RADIO TEST REPORT

Test Report No. 14577969S-D-R2

Customer	**CANON INC.**
Description of EUT	**Wireless Microphone**
Model Number of EUT	**DS586234**
FCC ID	**AZD251**
Test Regulation	**FCC Part 15 Subpart C**
Test Result	**Complied**
Issue Date	**June 7, 2024**
Remarks	**-**

Representative Test Engineer	Approved By
Kenichi Adachi Engineer	Toyokazu Imamura Engineer

CERTIFICATE 1266.03

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

UL Japan, Inc. Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 Japan / +81-463-50-6400

ANNOUNCEMENT

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

REVISION HISTORY

Original Test Report No.: 14577969S-D

This report is a revised version of 14677969S-D-R1. 14577969S-D-R1 is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	14577969S-D	May 13, 2024	-
1	14577969S-D-R1	May 27, 2024	p.5 Corrected rating: DC 3.3 V -> DC 3.6 V p.6 Corrected remarks *1) Before: *1) The test is not applicable since the EUT does not have AC mains. After: *1) This product does not require AC power line testing because wireless operation stops when power is supplied from the USB cable. p.9,14, 25-27 Added Conducted Spurious Emission p.11 Corrected model name: DSS58624 -> DS586234 p.19, 21, 22: Corrected equation Before: Calculation: Result= Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier (below 18 GHz)) – Gain (PreAmplifier) + Distance factor After: Calculation: Result= Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 -18 GHz)) – Gain (PreAmplifier: (only above18 GHz)) + Distance factor *2) *2) The data are not shown in the table above because no recordable noise was detected while measurements were made above 18 GHz using external PreAmplifer.
2	14577969S-D-R2	June 7, 2024	p.19, 21, 22: Corrected equation Before: Calculation: Result= Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 -18 GHz)) – Gain (PreAmplifier: (only above18 GHz)) + Distance factor *2) After: Calculation: Result= Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 -18 GHz)) – Gain (PreAmplifier: (only below 1 GHz & above18 GHz)) + Distance factor *2)

Reference: Abbreviations (Including words undescribed in this report)

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

CONTENTS PAGE

SECTION 1: Customer Information

Company Name	CANON INC.
Address	30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo 146-8501, Japan
Telephone Number	+81-3-3757-4264
Contact Person	Tomohiro Suzuki

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 Microphone
Model Number	DS586234
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	November 1, 2023 and February 1, 2024
Test Date	November 6, 2023 to February 15, 2024

2.2 Product Description

General Specification

Rating	DC 3.6 V
Operating temperature	-20 deg. C to +40 deg. C

Radio Specification

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

Bluetooth (Low Energy)

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	GFSK
Antenna Type	Pattern antenna
Antenna Gain a)	-1.56 dBi

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	N/A	N/A	*1)
	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)	3.6 dB 4880.000 MHz, AV, Horizontal	Complied	Radiated (above 30 MHz) *2)
	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) This product does not require AC power line testing because wireless operation stops when power is supplied from the USB cable.
*2) 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)
This EUT provides the stable voltage constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

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

3.3 Addition to Standard

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

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

3.4 Uncertainty

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

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

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

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector) SPM-06	1.1 dB
Power Measurement above 1 GHz (Peak Detector) SPM-06	1.8 dB
Power Measurement above 1 GHz (Average Detector) SPM-07	1.0 dB
Power Measurement above 1 GHz (Peak Detector) SPM-07	1.2 dB
Power Measurement above 1 GHz (Average Detector) SPM-13	0.81 dB
Power Measurement above 1 GHz (Peak Detector) SPM-13	1.1 dB
Spurious Emission (Conducted) below 1 GHz	0.91 dB
Conducted Emissions Power Density Measurement 1 GHz to 3 GHz	1.3 dB
Conducted Emissions Power Density Measurement 3 GHz to 18 GHz	2.5 dB
Spurious Emission (Conducted) 18 GHz to 26.5 GHz	2.8 dB
Spurious Emission (Conducted) 26.5 GHz to 40 GHz	2.6 dB
Bandwidth Measurement	0.012 %
Duty Cycle and Time Measurement	0.27 %
Temperature_SCH-01	0.96 deg.C.
Humidity_SCH-01	4.0 %
Temperature_SCH-02	2.2 deg.C.
Voltage	0.74 %

3.5 Test Location

UL Japan, Inc. Shonan EMC Lab.
1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 Japan
Telephone: +81-463-50-6400
A2LA Certificate Number: 1266.03
(FCC test firm registration number: 626366, ISED lab company number: 2973D / CAB identifier: JP0001)

Test room	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber (SAC1)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber (SAC2)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber (SAC3)	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber (SAC4)	8.1 x 5.1 x 3.55	8.1 x 5.1	-
Wireless anechoic chamber 1 (WAC1)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
Wireless anechoic chamber 2 (WAC2)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
No.1 Shielded room	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 Shielded room	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 Shielded room	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 Shielded room	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 Shielded room	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 Shielded room	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 Shielded room	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room	2.55 x 4.1 x 2.5	-	-
No.2 Measurement room	4.5 x 3.5 x 2.5	-	-
Wireless shielded room 1	3.0 x 4.5 x 2.7	3.0 x 4.5	-
Wireless shielded room 2	3.0 x 4.5 x 2.7	3.0 x 4.5	-

3.6 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

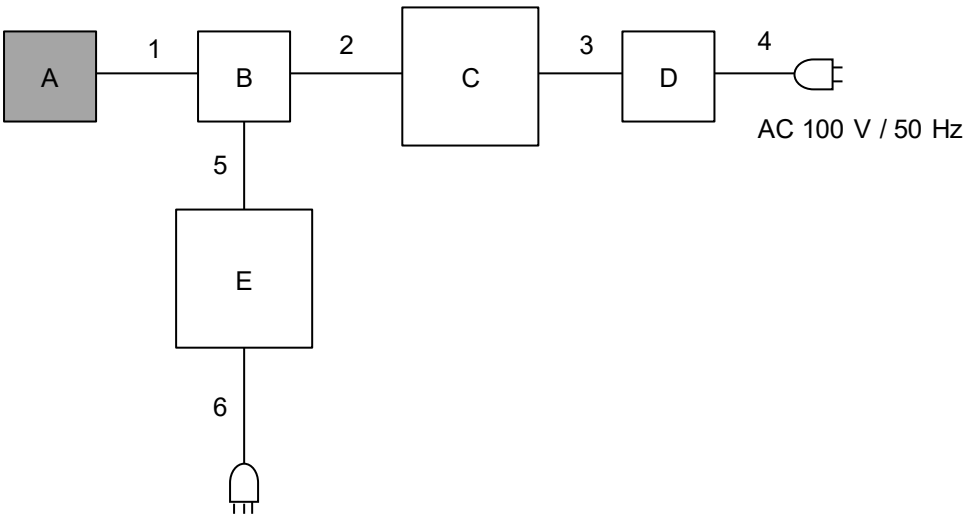
Mode	Remarks*
Bluetooth Low Energy (BT LE)	1 M-PHY Uncoded PHY (1 M-PHY), Maximum Packet Size, PRBS9
*Power of the EUT was set by the software as follows; Power Setting: 0 dBm Software: Direct Test Mode Version: 2.1.0 (Date: 2023.11 01, Storage location: Driven by connected PC) *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

*The Details of Operating Mode(s)

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

4.2 Configuration and Peripherals

<For Antenna Terminal Conducted Tests>



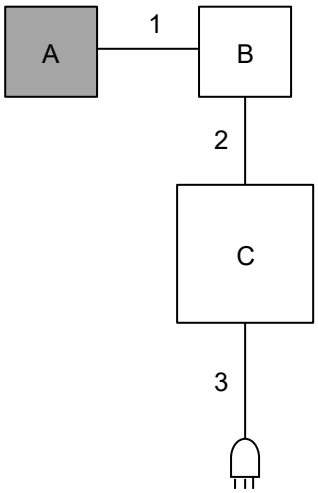
Description of EUT and Support Equipment

No.	Item	Model Number	Serial Number	Manufacturer	Remarks
A	RF module of Wireless Microphone	BL5340	A013	Laird Connectivity, LLC	EUT
B	Jig board	-	18	Canon. Inc	-
C	Laptop Computer	ThinkPad E14 Gen2	PF397TQG	LENOVO	-
D	AC Adapter	ADLX65YCC2D	8SSA10R16922C2TJ19M1368	LENOVO	-
E	Power Supply (DC)	PAN35-10A	ML002085	KIKUSUI	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal	0.1	Unshielded	Unshielded	-
2	USB	0.8	Shielded	Shielded	-
3	DC	1.8	Unshielded	Unshielded	-
4	AC	0.9	Unshielded	Unshielded	-
5	DC	2.4	Unshielded	Unshielded	-
6	AC	1.5	Unshielded	Unshielded	-

<For Radiated Emission Test>



AC 100 V / 50 Hz

* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support Equipment

No.	Item	Model number	Serial Number	Manufacturer	Remarks
A	Wireless Microphone	DS586234	60	Canon Inc.	EUT
B	Jig Borad	-	-	Canon Inc.	-
C	Power Supply (DC)	PAN35-10A	CY003459	KIKUSUI	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal	0.12	Unshielded	Unshielded	-
2	DC	1.5	Unshielded	Unshielded	-
3	AC	1.8	Unshielded	Unshielded	-

SECTION 5: 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, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

[For above 1 GHz]
EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane. Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.

The height of the measuring antenna varied between 1 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.
The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Test Antennas are used as below;

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

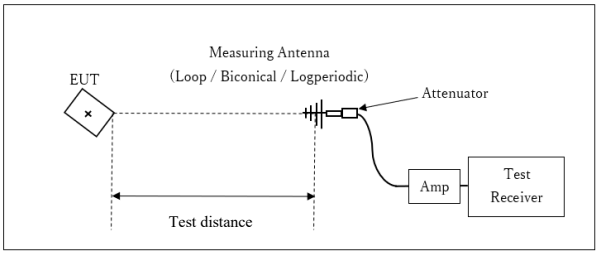
In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired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

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

Frequency	Below 1 GHz	Above 1 GHz		20 dBc
Instrument Used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV	PK
IF Bandwidth	BW 120 kHz	RBW: 1 MHz VBW: 3 MHz	11.12.2.5.2 RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (Linear voltage) Trace: 100 traces Duty factor was added to the results.	RBW: 100 kHz VBW: 300 kHz

Figure 2: Test Setup

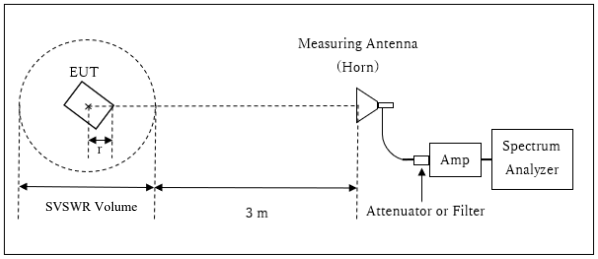
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz

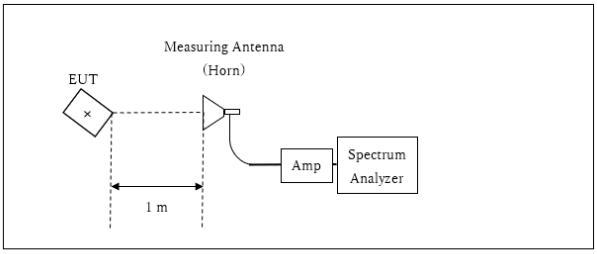


r : Radius of an outer periphery of EUT
× : Center of turn table

Distance Factor: 20 x log (3.97 m / 3.0 m) = 2.43 dB
* Test Distance: (3 + SVSWR Volume /2) - r = 3.97 m

SVSWR Volume : 2.0 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
r = 0.03 m

10 GHz to 26.5 GHz



× : Center of turn table

Distance Factor: 20 x log (1.0 m / 3.0 m) = -9.54 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.

BT LE:

Antenna polarization	Carrier	Spurious (30 MHz to 1 GHz)	Spurious (1 GHz to 2.8 GHz)	Spurious (2.8 GHz to 10 GHz)	Spurious (10 GHz to 18 GHz)	Spurious (18 GHz to 26.5 GHz)
Horizontal	Y	X	Y	Y	X	X
Vertical	Z	X	Z	Z	X	X

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 6: 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
6 dB Bandwidth	3 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 6 dB Bandwidth	3 kHz	9.1 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 not detected 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.

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

Test Data : APPENDIX
Test Result : Pass

APPENDIX 1: Test Data

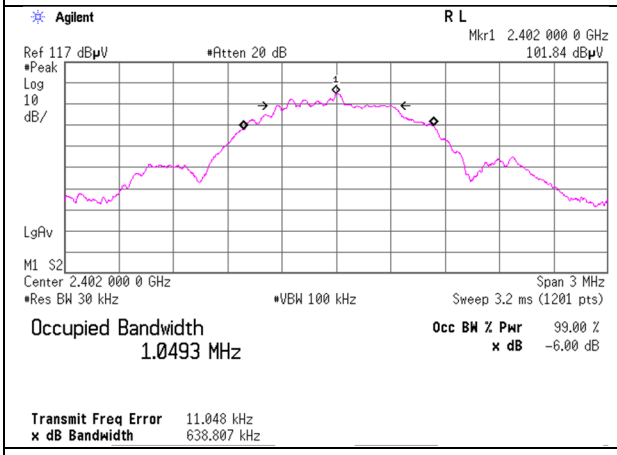
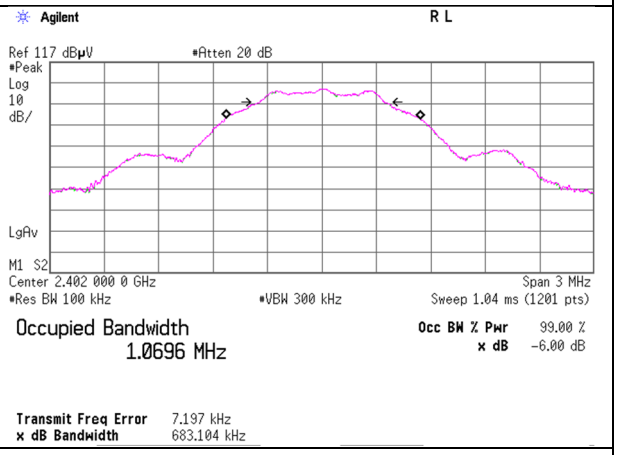
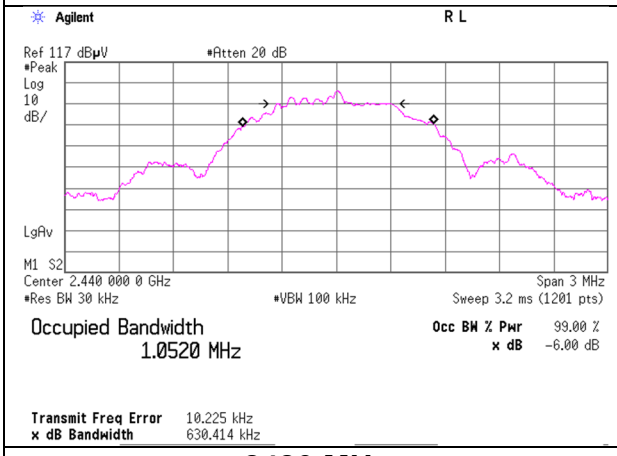
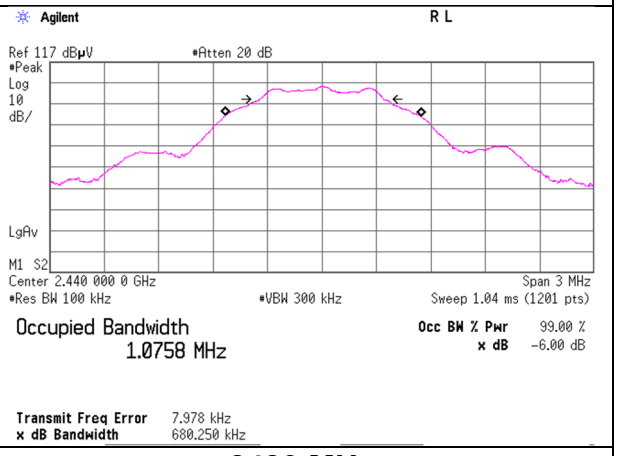
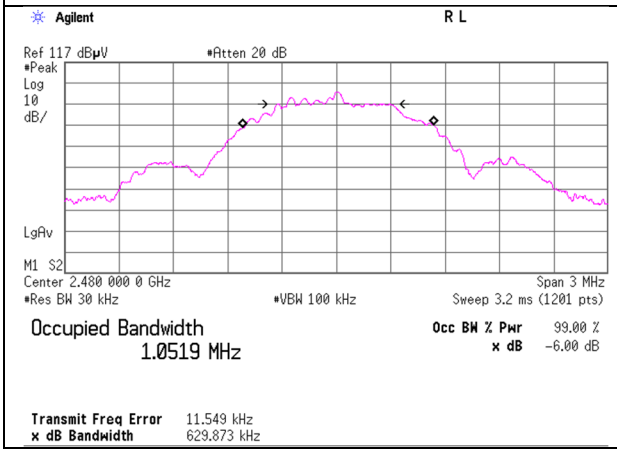
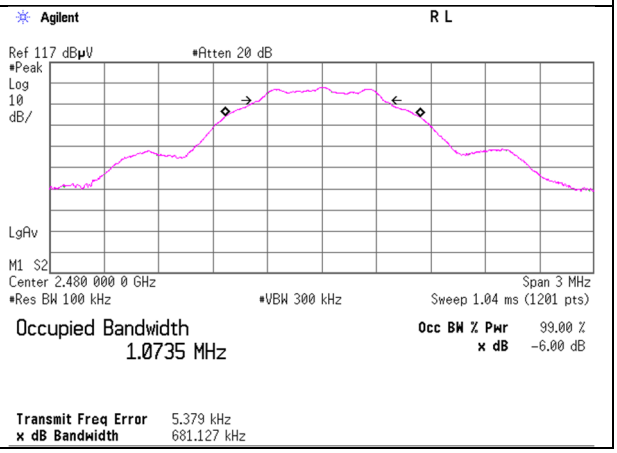
99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Shonan EMC Lab. No.3 Shielded Room
Date	November 6, 2023
Temperature / Humidity	23 deg. C / 46 % RH
Engineer	Kenichi Adachi
Mode	Tx BT LE

Mode	Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
BT LE 1M-PHY	2402	1049.3	0.683	> 0.5000
	2440	***1052.0***	0.680	> 0.5000
	2480	1051.9	0.681	> 0.5000

99 % Occupied Bandwidth and 6 dB Bandwidth

BT LE

99 % Occupied Bandwidth	6 dB Bandwidth
2402 MHz	**2402 MHz**
	
2440 MHz	**2440 MHz**
	
2480 MHz	**2480 MHz**
	

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.3 Shielded Room
Date	November 6, 2023
Temperature / Humidity	23 deg. C / 46 % RH
Engineer	Kenichi Adachi
Mode	Tx BT LE

				Conducted Power					e.i.r.p. for RSS-247					
Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2402	-2.69	1.26	9.97	8.54	7.14	30.00	1000	21.46	-1.56	6.98	4.99	36.02	4000	29.04
2440	-1.66	1.26	9.97	***9.57***	***9.06***	30.00	1000	20.43	-1.56	***8.01***	***6.32***	36.02	4000	28.01
2480	-1.77	1.27	9.97	9.47	8.85	30.00	1000	20.53	-1.56	7.91	6.18	36.02	4000	28.11

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
e.i.r.p. Result = Conducted Power Result + Antenna Gain
*The equipment and cables were not used for factor 0 dB of the data sheets.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.3 Shielded Room
Date	November 6, 2023
Temperature / Humidity	23 deg. C / 46 % RH
Engineer	Kenichi Adachi
Mode	Tx BT LE

BT LE 1M-PHY

Freq.	Reading	Cable Loss	Atten. Loss	Result (Time average)		Duty factor	Result (Burst power average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dB]	[dBm]	[mW]
2402	-4.85	1.26	9.97	6.38	4.35	1.99	8.37	6.87
2440	-3.78	1.26	9.97	***7.45***	***5.56***	1.99	***9.44***	***8.79***
2480	-3.90	1.27	9.97	7.34	5.42	1.99	9.33	8.57

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

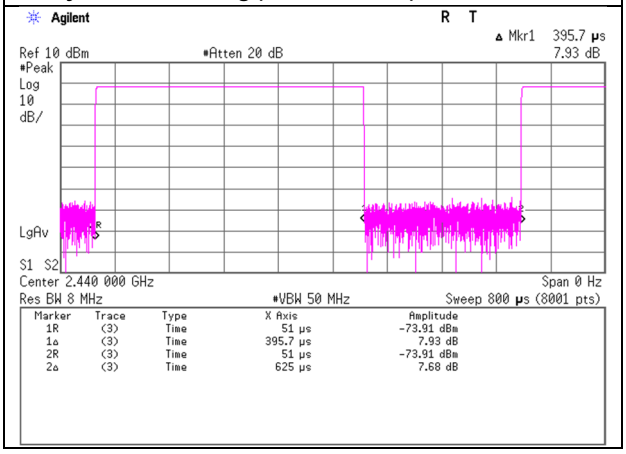
*The equipment and cables were not used for factor 0 dB of the data sheets.

Burst rate confirmation

Test place	Shonan EMC Lab. No.3 Shielded Room
Date	November 6, 2023
Temperature / Humidity	23 deg. C / 46 % RH
Engineer	Kenichi Adachi
Mode	Tx BT LE 1M-PHY

BT LE 1M-PHY

Tx on / (Tx on + Tx off) = 0.633
Tx on / (Tx on + Tx off) * 100 = 63.3 %
Duty factor = 20 * log (0.625 / 0.3957) = 3.98 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	Shonan EMC Lab.
Semi Anechoic Chamber	WAC1
Date	February 15, 2024
Temperature / Humidity	23 deg.C, 36 %RH
Engineer	Akihiro Oda
	(1 GHz -26.5 GHz)
Mode	Tx BT LE 2402 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2338.413	PK	48.09	27.91	-27.51	-	2.43	50.92	73.9	22.9	144	76	-
Hori.	2390.000	PK	48.70	27.77	-27.48	-	2.43	51.42	73.9	22.4	144	76	-
Hori.	4804.000	PK	55.11	31.53	-34.65	-	2.43	54.42	73.9	19.4	133	94	-
Hori.	7206.000	PK	47.88	36.19	-32.92	-	2.43	53.58	73.9	20.3	150	0	-
Hori.	9608.000	PK	46.73	38.64	-30.10	-	2.43	57.70	73.9	16.2	150	0	-
Hori.	7206.000	AV	36.24	36.19	-32.92	-	2.43	41.94	53.9	11.9	150	0	Floor noise
Hori.	9608.000	AV	35.12	38.64	-30.10	-	2.43	46.09	53.9	7.8	150	0	Floor noise
Vert.	2338.413	PK	49.65	27.91	-27.51	-	2.43	52.48	73.9	21.4	154	198	-
Vert.	2390.000	PK	47.51	27.77	-27.48	-	2.43	50.23	73.9	23.6	154	198	-
Vert.	4804.000	PK	51.14	31.53	-34.65	-	2.43	50.45	73.9	23.4	160	200	-
Vert.	7206.000	PK	48.53	36.19	-32.92	-	2.43	54.23	73.9	19.6	150	0	-
Vert.	9608.000	PK	46.78	38.64	-30.10	-	2.43	57.75	73.9	16.1	150	0	-
Vert.	7206.000	AV	36.42	36.19	-32.92	-	2.43	42.12	53.9	11.7	150	0	Floor noise
Vert.	9608.000	AV	35.21	38.64	-30.10	-	2.43	46.18	53.9	7.7	150	0	Floor noise

Calculation: Result = Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 – 18 GHz)) – Gain (PreAmplifier gain (only below 1 GHz & above 18 GHz)) +Distance factor *2)

Distance factor : 1 GHz - 10 GHz : 20log (3.97 m / 3.0 m) = 2.43 dB

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

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2338.413	AV	36.87	27.91	-27.51	-	3.98	2.43	43.68	53.9	10.2	-
Hori.	2390.000	AV	36.01	27.77	-27.48	-	3.98	2.43	42.71	53.9	11.1	*1)
Hori.	4804.000	AV	46.22	31.53	-34.65	-	3.98	2.43	49.51	53.9	**4.3**	-
Vert.	2338.413	AV	37.54	27.91	-27.51	-	3.98	2.43	44.35	53.9	9.5	-
Vert.	2390.000	AV	36.30	27.77	-27.48	-	3.98	2.43	43.00	53.9	10.9	*1)
Vert.	4804.000	AV	45.49	31.53	-34.65	-	3.98	2.43	48.78	53.9	5.1	-

Calculation: Result = Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 – 18 GHz)) – Gain (PreAmplifier gain (only below 1 GHz & above 18 GHz)) + Duty factor + Distance factor *2)

Distance factor : 1 GHz - 10 GHz : 20log (3.97 m / 3.0 m) = 2.43 dB

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

Duty factor refer to "Burst rate confirmation" sheet.

*1) Not out of band emission (Leakage Power)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	96.62	27.76	-27.47	-	2.43	99.34	-	-	Carrier
Hori.	2400.000	PK	44.01	27.76	-27.47	-	2.43	46.73	79.3	32.5	-
Vert.	2402.000	PK	98.35	27.76	-27.47	-	2.43	101.07	-	-	Carrier
Vert.	2400.000	PK	44.62	27.76	-27.47	-	2.43	47.34	81.0	33.6	-

Calculation: Result = Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 – 18 GHz)) – Gain (PreAmplifier gain (only below 1 GHz & above 18 GHz)) +Distance factor *2)

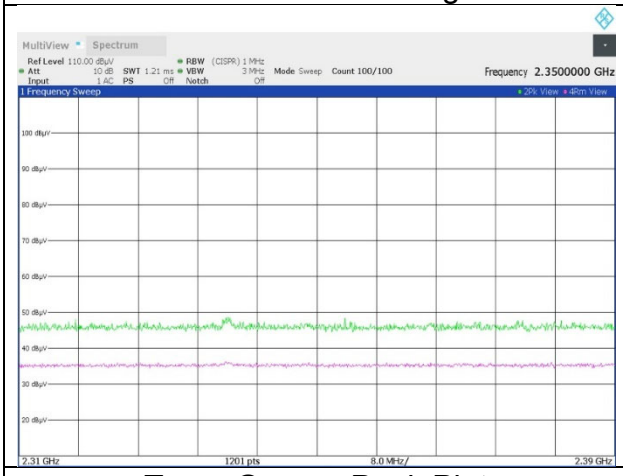
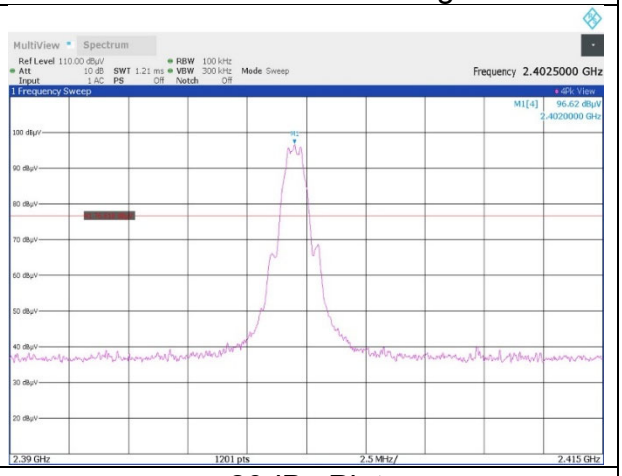
Distance factor : 1 GHz - 10 GHz : 20log (3.97 m / 3.0 m) = 2.43 dB

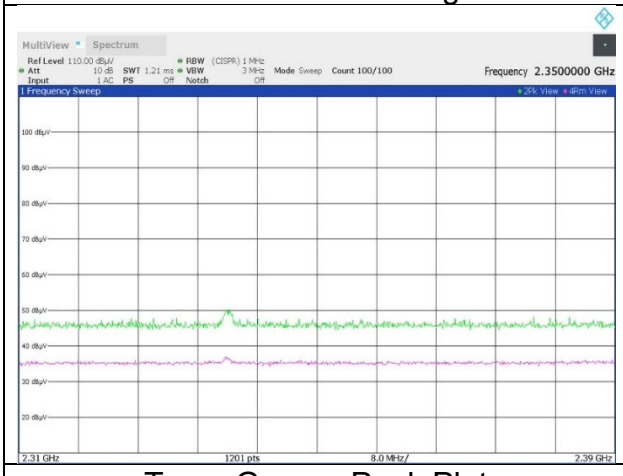
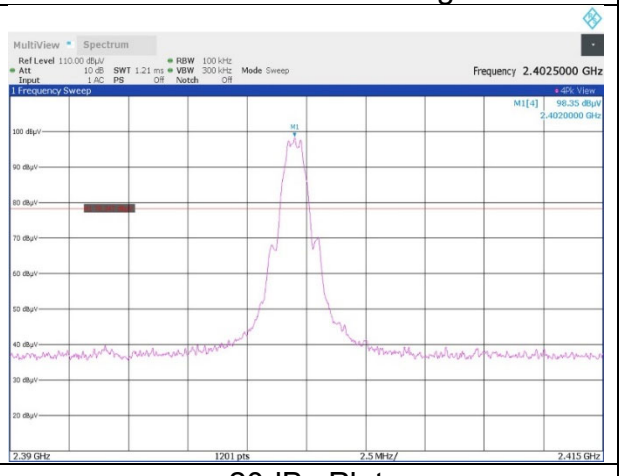
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

*2) The data are not shown in the table above because no recordable noise was detected while measurements were made above 18 GHz using external PreAmplifer.

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	WAC1
Date	February 15, 2024
Temperature / Humidity	23 deg.C, 36 %RH
Engineer	Akihiro Oda (1 GHz -26.5 GHz)
Mode	Tx BT LE 2402 MHz

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

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

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

Radiated Spurious Emission

Test place	Shonan EMC Lab.	
Semi Anechoic Chamber	WAC1	WAC1
Date	February 14, 2024	February 15, 2024
Temperature / Humidity	22 deg.C, 32 %RH	23 deg.C, 36 %RH
Engineer	Akihiro Oda	Akihiro Oda
	(30 MHz -1 GHz)	(1 GHz -26.5 GHz)
Mode	Tx BT LE 2440 MHz	

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	39.540	QP	20.80	11.58	6.28	32.78	0.00	5.88	40.0	34.1	300	137	-
Hori.	140.383	QP	21.90	11.58	6.82	33.06	0.00	7.24	43.5	36.2	150	153	-
Hori.	451.655	QP	21.70	16.59	7.80	32.34	0.00	13.75	46.0	32.2	100	227	-
Hori.	2376.292	PK	52.90	27.80	-27.49	-	2.43	55.64	73.9	18.2	144	80	-
Hori.	2504.291	PK	51.78	27.78	-27.40	-	2.43	54.59	73.9	19.3	144	80	-
Hori.	4880.000	PK	55.74	31.62	-34.71	-	2.43	55.08	73.9	18.8	142	268	-
Hori.	7320.000	PK	49.91	36.27	-32.70	-	2.43	55.91	73.9	17.9	150	0	-
Hori.	9760.000	PK	48.32	39.01	-29.94	-	2.43	59.82	73.9	14.0	150	0	-
Hori.	7320.000	AV	36.93	36.27	-32.70	-	2.43	42.93	53.9	10.9	150	0	Floor noise
Hori.	9760.000	AV	35.77	39.01	-29.94	-	2.43	47.27	53.9	6.6	150	0	Floor noise
Vert.	36.788	QP	21.50	12.09	6.24	32.72	0.00	7.11	40.0	32.8	100	229	-
Vert.	176.788	QP	22.40	12.97	7.24	33.00	0.00	9.61	43.5	33.8	100	355	-
Vert.	351.750	QP	21.80	15.10	7.54	32.59	0.00	11.85	46.0	34.1	150	338	-
Vert.	872.760	QP	19.80	22.11	8.65	30.70	0.00	19.86	46.0	26.1	100	7	-
Vert.	2376.211	PK	52.37	27.80	-27.49	-	2.43	55.11	73.9	18.7	148	48	-
Vert.	2504.142	PK	54.27	27.78	-27.40	-	2.43	57.08	73.9	16.8	148	48	-
Vert.	4880.000	PK	55.02	31.62	-34.71	-	2.43	54.36	73.9	19.5	162	113	-
Vert.	7320.000	PK	48.90	36.27	-32.70	-	2.43	54.90	73.9	19.0	150	0	-
Vert.	9760.000	PK	47.08	39.01	-29.94	-	2.43	58.58	73.9	15.3	150	0	-
Vert.	7320.000	AV	36.63	36.27	-32.70	-	2.43	42.63	53.9	11.2	150	0	Floor noise
Vert.	9760.000	AV	35.63	39.01	-29.94	-	2.43	47.13	53.9	6.7	150	0	Floor noise

Calculation: Result = Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 – 18 GHz)) – Gain (PreAmplifier gain (only below 1 GHz & above 18 GHz)) +Distance factor *2)

Distance factor : 1 GHz - 10 GHz : 20log (3.97 m / 3.0 m) = 2.43 dB

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

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2376.292	AV	38.37	27.80	-27.49	-	3.98	2.43	45.09	53.9	8.8	-
Hori.	2504.291	AV	37.92	27.78	-27.40	-	3.98	2.43	44.71	53.9	9.1	-
Hori.	4880.000	AV	46.92	31.62	-34.71	-	3.98	2.43	50.24	53.9	**3.6**	-
Vert.	2376.211	AV	36.96	27.80	-27.49	-	3.98	2.43	43.68	53.9	10.2	-
Vert.	2504.142	AV	39.56	27.78	-27.40	-	3.98	2.43	46.35	53.9	7.5	-
Vert.	4880.000	AV	46.47	31.62	-34.71	-	3.98	2.43	49.79	53.9	4.1	-

Calculation: Result = Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 – 18 GHz)) – Gain (PreAmplifier gain (only below 1 GHz & above 18 GHz)) + Duty factor + Distance factor *2)

Distance factor : 1 GHz - 10 GHz : 20log (3.97 m / 3.0 m) = 2.43 dB

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

Duty factor refer to "Burst rate confirmation" sheet.

*2) The data are not shown in the table above because no recordable noise was detected while measurements were made above 18 GHz using external PreAmplifer.

Radiated Spurious Emission

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	WAC1
Date	February 15, 2024
Temperature / Humidity	23 deg.C, 36 %RH
Engineer	Akihiro Oda
	(1 GHz -26.5 GHz)
Mode	Tx BT LE 2480 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	48.26	27.75	-27.41	-	2.43	51.03	73.9	22.8	160	84	-
Hori.	2544.250	PK	50.11	27.85	-27.35	-	2.43	53.04	73.9	20.8	160	84	-
Hori.	4960.000	PK	54.33	31.72	-34.78	-	2.43	53.70	73.9	20.2	156	114	-
Hori.	7440.000	PK	47.62	36.45	-32.47	-	2.43	54.03	73.9	19.8	150	0	-
Hori.	9920.000	PK	46.65	38.86	-29.76	-	2.43	58.18	73.9	15.7	150	0	-
Hori.	7440.000	AV	36.63	36.45	-32.47	-	2.43	43.04	53.9	10.8	150	0	Floor noise
Hori.	9920.000	AV	35.37	38.86	-29.76	-	2.43	46.90	53.9	7.0	150	0	Floor noise
Vert.	2483.500	PK	51.87	27.75	-27.41	-	2.43	54.64	73.9	19.2	146	46	-
Vert.	2544.162	PK	52.31	27.85	-27.35	-	2.43	55.24	73.9	18.6	146	46	-
Vert.	4960.000	PK	55.39	31.72	-34.78	-	2.43	54.76	73.9	19.1	122	86	-
Vert.	7440.000	PK	47.24	36.45	-32.47	-	2.43	53.65	73.9	20.2	150	0	-
Vert.	9920.000	PK	46.89	38.86	-29.76	-	2.43	58.42	73.9	15.4	150	0	-
Vert.	7440.000	AV	36.35	36.45	-32.47	-	2.43	42.76	53.9	11.1	150	0	Floor noise
Vert.	9920.000	AV	35.56	38.86	-29.76	-	2.43	47.09	53.9	6.8	150	0	Floor noise

Calculation: Result = Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 – 18 GHz)) – Gain (PreAmplifier gain (only below 1 GHz & above 18 GHz)) +Distance factor *2)

Distance factor : 1 GHz - 10 GHz : 20log (3.97 m / 3.0 m) = 2.43 dB

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

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	37.30	27.75	-27.41	-	3.89	2.43	43.96	53.9	9.9	*1)
Hori.	2544.250	AV	37.53	27.85	-27.35	-	3.89	2.43	44.35	53.9	9.5	-
Hori.	4960.000	AV	46.24	31.72	-34.78	-	3.89	2.43	49.50	53.9	4.3	-
Vert.	2483.500	AV	39.26	27.75	-27.41	-	3.89	2.43	45.92	53.9	7.9	*1)
Vert.	2544.162	AV	38.12	27.85	-27.35	-	3.89	2.43	44.94	53.9	8.9	-
Vert.	4960.000	AV	46.70	31.72	-34.78	-	3.89	2.43	49.96	53.9	**3.9**	-

Calculation: Result = Reading + Ant.Fac + Loss (Cable + (Attenuator or Filter) – PreAmplifier gain (1 – 18 GHz)) – Gain (PreAmplifier gain (only below 1 GHz & above 18 GHz)) + Duty factor + Distance factor *2)

Distance factor : 1 GHz - 10 GHz : 20log (3.97 m / 3.0 m) = 2.43 dB

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

Duty factor refer to "Burst rate confirmation" sheet.

*1) Not out of band emission (Leakage Power)

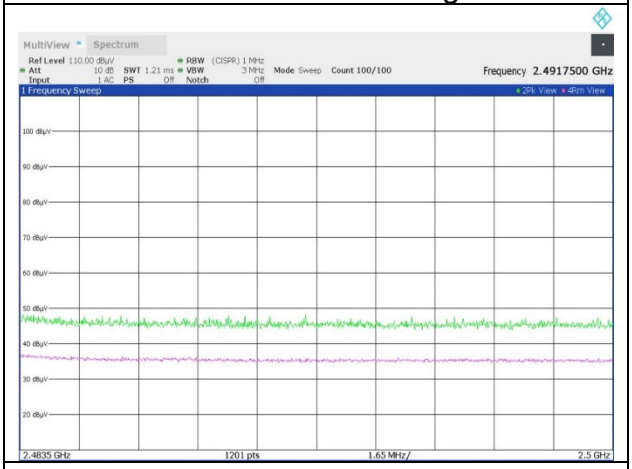
*2) The data are not shown in the table above because no recordable noise was detected while measurements were made above 18 GHz using external PreAmplifer.

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	WAC1
Date	February 15, 2024
Temperature / Humidity	23 deg.C, 36 %RH
Engineer	Akihiro Oda
	(1 GHz -26.5 GHz)
Mode	Tx BT LE 2480 MHz

Horizontal

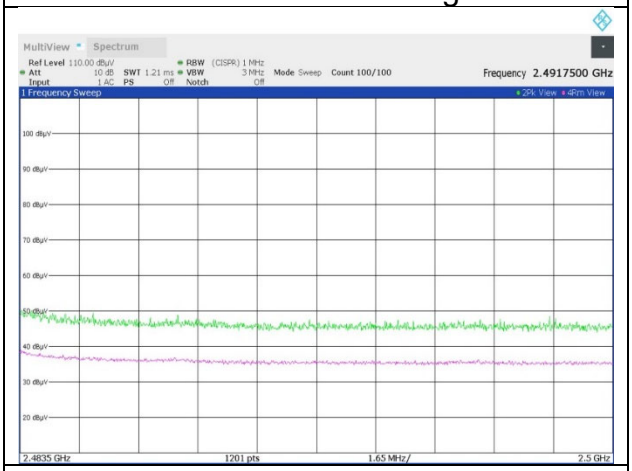
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot

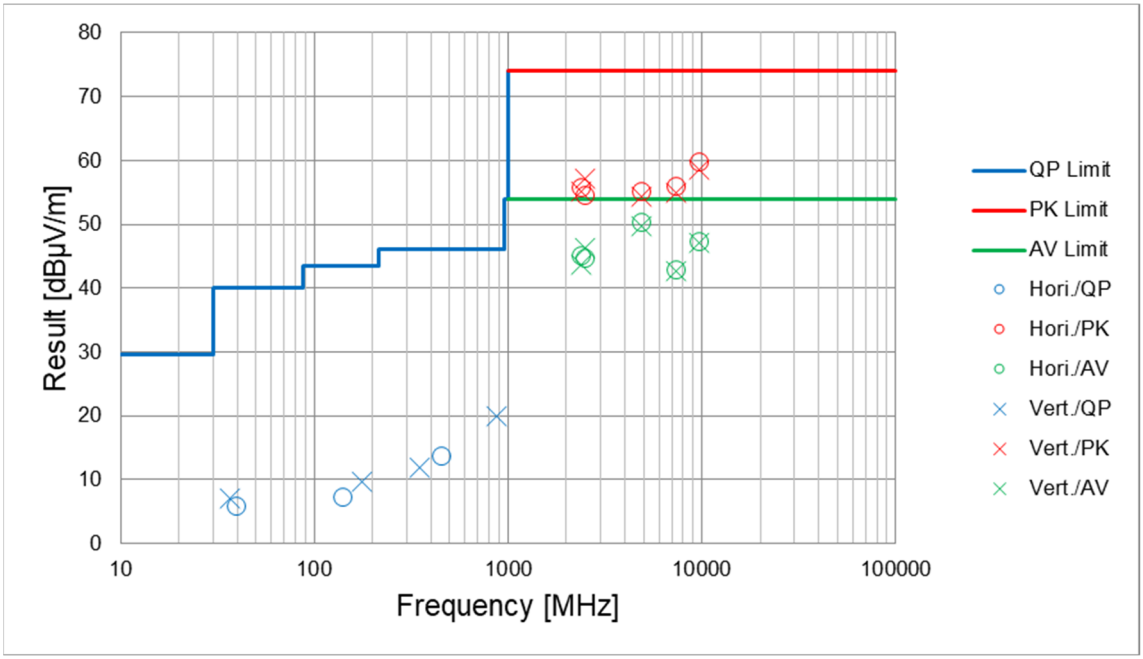


Trace Green : Peak Plot
Trace Purple : Average Plot

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

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

Test place	Shonan EMC Lab.	
Semi Anechoic Chamber	WAC1	WAC1
Date	February 14, 2024	February 15, 2024
Temperature / Humidity	22 deg.C, 32 %RH	23 deg.C, 36 %RH
Engineer	Akihiro Oda	Akihiro Oda
	(30 MHz -1 GHz)	(1 GHz -26.5 GHz)
Mode	Tx BT LE 2440 MHz	

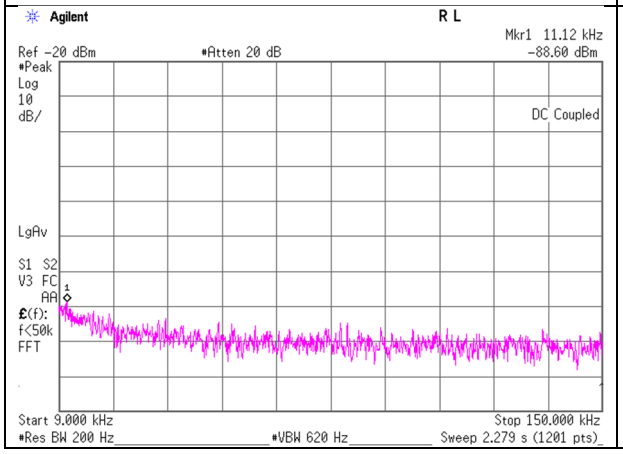


*These plots data contain sufficient number to show the trend of characteristic features for EUT.

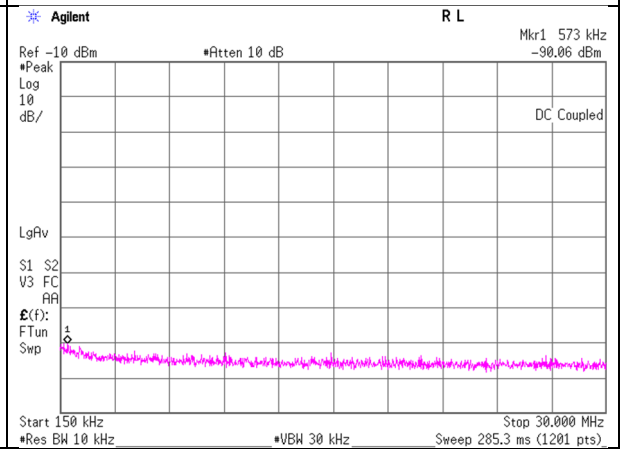
Conducted Spurious Emission

Test place	Shonan EMC Lab. No.3 Shielded Room
Date	November 6, 2023
Temperature / Humidity	23 deg. C / 46 % RH
Engineer	Kenichi Adachi
Mode	Tx BT LE, 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]	Remark
11.12	-88.6	0.61	9.9	2.0	1	-76.1	300	6.0	-14.8	46.6	61.4	-
573.00	-90.1	0.61	9.9	2.0	1	-77.5	30	6.0	3.7	32.4	28.7	-

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)

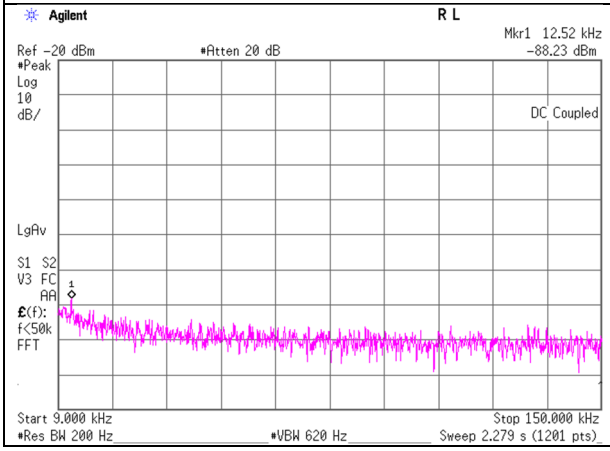
N: Number of output

*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

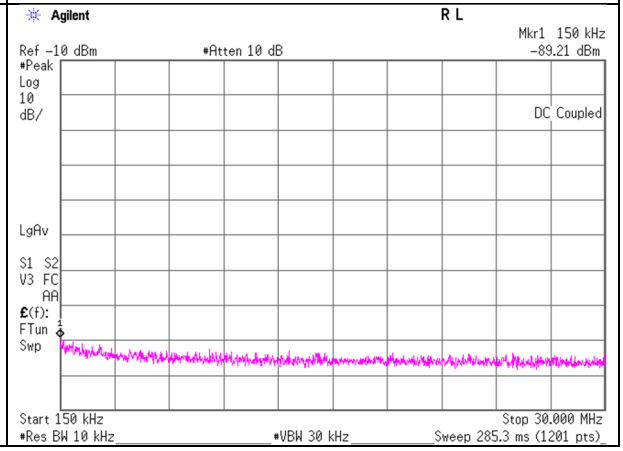
Conducted Spurious Emission

Test place	Shonan EMC Lab. No.3 Shielded Room
Date	November 6, 2023
Temperature / Humidity	23 deg. C / 46 % RH
Engineer	Kenichi Adachi
Mode	Tx BT LE, 2440 MHz

9 kHz to 150 kHz



150 kHz to 30 MHz



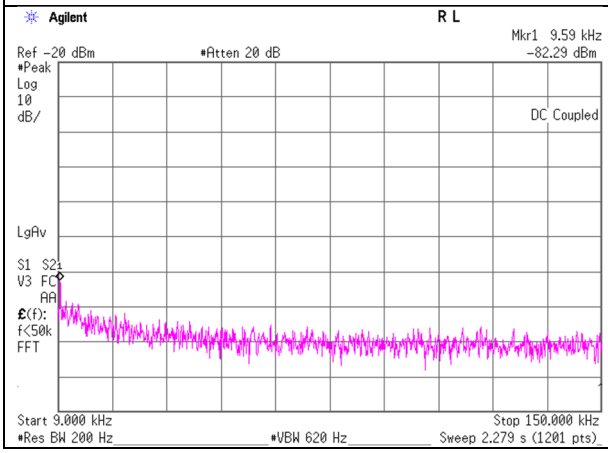
Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain* [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
12.52	-88.2	0.61	9.9	2.0	1	-75.7	300	6.0	-14.4	45.6	60.0	-
150.00	-89.2	0.61	9.9	2.0	1	-76.7	300	6.0	-15.4	24.0	39.4	-

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
*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

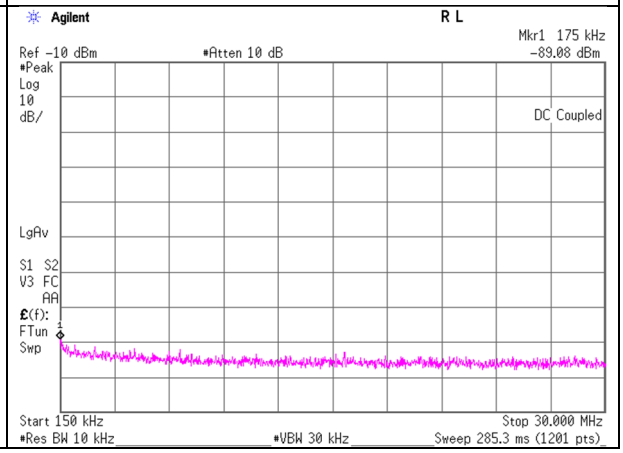
Conducted Spurious Emission

Test place	Shonan EMC Lab. No.3 Shielded Room
Date	November 6, 2023
Temperature / Humidity	23 deg. C / 46 % RH
Engineer	Kenichi Adachi
Mode	Tx BT LE, 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]	Remark
9.59	-82.3	0.61	9.9	2.0	1	-69.7	300	6.0	-8.5	47.9	56.4	-
175.00	-89.1	0.61	9.9	2.0	1	-76.5	300	6.0	-15.3	22.7	38.0	-

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
*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

Power Density

Test place	Shonan EMC Lab. No.3 Shielded Room
Date	November 6, 2023
Temperature / Humidity	23 deg. C / 46 % RH
Engineer	Kenichi Adachi
Mode	Tx BT LE

BT LE 1M-PHY

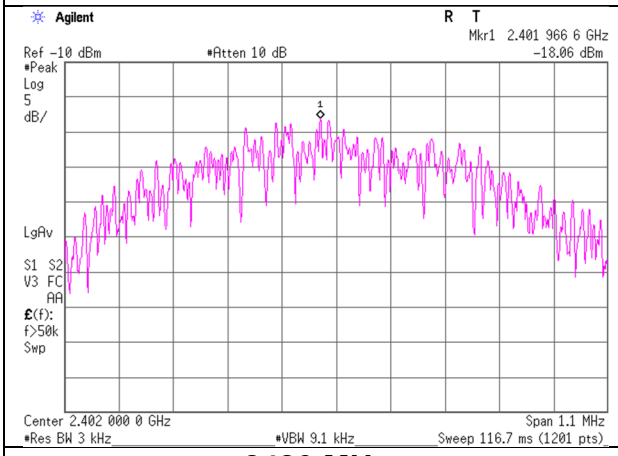
Freq. [MHz]	Measured Frequency [MHz]	Reading [dBm / 3 kHz]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm / 3 kHz]	Limit [dBm / 3 kHz]	Margin [dB]
2402	2401.97	-18.06	1.26	9.97	-6.83	8.00	14.83
2440	2439.97	-16.98	1.26	9.97	***-5.75***	8.00	13.75
2480	2479.97	-17.20	1.27	9.97	-5.96	8.00	13.96

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

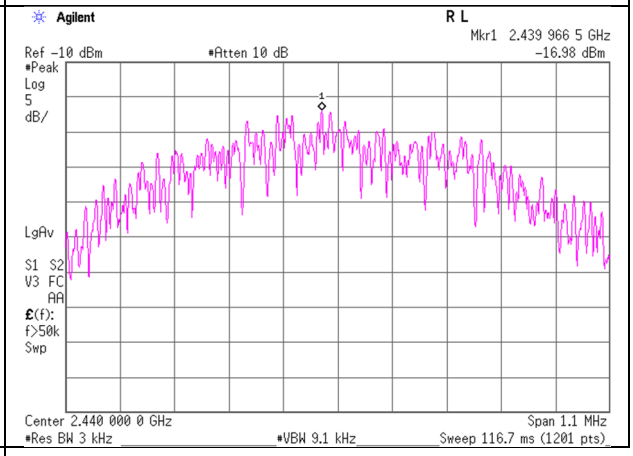
*The equipment and cables were not used for factor 0 dB of the data sheets.

BT LE 1M-PHY

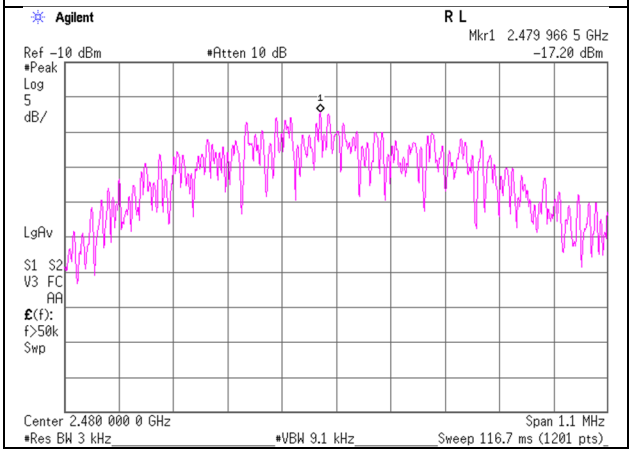
2402 MHz



2440 MHz



2480 MHz



APPENDIX 2: Test Instruments

Test Equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	146267	Power Meter	Anritsu Corporation	ML2495A	850009	2023/05/29	12
AT	146309	Power sensor	Anritsu Corporation	MA2411B	917063	2023/05/29	12
AT	160899	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46185516	2023/01/26	12 *1)
AT	196945	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	803414/2	2023/03/02	12 *1)
AT	191841	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	-	2023/08/01	12
AT	145137	Attenuator	Keysight Technologies Inc	8493C-010	74865	2023/10/11	12
AT	146210	Digital Hitester	HIOKI E.E. CORPORATION	3805-50	80997823	2023/09/25	12
AT	160899	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46185516	2024/02/07	12
AT	191841	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	-	2023/08/01	12
AT	196945	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	803414/2	2023/03/02	12 *1)
RE	144941	Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	230	2023/05/11	12
RE	145008	Pre Amplifier	Toyo Corporation	HAP18-26W	18	2023/09/20	12
RE	145176	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	2023/08/23	12
RE	145513	Horn Antenna	ETS-Lindgren	3160-09	00094867	2023/06/12	12
RE	145527	Logperiodic Antenna	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	193	2023/04/12	12
RE	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,ME,PE)	-	-	-
RE	179540	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	802815/2	2023/03/03	12 *1)
RE	199784	Attenuator	JFW	50HF-006N	-	2023/06/14	12
RE	207280	Tape Measure	ASKUL	-	-	-	-
RE	235267	Test Receiver	Rohde & Schwarz	ESW44	103018	2023/02/20	12 *1)
RE	235639	DIGITAL MULTIMETER	HIOKI E.E. CORPORATION	DT4261	230313156	2023/05/26	12
RE	235735	Thermo-Hygrometer	CUSTOM. Inc	CTH-230	-	2023/04/26	12
RE	236212	Semi-Anechoic Chamber	TDK	SWAC-01(NSA)	1	2023/05/08	12
RE	236616	Semi-Anechoic Chamber	TDK	SWAC-01(SVSWR)	1	2023/06/01	12
RE	236686	Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA 9120 C	787	2023/06/05	12
RE	236708	Coaxial Cable	Hayashi-Repic co., Ltd.	NMS079B-GL310C-SMS117B-2m	47256-02-03	2023/05/23	12
RE	236723	Coaxial Cable	Hayashi-Repic co., Ltd.	SF106(HUBER+SUHNER)/LMR400UF/GL310C/GL310C	2000429/47753-1/47256-01-03/47256-01-01	2023/05/25	12
RE	236966	Pre Amplifier	TSJ (Techno Science Japan)	MLA-9K01-L01	23050009	2023/06/08	12
RE	237784	RF RELAY MATRIX	TSJ (Techno Science Japan)	RFM-E221261R	07795	2023/11/01	12
RE	239786	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHBB 9124+BBA9106	01895	2023/09/21	12
RE	243215	Coaxial Cable	Hayashi-Repic co., Ltd.	SMS13-13A26-NMS13-9.0m	49306-01-03	2023/12/20	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 thetx 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.

The expiration*1) This test equipment was used for the tests before the expiration date of the calibration.

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
RE: Radiated Emission