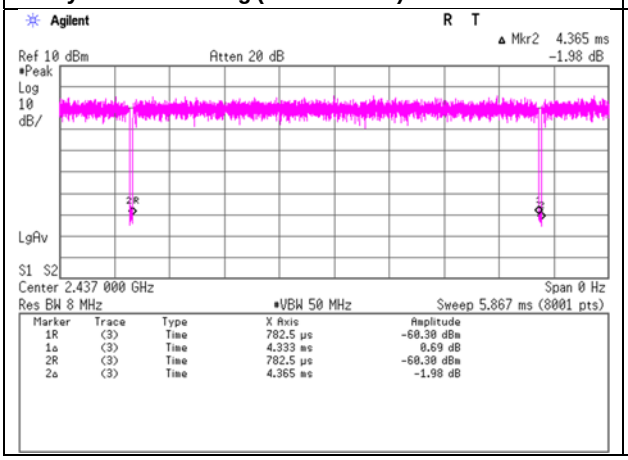
* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Burst rate confirmation

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 23, 2024
Temperature / Humidity	23 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx

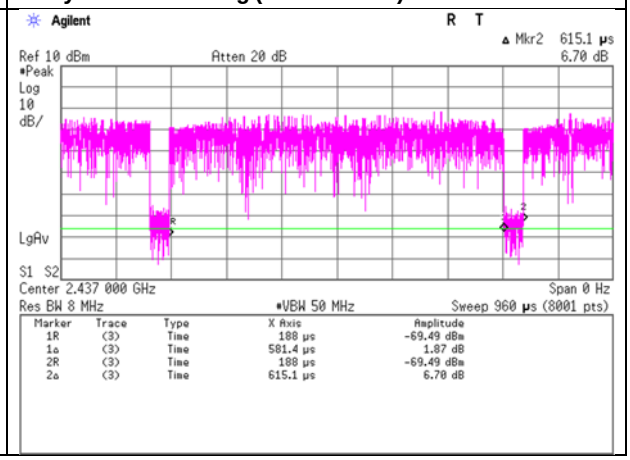
11be-20 MCS 0
OFDM

Tx on / (Tx on + Tx off) =	0.993
Tx on / (Tx on + Tx off) * 100 =	99.3 %
Duty factor = 10 * log (4.365 / 4.333) =	0.03 dB



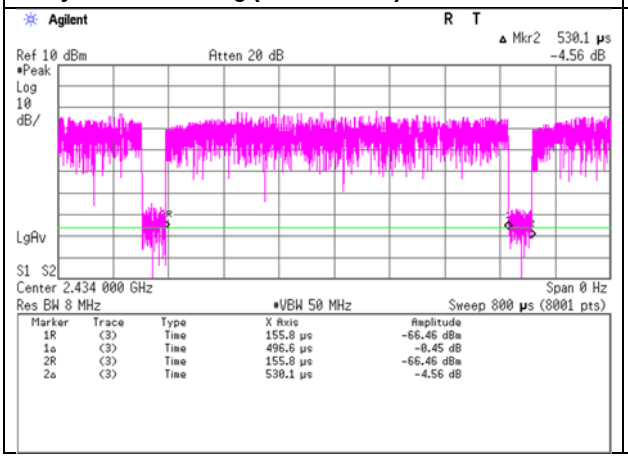
11be-20 MCS 0
26-tone RU

Tx on / (Tx on + Tx off) =	0.945
Tx on / (Tx on + Tx off) * 100 =	94.5 %
Duty factor = 10 * log (615.1 / 581.4) =	0.24 dB



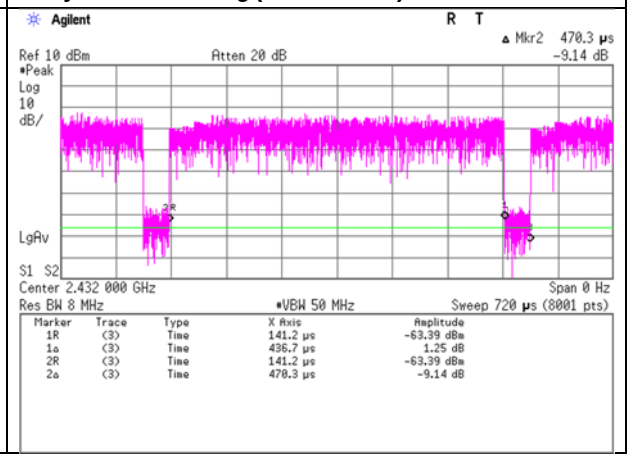
11be-20 MCS 0
52-tone RU

Tx on / (Tx on + Tx off) =	0.937
Tx on / (Tx on + Tx off) * 100 =	93.7 %
Duty factor = 10 * log (530.1 / 496.6) =	0.28 dB



11be-20 MCS 0
106-tone RU

Tx on / (Tx on + Tx off) =	0.929
Tx on / (Tx on + Tx off) * 100 =	92.9 %
Duty factor = 10 * log (470.3 / 436.7) =	0.32 dB



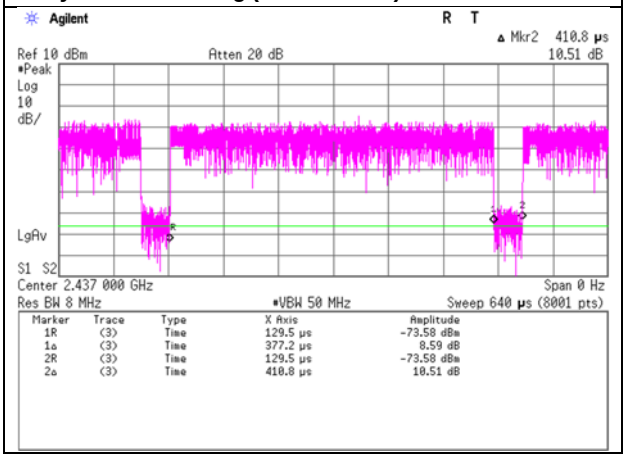
* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Burst rate confirmation

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 23, 2024
Temperature / Humidity	23 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx

11be-20 MCS 0

242-tone RU	
Tx on / (Tx on + Tx off) =	0.918
Tx on / (Tx on + Tx off) * 100 =	91.8 %
Duty factor = 10 * log (410.8 / 377.2) =	0.37 dB



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

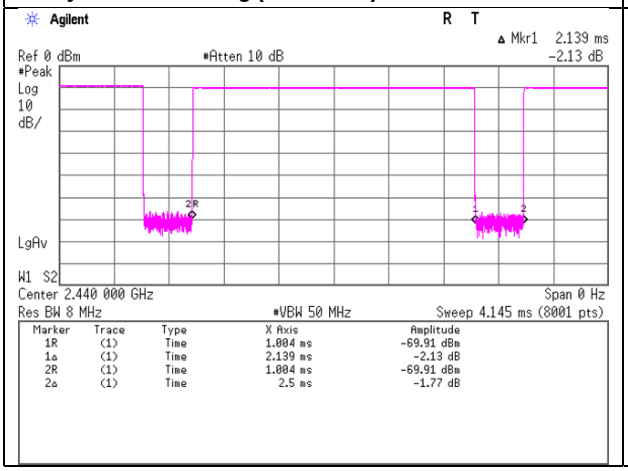
Burst rate confirmation

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx

BT1

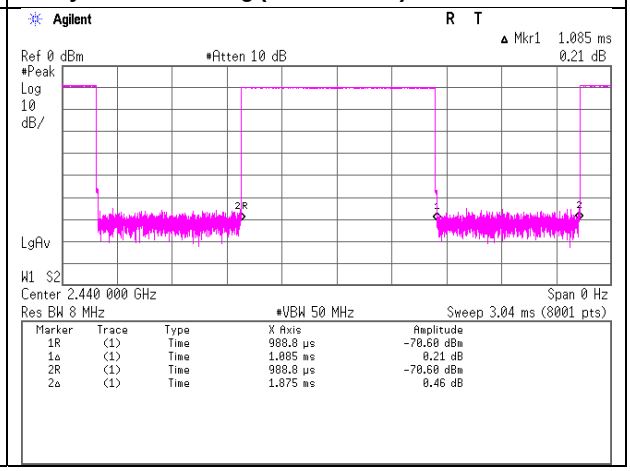
BT LE 1M 2440 MHz

Tx on / (Tx on + Tx off) =	0.856
Tx on / (Tx on + Tx off) * 100 =	85.6 %
Duty factor = 10 * log (2.5 / 2.139) =	0.68 dB



BT LE 2M 2440 MHz

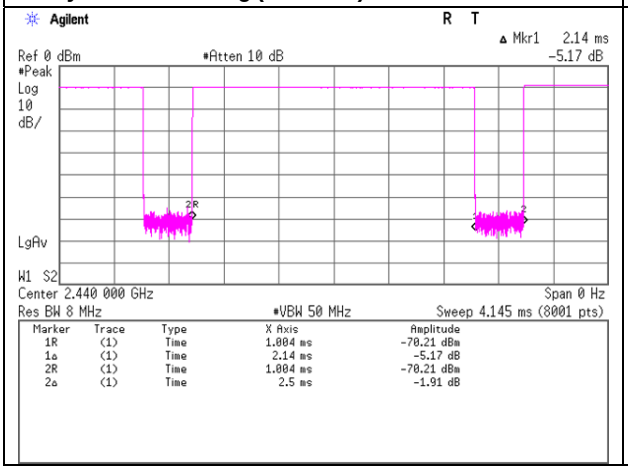
Tx on / (Tx on + Tx off) =	0.579
Tx on / (Tx on + Tx off) * 100 =	57.9 %
Duty factor = 10 * log (1.875 / 1.085) =	2.38 dB



BT2

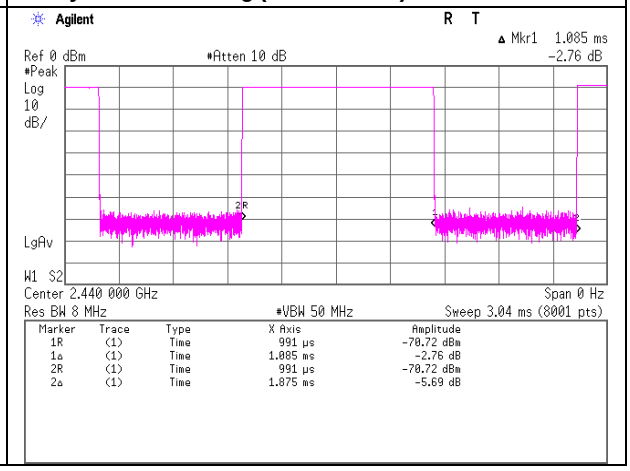
BT LE 1M 2440 MHz

Tx on / (Tx on + Tx off) =	0.856
Tx on / (Tx on + Tx off) * 100 =	85.6 %
Duty factor = 10 * log (2.5 / 2.14) =	0.68 dB



BT LE 2M 2440 MHz

Tx on / (Tx on + Tx off) =	0.579
Tx on / (Tx on + Tx off) * 100 =	57.9 %
Duty factor = 10 * log (1.875 / 1.085) =	2.38 dB



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

Radiated Spurious Emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.2	No.2
Date	January 30, 2024	February 9, 2024
Temperature / Humidity	20 deg. C / 35 % RH	22 deg. C / 45 % RH
Engineer	Takeshi Hiyaji	Tomohisa Nakagawa
	(1 GHz to 10 GHz)	(10 GHz to 26.5 GHz)
Mode	Tx 11b 2412 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2390.0	49.4	38.0	27.7	4.8	34.9	-	46.9	35.5	73.9	53.9	27.0	18.4	
Hori.	4824.0	41.2	33.5	31.6	6.9	34.1	-	45.6	37.9	73.9	53.9	28.4	16.1	Floor noise
Hori.	7236.0	42.1	34.3	35.6	8.0	34.0	-	51.7	43.9	73.9	53.9	22.2	10.0	Floor noise
Hori.	9648.0	42.1	34.6	35.8	8.6	34.7	-	51.8	44.3	73.9	53.9	22.1	9.6	Floor noise
Vert.	2390.0	50.8	35.2	27.7	4.8	34.9	-	48.3	32.7	73.9	53.9	25.6	21.2	
Vert.	4824.0	41.1	32.3	31.6	6.9	34.1	-	45.5	36.7	73.9	53.9	28.4	17.3	Floor noise
Vert.	7236.0	42.2	32.3	35.6	8.0	34.0	-	51.8	41.9	73.9	53.9	22.1	12.0	Floor noise
Vert.	9648.0	42.3	32.2	35.8	8.6	34.7	-	52.1	41.9	73.9	53.9	21.9	12.0	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

20dBc Data Sheet

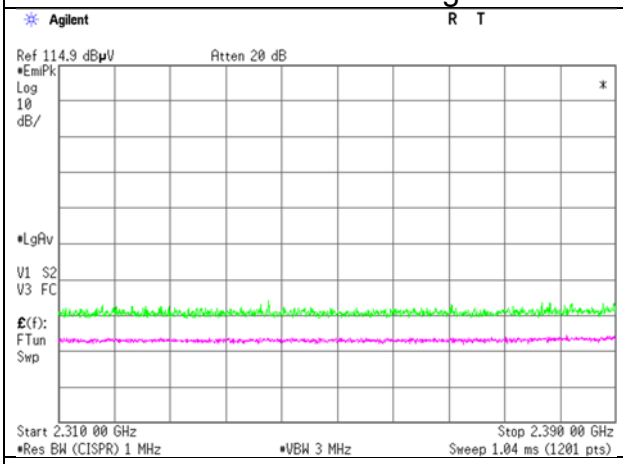
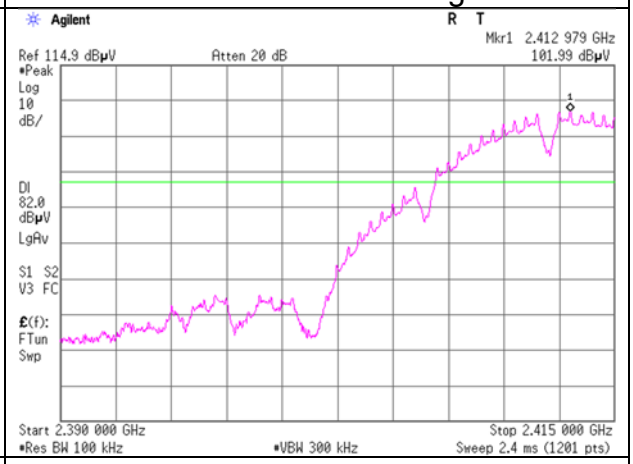
Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.0	102.0	27.6	4.8	34.9	99.5	-	-	Carrier
Hori.	2397.2	49.6	27.6	4.8	34.9	47.1	79.5	32.3	
Hori.	2400.0	49.0	27.6	4.8	34.9	46.5	79.5	33.0	
Vert.	2412.0	100.2	27.6	4.8	34.9	97.7	-	-	Carrier
Vert.	2397.2	50.3	27.6	4.8	34.9	47.8	77.7	29.9	
Vert.	2400.0	48.5	27.6	4.8	34.9	46.0	77.7	31.7	

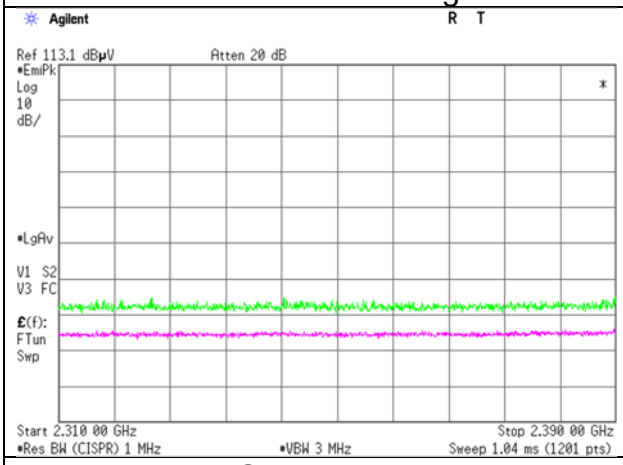
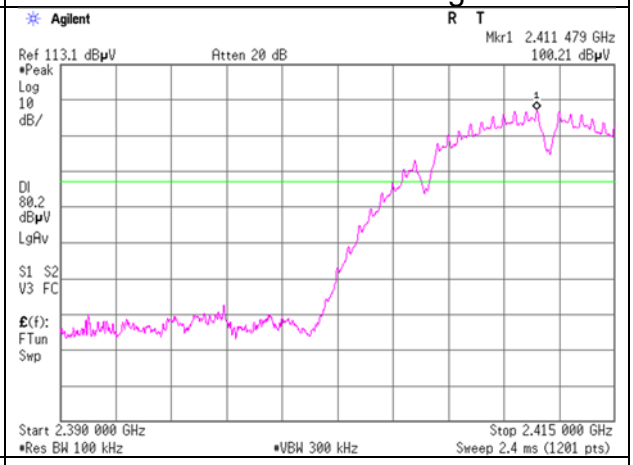
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11b 2412 MHz

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

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.2	No.2
Date	January 30, 2024	February 9, 2024
Temperature / Humidity	20 deg. C / 35 % RH	22 deg. C / 45 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)	Tomohisa Nakagawa (10 GHz to 26.5 GHz)
Mode	Tx 11b 2437 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	4874.0	42.3	33.9	31.6	6.9	34.2	-	46.6	38.3	73.9	53.9	27.3	15.6	Floor noise
Hori.	7311.0	41.8	34.0	35.6	8.0	34.1	-	51.4	43.6	73.9	53.9	22.5	10.3	Floor noise
Hori.	9748.0	42.3	33.9	36.0	8.6	34.7	-	52.3	43.9	73.9	53.9	21.7	10.0	Floor noise
Vert.	4874.0	41.2	34.1	31.6	6.9	34.2	-	45.6	38.5	73.9	53.9	28.3	15.5	Floor noise
Vert.	7311.0	42.1	34.0	35.6	8.0	34.1	-	51.6	43.6	73.9	53.9	22.3	10.3	Floor noise
Vert.	9748.0	41.7	34.0	36.0	8.6	34.7	-	51.7	43.9	73.9	53.9	22.2	10.0	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.2	No.2
Date	January 30, 2024	February 9, 2024
Temperature / Humidity	20 deg. C / 35 % RH	22 deg. C / 45 % RH
Engineer	Takeshi Hiyaji	Tomohisa Nakagawa
	(1 GHz to 10 GHz)	(10 GHz to 26.5 GHz)
Mode	Tx 11b 2462 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2483.5	46.5	38.6	27.5	4.9	34.9	-	44.0	36.1	73.9	53.9	29.9	17.8	
Hori.	4924.0	42.3	33.4	31.7	6.9	34.2	-	46.7	37.8	73.9	53.9	27.2	16.1	Floor noise
Hori.	7386.0	43.1	34.2	35.6	8.0	34.1	-	52.6	43.7	73.9	53.9	21.3	10.2	Floor noise
Hori.	9848.0	42.2	34.1	36.2	8.7	34.7	-	52.3	44.2	73.9	53.9	21.6	9.7	Floor noise
Vert.	2483.5	45.4	37.5	27.5	4.9	34.9	-	42.9	35.0	73.9	53.9	31.0	18.9	
Vert.	4924.0	41.4	33.8	31.7	6.9	34.2	-	45.8	38.2	73.9	53.9	28.2	15.7	Floor noise
Vert.	7386.0	41.9	34.0	35.6	8.0	34.1	-	51.4	43.5	73.9	53.9	22.5	10.4	Floor noise
Vert.	9848.0	42.6	33.8	36.2	8.7	34.7	-	52.7	43.9	73.9	53.9	21.2	10.0	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

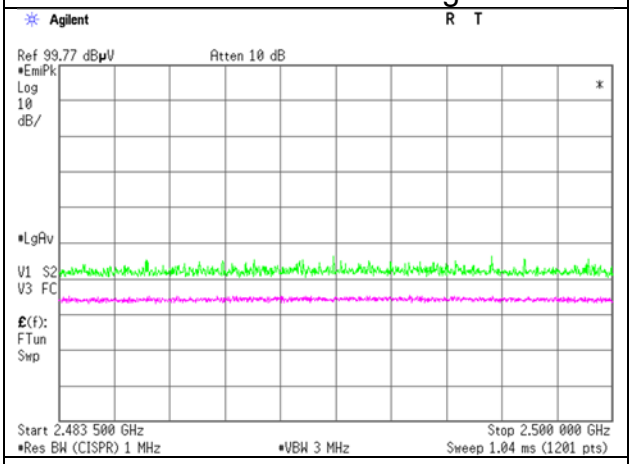
Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11b 2462 MHz

Horizontal

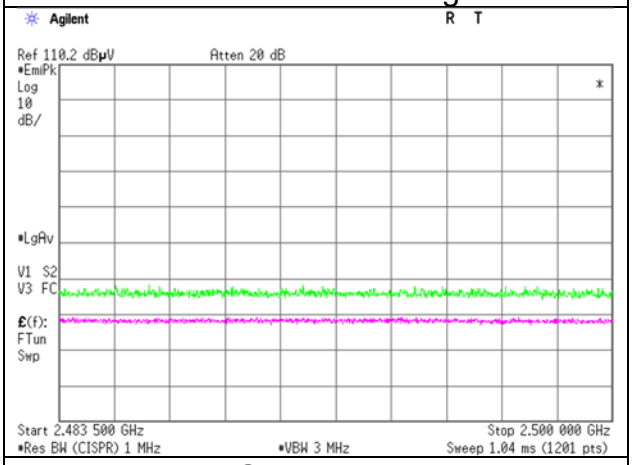
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.2	No.2
Date	January 30, 2024	February 9, 2024
Temperature / Humidity	20 deg. C / 35 % RH	22 deg. C / 45 % RH
Engineer	Takeshi Hiyaji	Tomohisa Nakagawa
	(1 GHz to 10 GHz)	(10 GHz to 26.5 GHz)
Mode	Tx 11be-20 [OFDM] 2412 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2390.0	56.1	42.1	27.7	4.8	34.9	-	53.6	39.6	73.9	53.9	20.3	14.3	
Hori.	4824.0	42.3	31.4	31.6	6.9	34.1	-	46.7	35.7	73.9	53.9	27.2	18.2	Floor noise
Hori.	7236.0	43.1	32.4	35.6	8.0	34.0	-	52.7	42.0	73.9	53.9	21.2	11.9	Floor noise
Hori.	9684.0	42.1	32.0	35.9	8.6	34.7	-	51.9	41.8	73.9	53.9	22.0	12.1	Floor noise
Vert.	2390.0	56.4	42.0	27.7	4.8	34.9	-	53.9	39.5	73.9	53.9	20.0	14.4	
Vert.	4824.0	41.7	33.7	31.6	6.9	34.1	-	46.0	38.0	73.9	53.9	27.9	15.9	Floor noise
Vert.	7236.0	42.6	34.5	35.6	8.0	34.0	-	52.2	44.2	73.9	53.9	21.7	9.8	Floor noise
Vert.	9684.0	42.4	34.2	35.9	8.6	34.7	-	52.2	44.0	73.9	53.9	21.7	9.9	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

20dBc Data Sheet

Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.0	98.1	27.6	4.8	34.9	95.6	-	-	Carrier
Hori.	2400.0	52.3	27.6	4.8	34.9	49.8	75.6	25.7	
Vert.	2412.0	96.5	27.6	4.8	34.9	94.0	-	-	Carrier
Vert.	2400.0	50.6	27.6	4.8	34.9	48.1	74.0	25.9	

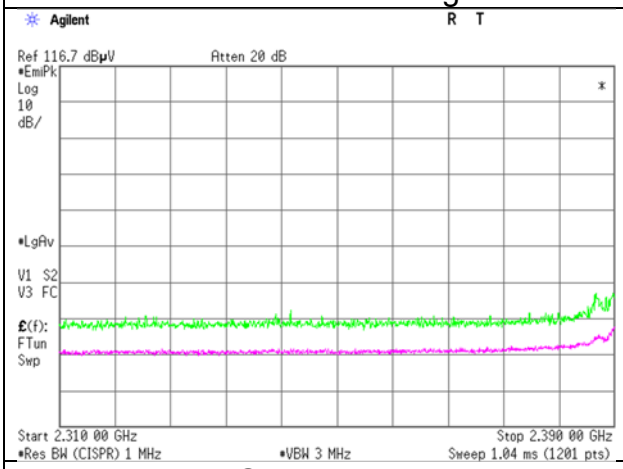
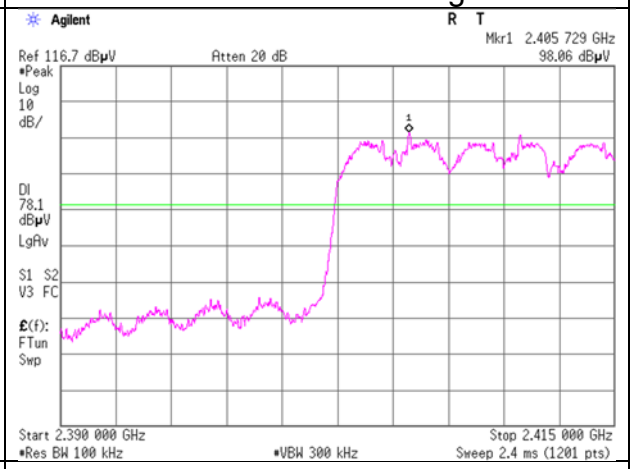
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

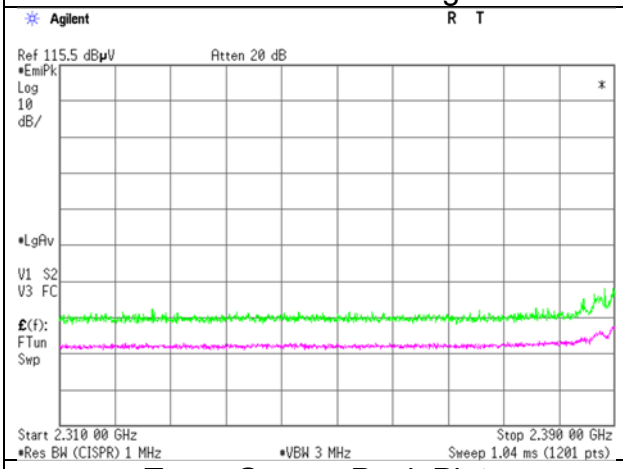
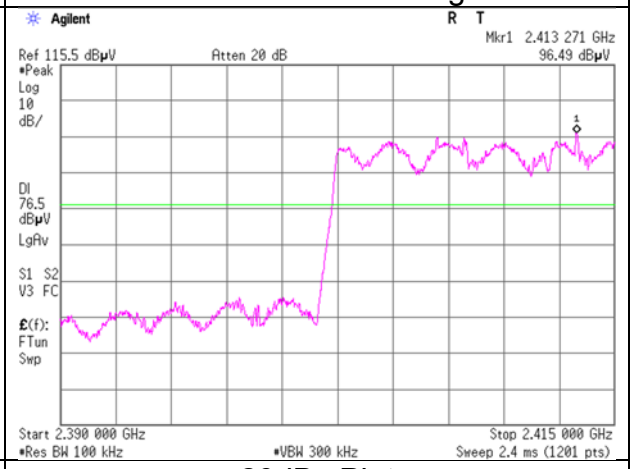
Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [OFDM] 2412 MHz

Horizontal

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

Vertical

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 7, 2024	February 9, 2024
Temperature / Humidity	20 deg. C / 35 % RH	21 deg. C / 38 % RH	22 deg. C / 45 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)	Daiki Matsui (Below 1 GHz)	Tomohisa Nakagawa (10 GHz to 26.5 GHz)
Mode	Tx 11be-20 [OFDM] 2437 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	59.6	32.3	-	7.9	7.0	28.5	-	18.7	-	40.0	-	21.3	-	
Hori.	70.0	37.0	-	6.4	7.1	28.5	-	21.9	-	40.0	-	18.1	-	
Hori.	78.8	31.0	-	6.7	7.2	28.5	-	16.4	-	40.0	-	23.6	-	
Hori.	241.8	38.4	-	11.9	8.4	27.8	-	30.9	-	46.0	-	15.1	-	
Hori.	670.3	33.7	-	19.6	10.4	29.3	-	34.4	-	46.0	-	11.7	-	
Hori.	907.2	35.6	-	22.1	11.3	28.8	-	40.1	-	46.0	-	5.9	-	
Hori.	4874.0	41.5	33.7	31.6	6.9	34.2	-	45.9	38.1	73.9	53.9	28.0	15.8	Floor noise
Hori.	7311.0	42.2	34.0	35.6	8.0	34.1	-	51.8	43.6	73.9	53.9	22.1	10.3	Floor noise
Hori.	9748.0	41.5	34.0	36.0	8.6	34.7	-	51.5	43.9	73.9	53.9	22.4	10.0	Floor noise
Vert.	59.7	44.6	-	7.9	7.0	28.5	-	31.0	-	40.0	-	9.0	-	
Vert.	70.0	40.2	-	6.4	7.1	28.5	-	25.1	-	40.0	-	14.9	-	
Vert.	78.8	43.9	-	6.7	7.2	28.5	-	29.3	-	40.0	-	10.7	-	
Vert.	241.8	35.4	-	11.9	8.4	27.8	-	27.9	-	46.0	-	18.1	-	
Vert.	670.2	33.1	-	19.6	10.4	29.3	-	33.8	-	46.0	-	12.3	-	
Vert.	907.2	30.1	-	22.1	11.3	28.8	-	34.6	-	46.0	-	11.4	-	
Vert.	4874.0	42.6	33.9	31.6	6.9	34.2	-	46.9	38.2	73.9	53.9	27.0	15.7	Floor noise
Vert.	7311.0	42.7	34.0	35.6	8.0	34.1	-	52.2	43.6	73.9	53.9	21.7	10.3	Floor noise
Vert.	9748.0	42.5	33.8	36.0	8.6	34.7	-	52.5	43.8	73.9	53.9	21.4	10.2	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz

Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.2	No.2
Date	January 30, 2024	February 9, 2024
Temperature / Humidity	20 deg. C / 35 % RH	22 deg. C / 45 % RH
Engineer	Takeshi Hiyaji	Tomohisa Nakagawa
	(1 GHz to 10 GHz)	(10 GHz to 26.5 GHz)
Mode	Tx 11be-20 [OFDM] 2462 MHz	

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2483.5	58.3	42.9	27.5	4.9	34.9	-	55.7	40.4	73.9	53.9	18.2	13.5	
Hori.	4924.0	42.3	31.6	31.7	6.9	34.2	-	46.7	36.0	73.9	53.9	27.3	17.9	Floor noise
Hori.	7386.0	42.8	32.0	35.6	8.0	34.1	-	52.3	41.5	73.9	53.9	21.7	12.4	Floor noise
Hori.	9848.0	42.2	32.0	36.2	8.7	34.7	-	52.4	42.1	73.9	53.9	21.5	11.8	Floor noise
Vert.	2483.5	56.8	43.6	27.5	4.9	34.9	-	54.3	41.1	73.9	53.9	19.6	12.8	
Vert.	4924.0	42.1	33.7	31.7	6.9	34.2	-	46.5	38.1	73.9	53.9	27.5	15.8	Floor noise
Vert.	7386.0	42.9	34.3	35.6	8.0	34.1	-	52.4	43.8	73.9	53.9	21.5	10.1	Floor noise
Vert.	9848.0	42.1	34.1	36.2	8.7	34.7	-	52.2	44.3	73.9	53.9	21.7	9.6	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

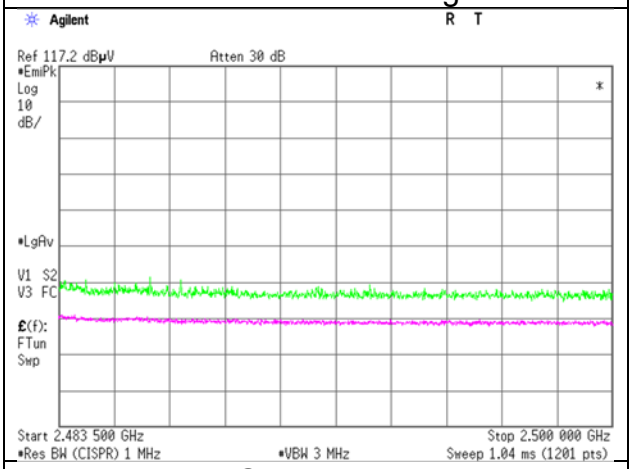
Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [OFDM] 2462 MHz

Horizontal

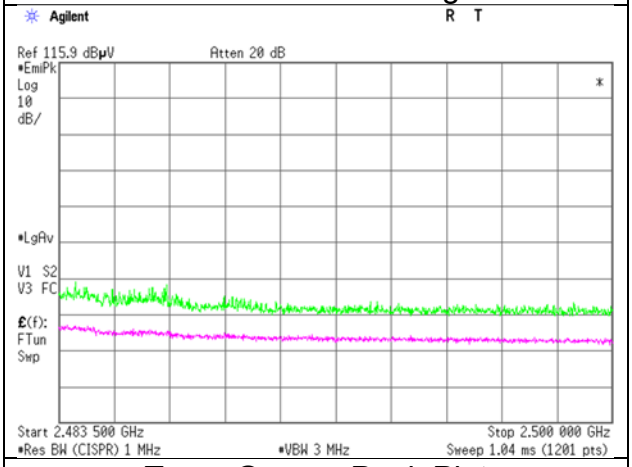
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)
Mode	Tx 11be-20 [26-tone RU/Index 0] 2412 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2390.0	50.5	35.3	27.7	4.8	34.4	0.2	48.6	33.7	73.9	53.9	25.3	20.2	*1)
Vert.	2390.0	49.4	34.0	27.7	4.8	34.4	0.2	47.5	32.3	73.9	53.9	26.4	21.6	*1)

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

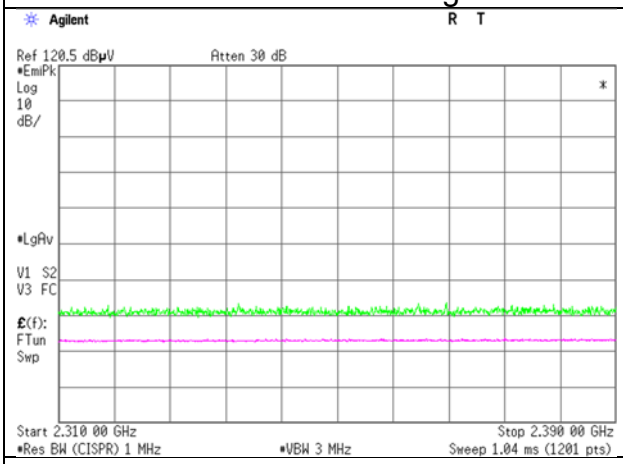
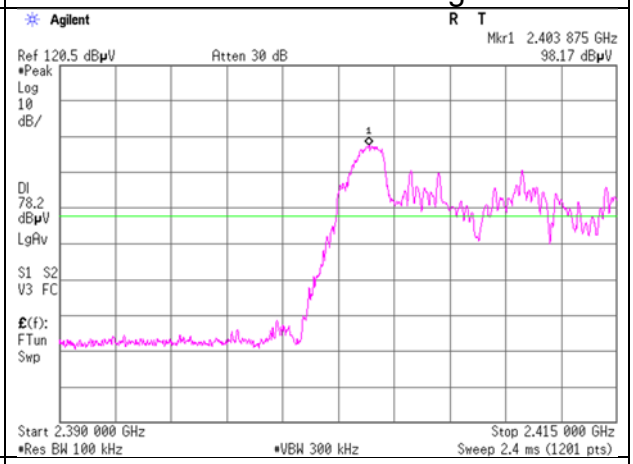
Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.0	98.2	27.6	4.9	34.4	96.3	-	-	Carrier
Hori.	2400.0	50.2	27.6	4.9	34.4	48.3	76.3	28.0	
Vert.	2412.0	94.9	27.6	4.9	34.4	93.0	-	-	Carrier
Vert.	2400.0	47.2	27.6	4.9	34.4	45.3	73.0	27.7	

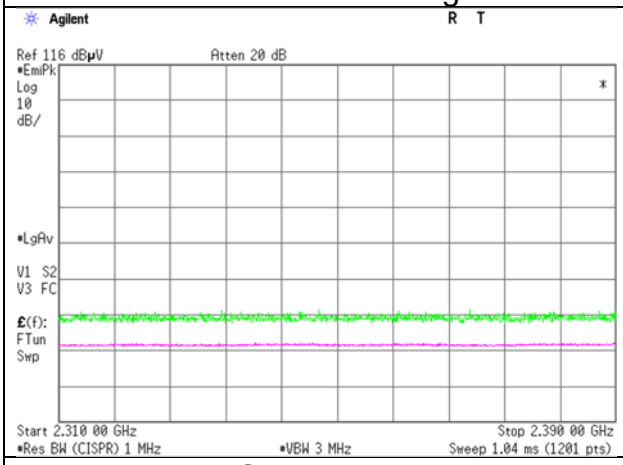
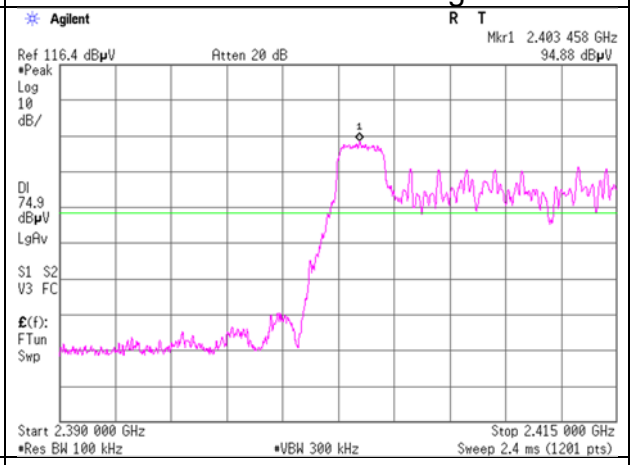
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [26-tone RU/Index 0] 2412 MHz

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

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)
Mode	Tx 11be-20 [52-tone RU/Index 37] 2412 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2390.0	50.5	34.7	27.7	4.8	34.4	0.3	48.6	33.1	73.9	53.9	25.3	20.8	*1)
Vert.	2390.0	49.3	34.6	27.7	4.8	34.4	0.3	47.4	33.0	73.9	53.9	26.5	20.9	*1)

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

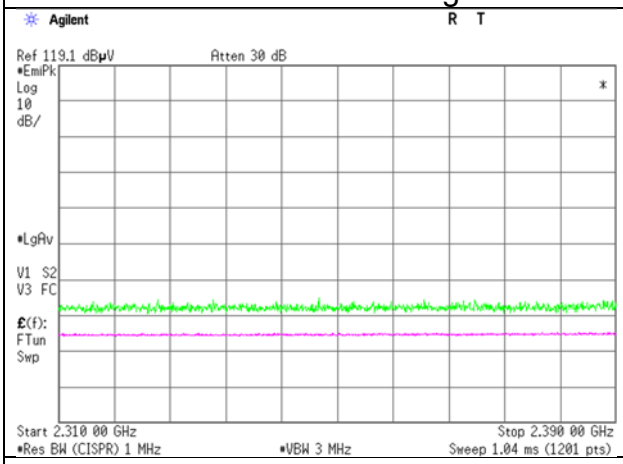
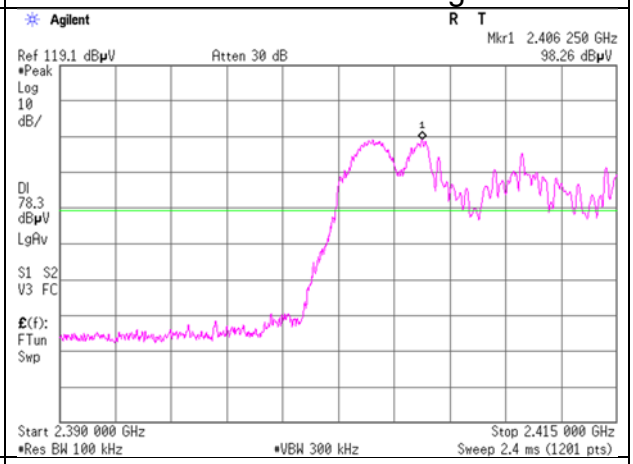
Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.0	98.3	27.6	4.9	34.4	96.4	-	-	Carrier
Hori.	2400.0	54.4	27.6	4.9	34.4	52.5	76.4	23.8	
Vert.	2412.0	95.8	27.6	4.9	34.4	93.9	-	-	Carrier
Vert.	2400.0	52.4	27.6	4.9	34.4	50.5	73.9	23.5	

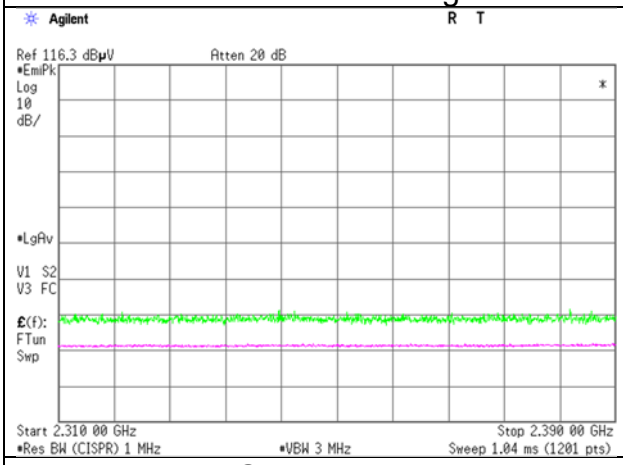
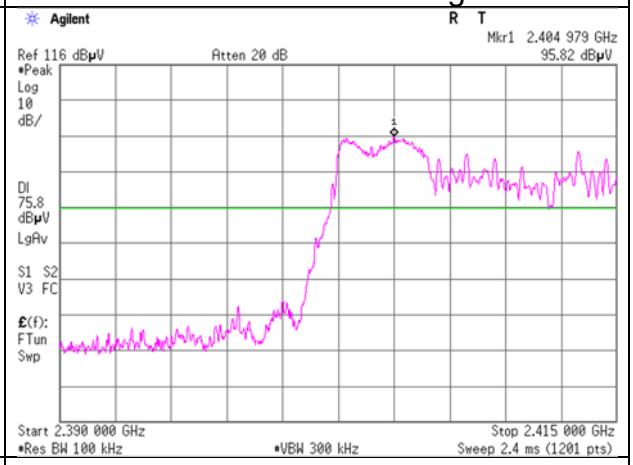
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [52-tone RU/Index 37] 2412 MHz

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

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)
Mode	Tx 11be-20 [106-tone RU/Index 53] 2412 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2390.0	50.9	36.0	27.7	4.8	34.4	0.3	49.0	34.4	73.9	53.9	24.9	19.5	*1)
Vert.	2390.0	49.0	35.4	27.7	4.8	34.4	0.3	47.2	33.8	73.9	53.9	26.8	20.1	*1)

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

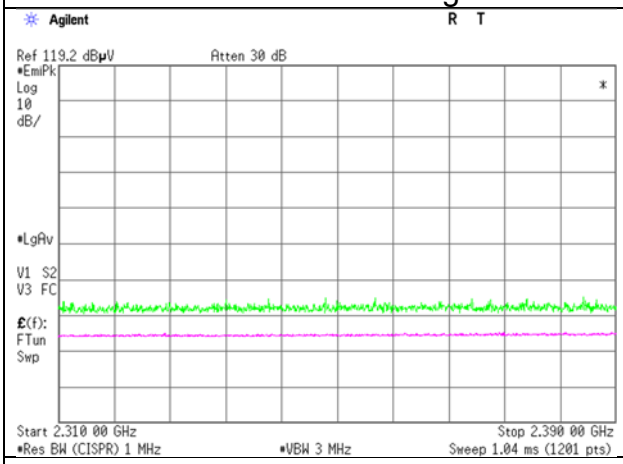
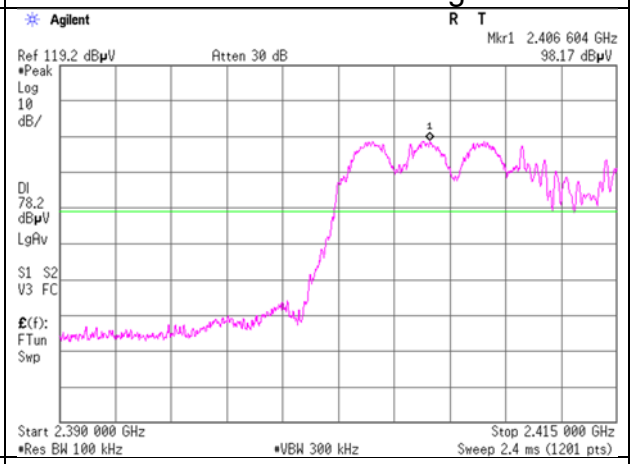
Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.0	98.2	27.6	4.9	34.4	96.3	-	-	Carrier
Hori.	2400.0	55.0	27.6	4.9	34.4	53.1	76.3	23.2	
Vert.	2412.0	95.4	27.6	4.9	34.4	93.5	-	-	Carrier
Vert.	2400.0	53.1	27.6	4.9	34.4	51.2	73.5	22.3	

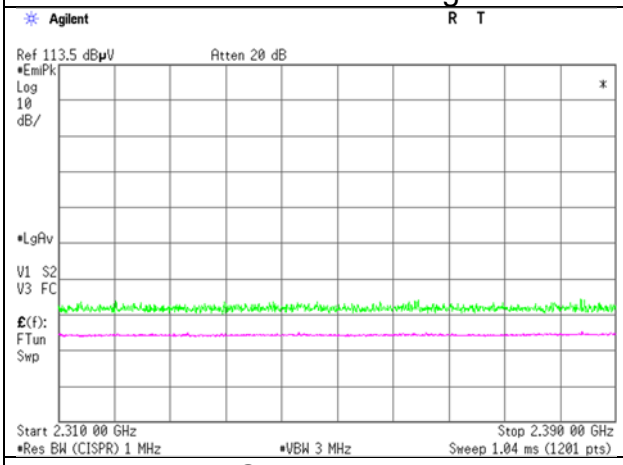
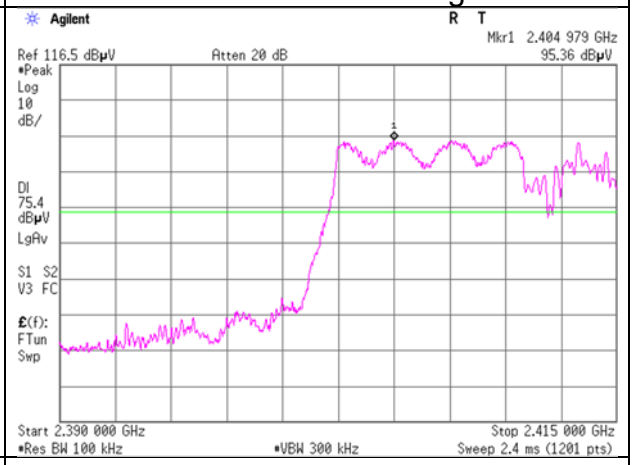
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [106-tone RU/Index 53] 2412 MHz

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

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)
Mode	Tx 11be-20 [242-tone RU/Index 61] 2412 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2389.4	58.7	41.9	27.7	4.8	34.4	0.4	56.8	40.3	73.9	53.9	17.1	13.6	
Hori.	2390.0	55.5	41.7	27.7	4.8	34.4	0.4	53.6	40.2	73.9	53.9	20.3	13.7	*1)
Vert.	2389.4	53.6	38.3	27.7	4.8	34.4	0.4	51.7	36.8	73.9	53.9	22.2	17.1	
Vert.	2390.0	52.6	38.4	27.7	4.8	34.4	0.4	50.7	36.8	73.9	53.9	23.2	17.1	*1)

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

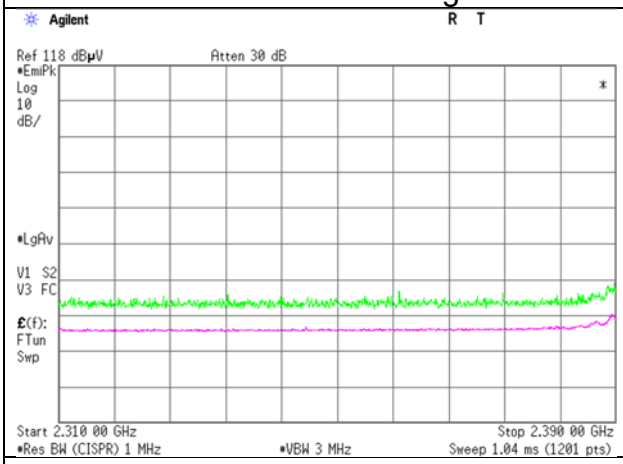
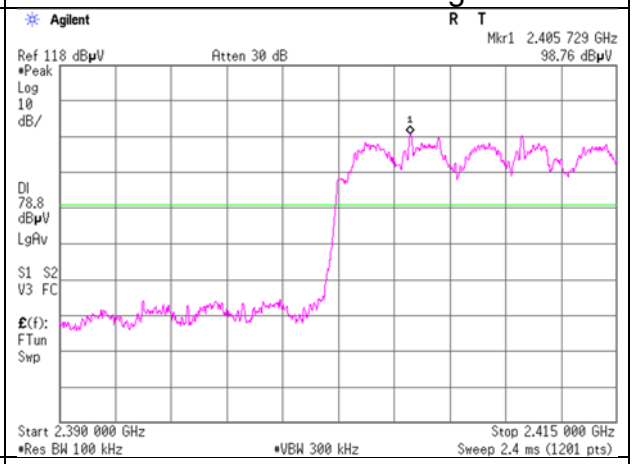
Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.0	98.8	27.6	4.9	34.4	96.9	-	-	Carrier
Hori.	2400.0	51.5	27.6	4.9	34.4	49.6	76.9	27.2	
Vert.	2412.0	95.7	27.6	4.9	34.4	93.8	-	-	Carrier
Vert.	2400.0	48.4	27.6	4.9	34.4	46.5	73.8	27.2	

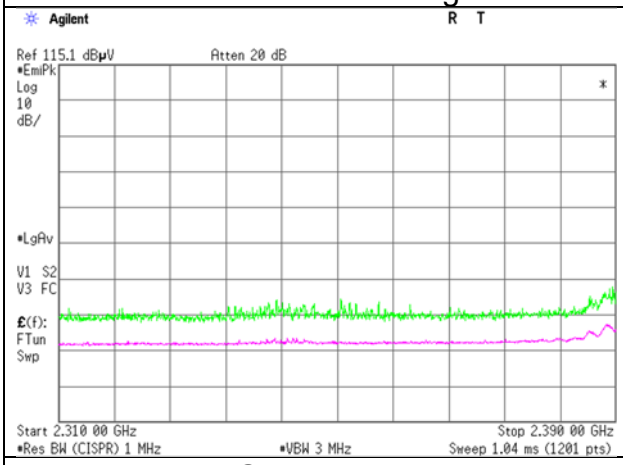
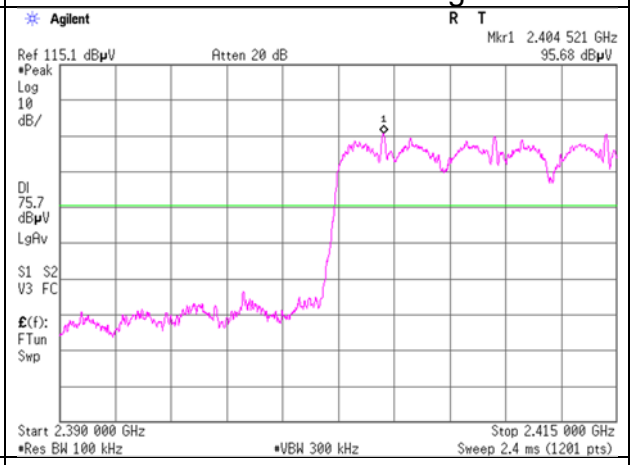
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [242-tone RU/Index 61] 2412 MHz

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

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)
Mode	Tx 11be-20 [26-tone RU/Index 8] 2462 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2483.5	44.7	35.5	27.5	4.9	34.3	0.2	42.8	33.8	73.9	53.9	31.1	20.1	*1)
Vert.	2483.5	43.7	34.1	27.5	4.9	34.3	0.2	41.7	32.4	73.9	53.9	32.2	21.5	*1)

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

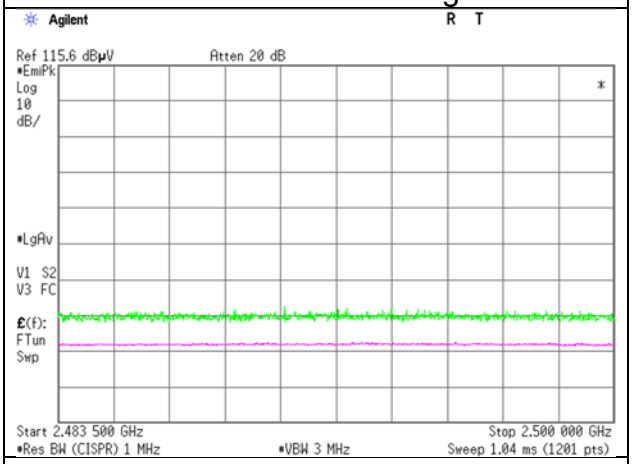
Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [26-tone RU/Index 8] 2462 MHz

Horizontal

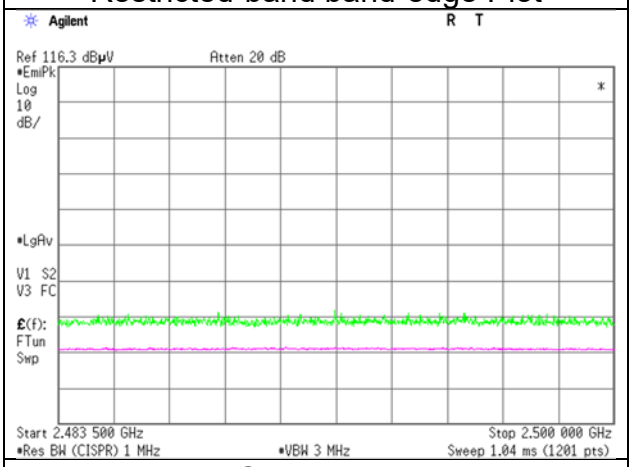
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)
Mode	Tx 11be-20 [52-tone RU/Index 40] 2462 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2483.5	46.1	35.2	27.5	4.9	34.3	0.3	44.2	33.6	73.9	53.9	29.7	20.3	*1)
Vert.	2483.5	45.7	34.8	27.5	4.9	34.3	0.3	43.8	33.1	73.9	53.9	30.1	20.8	*1)

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

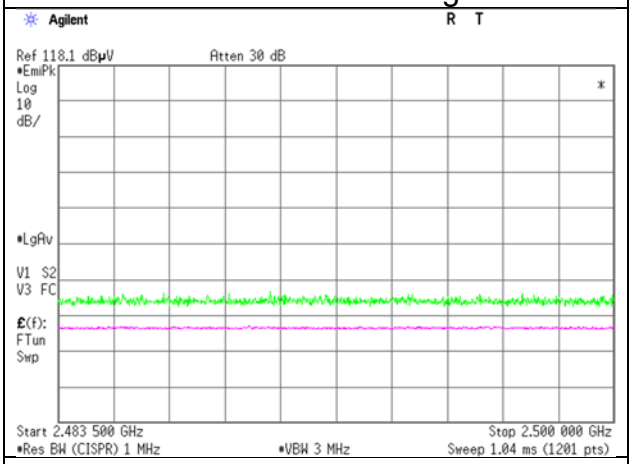
Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [52-tone RU/Index 40] 2462 MHz

Horizontal

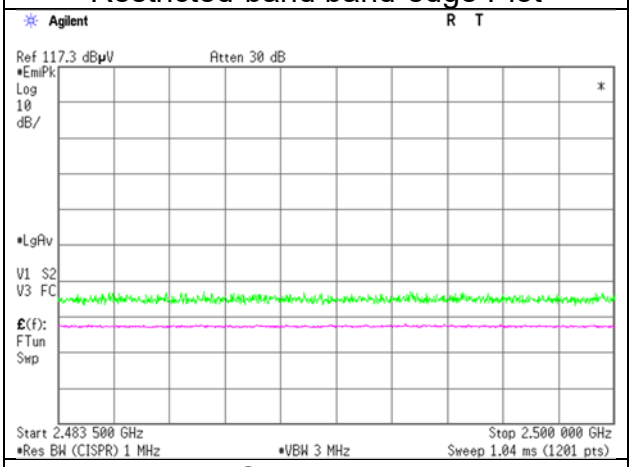
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)
Mode	Tx 11be-20 [106-tone RU/Index 54] 2462 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2483.5	48.9	36.9	27.5	4.9	34.3	0.3	47.0	35.3	73.9	53.9	26.9	18.6	*1)
Hori.	2484.9	47.9	36.6	27.5	4.9	34.3	0.3	46.0	35.0	73.9	53.9	27.9	19.0	
Vert.	2483.5	46.9	35.4	27.5	4.9	34.3	0.3	44.9	33.8	73.9	53.9	29.0	20.1	*1)
Vert.	2484.9	46.7	35.1	27.5	4.9	34.3	0.3	44.8	33.5	73.9	53.9	29.1	20.4	

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

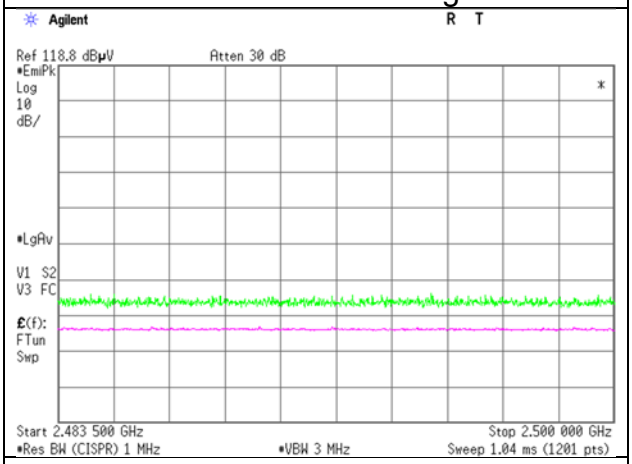
Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [106-tone RU/Index 54] 2462 MHz

Horizontal

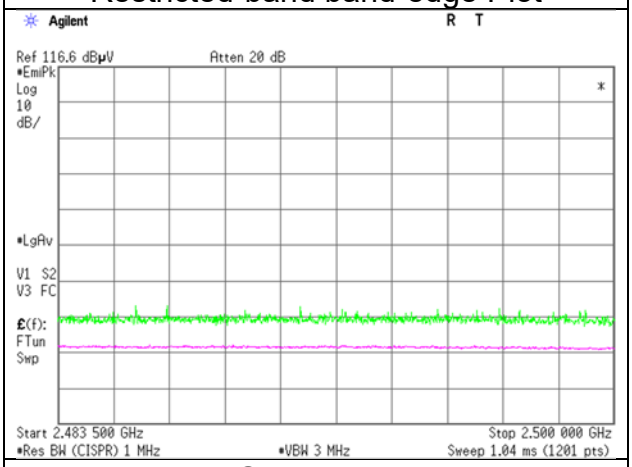
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)
Mode	Tx 11be-20 [242-tone RU/Index 61] 2462 MHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2483.5	56.8	42.3	27.5	4.9	34.3	0.4	54.8	40.7	73.9	53.9	19.1	13.2	*1)
Hori.	2484.8	58.6	42.6	27.5	4.9	34.3	0.4	56.7	41.1	73.9	53.9	17.2	12.8	
Vert.	2483.5	54.7	39.4	27.5	4.9	34.3	0.4	52.7	37.9	73.9	53.9	21.2	16.0	*1)
Vert.	2484.8	53.5	38.4	27.5	4.9	34.3	0.4	51.5	36.9	73.9	53.9	22.4	17.0	

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

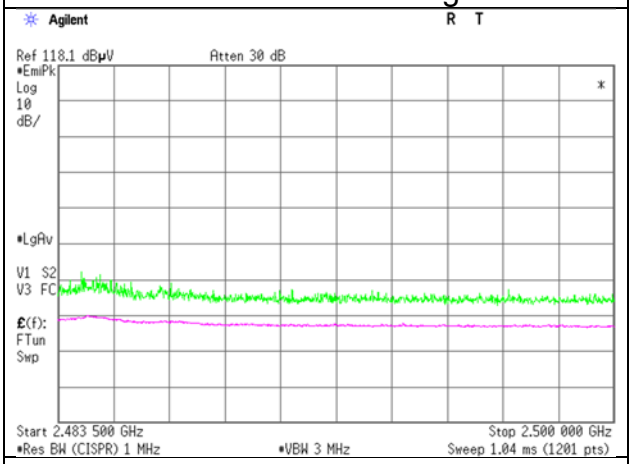
Distance factor:	1 GHz - 6 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	6 GHz - 10 GHz	20log (3.7 m / 3.0 m) = 1.83 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 26, 2024
Temperature / Humidity	20 deg. C / 35 % RH
Engineer	Takeshi Hiyaji
Mode	Tx 11be-20 [242-tone RU/Index 61] 2462 MHz

Horizontal

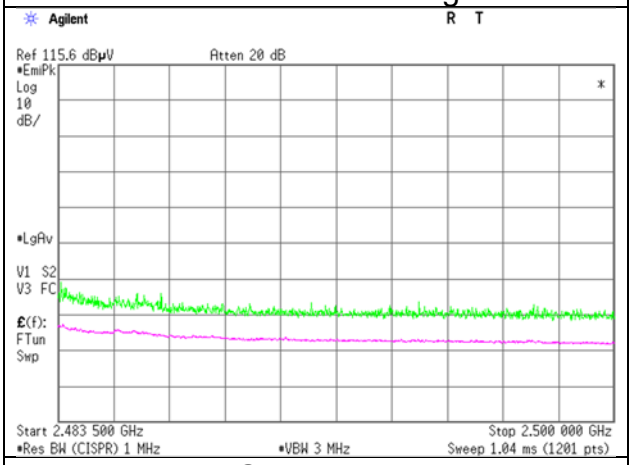
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(BT1)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 9, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	22 deg. C / 45 % RH
Engineer	Takafumi Noguchi	Daiki Matsui	Tomohisa Nakagawa
	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)	(18 GHz to 26.5 GHz)
Mode	Tx BT LE 1M 2402 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2390.0	48.5	36.0	27.7	4.9	34.9	0.7	46.1	34.3	73.9	53.9	27.8	19.6	*1)
Hori.	4804.0	41.8	33.5	31.6	7.0	34.1	-	46.2	37.9	73.9	53.9	27.7	16.0	Floor noise
Hori.	7206.0	43.3	34.6	35.6	8.1	34.0	-	53.0	44.3	73.9	53.9	20.9	9.7	Floor noise
Hori.	9608.0	42.7	34.5	35.7	8.7	34.7	-	52.4	44.2	73.9	53.9	21.5	9.7	Floor noise
Vert.	2390.0	50.6	36.0	27.7	4.9	34.9	0.7	48.2	34.3	73.9	53.9	25.7	19.6	*1)
Vert.	4804.0	41.8	33.5	31.6	7.0	34.1	-	46.2	37.9	73.9	53.9	27.7	16.0	Floor noise
Vert.	7206.0	43.3	34.6	35.6	8.1	34.0	-	53.0	44.3	73.9	53.9	20.9	9.7	Floor noise
Vert.	9608.0	42.7	34.5	35.7	8.7	34.7	-	52.4	44.2	73.9	53.9	21.5	9.7	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

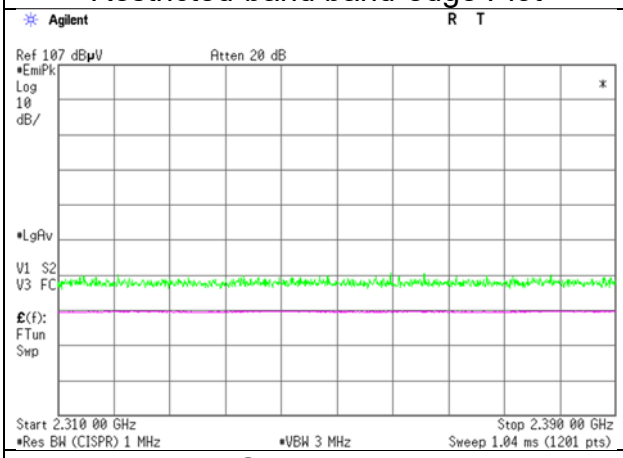
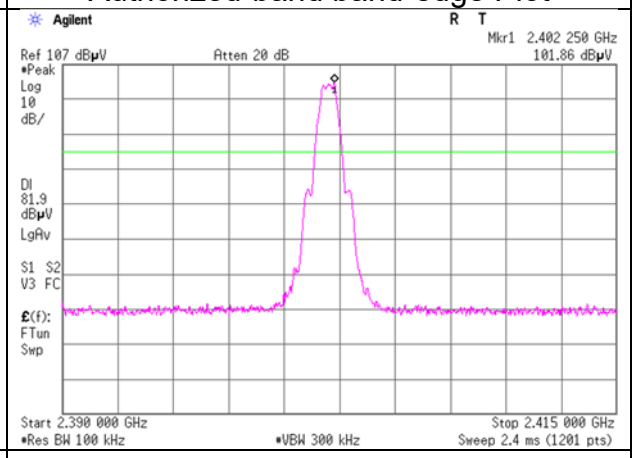
Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.0	101.9	27.6	4.9	34.9	99.5	-	-	Carrier
Hori.	2400.0	42.0	27.6	4.9	34.9	39.6	79.5	39.9	
Vert.	2402.0	103.9	27.6	4.9	34.9	101.5	-	-	Carrier
Vert.	2400.0	44.3	27.6	4.9	34.9	41.9	81.5	39.6	

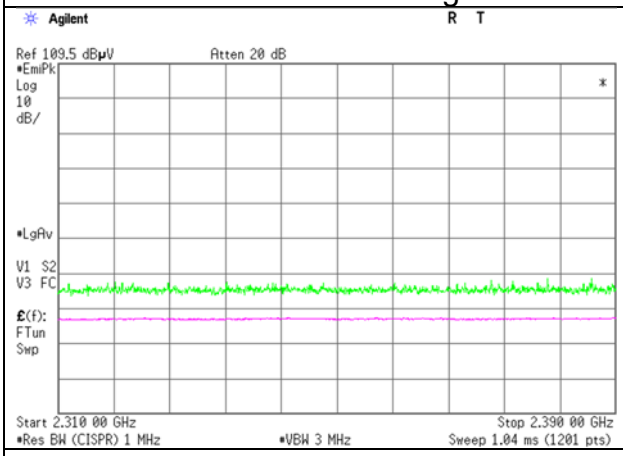
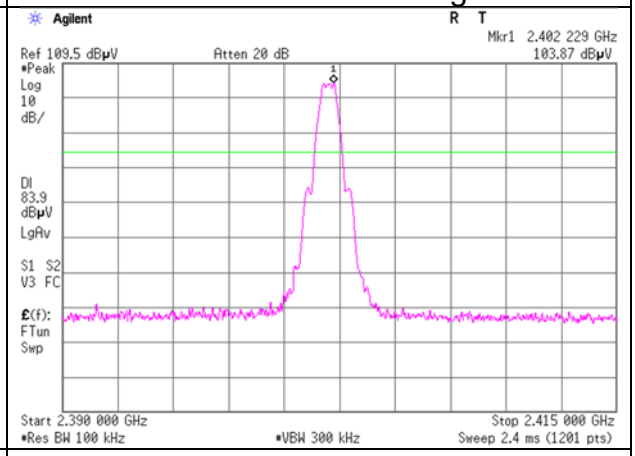
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)
(BT1)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2402 MHz

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

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission
(BT1)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 9, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	22 deg. C / 45 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)
Mode	Tx BT LE 1M 2440 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	4880.0	41.8	33.6	31.6	7.0	34.2	-	46.2	38.1	73.9	53.9	27.7	15.9	Floor noise
Hori.	7320.0	42.1	34.4	35.6	8.1	34.1	-	51.8	44.0	73.9	53.9	22.1	9.9	Floor noise
Hori.	9760.0	42.6	34.3	36.0	8.7	34.7	-	52.7	44.4	73.9	53.9	21.2	9.5	Floor noise
Vert.	4880.0	41.8	33.6	31.6	7.0	34.2	-	46.2	38.1	73.9	53.9	27.7	15.9	Floor noise
Vert.	7320.0	42.1	34.4	35.6	8.1	34.1	-	51.8	44.0	73.9	53.9	22.1	9.9	Floor noise
Vert.	9760.0	42.6	34.3	36.0	8.7	34.7	-	52.7	44.4	73.9	53.9	21.2	9.5	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(BT1)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 9, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	22 deg. C / 45 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)
Mode	Tx BT LE 1M 2480 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2483.5	45.6	36.2	27.5	4.9	34.9	0.7	43.0	34.4	73.9	53.9	30.9	19.5	*1)
Hori.	4960.0	40.8	33.6	31.7	7.0	34.2	-	45.3	38.1	73.9	53.9	28.6	15.8	Floor noise
Hori.	7440.0	43.2	34.5	35.5	8.1	34.1	-	52.7	44.1	73.9	53.9	21.2	9.9	Floor noise
Hori.	9920.0	41.8	34.5	36.2	8.8	34.7	-	52.0	44.8	73.9	53.9	21.9	9.2	Floor noise
Vert.	2483.5	45.2	36.4	27.5	4.9	34.9	0.7	42.6	34.5	73.9	53.9	31.3	19.4	*1)
Vert.	4960.0	40.8	33.6	31.7	7.0	34.2	-	45.3	38.1	73.9	53.9	28.6	15.8	Floor noise
Vert.	7440.0	43.2	34.5	35.5	8.1	34.1	-	52.7	44.1	73.9	53.9	21.2	9.9	Floor noise
Vert.	9920.0	41.8	34.5	36.2	8.8	34.7	-	52.0	44.8	73.9	53.9	21.9	9.2	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

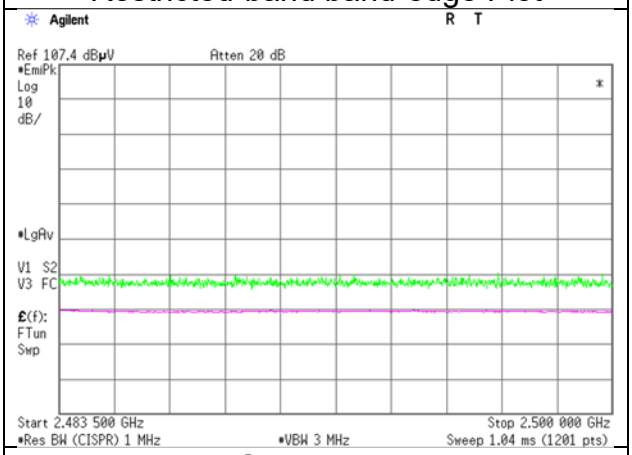
Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)
(BT1)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2480 MHz

Horizontal

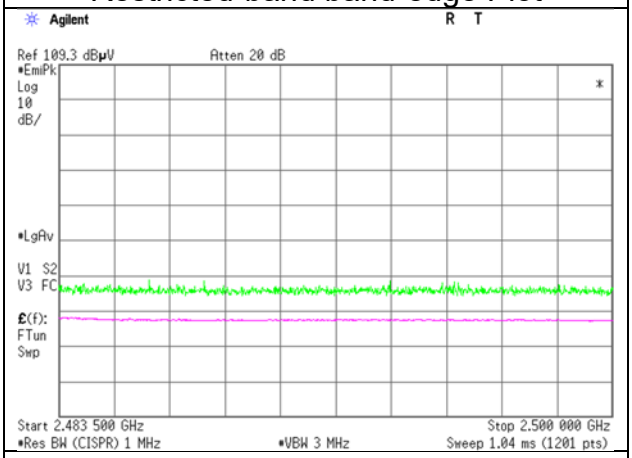
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(BT1)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 9, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	22 deg. C / 45 % RH
Engineer	Takafumi Noguchi	Daiki Matsui	Tomohisa Nakagawa
	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)	(18 GHz to 26.5 GHz)
Mode	Tx BT LE 2M 2402 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2390.0	46.4	35.6	27.7	4.8	34.9	2.4	43.9	35.5	73.9	53.9	30.0	18.4	*1)
Hori.	4804.0	41.8	33.5	31.6	7.0	34.1	-	46.2	37.9	73.9	53.9	27.7	16.0	Floor noise
Hori.	7206.0	43.3	34.6	35.6	8.1	34.0	-	53.0	44.3	73.9	53.9	20.9	9.7	Floor noise
Hori.	9608.0	42.7	34.5	35.7	8.7	34.7	-	52.4	44.2	73.9	53.9	21.5	9.7	Floor noise
Vert.	2390.0	47.8	35.5	27.7	4.8	34.9	2.4	45.3	35.4	73.9	53.9	28.6	18.6	*1)
Vert.	4804.0	41.8	33.5	31.6	7.0	34.1	-	46.2	37.9	73.9	53.9	27.7	16.0	Floor noise
Vert.	7206.0	43.3	34.6	35.6	8.1	34.0	-	53.0	44.3	73.9	53.9	20.9	9.7	Floor noise
Vert.	9608.0	42.7	34.5	35.7	8.7	34.7	-	52.4	44.2	73.9	53.9	21.5	9.7	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz
*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

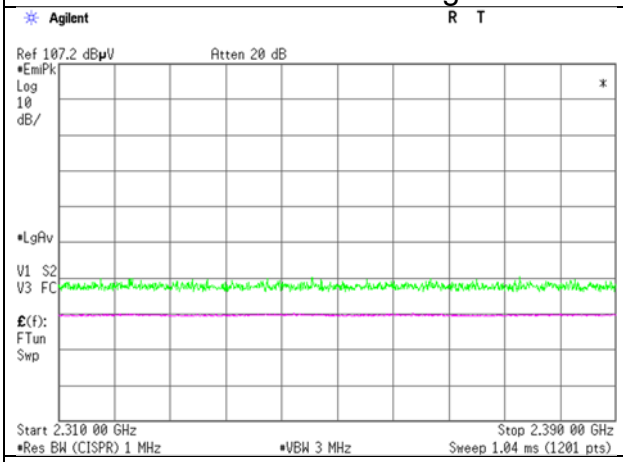
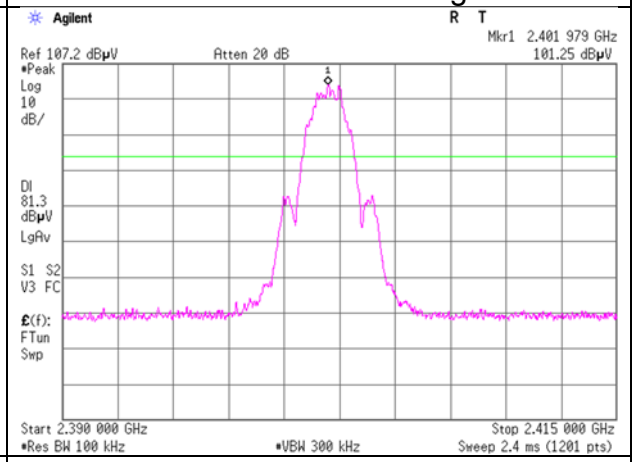
Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.0	101.3	27.6	4.8	34.9	98.8	-	-	Carrier
Hori.	2400.0	69.9	27.6	4.8	34.9	67.4	78.8	11.4	
Vert.	2402.0	102.9	27.6	4.8	34.9	100.4	-	-	Carrier
Vert.	2400.0	71.8	27.6	4.8	34.9	69.3	80.4	11.1	

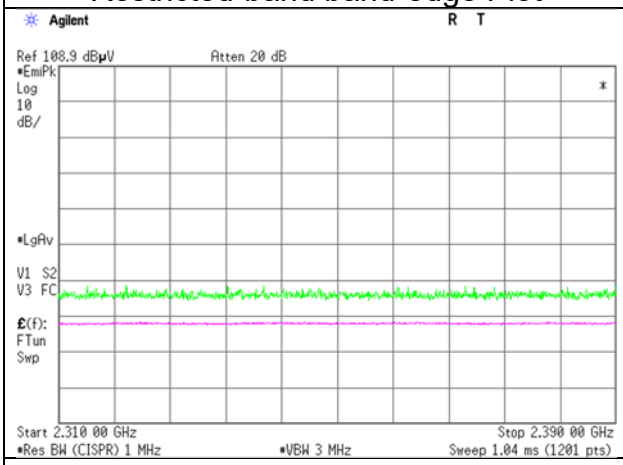
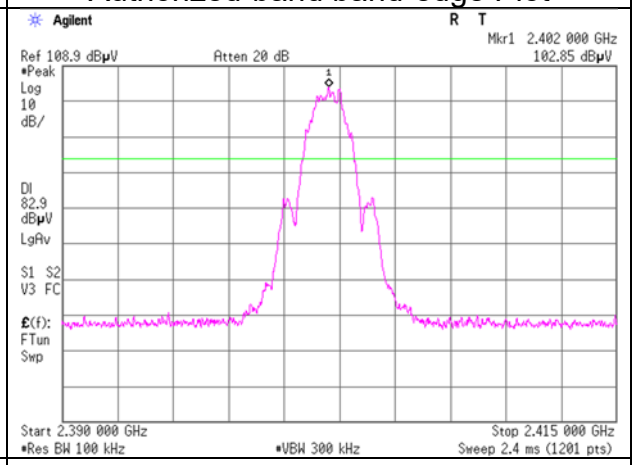
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)
(BT1)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2402 MHz

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

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission
(BT1)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 9, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	22 deg. C / 45 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)
Mode	Tx BT LE 2M 2440 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	4880.0	41.8	33.6	31.6	7.0	34.2	-	46.2	38.1	73.9	53.9	27.7	15.9	Floor noise
Hori.	7320.0	42.1	34.4	35.6	8.1	34.1	-	51.8	44.0	73.9	53.9	22.1	9.9	Floor noise
Hori.	9760.0	42.6	34.3	36.0	8.7	34.7	-	52.7	44.4	73.9	53.9	21.2	9.5	Floor noise
Vert.	4880.0	41.8	33.6	31.6	7.0	34.2	-	46.2	38.1	73.9	53.9	27.7	15.9	Floor noise
Vert.	7320.0	42.1	34.4	35.6	8.1	34.1	-	51.8	44.0	73.9	53.9	22.1	9.9	Floor noise
Vert.	9760.0	42.6	34.3	36.0	8.7	34.7	-	52.7	44.4	73.9	53.9	21.2	9.5	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(BT1)

Test place	Ise EMC Lab.			
Semi Anechoic Chamber	No.2	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 8, 2024	February 7, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	24 deg. C / 45 % RH	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)	Daiki Matsui (Below 1 GHz)
Mode	Tx BT LE 2M 2480 MHz			

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	45.7	21.6	-	12.7	6.8	28.6	-	12.6	-	40.0	-	27.5	-	
Hori.	82.8	21.2	-	7.2	7.2	28.5	-	7.2	-	40.0	-	32.8	-	
Hori.	107.3	20.7	-	11.3	7.4	28.4	-	11.0	-	43.5	-	32.5	-	
Hori.	164.1	20.4	-	15.6	7.9	28.2	-	15.7	-	43.5	-	27.8	-	
Hori.	348.8	24.5	-	15.2	9.0	28.0	-	20.6	-	46.0	-	25.4	-	
Hori.	522.7	21.0	-	17.7	9.9	29.2	-	19.4	-	46.0	-	26.6	-	
Hori.	2483.5	49.1	42.5	27.5	4.9	34.9	2.4	46.6	42.4	73.9	53.9	27.3	11.5	*1)
Hori.	4960.0	40.8	33.6	31.7	7.0	34.2	-	45.3	38.1	73.9	53.9	28.6	15.8	Floor noise
Hori.	7440.0	43.2	34.5	35.5	8.1	34.1	-	52.7	44.1	73.9	53.9	21.2	9.9	Floor noise
Hori.	9920.0	41.8	34.5	36.2	8.8	34.7	-	52.0	44.8	73.9	53.9	21.9	9.2	Floor noise
Vert.	36.0	22.2	-	16.3	6.7	28.6	-	16.6	-	40.0	-	23.4	-	
Vert.	81.9	31.3	-	7.0	7.2	28.5	-	17.1	-	40.0	-	22.9	-	
Vert.	104.2	26.2	-	10.8	7.4	28.4	-	16.0	-	43.5	-	27.5	-	
Vert.	164.1	20.4	-	15.6	7.9	28.2	-	15.7	-	43.5	-	27.8	-	
Vert.	361.1	23.6	-	15.2	9.1	28.1	-	19.7	-	46.0	-	26.3	-	
Vert.	522.7	25.5	-	17.7	9.9	29.2	-	23.9	-	46.0	-	22.1	-	
Vert.	2483.5	49.9	43.5	27.5	4.9	34.9	2.4	47.3	43.4	73.9	53.9	26.6	10.6	*1)
Vert.	4960.0	40.8	33.6	31.7	7.0	34.2	-	45.3	38.1	73.9	53.9	28.6	15.8	Floor noise
Vert.	7440.0	43.2	34.5	35.5	8.1	34.1	-	52.7	44.1	73.9	53.9	21.2	9.9	Floor noise
Vert.	9920.0	41.8	34.5	36.2	8.8	34.7	-	52.0	44.8	73.9	53.9	21.9	9.2	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

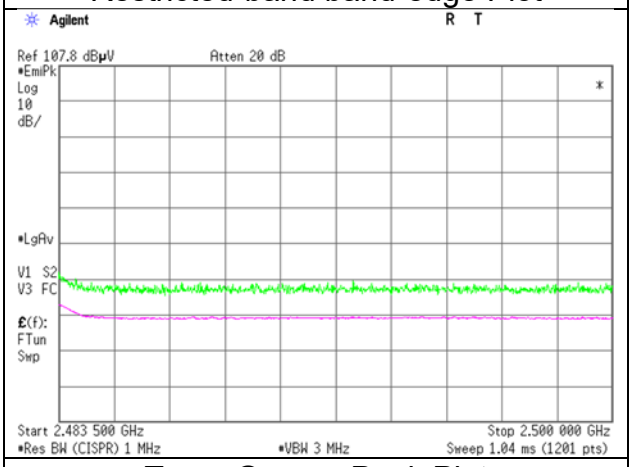
Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)
(BT1)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2480 MHz

Horizontal

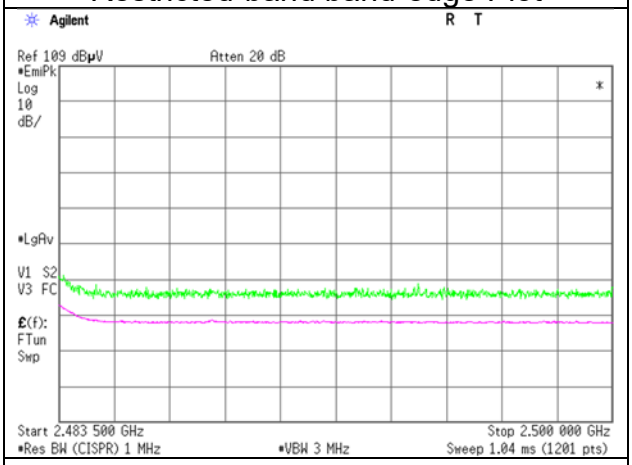
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(BT2)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 8, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	24 deg. C / 45 % RH
Engineer	Takafumi Noguchi	Daiki Matsui	Tomohisa Nakagawa
	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)	(18 GHz to 26.5 GHz)
Mode	Tx BT LE 1M 2402 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2390.0	46.5	35.8	27.7	4.9	34.9	0.7	44.1	34.1	73.9	53.9	29.8	19.8	*1)
Hori.	4804.0	43.2	36.1	31.6	7.0	34.1	0.7	47.7	41.2	73.9	53.9	26.3	12.7	
Hori.	7206.0	43.3	34.6	35.6	8.1	34.0	-	53.0	44.3	73.9	53.9	20.9	9.7	Floor noise
Hori.	9608.0	42.7	34.5	35.7	8.7	34.7	-	52.4	44.2	73.9	53.9	21.5	9.7	Floor noise
Vert.	2390.0	52.6	36.7	27.7	4.9	34.9	0.7	50.3	35.0	73.9	53.9	23.6	18.9	*1)
Vert.	4804.0	43.1	35.2	31.6	7.0	34.1	0.7	47.5	40.3	73.9	53.9	26.4	13.6	
Vert.	7206.0	43.3	34.6	35.6	8.1	34.0	-	53.0	44.3	73.9	53.9	20.9	9.7	Floor noise
Vert.	9608.0	42.7	34.5	35.7	8.7	34.7	-	52.4	44.2	73.9	53.9	21.5	9.7	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

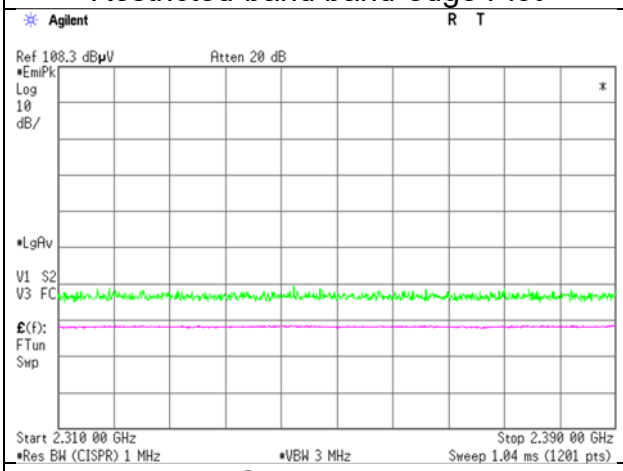
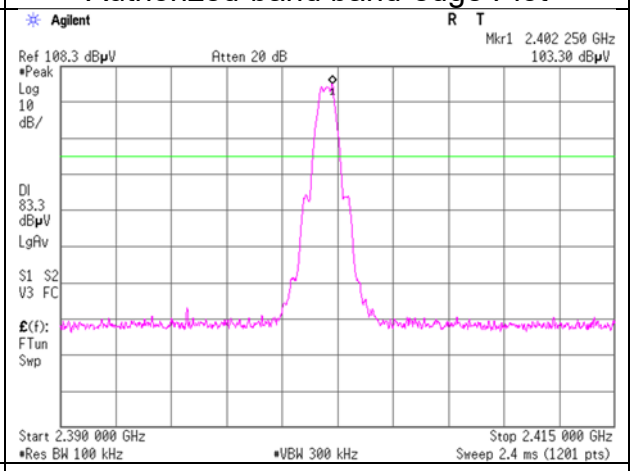
Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.0	103.3	27.6	4.9	34.9	100.9	-	-	Carrier
Hori.	2400.0	42.6	27.6	4.9	34.9	40.2	80.9	40.7	
Vert.	2402.0	99.3	27.6	4.9	34.9	96.9	-	-	Carrier
Vert.	2400.0	39.5	27.6	4.9	34.9	37.1	76.9	39.8	

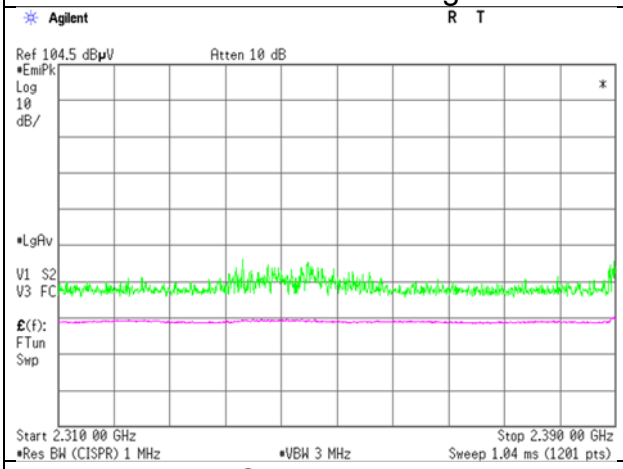
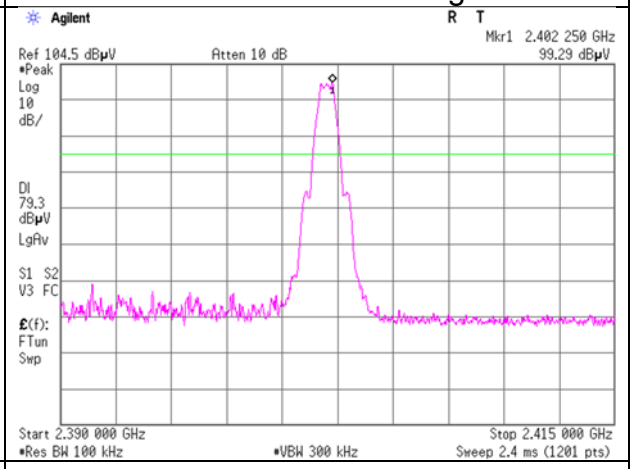
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)
(BT2)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2402 MHz

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

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission
(BT2)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 8, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	24 deg. C / 45 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)
Mode	Tx BT LE 1M 2440 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	4880.0	43.0	35.3	31.6	7.0	34.2	0.7	47.4	40.5	73.9	53.9	26.5	13.4	
Hori.	7320.0	42.1	34.4	35.6	8.1	34.1	-	51.8	44.0	73.9	53.9	22.1	9.9	Floor noise
Hori.	9760.0	42.6	34.3	36.0	8.7	34.7	-	52.7	44.4	73.9	53.9	21.2	9.5	Floor noise
Vert.	4880.0	43.4	35.2	31.6	7.0	34.2	0.7	47.9	40.3	73.9	53.9	26.0	13.6	
Vert.	7320.0	42.1	34.4	35.6	8.1	34.1	-	51.8	44.0	73.9	53.9	22.1	9.9	Floor noise
Vert.	9760.0	42.6	34.3	36.0	8.7	34.7	-	52.7	44.4	73.9	53.9	21.2	9.5	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(BT2)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 8, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	24 deg. C / 45 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)
Mode	Tx BT LE 1M 2480 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2483.5	44.6	36.5	27.5	5.0	34.9	0.7	42.2	34.8	73.9	53.9	31.7	19.2	*1)
Hori.	4960.0	40.8	33.6	31.7	7.0	34.2	-	45.3	38.1	73.9	53.9	28.6	15.8	Floor noise
Hori.	7440.0	43.2	34.5	35.5	8.1	34.1	-	52.7	44.1	73.9	53.9	21.2	9.9	Floor noise
Hori.	9920.0	41.8	34.5	36.2	8.8	34.7	-	52.0	44.8	73.9	53.9	21.9	9.2	Floor noise
Vert.	2483.5	45.1	35.4	27.5	5.0	34.9	0.7	42.7	33.7	73.9	53.9	31.2	20.2	*1)
Vert.	4960.0	40.8	33.6	31.7	7.0	34.2	-	45.3	38.1	73.9	53.9	28.6	15.8	Floor noise
Vert.	7440.0	43.2	34.5	35.5	8.1	34.1	-	52.7	44.1	73.9	53.9	21.2	9.9	Floor noise
Vert.	9920.0	41.8	34.5	36.2	8.8	34.7	-	52.0	44.8	73.9	53.9	21.9	9.2	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

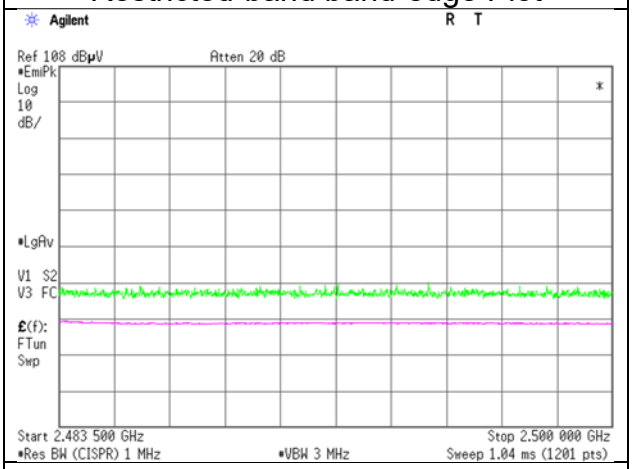
Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)
(BT2)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2480 MHz

Horizontal

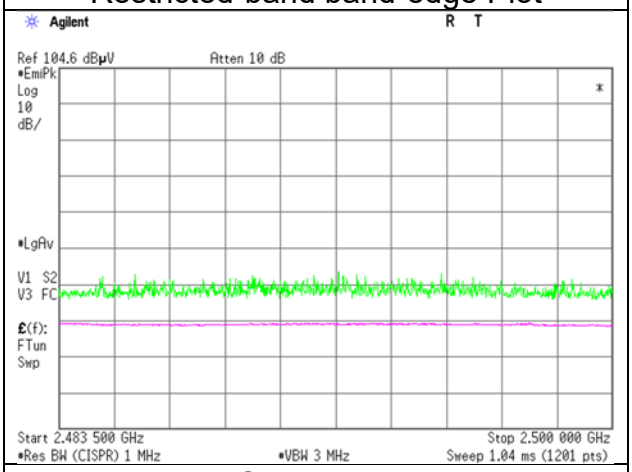
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(BT2)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 8, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	24 deg. C / 45 % RH
Engineer	Takafumi Noguchi	Daiki Matsui	Tomohisa Nakagawa
	(1 GHz to 10 GHz)	(10 GHz to 18 GHz)	(18 GHz to 26.5 GHz)
Mode	Tx BT LE 2M 2402 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2390.0	46.8	35.6	27.7	4.9	34.9	2.4	44.4	35.6	73.9	53.9	29.5	18.4	*1)
Hori.	4804.0	42.5	34.7	31.6	7.0	34.1	2.4	46.9	41.4	73.9	53.9	27.0	12.5	
Hori.	7206.0	43.3	34.6	35.6	8.1	34.0	-	53.0	44.3	73.9	53.9	20.9	9.7	Floor noise
Hori.	9608.0	42.7	34.5	35.7	8.7	34.7	-	52.4	44.2	73.9	53.9	21.5	9.7	Floor noise
Vert.	2390.0	46.4	35.8	27.7	4.9	34.9	2.4	44.0	35.8	73.9	53.9	29.9	18.1	*1)
Vert.	4804.0	43.0	34.2	31.6	7.0	34.1	2.4	47.4	41.0	73.9	53.9	26.5	12.9	
Vert.	7206.0	43.3	34.6	35.6	8.1	34.0	-	53.0	44.3	73.9	53.9	20.9	9.7	Floor noise
Vert.	9608.0	42.7	34.5	35.7	8.7	34.7	-	52.4	44.2	73.9	53.9	21.5	9.7	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz
*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

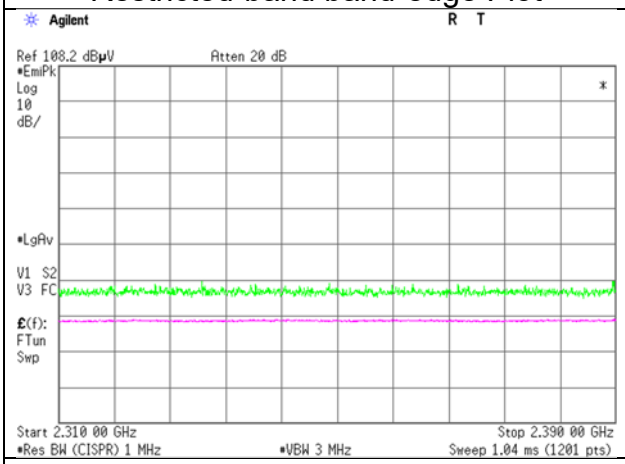
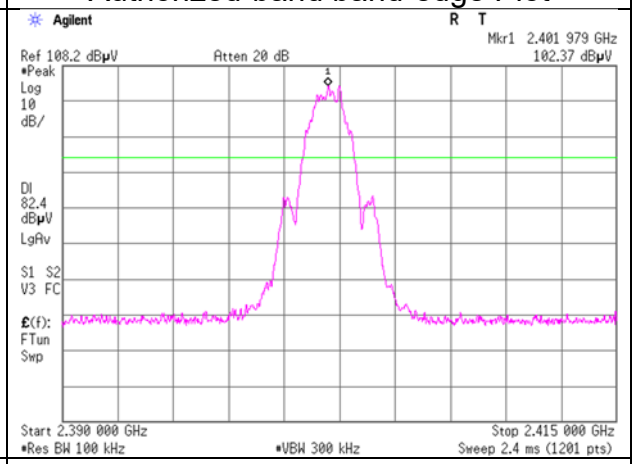
Polarity [Hori/Vert]	Frequency [MHz]	Reading (PK) [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.0	102.4	27.6	4.9	34.9	100.0	-	-	Carrier
Hori.	2400.0	70.9	27.6	4.9	34.9	68.5	80.0	11.5	
Vert.	2402.0	97.3	27.6	4.9	34.9	94.9	-	-	Carrier
Vert.	2400.0	66.0	27.6	4.9	34.9	63.7	74.9	11.3	

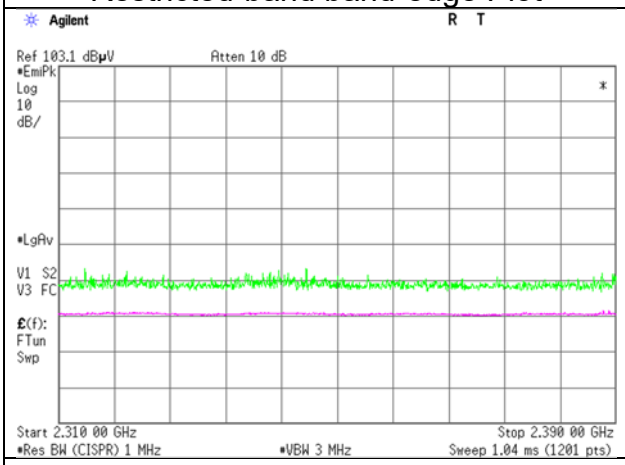
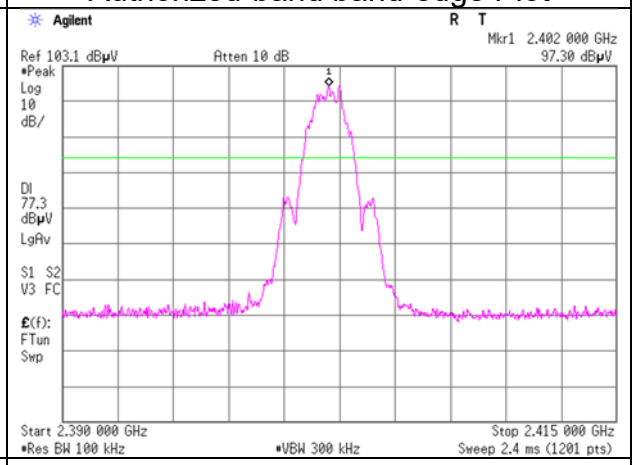
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amprifier)

Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)
(BT2)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2402 MHz

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

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

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge and authorized band edge were shown in tabular data.

Radiated Spurious Emission
(BT2)

Test place	Ise EMC Lab.			
Semi Anechoic Chamber	No.2	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 8, 2024	February 7, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	24 deg. C / 45 % RH	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)	Daiki Matsui (Below 1 GHz)
Mode	Tx BT LE 2M 2440 MHz			

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	45.7	22.0	-	12.7	6.8	28.6	-	13.0	-	40.0	-	27.1	-	
Hori.	81.4	21.4	-	7.0	7.2	28.5	-	7.1	-	40.0	-	32.9	-	
Hori.	108.3	22.8	-	11.4	7.4	28.4	-	13.2	-	43.5	-	30.3	-	
Hori.	164.0	20.5	-	15.6	7.9	28.2	-	15.8	-	43.5	-	27.7	-	
Hori.	348.8	24.3	-	15.2	9.0	28.0	-	20.4	-	46.0	-	25.6	-	
Hori.	522.7	20.7	-	17.7	9.9	29.2	-	19.1	-	46.0	-	26.9	-	
Hori.	4880.0	42.9	34.2	31.6	7.0	34.2	2.4	47.3	41.0	73.9	53.9	26.6	12.9	
Hori.	7320.0	42.1	34.4	35.6	8.1	34.1	-	51.8	44.0	73.9	53.9	22.1	9.9	Floor noise
Hori.	9760.0	42.6	34.3	36.0	8.7	34.7	-	52.7	44.4	73.9	53.9	21.2	9.5	Floor noise
Vert.	46.3	21.6	-	12.5	6.8	28.6	-	12.4	-	40.0	-	27.7	-	
Vert.	81.4	31.2	-	7.0	7.2	28.5	-	16.9	-	40.0	-	23.1	-	
Vert.	105.6	26.5	-	11.0	7.4	28.4	-	16.5	-	43.5	-	27.0	-	
Vert.	164.0	20.3	-	15.6	7.9	28.2	-	15.6	-	43.5	-	27.9	-	
Vert.	361.1	21.4	-	15.2	9.1	28.1	-	17.5	-	46.0	-	28.5	-	
Vert.	522.7	25.7	-	17.7	9.9	29.2	-	24.1	-	46.0	-	21.9	-	
Vert.	4880.0	41.9	34.3	31.6	7.0	34.2	2.4	46.3	41.2	73.9	53.9	27.6	12.8	
Vert.	7320.0	42.1	34.4	35.6	8.1	34.1	-	51.8	44.0	73.9	53.9	22.1	9.9	Floor noise
Vert.	9760.0	42.6	34.3	36.0	8.7	34.7	-	52.7	44.4	73.9	53.9	21.2	9.5	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz

Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(BT2)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 8, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	24 deg. C / 45 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)
Mode	Tx BT LE 2M 2480 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	2483.5	49.6	42.3	27.5	4.9	34.9	2.4	47.0	42.1	73.9	53.9	26.9	11.8	*1)
Hori.	4960.0	40.8	33.6	31.7	7.0	34.2	-	45.3	38.1	73.9	53.9	28.6	15.8	Floor noise
Hori.	7440.0	43.2	34.5	35.5	8.1	34.1	-	52.7	44.1	73.9	53.9	21.2	9.9	Floor noise
Hori.	9920.0	41.8	34.5	36.2	8.8	34.7	-	52.0	44.8	73.9	53.9	21.9	9.2	Floor noise
Vert.	2483.5	47.5	40.0	27.5	4.9	34.9	2.4	44.9	39.8	73.9	53.9	29.0	14.1	*1)
Vert.	4960.0	40.8	33.6	31.7	7.0	34.2	-	45.3	38.1	73.9	53.9	28.6	15.8	Floor noise
Vert.	7440.0	43.2	34.5	35.5	8.1	34.1	-	52.7	44.1	73.9	53.9	21.2	9.9	Floor noise
Vert.	9920.0	41.8	34.5	36.2	8.8	34.7	-	52.0	44.8	73.9	53.9	21.9	9.2	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

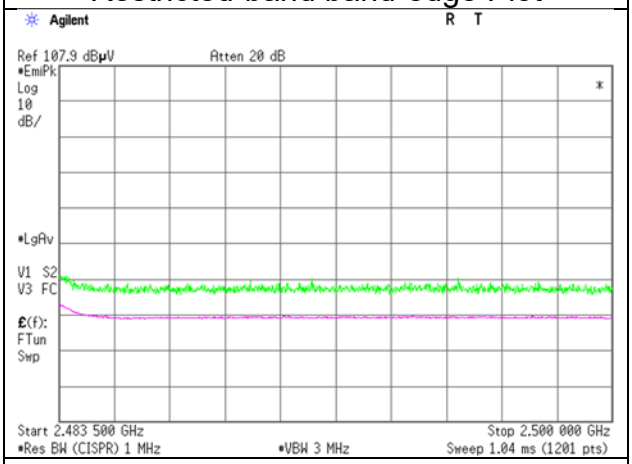
Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)
(BT2)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	January 30, 2024
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2480 MHz

Horizontal

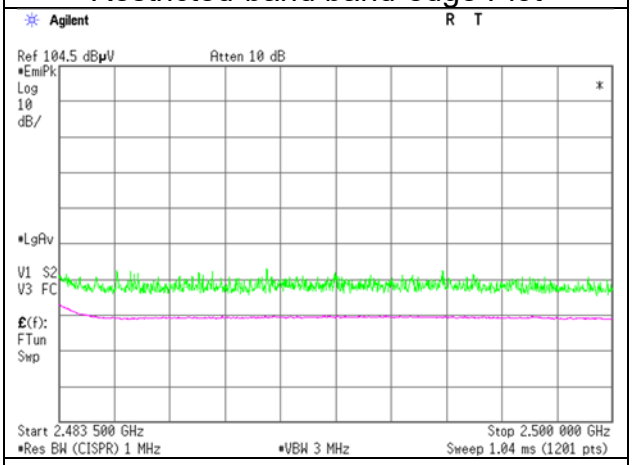
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(BT1)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	February 8, 2024	February 11, 2024	February 7, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 42 % RH	21 deg. C / 38 % RH
Engineer	Daiki Matsui	Daiki Matsui	Daiki Matsui
	(1 GHz to 18 GHz)	(18 GHz to 26.5 GHz)	(Below 1 GHz)
Mode	Tx BT LE 2M 2480 MHz + 11be-80 [OFDM] 5775 MHz		

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	123.7	35.2	-	13.1	7.6	28.3	-	27.5	-	43.5	-	16.0	-	
Hori.	168.4	41.9	-	15.8	7.9	28.1	-	37.4	-	43.5	-	6.1	-	
Hori.	379.2	31.0	-	15.3	9.2	28.3	-	27.2	-	46.0	-	18.8	-	
Hori.	459.1	33.2	-	16.9	9.6	28.9	-	30.7	-	46.0	-	15.3	-	
Hori.	641.6	32.6	-	19.3	10.3	29.3	-	32.9	-	46.0	-	13.1	-	
Hori.	965.2	32.2	-	22.1	11.5	28.7	-	37.1	-	53.9	-	16.8	-	
Hori.	2483.5	47.2	42.0	27.5	4.9	34.9	2.4	44.7	41.8	73.9	53.9	29.2	12.1	*1)
Hori.	4960.0	42.8	33.1	31.7	7.0	34.2	-	47.3	37.6	73.9	53.9	26.6	16.3	Floor noise
Hori.	7440.0	43.9	33.3	35.5	8.1	34.1	-	53.4	42.8	73.9	53.9	20.5	11.1	Floor noise
Hori.	9920.0	43.8	33.6	36.2	8.8	34.7	-	54.1	43.9	73.9	53.9	19.8	10.0	Floor noise
Vert.	31.8	34.9	-	17.9	6.7	28.6	-	30.9	-	40.0	-	9.1	-	
Vert.	48.9	40.5	-	11.4	6.9	28.6	-	30.2	-	40.0	-	9.8	-	
Vert.	111.0	42.8	-	11.7	7.5	28.4	-	33.6	-	43.5	-	9.9	-	
Vert.	604.6	33.2	-	19.4	10.2	29.3	-	33.4	-	46.0	-	12.6	-	
Vert.	818.1	33.0	-	20.9	10.9	29.1	-	35.8	-	46.0	-	10.3	-	
Vert.	956.2	31.8	-	22.1	11.4	28.7	-	36.6	-	46.0	-	9.4	-	
Vert.	2483.5	45.7	40.2	27.5	4.9	34.9	2.4	43.1	40.1	73.9	53.9	30.8	13.8	*1)
Vert.	4960.0	42.9	33.2	31.7	7.0	34.2	-	47.4	37.8	73.9	53.9	26.5	16.1	Floor noise
Vert.	7440.0	43.8	33.3	35.5	8.1	34.1	-	53.3	42.8	73.9	53.9	20.6	11.1	Floor noise
Vert.	9920.0	43.6	33.5	36.2	8.8	34.7	-	53.8	43.8	73.9	53.9	20.1	10.1	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Result (AV)= Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.
*1) Not Out of Band emission(Leakage Power)

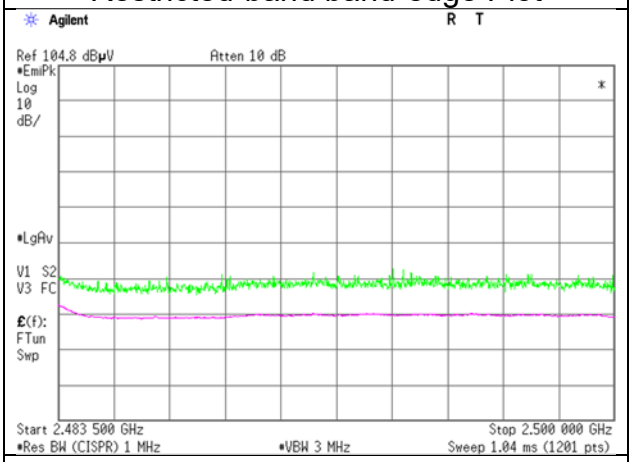
Distance factor:	1 GHz - 6 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	6 GHz - 10 GHz	20log (3.75 m / 3.0 m) = 1.94 dB
	10 GHz - 26.5 GHz	20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)
(BT1)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 8, 2024
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Daiki Matsui
Mode	Tx BT LE 2M 2480 MHz + 11be-80 [OFDM] 5775 MHz

Horizontal

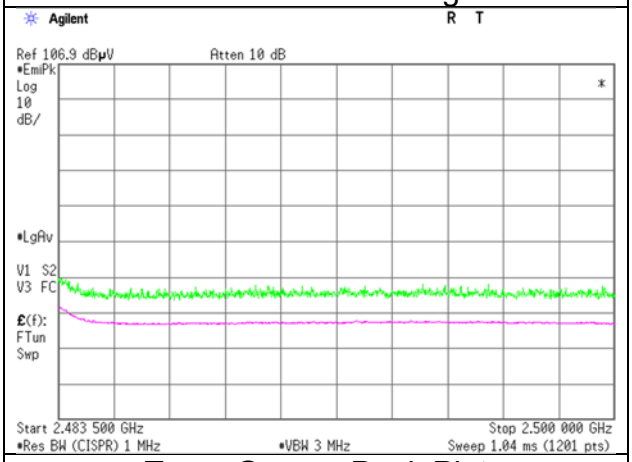
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot

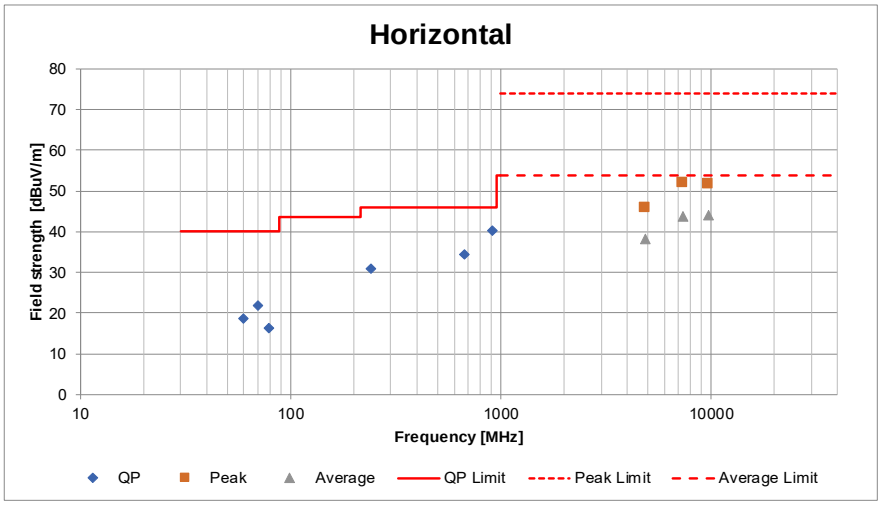


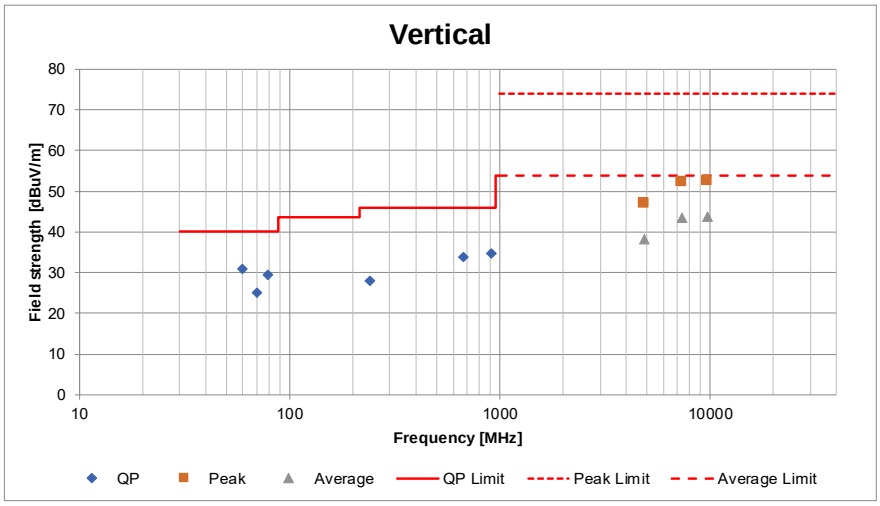
Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(Plot data, Worst case mode for Maximum Peak Output Power)
(WLAN)

Test place	Ise EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	January 30, 2024	February 7, 2024	February 9, 2024
Temperature / Humidity	20 deg. C / 35 % RH	21 deg. C / 38 % RH	22 deg. C / 45 % RH
Engineer	Takeshi Hiyaji (1 GHz to 10 GHz)	Daiki Matsui (Below 1 GHz)	Tomohisa Nakagawa (10 GHz to 26.5 GHz)
Mode	Tx 11be-20 [OFDM] 2437 MHz		

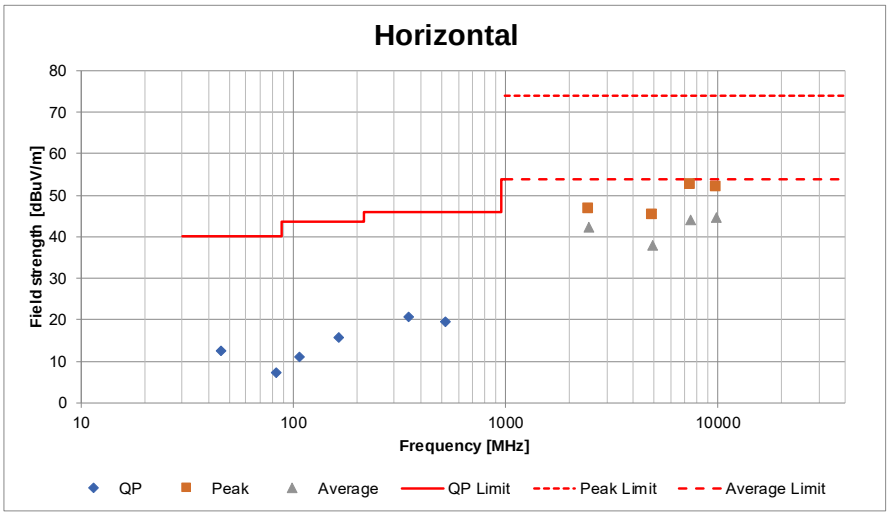


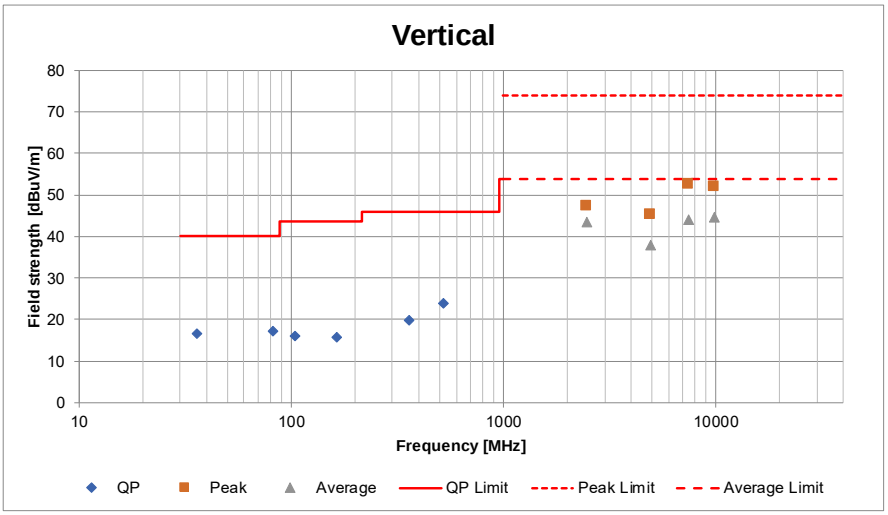


*These plots data contain sufficient number to show the trend of characteristic features for EUT.

Radiated Spurious Emission
(Plot data, Worst case mode for Maximum Peak Output Power)
(BT1)

Test place	Ise EMC Lab.			
Semi Anechoic Chamber	No.2	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 8, 2024	February 7, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	24 deg. C / 45 % RH	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)	Daiki Matsui (Below 1 GHz)
Mode	Tx BT LE 2M 2480 MHz			

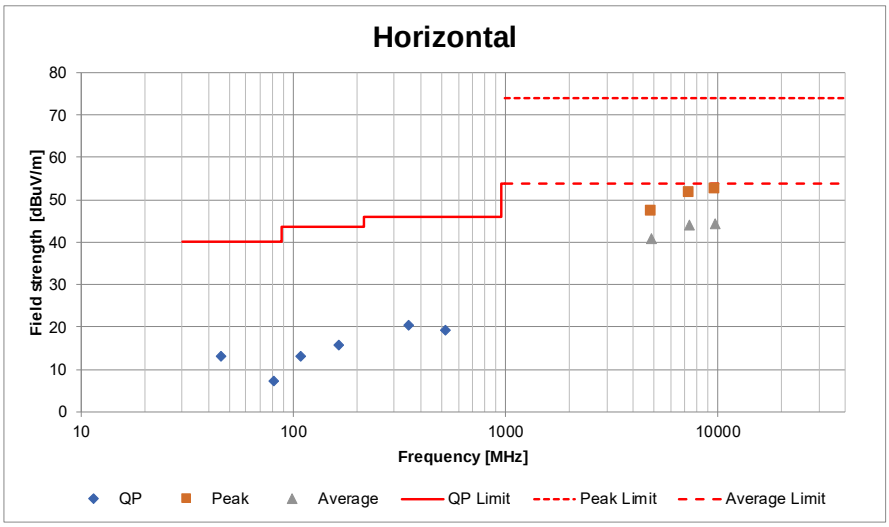


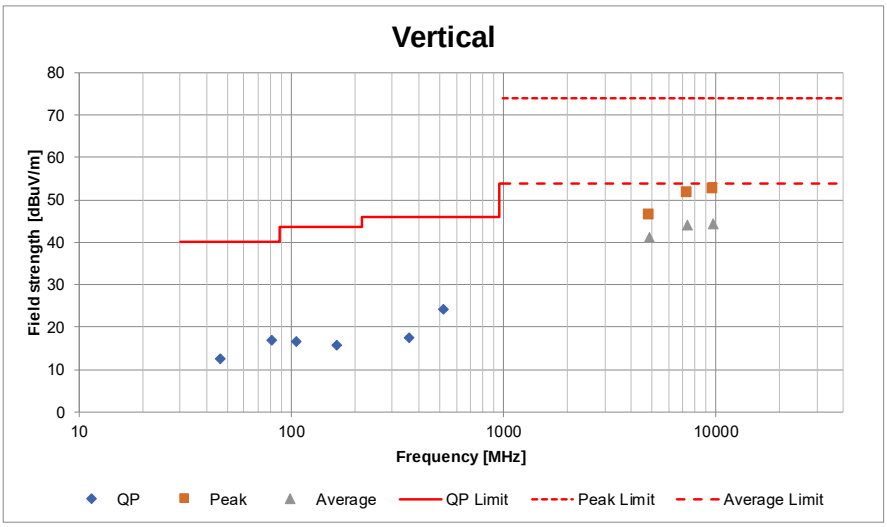


*These plots data contain sufficient number to show the trend of characteristic features for EUT.

Radiated Spurious Emission
(Plot data, Worst case mode for Maximum Peak Output Power)
(BT2)

Test place	Ise EMC Lab.			
Semi Anechoic Chamber	No.2	No.2	No.2	No.2
Date	January 30, 2024	February 8, 2024	February 8, 2024	February 7, 2024
Temperature / Humidity	24 deg. C / 40 % RH	24 deg. C / 40 % RH	24 deg. C / 45 % RH	21 deg. C / 38 % RH
Engineer	Takafumi Noguchi (1 GHz to 10 GHz)	Daiki Matsui (10 GHz to 18 GHz)	Tomohisa Nakagawa (18 GHz to 26.5 GHz)	Daiki Matsui (Below 1 GHz)
Mode	Tx BT LE 2M 2440 MHz			



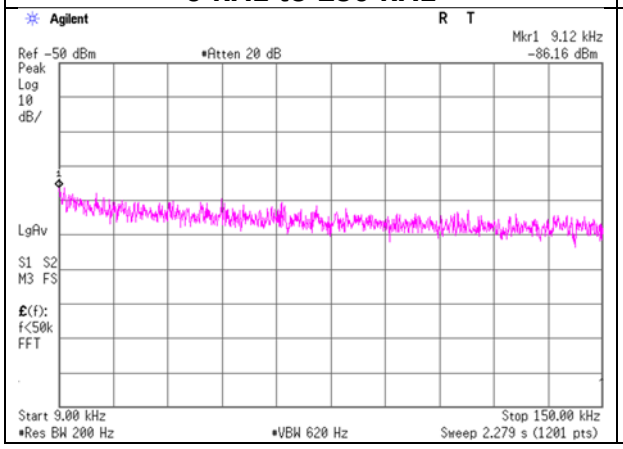


*These plots data contain sufficient number to show the trend of characteristic features for EUT.

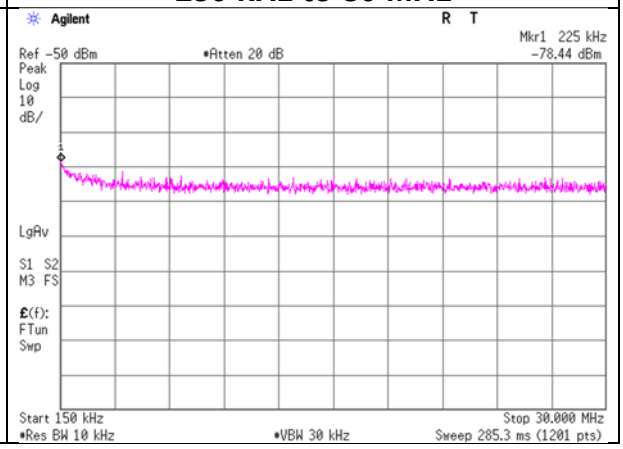
Conducted Spurious Emission

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [OFDM] 2437 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain* [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
9.12	-86.2	0.50	9.8	7.0	2	-65.8	300	6.0	-4.5	48.4	52.9
225.00	-78.4	0.50	9.8	7.0	2	-58.1	300	6.0	3.2	20.5	17.3

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]

EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)

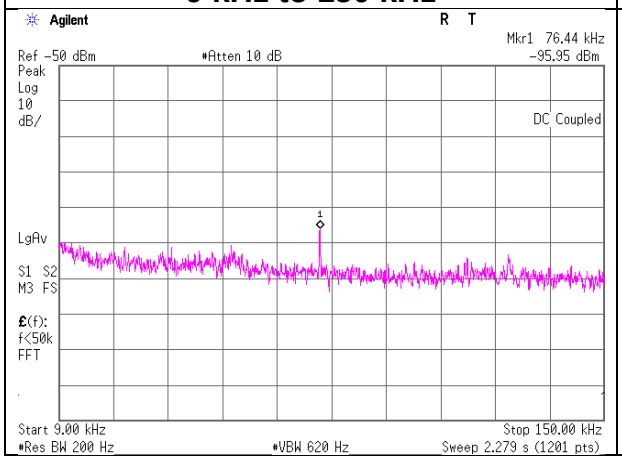
N: Number of output

*The worst antenna gain was applied.

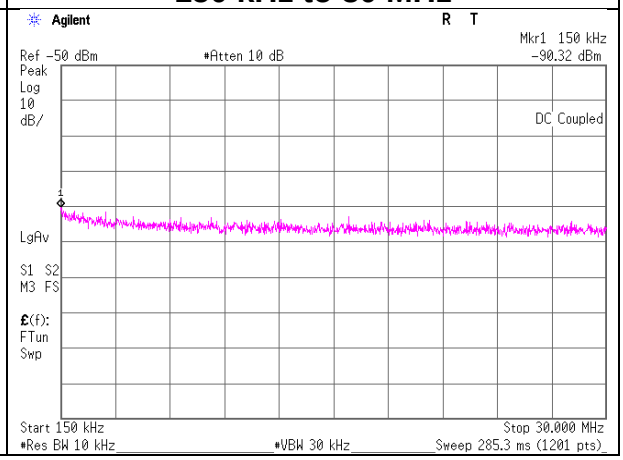
Conducted Spurious Emission
(BT1)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2402 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.44	-96.0	0.50	9.7	4.0	1	-81.8	300	6.0	-20.5	29.9	50.4
150.00	-90.3	0.51	9.7	4.0	1	-76.1	300	6.0	-14.9	24.0	38.9

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]

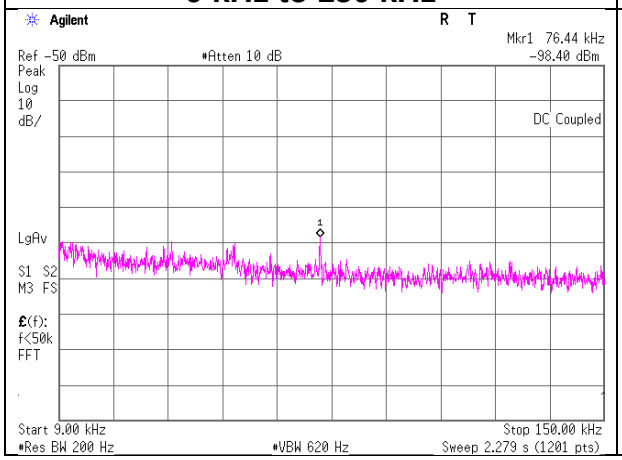
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)

N: Number of output

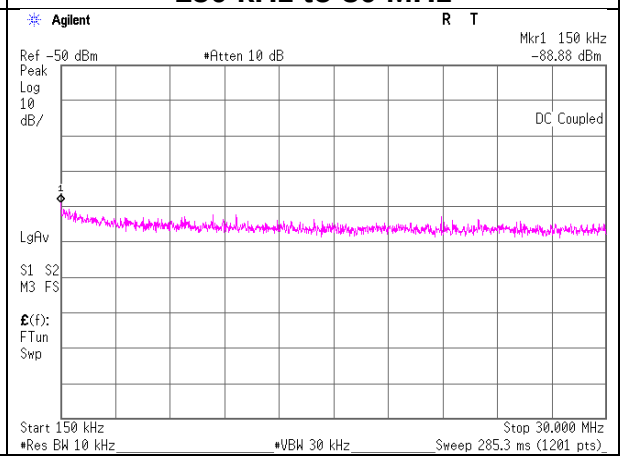
Conducted Spurious Emission
(BT1)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2440 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



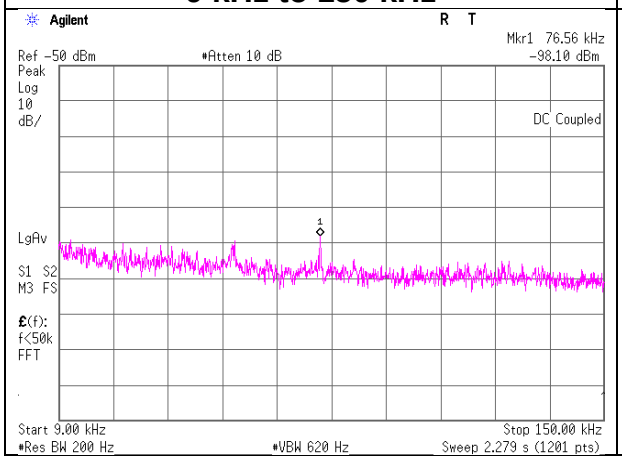
Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.44	-98.4	0.50	9.7	4.0	1	-84.2	300	6.0	-23.0	29.9	52.9
150.00	-88.9	0.51	9.7	4.0	1	-74.7	300	6.0	-13.4	24.0	37.4

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)
N: Number of output

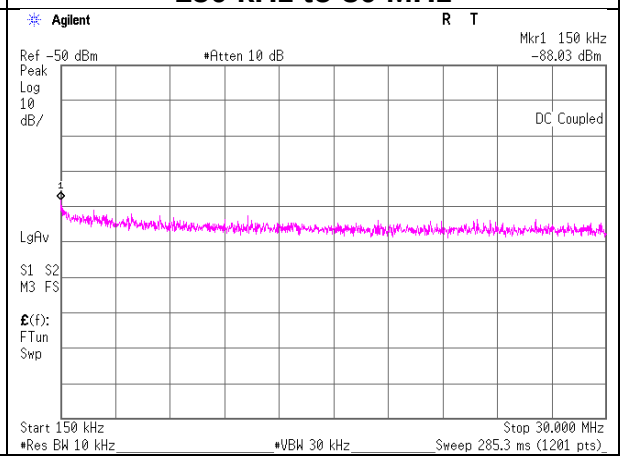
Conducted Spurious Emission
(BT1)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2480 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



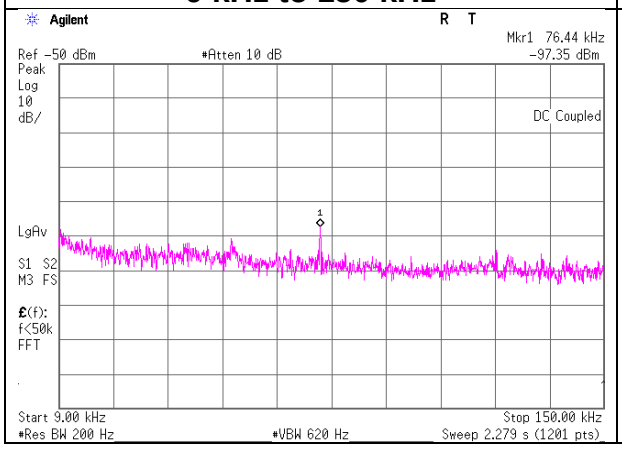
Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.56	-98.1	0.50	9.7	4.0	1	-83.9	300	6.0	-22.7	29.9	52.6
150.00	-88.0	0.51	9.7	4.0	1	-73.9	300	6.0	-12.6	24.0	36.6

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)
N: Number of output

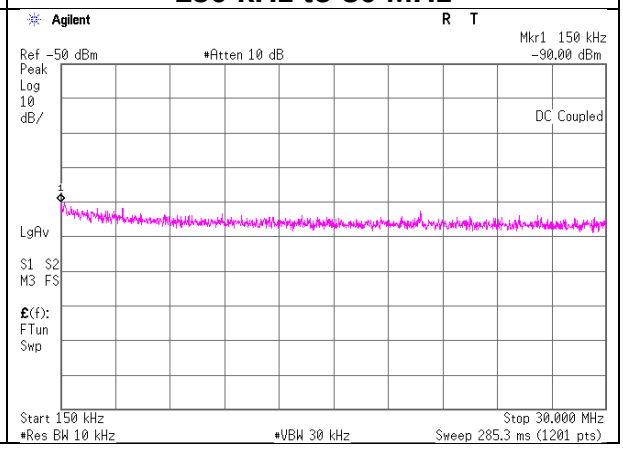
Conducted Spurious Emission
(BT1)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2402 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



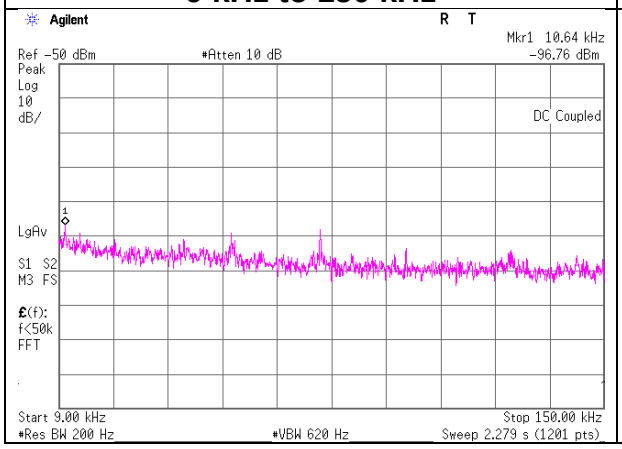
Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.44	-97.4	0.50	9.7	4.0	1	-83.2	300	6.0	-21.9	29.9	51.8
150.00	-90.0	0.51	9.7	4.0	1	-75.8	300	6.0	-14.6	24.0	38.6

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)
N: Number of output

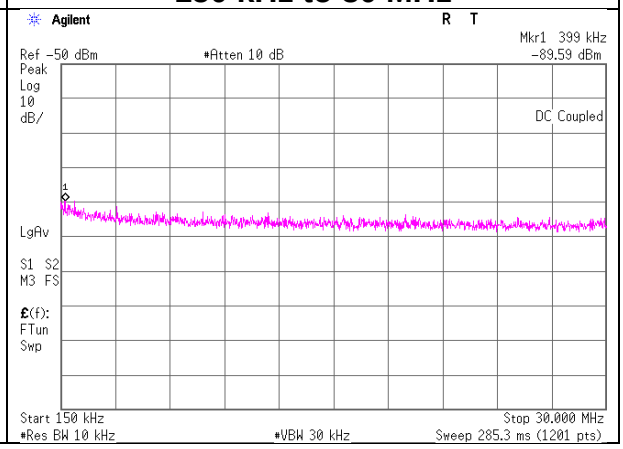
Conducted Spurious Emission
(BT1)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2440 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



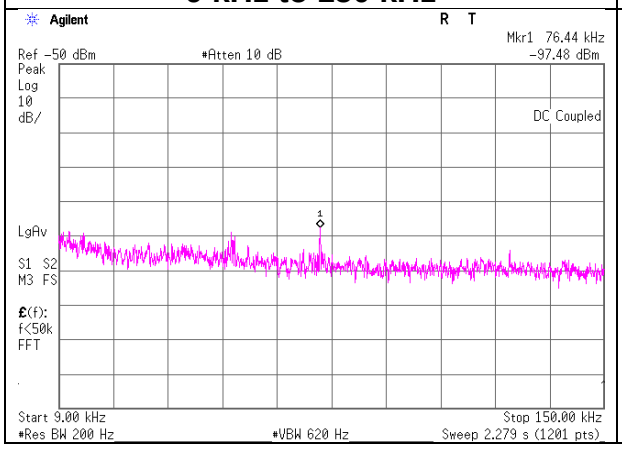
Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
10.64	-96.8	0.50	9.7	4.0	1	-82.6	300	6.0	-21.3	47.0	68.3
399.00	-89.6	0.51	9.7	4.0	1	-75.4	300	6.0	-14.2	15.5	29.7

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)
N: Number of output

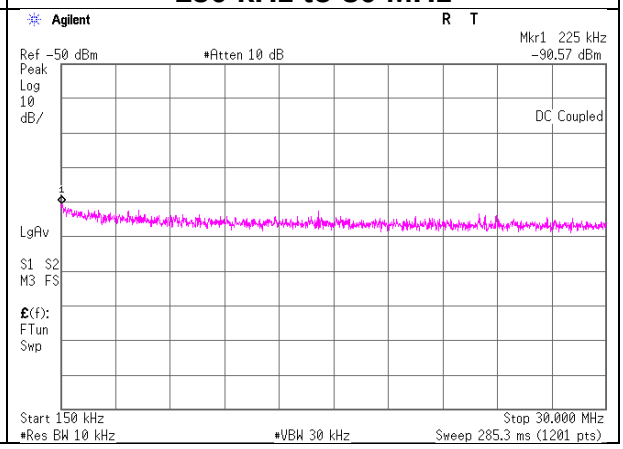
Conducted Spurious Emission
(BT1)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2480 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



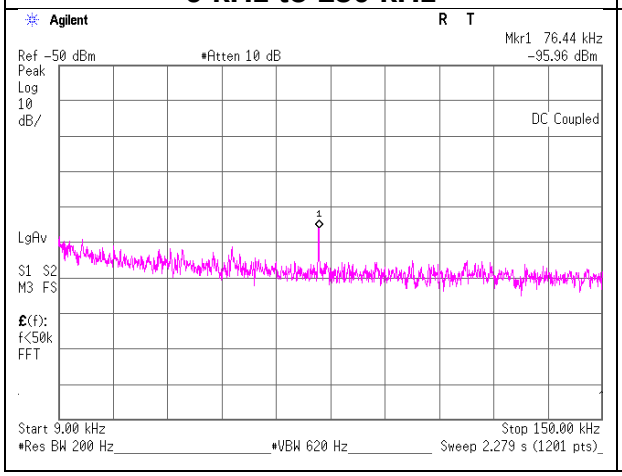
Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.44	-97.5	0.50	9.7	4.0	1	-83.3	300	6.0	-22.1	29.9	52.0
225.00	-90.6	0.51	9.7	4.0	1	-76.4	300	6.0	-15.1	20.5	35.6

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)
N: Number of output

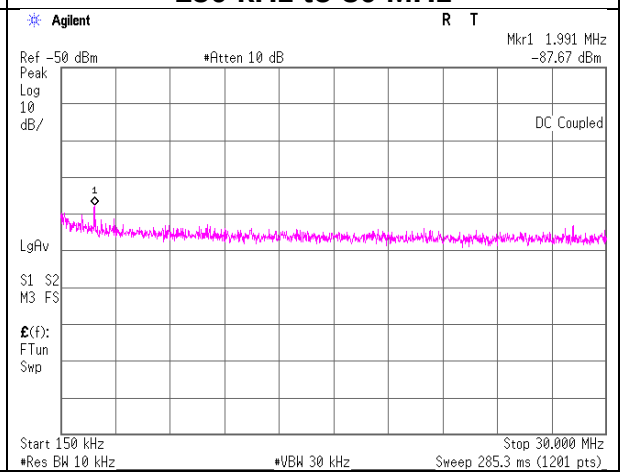
Conducted Spurious Emission
(BT2)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2402 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.44	-96.0	0.50	9.7	3.5	1	-82.3	300	6.0	-21.0	29.9	50.9
1991.00	-87.7	0.51	9.7	3.5	1	-74.0	30	6.0	7.3	29.5	22.3

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]

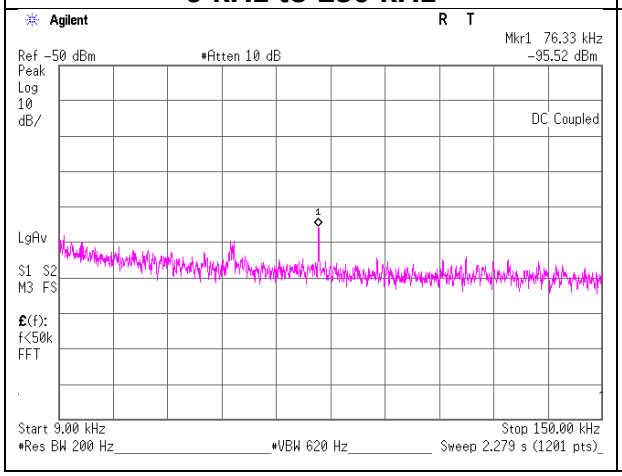
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)

N: Number of output

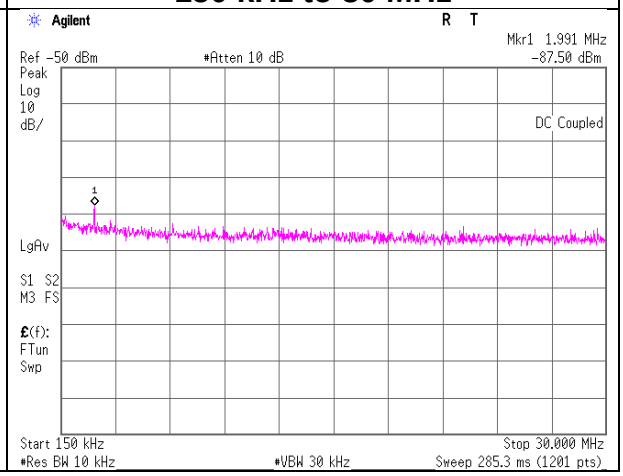
Conducted Spurious Emission
(BT2)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2440 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.33	-95.5	0.50	9.7	3.5	1	-81.9	300	6.0	-20.6	29.9	50.5
1991.00	-87.5	0.51	9.7	3.5	1	-73.8	30	6.0	7.4	29.5	22.1

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]

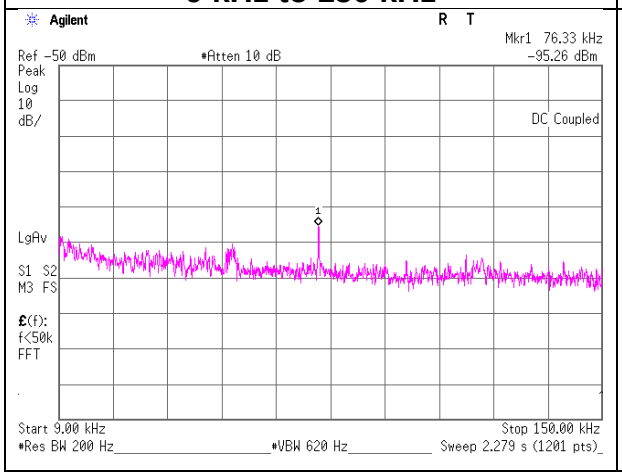
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)

N: Number of output

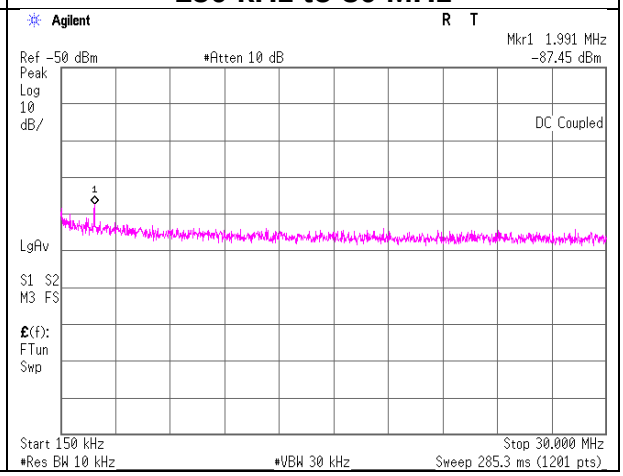
Conducted Spurious Emission
(BT2)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 1M 2480 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.33	-95.3	0.50	9.7	3.5	1	-81.6	300	6.0	-20.3	29.9	50.2
1991.00	-87.5	0.51	9.7	3.5	1	-73.8	30	6.0	7.5	29.5	22.1

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]

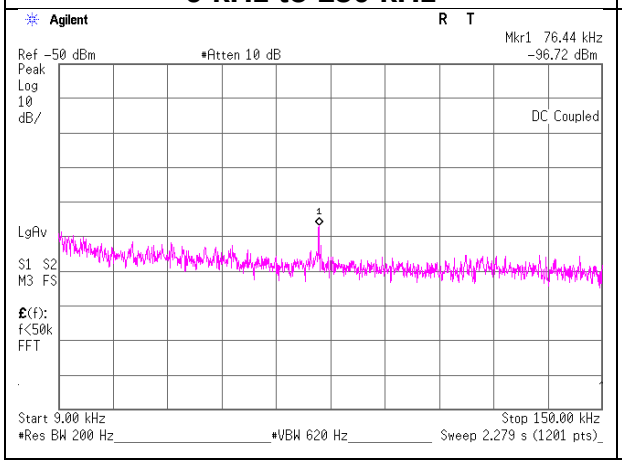
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)

N: Number of output

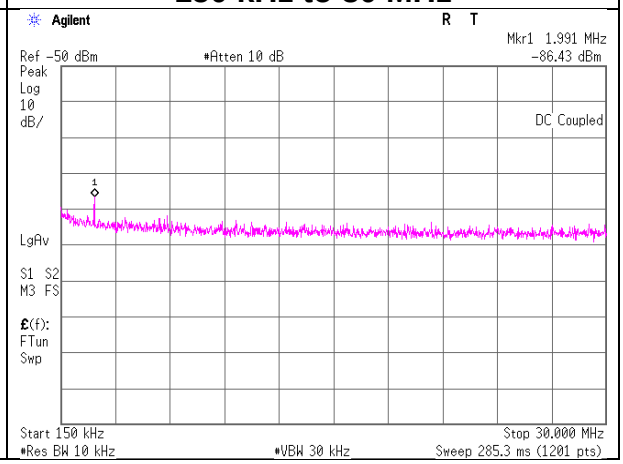
Conducted Spurious Emission
(BT2)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2402 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.44	-96.7	0.50	9.7	3.5	1	-83.1	300	6.0	-21.8	29.9	51.7
1991.00	-86.4	0.51	9.7	3.5	1	-72.8	30	6.0	8.5	29.5	21.0

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]

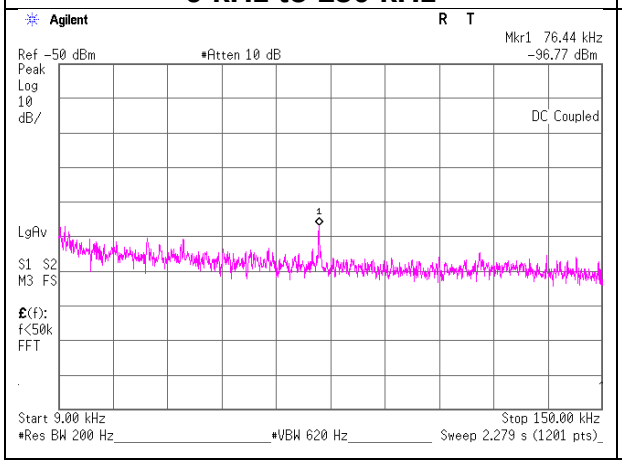
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)

N: Number of output

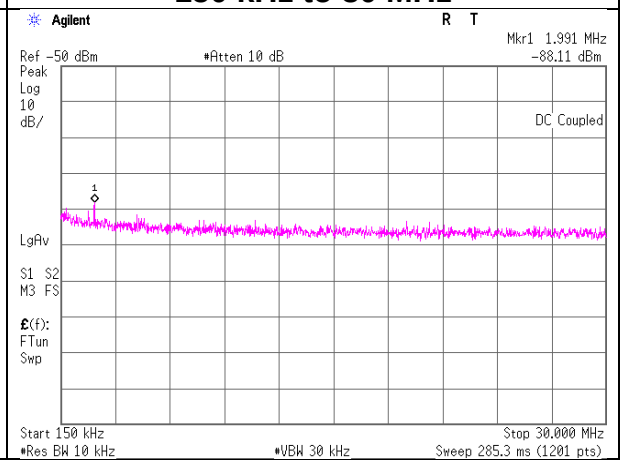
Conducted Spurious Emission
(BT2)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2440 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.44	-96.8	0.50	9.7	3.5	1	-83.1	300	6.0	-21.8	29.9	51.7
1991.00	-88.1	0.51	9.7	3.5	1	-74.4	30	6.0	6.8	29.5	22.7

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]

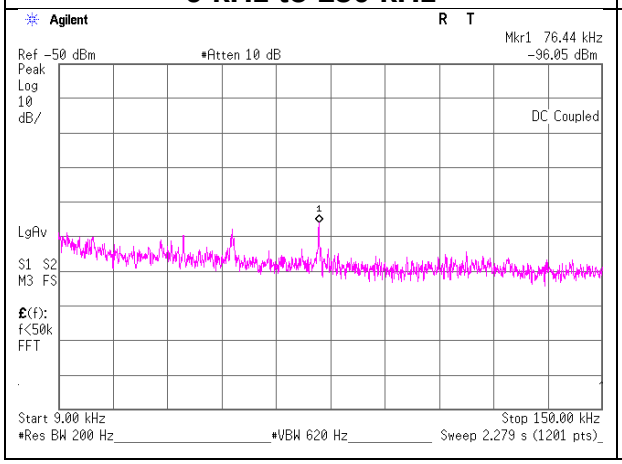
EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)

N: Number of output

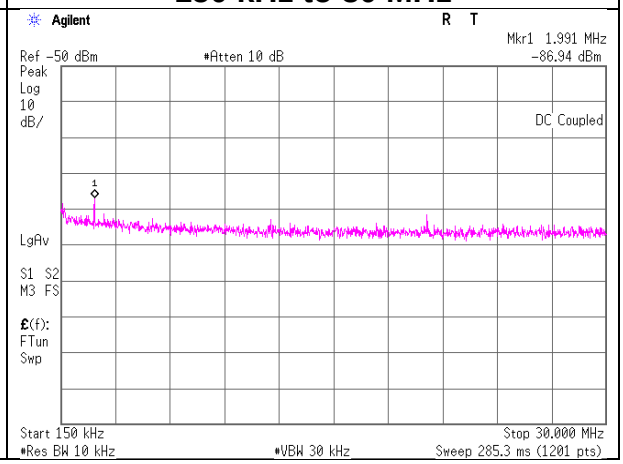
Conducted Spurious Emission
(BT2)

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 23, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE 2M 2480 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
76.44	-96.1	0.50	9.7	3.5	1	-82.4	300	6.0	-21.1	29.9	51.0
1991.00	-86.9	0.51	9.7	3.5	1	-73.3	30	6.0	8.0	29.5	21.5

E [dBuV/m] = EIRP [dBm] - 20 log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]

EIRP[dBm] = Reading [dBm] + Cable loss [dB] + Attenuator Loss [dB] + Antenna gain [dBi] + 10 * log (N)

N: Number of output

Power Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11b

Antenna 1 + Antenna 2

Freq. [MHz]	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	0.055	0.076	***-8.84***	***0.131***	8.00	16.84
2437	0.051	0.068	-9.25	0.119	8.00	17.25
2462	0.070	0.056	-9.01	0.125	8.00	17.01

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	-34.02	1.57	19.87	-12.58	0.055	8.00	20.58
2437	-34.41	1.58	19.87	-12.96	0.051	8.00	20.96
2462	-33.03	1.58	19.87	***-11.58***	***0.070***	8.00	19.58

Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	-32.66	1.57	19.87	***-11.22***	***0.076***	8.00	19.22
2437	-33.10	1.58	19.87	-11.65	0.068	8.00	19.65
2462	-33.97	1.58	19.87	-12.52	0.056	8.00	20.52

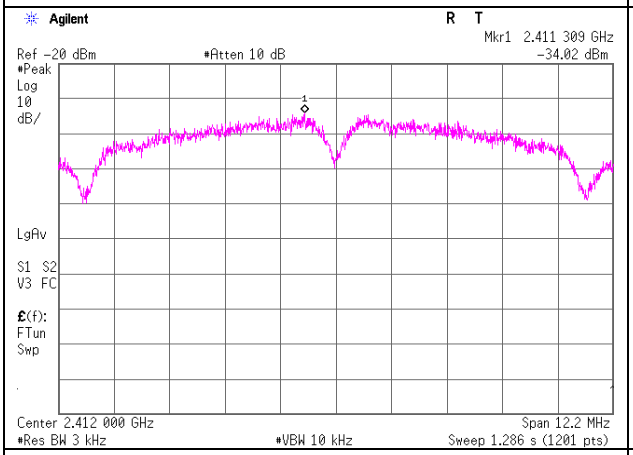
Sample Calculation:

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

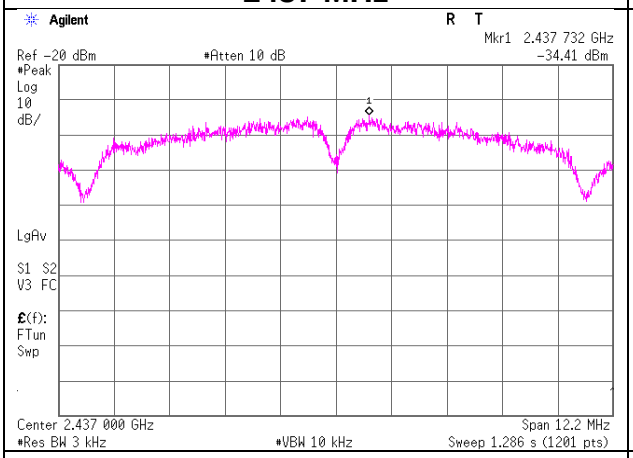
Power Density

11b Antenna 1

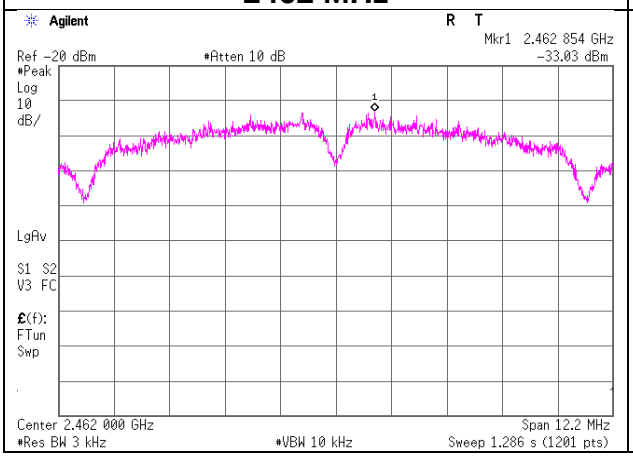
2412 MHz



2437 MHz

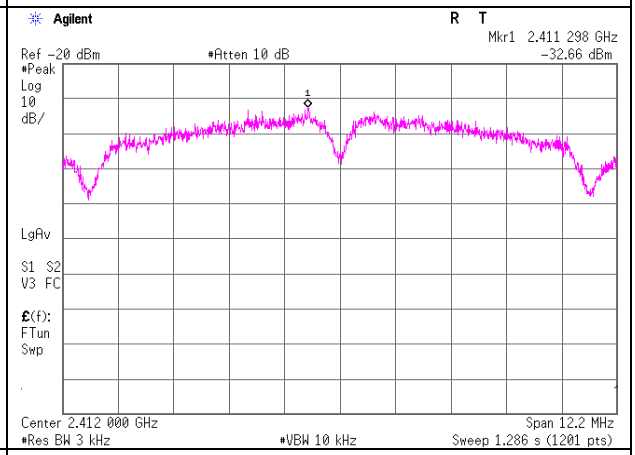


2462 MHz

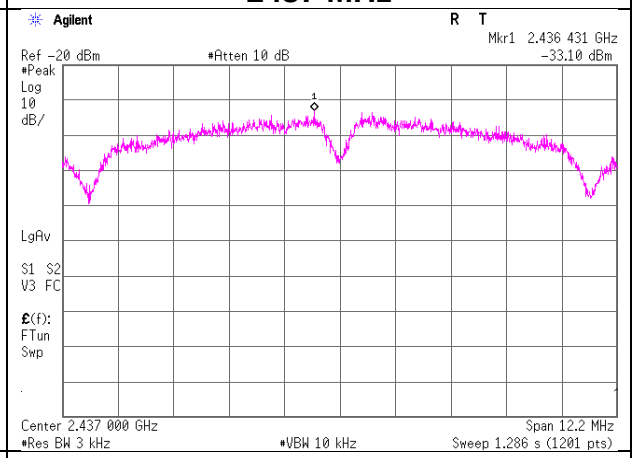


11b Antenna 2

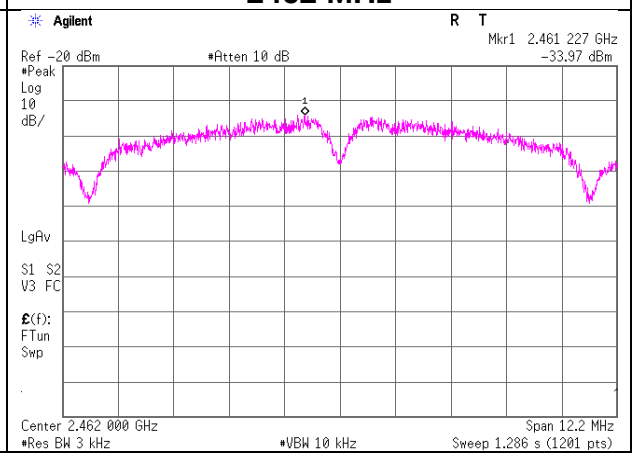
2412 MHz



2437 MHz



2462 MHz



Power Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 25, 2024
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11g

Antenna 1 + Antenna 2

Freq. [MHz]	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	0.028	0.034	-12.07	0.062	8.00	20.07
2437	0.040	0.039	***-11.02***	***0.079***	8.00	19.02
2462	0.028	0.039	-11.76	0.067	8.00	19.76

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	-36.95	1.57	19.87	-15.51	0.028	8.00	23.51
2437	-35.40	1.58	19.87	***-13.95***	***0.040***	8.00	21.95
2462	-37.03	1.58	19.87	-15.58	0.028	8.00	23.58

Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	-36.13	1.57	19.87	-14.69	0.034	8.00	22.69
2437	-35.57	1.58	19.87	-14.12	0.039	8.00	22.12
2462	-35.53	1.58	19.87	***-14.08***	***0.039***	8.00	22.08

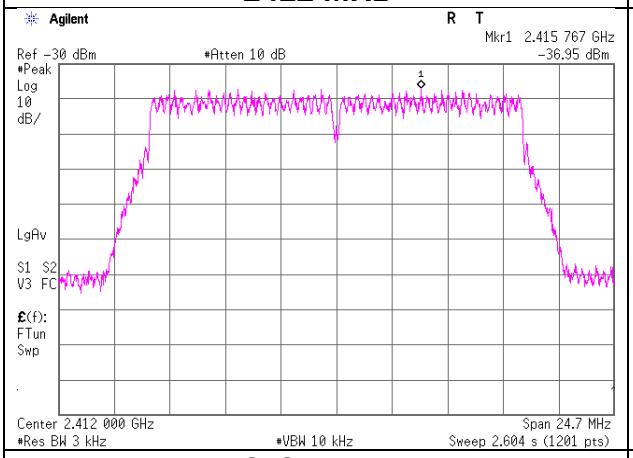
Sample Calculation:

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

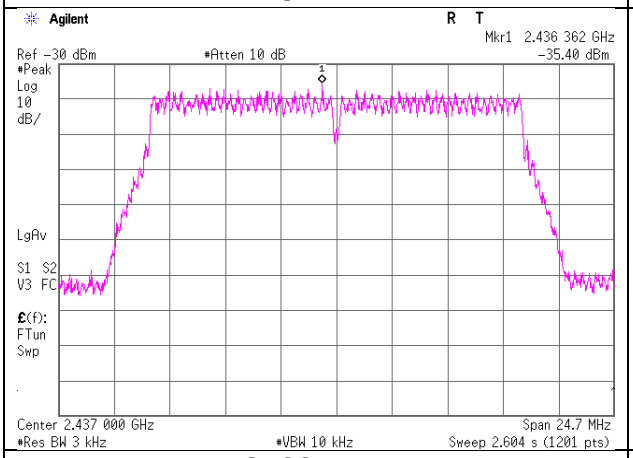
Power Density

11g Antenna 1

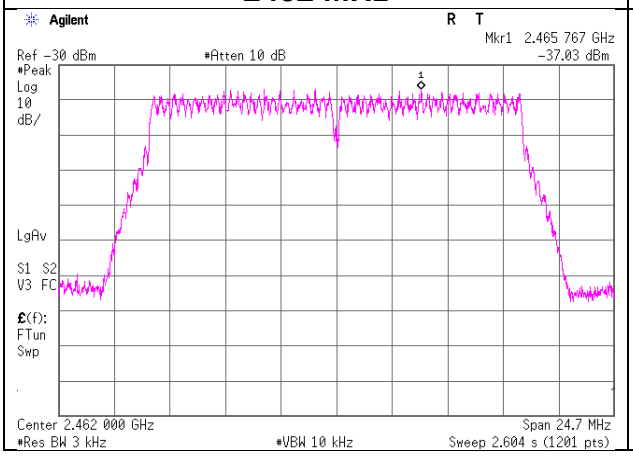
2412 MHz



2437 MHz

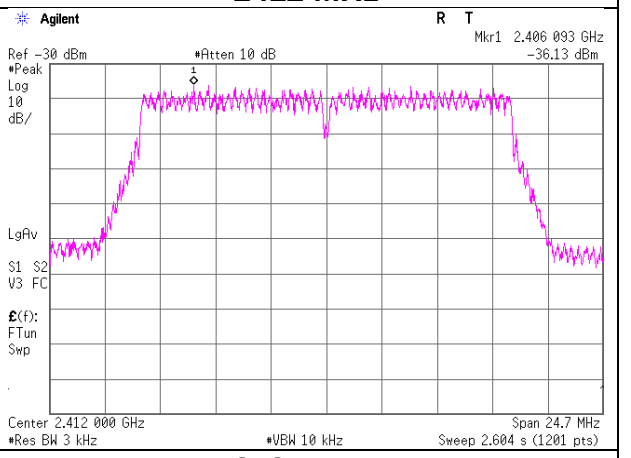


2462 MHz

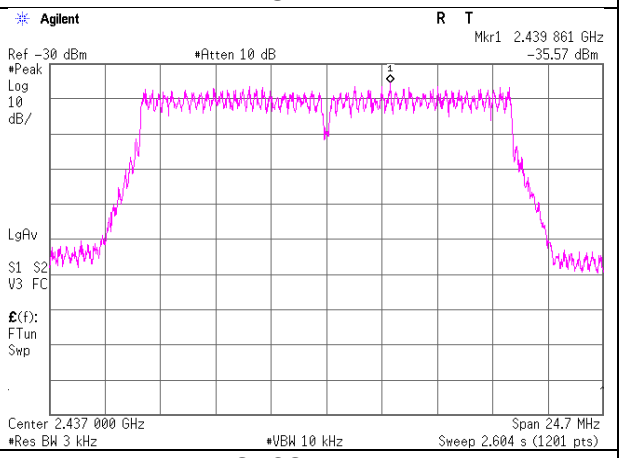


11g Antenna 2

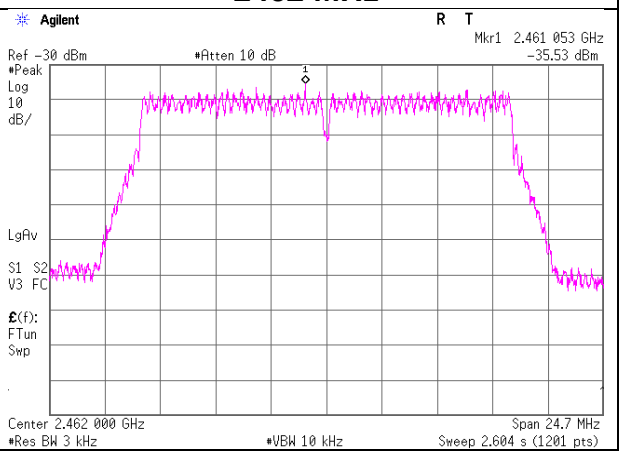
2412 MHz



2437 MHz



2462 MHz



Power Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 25, 2024
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11n-20

Antenna 1 + Antenna 2

Freq. [MHz]	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	0.029	0.037	***-11.79***	***0.066***	8.00	19.79
2437	0.028	0.031	-12.31	0.059	8.00	20.31
2462	0.026	0.027	-12.72	0.053	8.00	20.72

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	-36.82	1.57	19.87	***-15.38***	***0.029***	8.00	23.38
2437	-36.97	1.58	19.87	-15.52	0.028	8.00	23.52
2462	-37.27	1.58	19.87	-15.82	0.026	8.00	23.82

Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	-35.73	1.57	19.87	***-14.29***	***0.037***	8.00	22.29
2437	-36.57	1.58	19.87	-15.12	0.031	8.00	23.12
2462	-37.09	1.58	19.87	-15.64	0.027	8.00	23.64

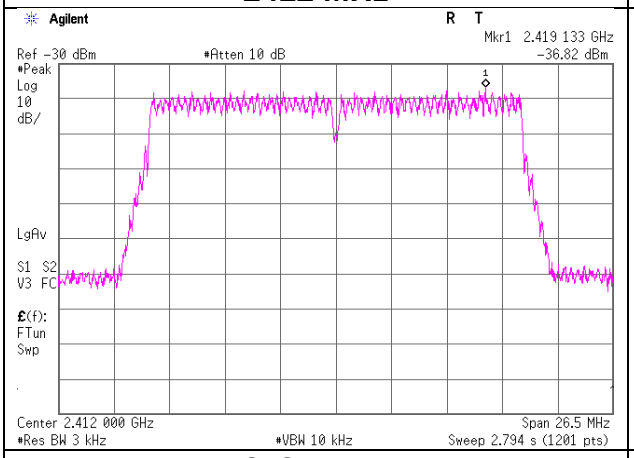
Sample Calculation:

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

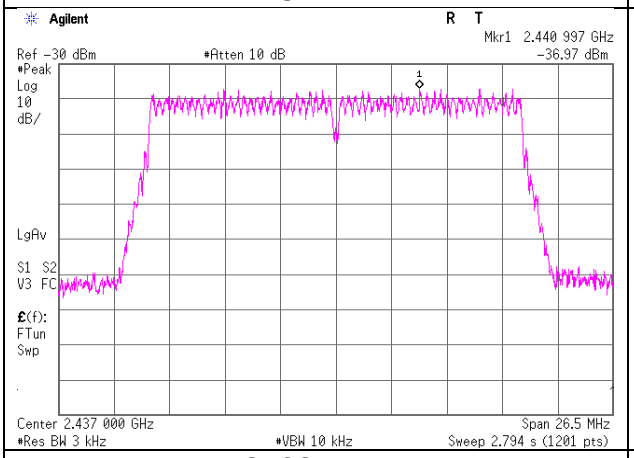
Power Density

11n-20 Antenna 1

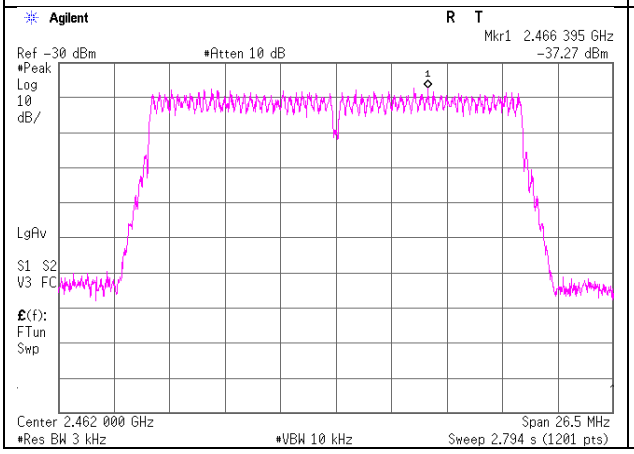
2412 MHz



2437 MHz

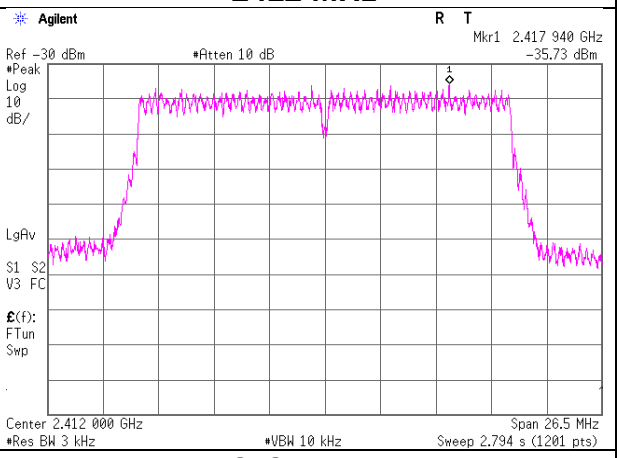


2462 MHz

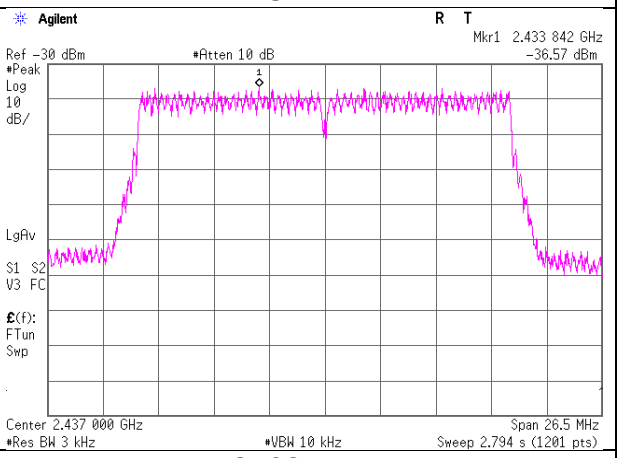


11n-20 Antenna 2

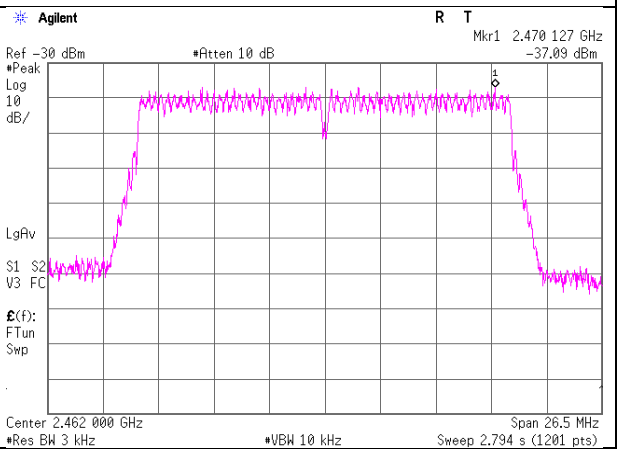
2412 MHz



2437 MHz



2462 MHz



Power Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 25, 2024
Temperature / Humidity	22 deg. C / 39 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [OFDM]

Antenna 1 + Antenna 2

Freq. [MHz]	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	0.025	0.027	-12.86	0.052	8.00	20.86
2437	0.030	0.033	***-11.97***	***0.063***	8.00	19.97
2462	0.029	0.033	-12.09	0.062	8.00	20.09

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	-37.49	1.57	19.87	-16.05	0.025	8.00	24.05
2437	-36.66	1.58	19.87	***-15.21***	***0.030***	8.00	23.21
2462	-36.79	1.58	19.87	-15.34	0.029	8.00	23.34

Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2412	-37.14	1.57	19.87	-15.70	0.027	8.00	23.70
2437	-36.22	1.58	19.87	***-14.77***	***0.033***	8.00	22.77
2462	-36.33	1.58	19.87	-14.88	0.033	8.00	22.88

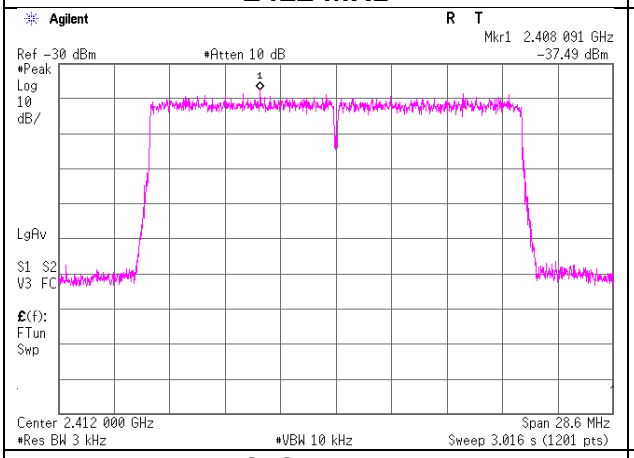
Sample Calculation:

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

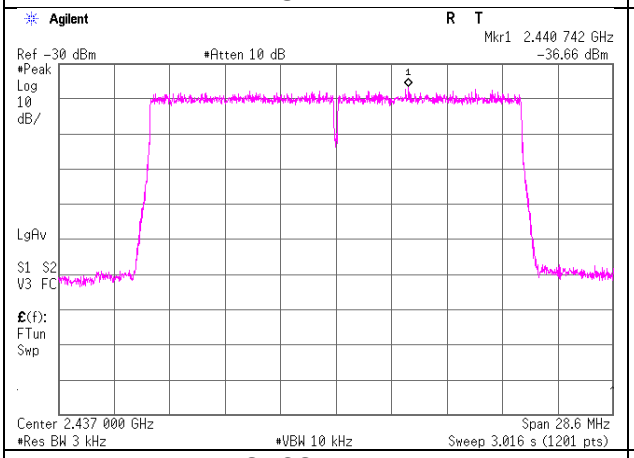
Power Density

11be-20 [OFDM] Antenna 1

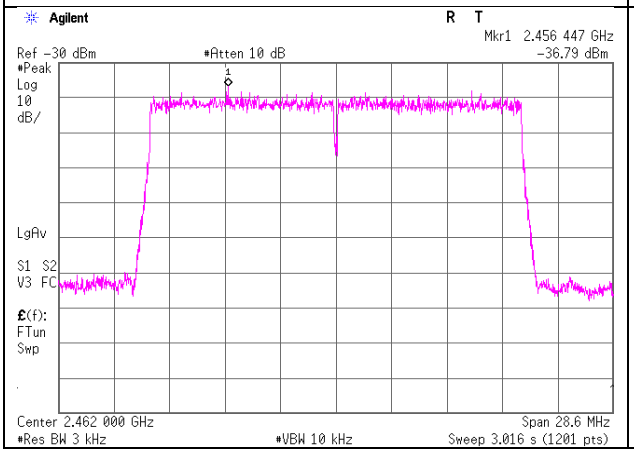
2412 MHz



2437 MHz

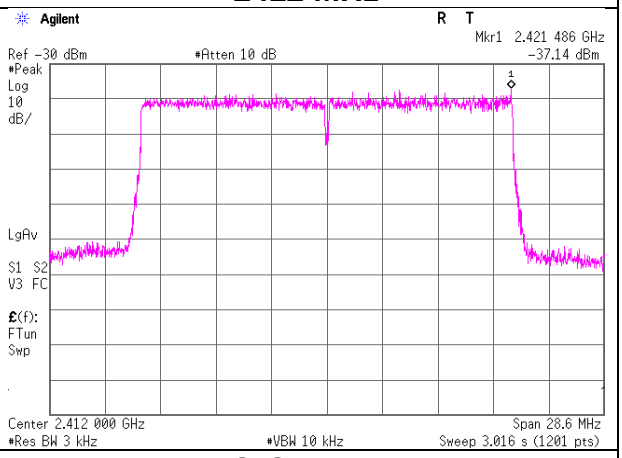


2462 MHz

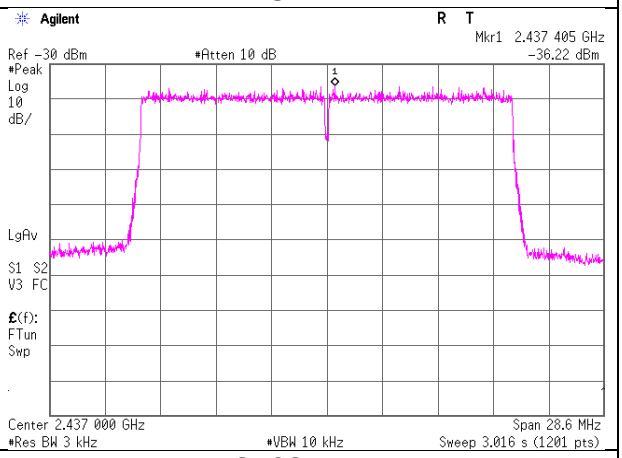


11be-20 [OFDM] Antenna 2

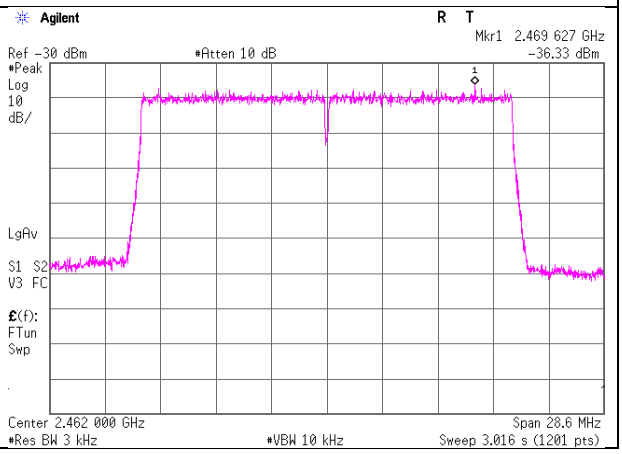
2412 MHz



2437 MHz



2462 MHz



Power Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [26-tone RU]

Antenna 1 + Antenna 2

RU Type	Freq. [MHz]	RU Index	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
26-tone RU	2412	0	0.034	0.030	***-11.97***	***0.064***	8.00	19.97
	2437	4	0.023	0.025	-13.19	0.048	8.00	21.19
	2462	8	0.018	0.021	-14.09	0.039	8.00	22.09

Sample Calculation:
Result = Antenna 1 + Antenna 2

Antenna 1

RU Type	Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
26-tone RU	2412	0	-36.17	1.57	19.87	***-14.73***	***0.034***	8.00	22.73
	2437	4	-37.79	1.58	19.87	-16.34	0.023	8.00	24.34
	2462	8	-38.89	1.58	19.87	-17.44	0.018	8.00	25.44

Antenna 2

RU Type	Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
26-tone RU	2412	0	-36.69	1.57	19.87	***-15.25***	***0.030***	8.00	23.25
	2437	4	-37.51	1.58	19.87	-16.06	0.025	8.00	24.06
	2462	8	-38.23	1.58	19.87	-16.78	0.021	8.00	24.78

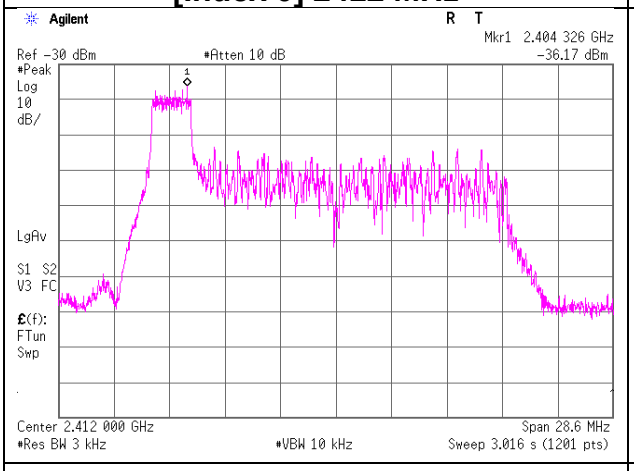
Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

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

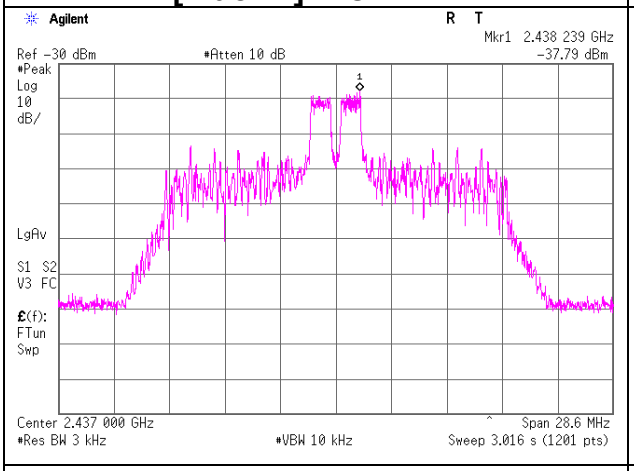
Power Density

11be-20 [26-tone RU] Antenna 1

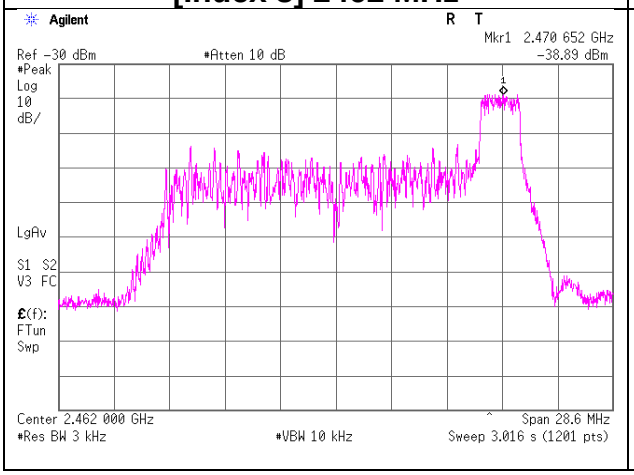
[Index 0] 2412 MHz



[Index 4] 2437 MHz

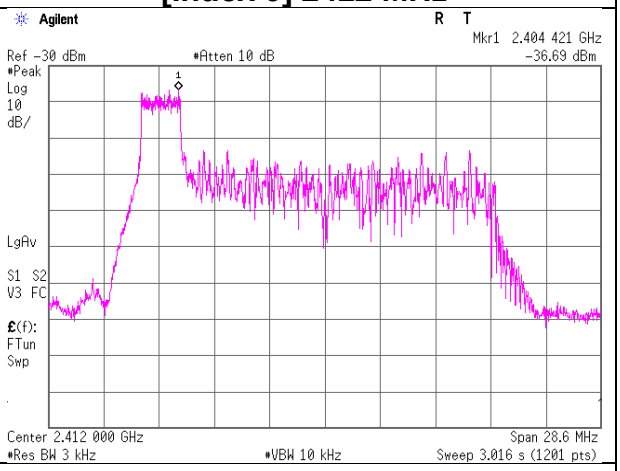


[Index 8] 2462 MHz

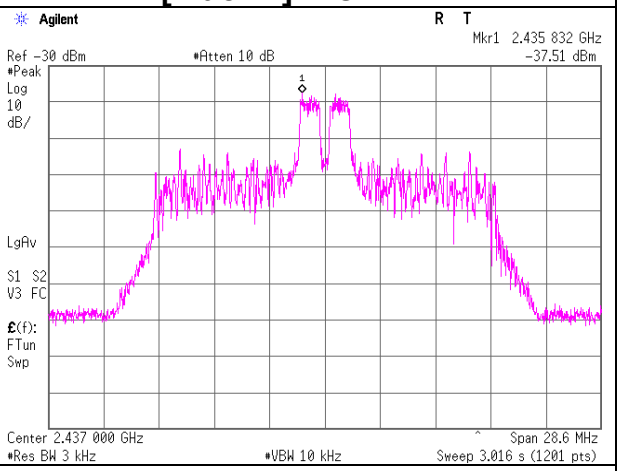


11be-20 [26-tone RU] Antenna 2

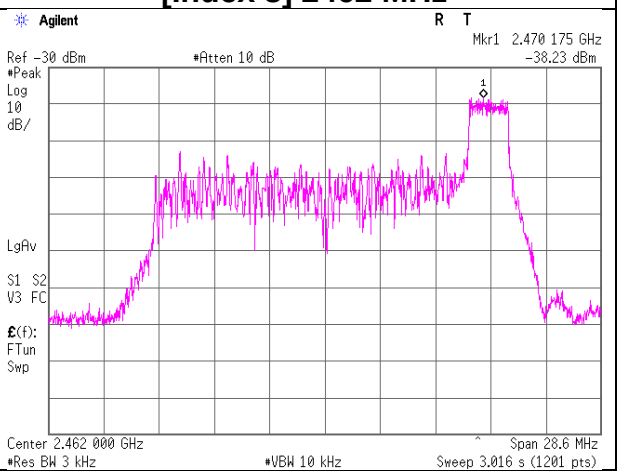
[Index 0] 2412 MHz



[Index 4] 2437 MHz



[Index 8] 2462 MHz



Power Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [52-tone RU]

Antenna 1 + Antenna 2

RU Type	Freq. [MHz]	RU Index	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
52-tone RU	2412	37	0.029	0.037	***-11.82***	***0.066***	8.00	19.82
	2437	38	0.031	0.032	-12.06	0.062	8.00	20.06
	2462	40	0.028	0.032	-12.22	0.060	8.00	20.22

Sample Calculation:
Result = Antenna 1 + Antenna 2

Antenna 1

RU Type	Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
52-tone RU	2412	37	-36.85	1.57	19.87	-15.41	0.029	8.00	23.41
	2437	38	-36.58	1.58	19.87	***-15.13***	***0.031***	8.00	23.13
	2462	40	-36.99	1.58	19.87	-15.54	0.028	8.00	23.54

Antenna 2

RU Type	Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
52-tone RU	2412	37	-35.76	1.57	19.87	***-14.32***	***0.037***	8.00	22.32
	2437	38	-36.46	1.58	19.87	-15.01	0.032	8.00	23.01
	2462	40	-36.39	1.58	19.87	-14.94	0.032	8.00	22.94

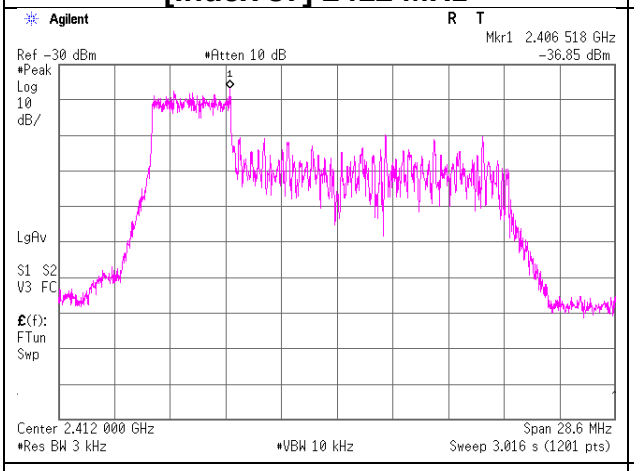
Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

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

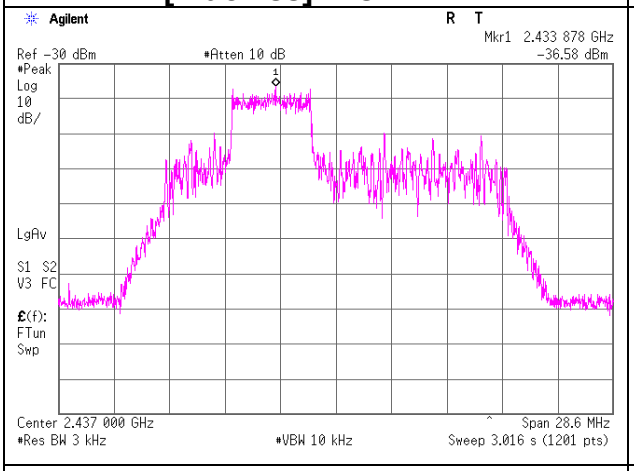
Power Density

11be-20 [52-tone RU] Antenna 1

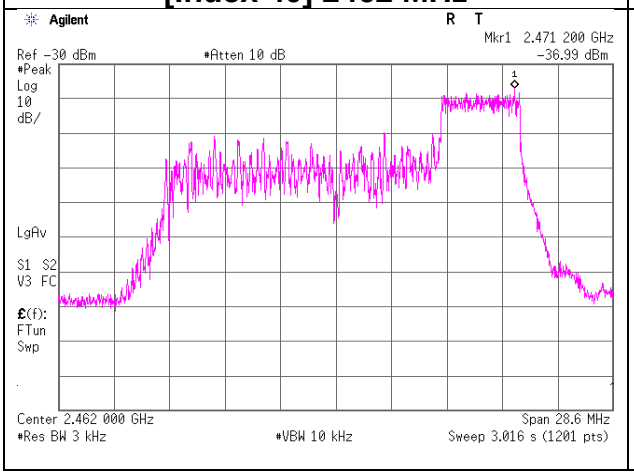
[Index 37] 2412 MHz



[Index 38] 2437 MHz

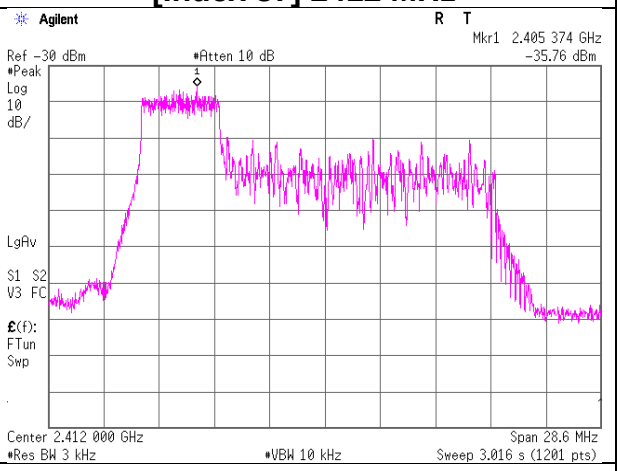


[Index 40] 2462 MHz

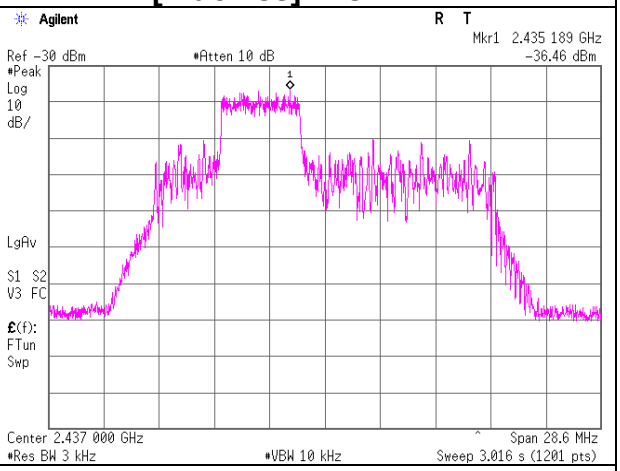


11be-20 [52-tone RU] Antenna 2

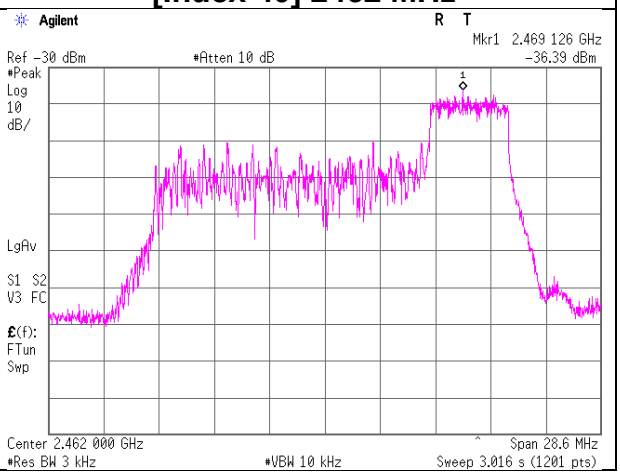
[Index 37] 2412 MHz



[Index 38] 2437 MHz



[Index 40] 2462 MHz



Power Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [106-tone RU]

Antenna 1 + Antenna 2

RU Type	Freq. [MHz]	RU Index	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
106-tone RU	2412	53	0.026	0.027	-12.70	0.054	8.00	20.70
	2437	53	0.025	0.031	***-12.55***	***0.056***	8.00	20.55
	2462	54	0.026	0.028	-12.69	0.054	8.00	20.69

Sample Calculation:
Result = Antenna 1 + Antenna 2

Antenna 1

RU Type	Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
106-tone RU	2412	53	-37.23	1.57	19.87	***-15.79***	***0.026***	8.00	23.79
	2437	53	-37.53	1.58	19.87	-16.08	0.025	8.00	24.08
	2462	54	-37.33	1.58	19.87	-15.88	0.026	8.00	23.88

Antenna 2

RU Type	Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
106-tone RU	2412	53	-37.07	1.57	19.87	-15.63	0.027	8.00	23.63
	2437	53	-36.55	1.58	19.87	***-15.10***	***0.031***	8.00	23.10
	2462	54	-36.97	1.58	19.87	-15.52	0.028	8.00	23.52

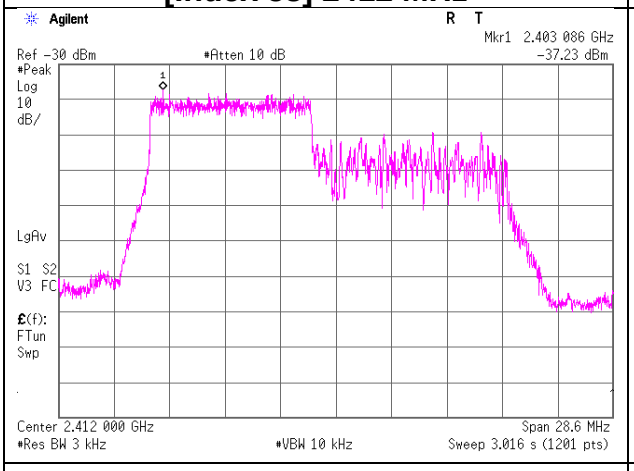
Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

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

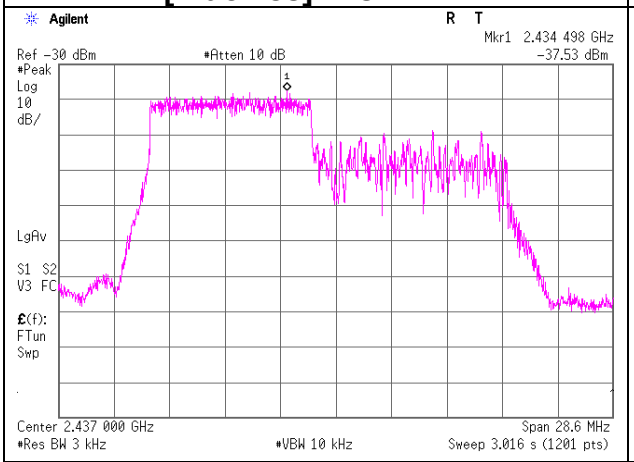
Power Density

11be-20 [106-tone RU] Antenna 1

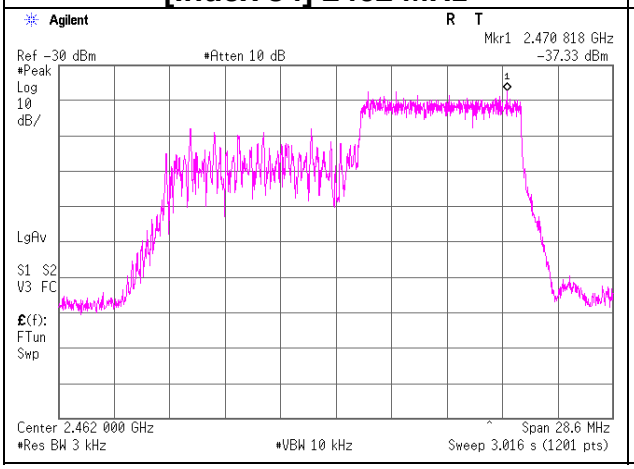
[Index 53] 2412 MHz



[Index 53] 2437 MHz

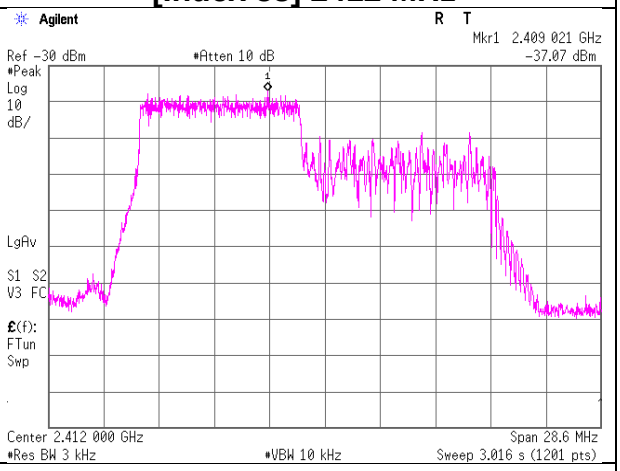


[Index 54] 2462 MHz

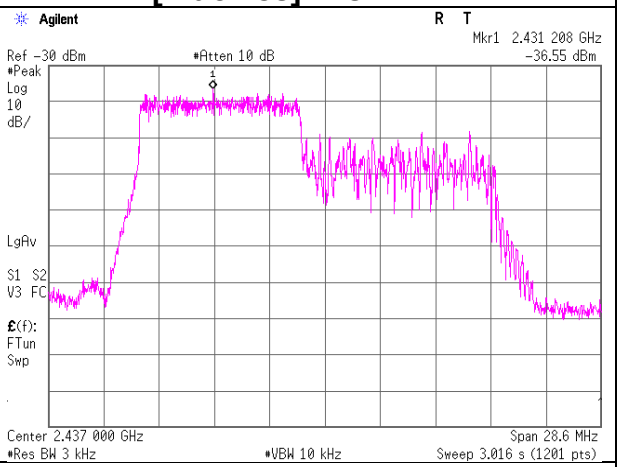


11be-20 [106-tone RU] Antenna 2

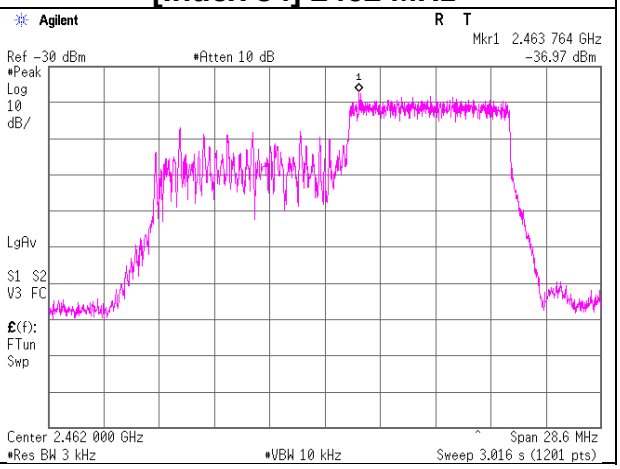
[Index 53] 2412 MHz



[Index 53] 2437 MHz



[Index 54] 2462 MHz



Power Density

Test place	Ise EMC Lab. No.8 Measurement Room
Date	January 26, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Tetsuro Yoshida
Mode	Tx 11be-20 [242-tone RU]

Antenna 1 + Antenna 2

RU Type	Freq. [MHz]	RU Index	Antenna 1 Result [mW]	Antenna 2 Result [mW]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
242-tone RU	2412	61	0.024	0.030	-12.68	0.054	8.00	20.68
	2437	61	0.025	0.026	-12.89	0.051	8.00	20.89
	2462	61	0.030	0.026	***-12.54***	***0.056***	8.00	20.54

Sample Calculation:
Result = Antenna 1 + Antenna 2

Antenna 1

RU Type	Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
242-tone RU	2412	61	-37.70	1.57	19.87	-16.26	0.024	8.00	24.26
	2437	61	-37.49	1.58	19.87	-16.04	0.025	8.00	24.04
	2462	61	-36.67	1.58	19.87	***-15.22***	***0.030***	8.00	23.22

Antenna 2

RU Type	Freq. [MHz]	RU Index	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Result [mW / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
242-tone RU	2412	61	-36.63	1.57	19.87	***-15.19***	***0.030***	8.00	23.19
	2437	61	-37.22	1.58	19.87	-15.77	0.026	8.00	23.77
	2462	61	-37.36	1.58	19.87	-15.91	0.026	8.00	23.91

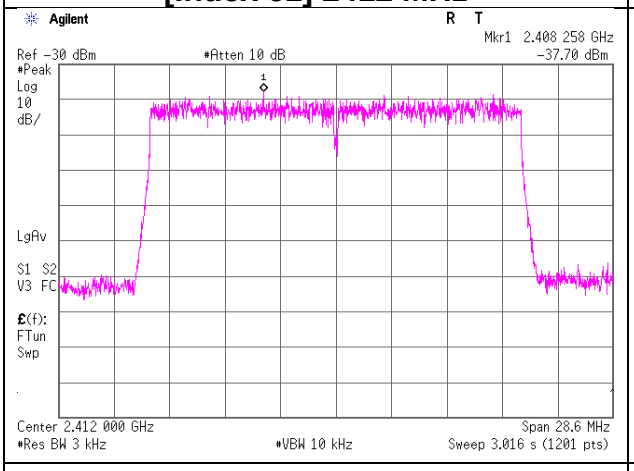
Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

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

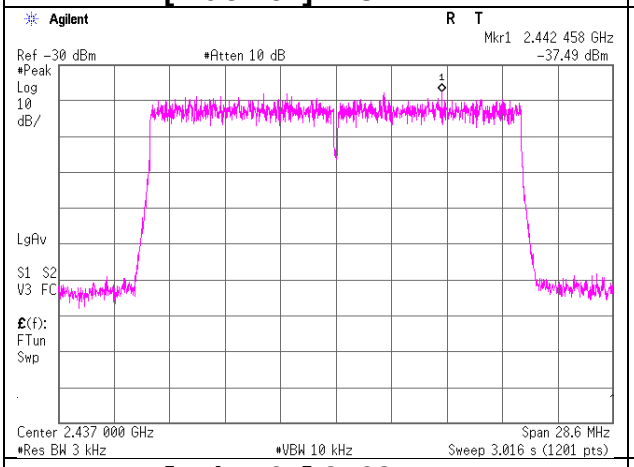
Power Density

11be-20 [242-tone RU] Antenna 1

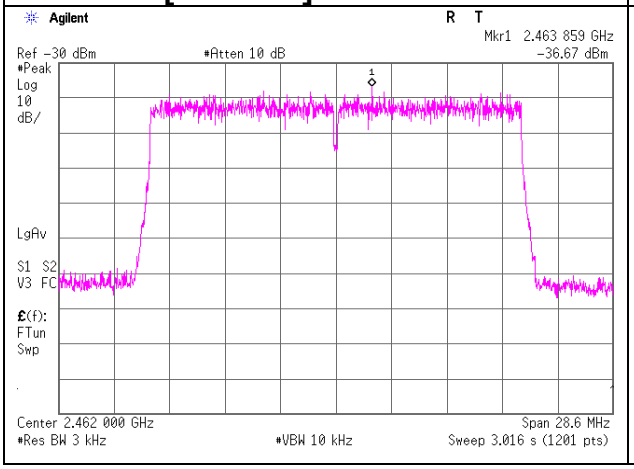
[Index 61] 2412 MHz



[Index 61] 2437 MHz

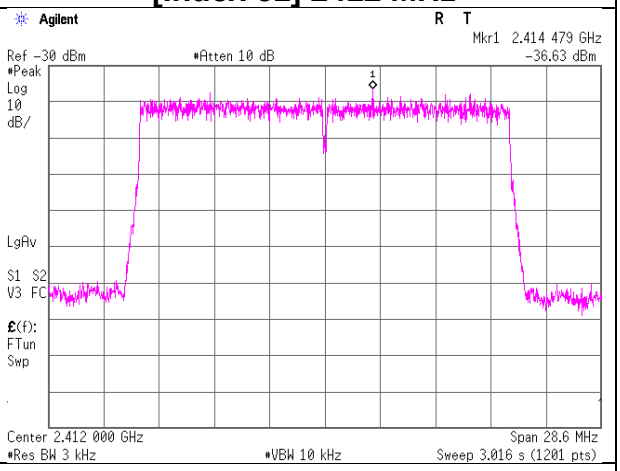


[Index 61] 2462 MHz

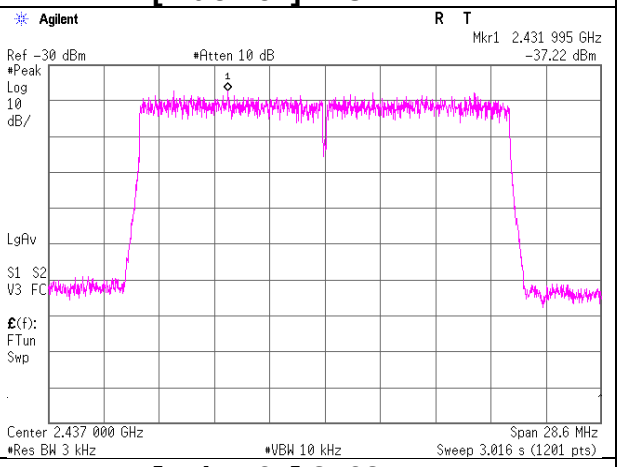


11be-20 [242-tone RU] Antenna 2

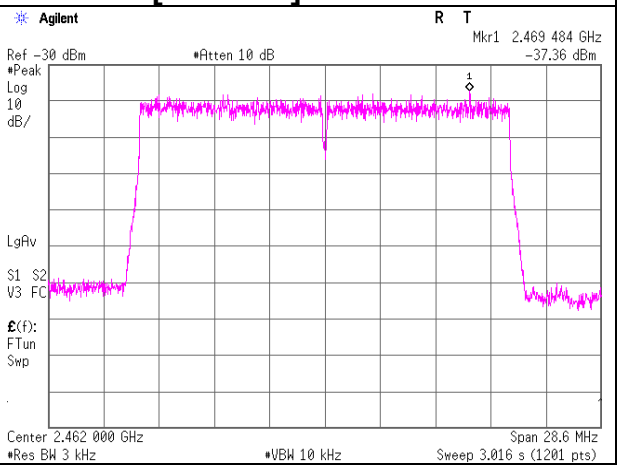
[Index 61] 2412 MHz



[Index 61] 2437 MHz



[Index 61] 2462 MHz



Power Density

Test place	Ise EMC Lab. No.6 Measurement Room
Date	February 25, 2024
Temperature / Humidity	26 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx BT LE

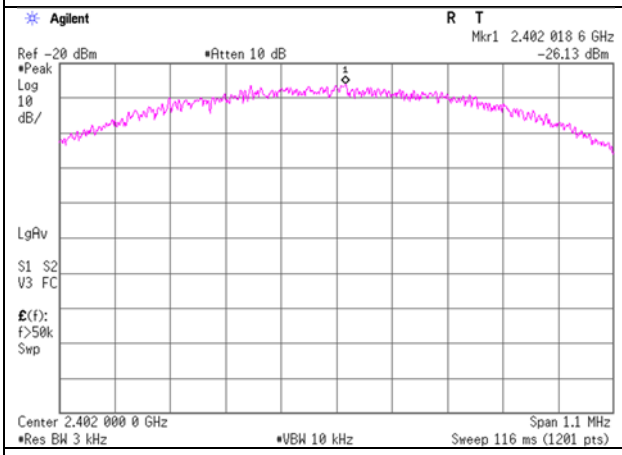
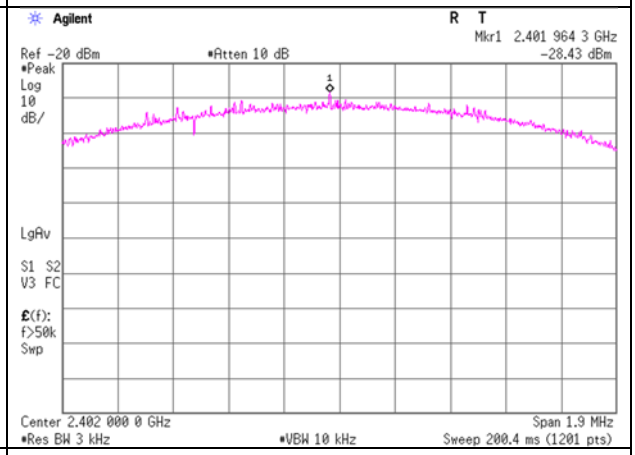
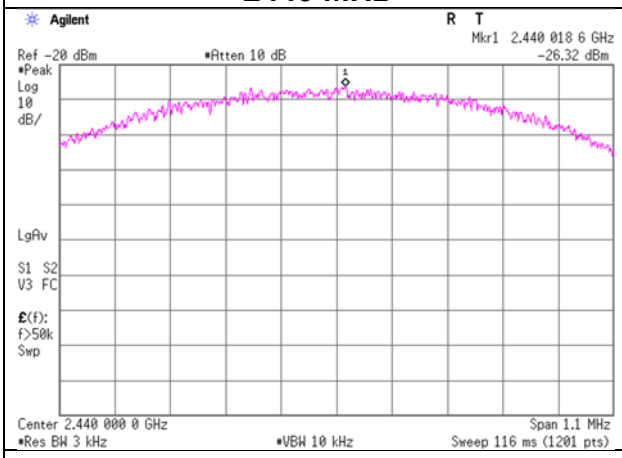
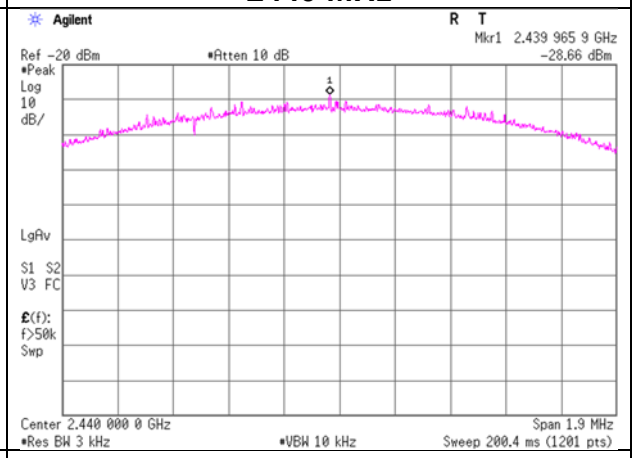
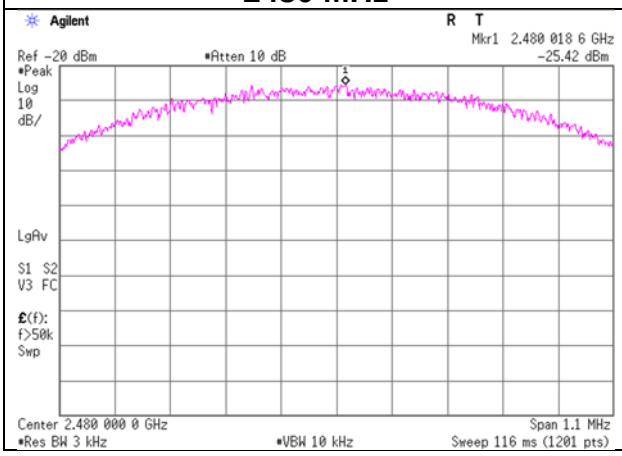
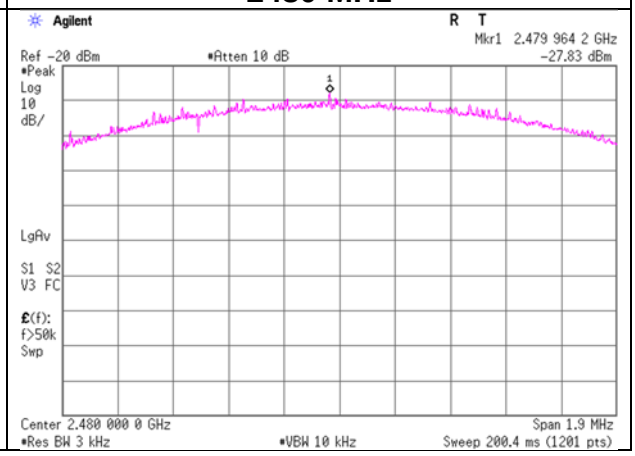
BT1

Mode	Freq. [MHz]	Reading [dBm / 3 kHz]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
1M-PHY	2402	-26.13	1.57	9.98	-14.58	8.00	22.58
	2440	-26.32	1.58	9.98	-14.76	8.00	22.76
	2480	-25.42	1.59	9.98	***-13.85***	8.00	21.85
2M-PHY	2402	-28.43	1.57	9.98	-16.88	8.00	24.88
	2440	-28.66	1.58	9.98	-17.10	8.00	25.10
	2480	-27.83	1.59	9.98	-16.26	8.00	24.26

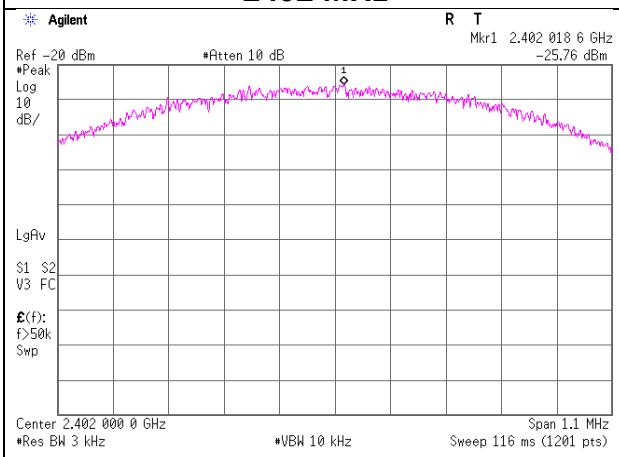
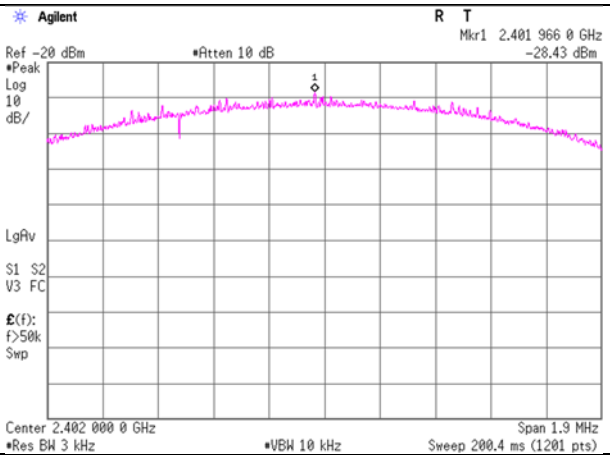
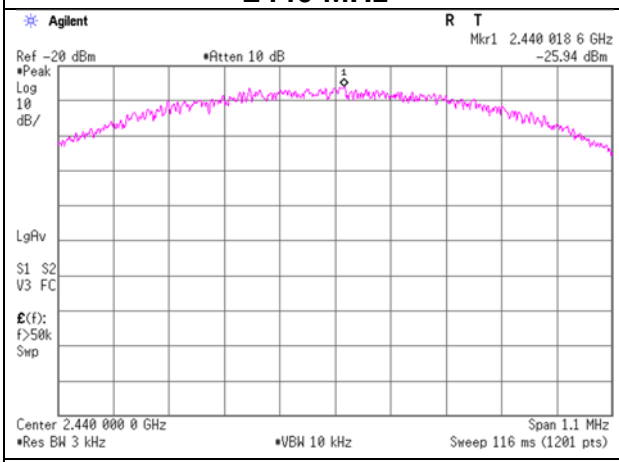
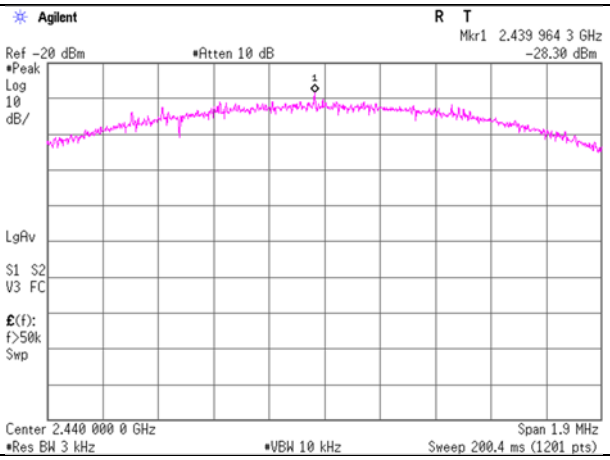
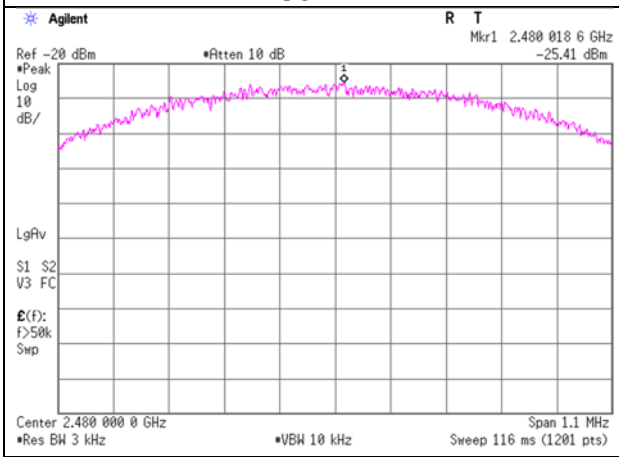
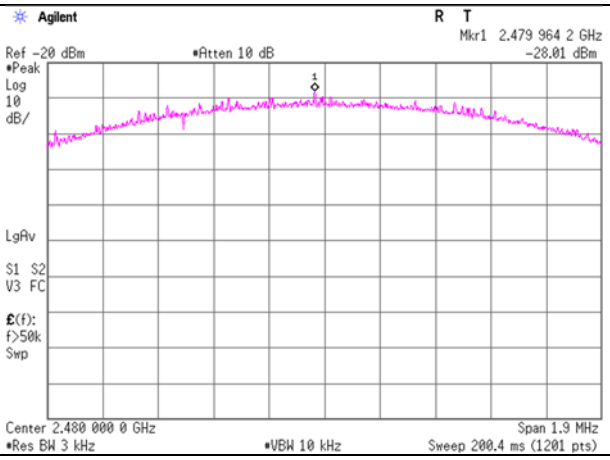
BT2

Mode	Freq. [MHz]	Reading [dBm / 3 kHz]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
1M-PHY	2402	-25.76	1.57	9.98	-14.21	8.00	22.21
	2440	-25.94	1.58	9.98	-14.38	8.00	22.38
	2480	-25.41	1.59	9.98	***-13.84***	8.00	21.84
2M-PHY	2402	-28.43	1.57	9.98	-16.88	8.00	24.88
	2440	-28.30	1.58	9.98	-16.74	8.00	24.74
	2480	-28.01	1.59	9.98	-16.44	8.00	24.44

Power Density
(BT1)

BT LE 1M-PHY	BT LE 2M-PHY
2402 MHz	**2402 MHz**
	
2440 MHz	**2440 MHz**
	
2480 MHz	**2480 MHz**
	

Power Density
(BT2)

BT LE 1M-PHY	BT LE 2M-PHY
2402 MHz	**2402 MHz**
	
2440 MHz	**2440 MHz**
	
2480 MHz	**2480 MHz**
	

APPENDIX 2: Test Instruments

Test Equipment (1/2)

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	141156	Attenuator(10dB)	Weinschel Corp	2	BL1173	11/17/2023	12
AT	141173	Attenuator(10dB)(above1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	12/11/2023	12
AT	141244	Attenuator(10dB)	Weinschel - API Technologies Corp	WA8-10-34	A198	02/01/2023	12
AT	141333	Attenuator(10dB)	Suhner	6810.19.A	-	12/11/2023	12
AT	141366	Attenuator	Weinschel Associates	WA56-20	56200213	05/18/2023	12
AT	141395	Coaxial Cable	UL Japan	-	-	11/21/2023	12
AT	141414	Microwave Cable	Junkosha	MWX221	1207S407	08/01/2023	12
AT	141419	Attenuator	Weinschel Associates	WA56-10	56100305	05/18/2023	12
AT	141420	Attenuator	Weinschel Associates	WA56-10	56100307	05/18/2023	12
AT	141557	DIGIITAL HiTESTER	HIOKI E.E. CORPORATION	3805	070900530	01/31/2024	12
AT	141558	Digital Tester(TRUE RMS MULTIMETER)	Fluke Corporation	115	17930030	05/29/2023	12
AT	141561	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	1401	-	-
AT	141572	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	3401	01/10/2024	12
AT	141809	Power Meter	Anritsu Corporation	ML2495A	825002	05/26/2023	12
AT	141810	Power Meter	Anritsu Corporation	ML2495A	824014	12/12/2023	12
AT	141830	Power sensor	Anritsu Corporation	MA2411B	738285	05/26/2023	12
AT	141832	Power sensor	Anritsu Corporation	MA2411B	738174	12/12/2023	12
AT	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	03/13/2023	12
AT	141901	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY48250080	01/26/2024	12
AT	141903	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46186390	01/26/2024	12
AT	142225	Tape Measure	ASKUL	-	-	-	-
AT	196430	Microwave Cable	Huber+Suhner	SF102D/11PC24/11PC24/1000mm	537059/126EA	02/02/2023	12
AT	197220	Microwave cable	Huber+Suhner	SF126E/11PC35/11PC35/2000MM	537003/126E	03/08/2023	12
AT	244711	Thermo-Hygrometer	HIOKI E.E. CORPORATION	LR5001	231202105	01/25/2024	12
AT	244712	Thermo-Hygrometer	HIOKI E.E. CORPORATION	LR5001	231202106	01/25/2024	12
CE	141222	Coaxial Cable	Fujikura,HP,Mini-Circits,Fujikura	3D-2W(12m)/ 5D-2W(5m)/ 5D-2W(0.8m)/ 5D-2W(1m)	-	02/01/2023	12
CE	141290	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	12/07/2023	12
CE	141357	LISN(AMN)	Schwarzbeck Mess-Elektronik OHG	NSLK8127	8127-729	07/05/2023	12
CE	141542	Digital Tester	Fluke Corporation	FLUKE 26-3	78030611	08/01/2023	12
CE	141938	Terminator	TME	CT-01BP	-	12/04/2023	12
CE	141951	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	04/10/2023	12
CE	142004	AC2_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	12/12/2023	24
CE	142228	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-
CE	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
CE	192300	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	0013	-	-

Test Equipment (2/2)

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	141232	High Pass Filter 3.5-18.0GHz	UL Japan	HPF SELECTOR	001	09/04/2023	12
RE	141265	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-190	07/11/2023	12
RE	141317	Coaxial Cable	UL Japan	-	-	09/12/2023	12
RE	141427	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103B+ BBA9106	08031	07/11/2023	12
RE	141503	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	06/23/2023	12
RE	141512	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	254	10/17/2023	12
RE	141542	Digital Tester	Fluke Corporation	FLUKE 26-3	78030611	08/01/2023	12
RE	141579	Pre Amplifier	Keysight Technologies Inc	8449B	3008A02142	02/17/2024	12
RE	141594	Pre Amplifier	Keysight Technologies Inc	8447D	2944A10150	02/02/2023	12
RE	141900	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46185823	06/16/2023	12
RE	141904	Spectrum Analyzer	Keysight Technologies Inc	N9030A	US51350215	11/08/2023	12
RE	141949	Test Receiver	Rohde & Schwarz	ESCI	100767	05/17/2023	12
RE	141978	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY46180899	03/06/2023	12
RE	142004	AC2_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	12/12/2023	24
RE	142006	AC2_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-06902	10/20/2023	12
RE	142228	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-
RE	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	192300	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	0013	-	-
RE	220646	Attenuator	Huber+Suhner	6806_N-50-1	-	03/17/2023	12
RE	238712	Double Ridge Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA 9120 C	687	08/10/2023	12
RE	240023	Microwave Cable	Huber+Suhner	SF126E/11PC35/11 PC35/1000MM,5000 MM	537060/126E / 537075/126E	09/08/2023	12

***Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.**

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

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

Test item:

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