

RADIO TEST REPORT

Test Report No. 16052278S-A-R1

Customer	Panasonic Automotive Systems Co., Ltd.
Description of EUT	Ceiling car Display
Model Number of EUT	AT2602
FCC ID	ACJ932AT2602
Test Regulation	FCC Part 15 Subpart C
Test Result	Complied
Issue Date	March 9, 2026
Remarks	-

Representative Test EngineerYuta Shiba
Engineer**Approved By**Shinichi Takano
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".

Report Cover Page - Form-ULID-003532 (DCS:13-EM-F0429) Issue# 26.0

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- For any test report referred in this report, the latest version (including any revisions) is always referred to.
- If the latest version is a revision, it replaces the previous version. See the table below for revisions and versions.

REVISION HISTORY

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	16052278S-A	February 19, 2026	-
1	16052278S-A-R1	March 9, 2026	Correction of full open angle: from "130" to "125" in Section 5 and APPENDIX 3

Reference: Abbreviations (Including words undescribed in this report)

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

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SECTION 1: Customer Information

Company Name	Panasonic Automotive Systems Co., Ltd. *1)
Address	4261, Ikonobe-cho, Tsuzuki-ku, Yokohama-shi, Kanagawa-ken 224-8520, Japan
Telephone Number	+81-80-4324-9431
Contact Person	Yuji Fukunaga

*1) The Grantee name in the FCC application is "Panasonic Corporation of North America".

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	Ceiling car Display
Model Number	AT2602
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	October 1, 2025 (Sample for all other items except the ones below) December 12, 2025 (Sample for Radiated spurious emission below 1 GHz)
Test Date	October 6 to December 15, 2025

2.2 Product Description

General Specification

Rating	DC 13.2 V
Operating temperature	-30 deg. C to 65 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 Gain ^{a)}	1.99 dBi

SECTION 3: Test Summary

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 Reference Standards

ANSI/USEMCSC C63.2-2023
ANSI C63.4-2014/C63.4a-2017
ANSI C63.5-2017
ANSI C63.10-2020
ANSI/USEMCSC C63.10/Cor 1-2023
ANSI/USEMCSC C63.10a-2024 (incl. Errata) for ISED
ANSI C63.25.1-2018
KDB 558074 D01 v05r02
KDB 662911 D01 v02r01 for FCC MIMO device

3.3 Summary of Test Results

Item	Specification	Results	Remarks
Conducted Emission	FCC: Section 15.207 ISED: RSS-Gen section 8.8	N/A	*1)
6 dB Bandwidth	FCC: Section 15.247(a)(2) ISED: RSS-247 section 6.3.1(a)	Complied	Conducted
Maximum Peak Output Power	FCC: Section 15.247(b)(3) ISED: RSS-247 section 6.3.2	Complied	Conducted
Power Density	FCC: Section 15.247(e) ISED: RSS-247 section 6.3.1(b)	Complied	Conducted
Spurious Emission Restricted Band Edges	FCC: Section 15.247(d) ISED: RSS-247 section 6.6 RSS-Gen section 8.9 RSS-Gen section 8.10	Complied	Conducted (below 30 MHz) / Radiated (above 30 MHz) *2)

Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.

*1) The test is not applicable since the EUT has no AC mains.

*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)

The EUT provides stable voltage constantly to the RF Part regardless of input voltage. Instead of a new battery, DC power supply was used for the test. That does not affect the test result, therefore the 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.

3.4 Addition to Standard

Item	Specification	Results	Remarks
99% Occupied Bandwidth	ISED: -	-	Conducted

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

3.5 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	3.0 dB
Radiated Emission (Measurement distance: 3 m)	9 kHz to 30 MHz	3.3 dB
	30 MHz to 200 MHz	4.8 dB
	200 MHz to 1 GHz	6.1 dB
	1 GHz to 6 GHz	4.7 dB
	6 GHz to 18 GHz	5.3 dB
	18 GHz to 40 GHz	5.5 dB
Radiated Emission (Measurement distance: 1 m)	1 GHz to 18 GHz	5.6 dB
	18 GHz to 40 GHz	5.8 dB

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)	1.3 dB
Power Measurement above 1 GHz (Peak Detector)	1.5 dB
Spurious Emission (Conducted) below 1 GHz	0.93 dB
Conducted Emissions Power Density Measurement 1 GHz to 3 GHz	0.93 dB
Conducted Emissions Power Density Measurement 3 GHz to 18 GHz	3.0 dB
Spurious Emission (Conducted) 18 GHz to 26.5 GHz	2.8 dB
Spurious Emission (Conducted) 26.5 GHz to 40 GHz	2.3 dB
Bandwidth Measurement	0.012 %
Duty Cycle and Time Measurement	0.27 %
Temperature	2.2 deg.C.
Humidity	3.4 %
Voltage	0.92 %

3.6 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 (SR1)	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 Shielded room (SR2)	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 Shielded room (SR3)	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 Shielded room (SR4)	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 Shielded room (SR5)	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 Shielded room (SR6)	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 Shielded room (SR8)	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room (MR1)	2.55 x 4.1 x 2.5	-	-
No.2 Measurement room (MR2)	4.5 x 3.5 x 2.5	-	-
Wireless shielded room 1 (WSR1)	3.0 x 4.5 x 2.7	3.0 x 4.5	-
Wireless shielded room 2 (WSR2)	3.0 x 4.5 x 2.7	3.0 x 4.5	-

3.7 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

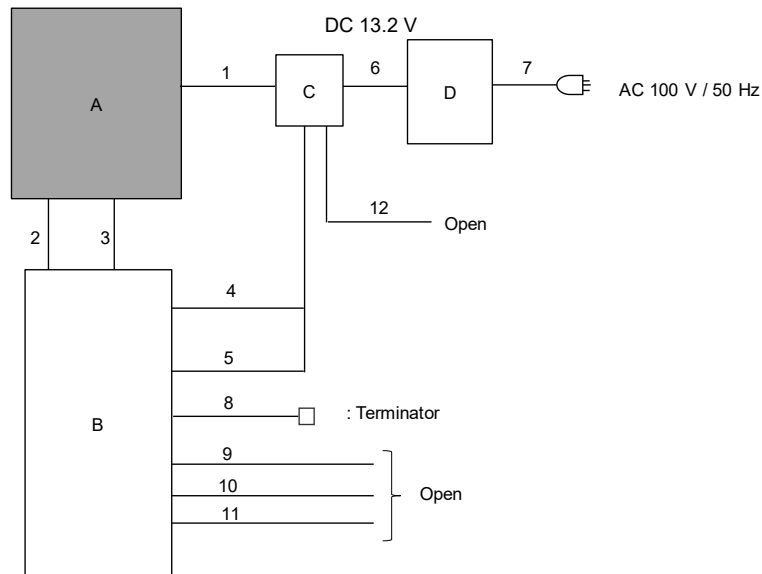
Mode	Remarks*
Bluetooth Low Energy (BT LE)	Uncoded 1M-PHY (1M), Maximum Packet Size, PRBS9
Bluetooth Low Energy (BT LE)	Uncoded 2M-PHY (2M), Maximum Packet Size, PRBS9
*Power of the EUT was set by the software as follows; Power Setting: 10.5(setting value) Software: FW Ver. TUT00E0 (Radiated Emission test (Below 1 GHz)) FW Ver. TUT00B0 (Other test) *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
Radiated Spurious Emission (Below 1 GHz)	Tx BT LE 2M *1)	-	2480 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 1M Tx BT LE 2M	-	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

[Radiated Emission test (Below 1 GHz)]



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

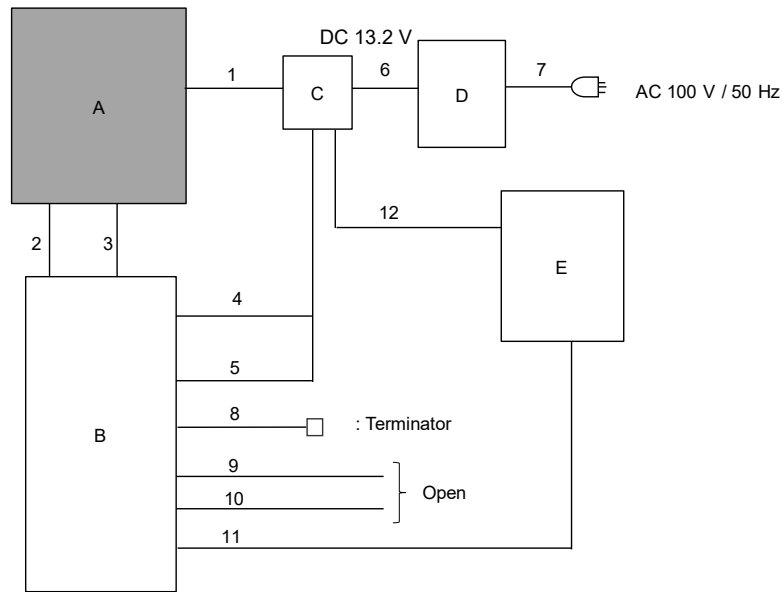
Description of EUT and Support Equipment

No.	Item	Model number	Serial Number	Manufacturer	Remarks
A	Ceiling car Display	AT2602	734D-1S No.147	Panasonic	EUT
B	RSE-ECU	AT2601	734D 1S-028	Panasonic	-
C	Switch	-	-	Panasonic	-
D	Power Supply (DC)	PAN35-10A	DE001677	KIKUSUI	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	1.8	Unshielded	Unshielded	-
2	Signal	1.4	Unshielded	Unshielded	-
3	GVIF	2.0	Unshielded	Unshielded	-
4	DC	2.3	Unshielded	Unshielded	-
5	Signal	2.0	Unshielded	Unshielded	-
6	DC	0.3	Unshielded	Unshielded	-
7	AC	2.0	Unshielded	Unshielded	-
8	VMTR	2.4	Unshielded	Unshielded	-
9	Headphone1	2.0	Unshielded	Unshielded	-
10	Headphone2	2.0	Unshielded	Unshielded	-
11	Signal	2.0	Unshielded	Unshielded	-
12	DC	3.0	Unshielded	Unshielded	-

[Other test]



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

Description of EUT and Support Equipment

No.	Item	Model number	Serial Number	Manufacturer	Remarks
A	Ceiling car Display	AT2602	734D-1S No.147	Panasonic	EUT *1)
			734D-1S No.148	Panasonic	EUT *2)
B	RSE-ECU	AT2601	734D 1S-028	Panasonic	-
C	Switch	-	-	Panasonic	-
D	Power Supply (DC)	PAN35-10A	DE001677	KIKUSUI	-
E	RSE Display (Remote Control receiver)	CR-FL3BJ1AJ	202	Panasonic	-

*1) used for Radiated emission test

*2) used for Antenna Terminal Conducted tests

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	1.8	Unshielded	Unshielded	-
2	Signal	1.4	Unshielded	Unshielded	-
3	GVIF	2.0	Unshielded	Unshielded	-
4	DC	2.3	Unshielded	Unshielded	-
5	Signal	2.0	Unshielded	Unshielded	-
6	DC	0.3	Unshielded	Unshielded	-
7	AC	2.0	Unshielded	Unshielded	-
8	VMTR	2.4	Unshielded	Unshielded	-
9	Headphone1	2.0	Unshielded	Unshielded	-
10	Headphone2	2.0	Unshielded	Unshielded	-
11	Signal	2.0	Unshielded	Unshielded	-
12	DC	3.0	Unshielded	Unshielded	-

SECTION 5: Radiated Spurious Emission

Test Procedure

[For below 1 GHz]

EUT was placed on the 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 the 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

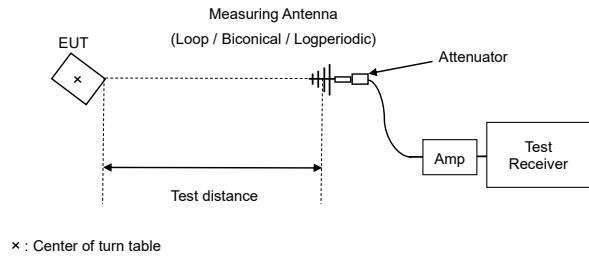
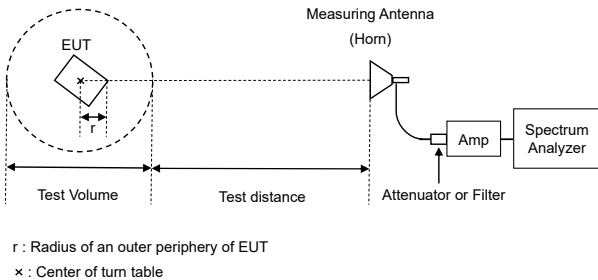
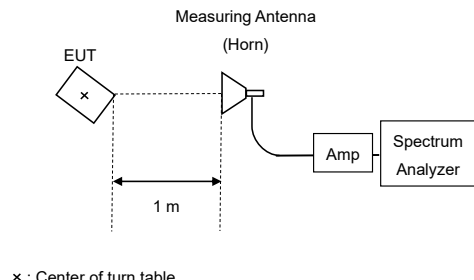
In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired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

It was measured with the settings below based on ANSI C63.10.

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 1: 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: $20 \times \log (3.8 \text{ m}^* / 3.0 \text{ m}) = 2.06 \text{ dB}$ $^*(\text{Test Distance} + \text{SVSWR Volume} / 2) - r = 3.8 \text{ m}$ Test Distance: 3 m SVSWR Volume: 2.0 m (SVSWR Volume has been calibrated based on CISPR 16-1-4.) r: 0.2 m
10 GHz to 26.5 GHz	
 × : Center of turn table	Distance Factor: $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$ $^*\text{Test Distance: 1 m}$

The carrier level and noise levels were confirmed at each position of 0, 90 and 125 deg of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Test Range	Horizontal	Vertical
Below 1 GHz	0 deg	125 deg
1 GHz to 2.8 GHz	0 deg	0 deg
2.8 GHz to 10 GHz	90 deg	125 deg
Above 10 GHz	90 deg	90 deg

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 C63.10-2020".

*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 Ohms. For example, the measurement at frequency 9 kHz resulted in a level of 45.5 dBuV/m, which is equivalent to $45.5 - 51.5 = -6.0$ dBuA/m, which has the same margin, 3 dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

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

99 % Occupied Bandwidth and 6 dB Bandwidth

Mode	Tx			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	SR2	21 deg. C	59 % RH	Yuta Shiba

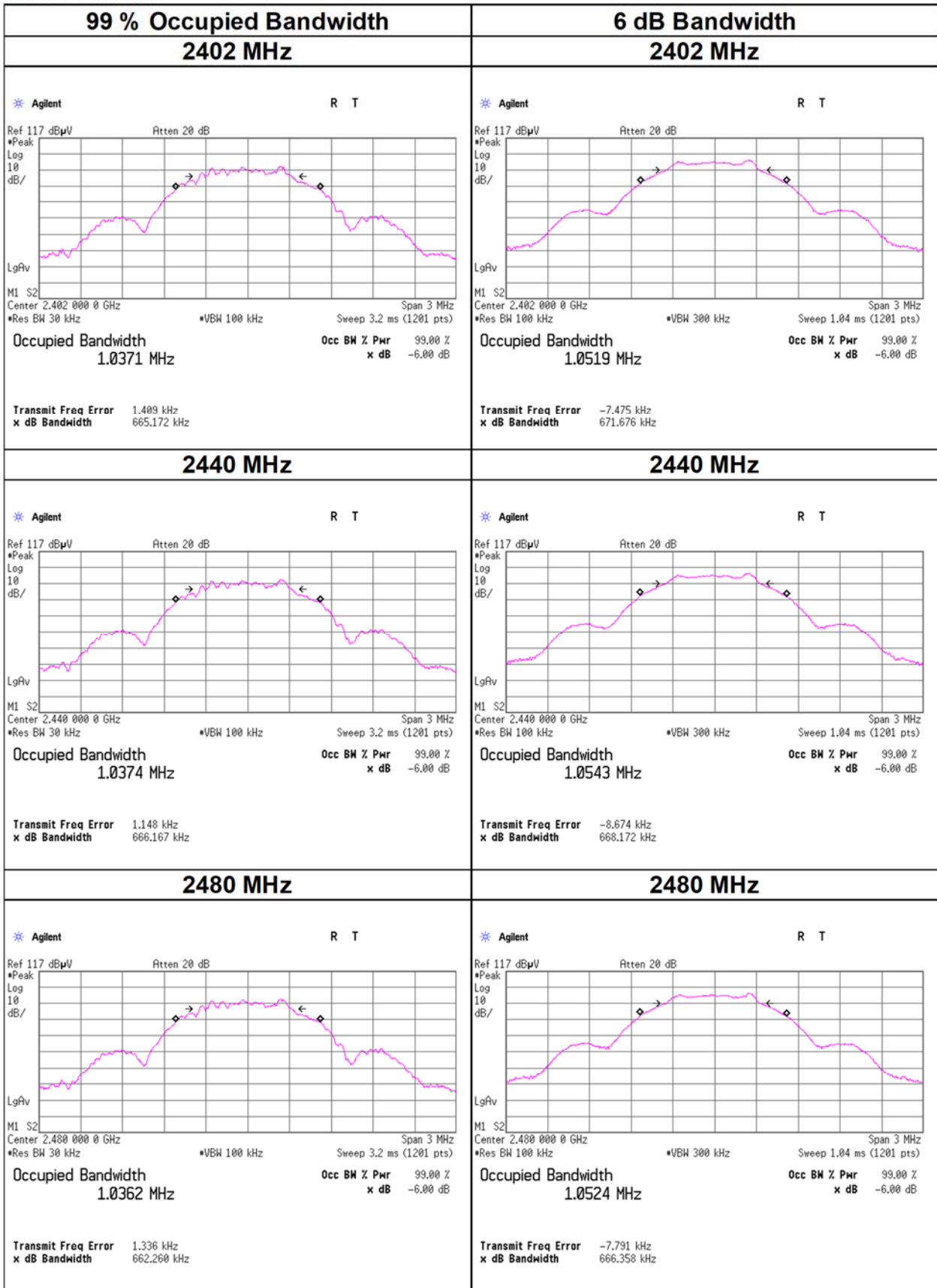
BT LE 1M-PHY

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2402	1037.1	0.672	> 0.5000
2440	1037.4	0.668	> 0.5000
2480	1036.2	0.666	> 0.5000

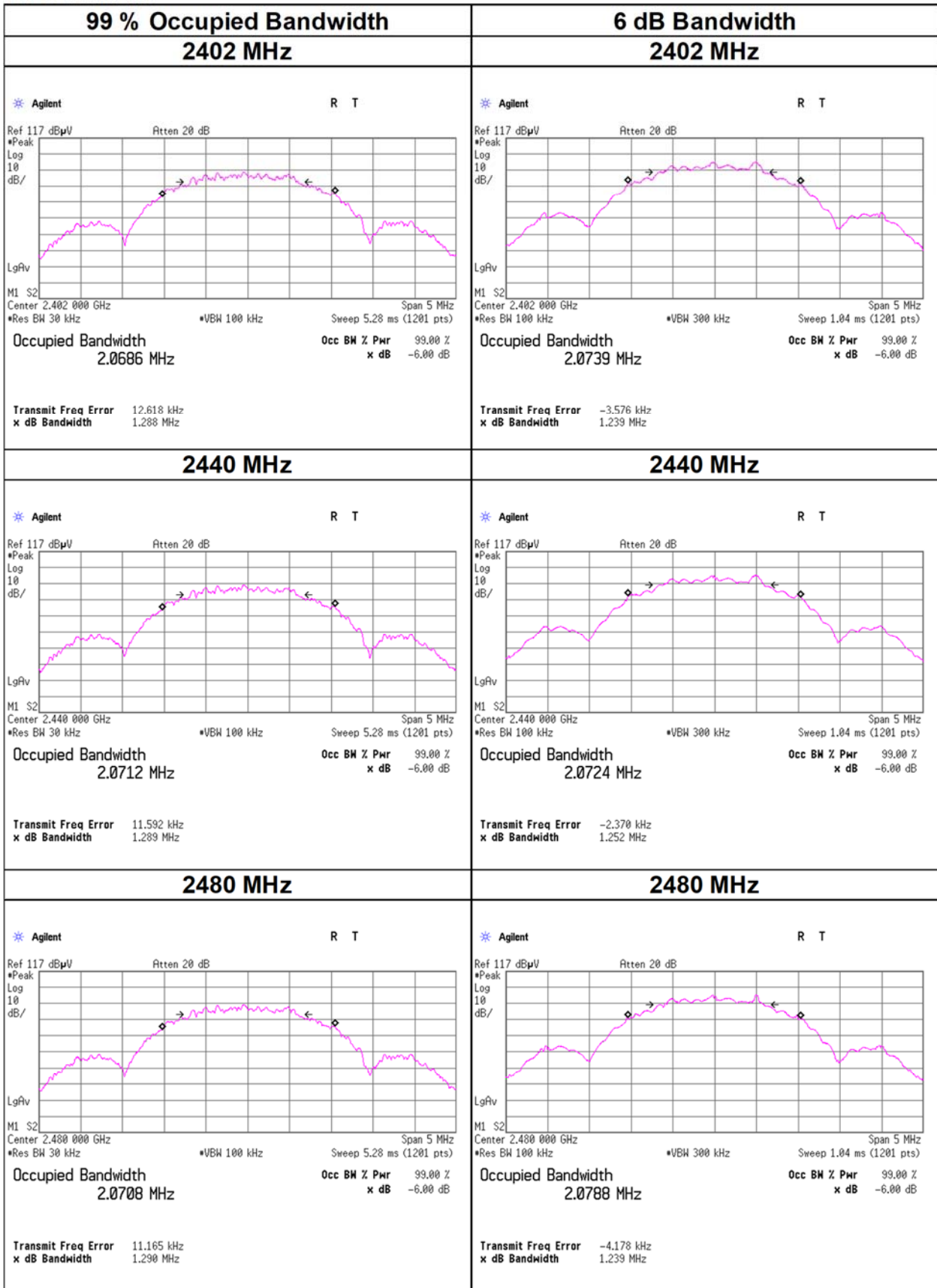
BT LE 2M-PHY

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2402	2068.6	1.239	> 0.5000
2440	2071.2	1.252	> 0.5000
2480	2070.8	1.239	> 0.5000

BT LE 1M-PHY



BT LE 2M-PHY



Maximum Peak Output Power

Mode	Tx BT LE 1M-PHY, SISO
------	-----------------------

Date	Test Place	Temperature	Humidity	Engineer
October 06, 2025	SR2	21 deg.C	59 %RH	Yuta Shiba

BT LE 1M-PHY, SISO

Tested Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Conducted Power					Antenna Gain [dBi]	e.i.r.p. for RSS-247				
				Result		Limit		Margin		Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]	[dB]		[dBm]	[mW]	[dBm]	[mW]	[dB]
2402	-3.99	1.94	9.97	7.93	6.21	30.00	1000.00	22.07	1.99	9.92	9.82	36.02	4000.00	26.10
2440	-3.70	1.95	9.97	8.22	6.64	30.00	1000.00	21.78	1.99	10.21	10.50	36.02	4000.00	25.81
2480	-3.68	1.95	9.97	8.25	6.69	30.00	1000.00	21.75	1.99	10.24	10.57	36.02	4000.00	25.78

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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

Maximum Peak Output Power

Mode	Tx BT LE 2M-PHY, SISO
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Date	Test Place	Temperature	Humidity	Engineer
October 06, 2025	SR2	21 deg.C	59 %RH	Yuta Shiba

BT LE 2M-PHY, SISO

Tested Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Conducted Power					Antenna Gain [dBi]	e.i.r.p. for RSS-247				
				Result		Limit		Margin		Result		Limit		Margin
				[dBm]	[mW]	[dBm]	[mW]	[dB]		[dBm]	[mW]	[dBm]	[mW]	[dB]
2402	-3.98	1.94	9.97	7.94	6.23	30.00	1000.00	22.06	1.99	9.93	9.85	36.02	4000.00	26.09
2440	-3.69	1.95	9.97	8.23	6.66	30.00	1000.00	21.77	1.99	10.22	10.52	36.02	4000.00	25.80
2480	-3.67	1.95	9.97	8.26	6.70	30.00	1000.00	21.74	1.99	10.25	10.60	36.02	4000.00	25.77

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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

Average Output Power

Mode	Tx BT LE 1M-PHY, SISO
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Date	Test Place	Temperature	Humidity	Engineer
October 06, 2025	SR2	21 deg.C	59 %RH	Yuta Shiba

BT LE 1M-PHY, SISO

Tested Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty Factor [dB]	Result (Burst power average)	
				[dBm]	[mW]		[dBm]	[mW]
2402	-4.89	1.94	9.97	7.03	5.05	0.72	7.75	5.96
2440	-4.58	1.95	9.97	7.34	5.43	0.72	8.06	6.40
2480	-4.55	1.95	9.97	7.38	5.48	0.72	8.10	6.46

Sample Calculation:

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

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

Average Output Power

Mode	Tx BT LE 2M-PHY, SISO			
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Date	Test Place	Temperature	Humidity	Engineer
October 06, 2025	SR2	21 deg.C	59 %RH	Yuta Shiba

BT LE 2M-PHY, SISO

Tested Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty Factor [dB]	Result (Burst power average)	
				[dBm]	[mW]		[dBm]	[mW]
2402	-6.60	1.94	9.97	5.32	3.41	2.48	7.80	6.03
2440	-6.32	1.95	9.97	5.60	3.64	2.48	8.08	6.43
2480	-6.29	1.95	9.97	5.64	3.67	2.48	8.12	6.49

Sample Calculation:

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

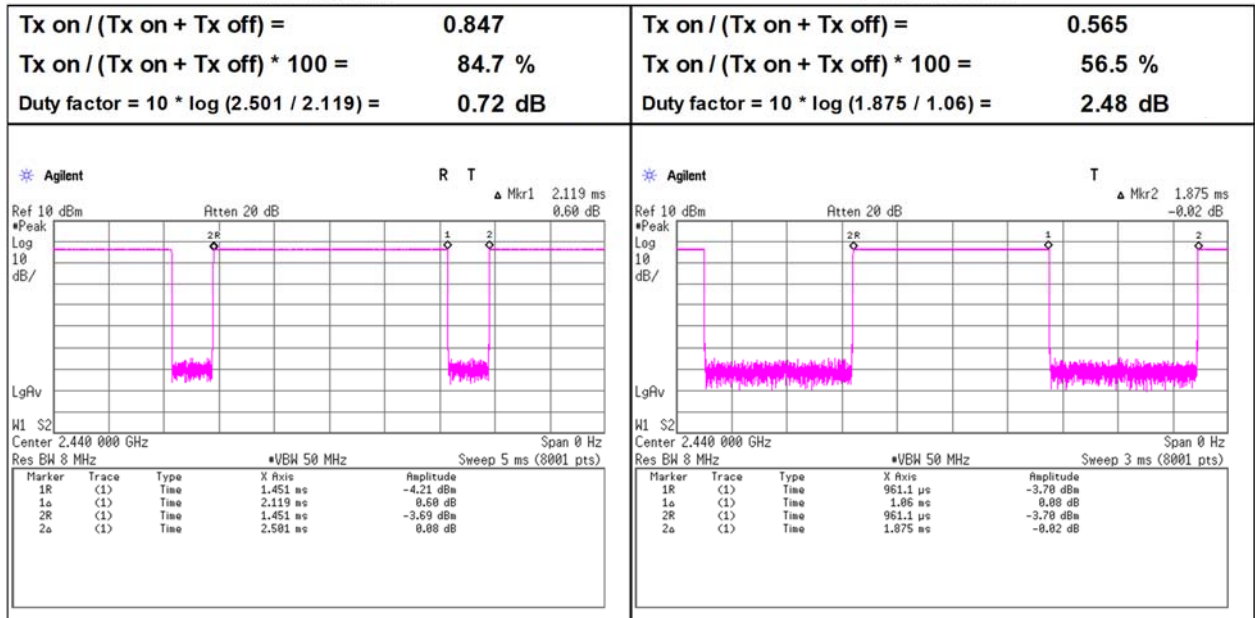
Result (Burst power average) = Time average + Duty Factor

Burst rate confirmation

Mode	Tx			
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Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	SR2	21 deg. C	59 % RH	Yuta Shiba

BT LE 1M-PHY



Radiated Spurious Emission

Mode	Tx BT LE 1M-PHY 2402 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz
October 10, 2025	WAC1	23 deg. C	49 % RH	Yasumasa Owaki	10 GHz to 26.5 GHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	1039.391	PK	54.00	23.78	-29.31	-	2.06	50.53	73.9	23.3	158	206	-
Hori.	2390.000	PK	47.24	27.56	-27.83	-	2.06	49.03	73.9	24.8	169	49	-
Hori.	2555.905	PK	50.36	27.49	-27.70	-	2.06	52.21	73.9	21.6	148	248	-
Hori.	4804.000	PK	48.09	31.49	-35.20	-	2.06	46.44	73.9	27.4	167	101	-
Hori.	5111.651	PK	49.83	32.10	-35.25	-	2.06	48.74	73.9	25.1	156	141	-
Hori.	6374.743	PK	51.70	33.65	-34.14	-	2.06	53.27	73.9	20.6	127	229	-
Hori.	7206.000	PK	48.60	35.86	-33.66	-	2.06	52.86	73.9	21.0	150	0	Floor Noise
Hori.	9608.000	PK	47.62	37.56	-31.07	-	2.06	56.17	73.9	17.7	150	0	Floor Noise
Hori.	1039.391	AV	44.73	23.78	-29.31	-	2.06	41.26	53.9	12.6	158	206	-
Hori.	2555.905	AV	42.77	27.49	-27.70	-	2.06	44.62	53.9	9.2	148	248	-
Hori.	5111.651	AV	41.36	32.10	-35.25	-	2.06	40.27	53.9	13.6	156	141	-
Hori.	6374.743	AV	44.01	33.65	-34.14	-	2.06	45.58	53.9	8.3	127	229	-
Hori.	7206.000	AV	36.91	35.86	-33.66	-	2.06	41.17	53.9	12.7	150	0	Floor Noise
Hori.	9608.000	AV	36.05	37.56	-31.07	-	2.06	44.60	53.9	9.3	150	0	Floor Noise
Vert.	1039.391	PK	53.38	23.78	-29.31	-	2.06	49.91	73.9	23.9	188	331	-
Vert.	2390.000	PK	47.72	27.56	-27.83	-	2.06	49.51	73.9	24.3	170	75	-
Vert.	2555.905	PK	40.94	27.49	-27.70	-	2.06	42.79	73.9	31.1	142	279	-
Vert.	4804.000	PK	48.65	31.49	-35.20	-	2.06	47.00	73.9	26.9	165	226	-
Vert.	5111.651	PK	52.64	32.10	-35.25	-	2.06	51.55	73.9	22.3	120	218	-
Vert.	6374.743	PK	51.99	33.65	-34.14	-	2.06	53.56	73.9	20.3	172	169	-
Vert.	7206.000	PK	48.18	35.86	-33.66	-	2.06	52.44	73.9	21.4	150	0	Floor Noise
Vert.	9608.000	PK	46.44	37.56	-31.07	-	2.06	54.99	73.9	18.9	150	0	Floor Noise
Vert.	1039.391	AV	43.70	23.78	-29.31	-	2.06	40.23	53.9	13.6	188	331	-
Vert.	2555.905	AV	40.93	27.49	-27.70	-	2.06	42.78	53.9	11.1	142	279	-
Vert.	5111.651	AV	46.83	32.10	-35.25	-	2.06	45.74	53.9	8.1	120	218	-
Vert.	6374.743	AV	45.02	33.65	-34.14	-	2.06	46.59	53.9	7.3	172	169	-
Vert.	7206.000	AV	36.74	35.86	-33.66	-	2.06	41.00	53.9	12.9	150	0	Floor Noise
Vert.	9608.000	AV	36.09	37.56	-31.07	-	2.06	44.64	53.9	9.2	150	0	Floor Noise

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Distance Fac.

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

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80 [m] / 3.0 [m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00 [m] / 3.0 [m]) = -9.54 [dB]$

Average measurement value with Duty Factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Fac. [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	36.72	27.56	-27.83	-	0.72	2.06	39.23	53.9	14.6	*1)
Hori.	4804.000	AV	37.60	31.49	-35.20	-	0.72	2.06	36.67	53.9	17.2	-
Vert.	2390.000	AV	36.67	27.56	-27.83	-	0.72	2.06	39.18	53.9	14.7	*1)
Vert.	4804.000	AV	38.97	31.49	-35.20	-	0.72	2.06	38.04	53.9	15.8	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Duty Fac. + Distance Fac.

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80 [m] / 3.0 [m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00 [m] / 3.0 [m]) = -9.54 [dB]$

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 Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	101.91	27.57	-27.82	-	2.06	103.72	-	-	Carrier
Hori.	2400.000	PK	43.88	27.57	-27.82	-	2.06	45.69	83.7	38.0	-
Vert.	2402.000	PK	100.38	27.57	-27.82	-	2.06	102.19	-	-	Carrier
Vert.	2400.000	PK	43.57	27.57	-27.82	-	2.06	45.38	82.1	36.7	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Distance Fac.

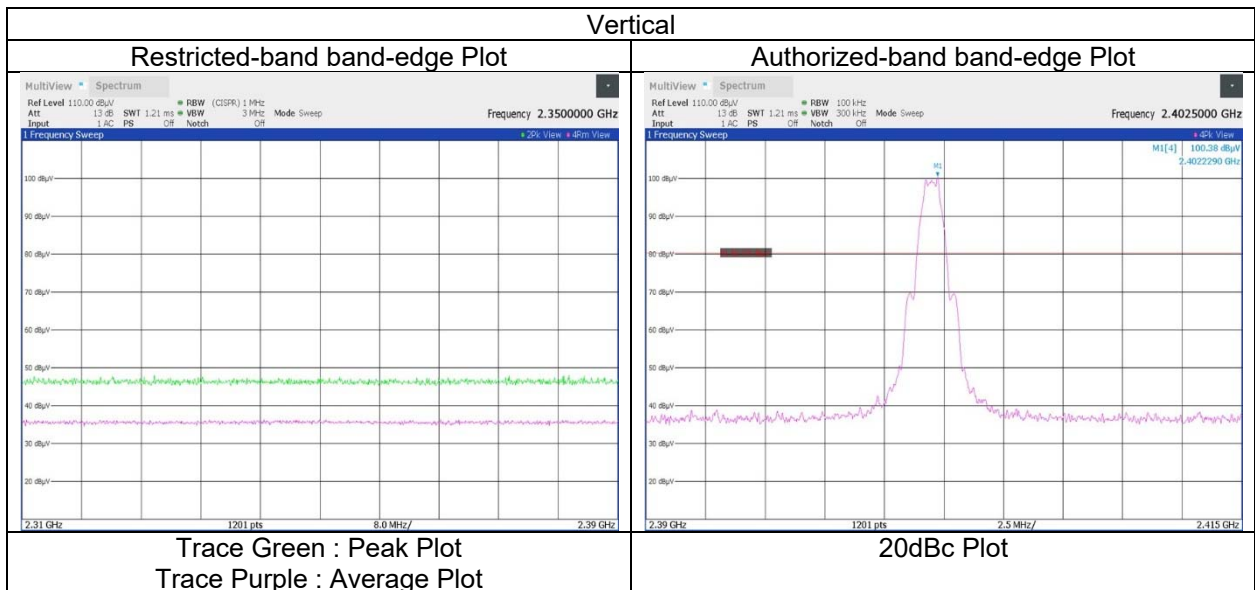
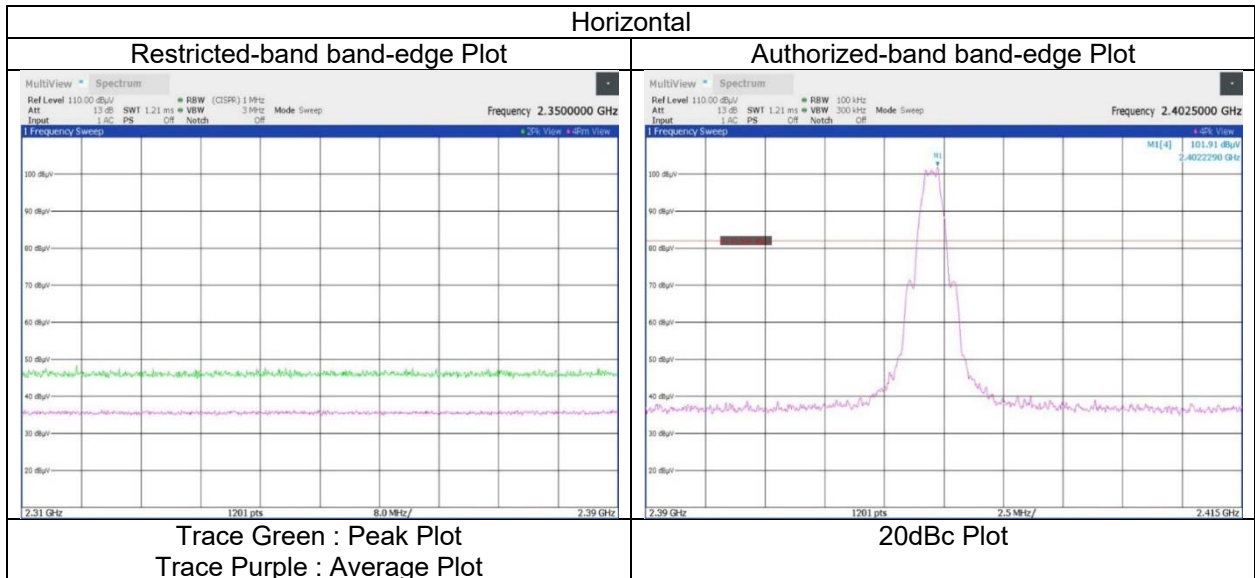
Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80 [m] / 3.0 [m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00 [m] / 3.0 [m]) = -9.54 [dB]$

Radiated Spurious Emission

Mode	Tx BT LE 1M-PHY 2402 MHz				
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz



* 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

Mode	Tx BT LE 1M-PHY 2440 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz
October 10, 2025	WAC1	23 deg. C	49 % RH	Yasumasa Owaki	10 GHz to 26.5 GHz

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

Polarity	Frequency	Detector	Reading	Ant.Fac.	Loss	Gain	Distance	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	Fac. [dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[deg.]	
Hori.	1039.391	PK	54.18	23.78	-29.31	-	2.06	50.71	73.9	23.1	158	206	-
Hori.	2555.905	PK	48.81	27.49	-27.70	-	2.06	50.66	73.9	23.2	148	248	-
Hori.	4880.000	PK	48.22	31.91	-35.27	-	2.06	46.92	73.9	26.9	169	312	-
Hori.	5111.651	PK	49.53	32.10	-35.25	-	2.06	48.44	73.9	25.4	156	141	-
Hori.	6374.743	PK	50.69	33.65	-34.14	-	2.06	52.26	73.9	21.6	127	229	-
Hori.	7320.000	PK	48.18	36.24	-33.47	-	2.06	53.01	73.9	20.8	150	0	Floor Noise
Hori.	9760.000	PK	46.78	37.52	-30.95	-	2.06	55.41	73.9	18.4	150	0	Floor Noise
Hori.	1039.391	AV	45.85	23.78	-29.31	-	2.06	42.38	53.9	11.5	158	206	-
Hori.	2555.905	AV	40.29	27.49	-27.70	-	2.06	42.14	53.9	11.7	148	248	-
Hori.	5111.651	AV	40.65	32.10	-35.25	-	2.06	39.56	53.9	14.3	156	141	-
Hori.	6374.743	AV	43.69	33.65	-34.14	-	2.06	45.26	53.9	8.6	127	229	-
Hori.	7320.000	AV	37.32	36.24	-33.47	-	2.06	42.15	53.9	11.7	150	0	Floor Noise
Hori.	9760.000	AV	36.17	37.52	-30.95	-	2.06	44.80	53.9	9.1	150	0	Floor Noise
Vert.	1039.391	PK	55.66	23.78	-29.31	-	2.06	52.19	73.9	21.7	188	331	-
Vert.	2555.905	PK	50.51	27.49	-27.70	-	2.06	52.36	73.9	21.5	142	279	-
Vert.	4880.000	PK	48.70	31.91	-35.27	-	2.06	47.40	73.9	26.5	161	228	-
Vert.	5111.651	PK	52.73	32.10	-35.25	-	2.06	51.64	73.9	22.2	120	218	-
Vert.	6374.743	PK	51.67	33.65	-34.14	-	2.06	53.24	73.9	20.6	172	169	-
Vert.	7320.000	PK	47.73	36.24	-33.47	-	2.06	52.56	73.9	21.3	150	0	Floor Noise
Vert.	9760.000	PK	47.34	37.52	-30.95	-	2.06	55.97	73.9	17.9	150	0	Floor Noise
Vert.	1039.391	AV	46.41	23.78	-29.31	-	2.06	42.94	53.9	10.9	188	331	-
Vert.	2555.905	AV	41.82	27.49	-27.70	-	2.06	43.67	53.9	10.2	142	279	-
Vert.	5111.651	AV	47.08	32.10	-35.25	-	2.06	45.99	53.9	7.9	120	218	-
Vert.	6374.743	AV	45.30	33.65	-34.14	-	2.06	46.87	53.9	7.0	172	169	-
Vert.	7320.000	AV	37.21	36.24	-33.47	-	2.06	42.04	53.9	11.8	150	0	Floor Noise
Vert.	9760.000	AV	36.24	37.52	-30.95	-	2.06	44.87	53.9	9.0	150	0	Floor Noise

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Distance Fac.

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

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80[m] / 3.0[m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00[m] / 3.0[m]) = -9.54 [dB]$

Average measurement value with Duty Factor

Polarity	Frequency	Detector	Reading	Ant.Fac.	Loss	Gain	Duty Fac.	Distance Fac.	Result	Limit	Margin	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
Hori.	4880.000	AV	37.80	31.91	-35.27	-	0.72	2.06	37.22	53.9	16.6	-
Vert.	4880.000	AV	38.89	31.91	-35.27	-	0.72	2.06	38.31	53.9	15.5	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Duty Fac. + Distance Fac.

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80[m] / 3.0[m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00[m] / 3.0[m]) = -9.54 [dB]$

Duty factor refer to "Burst rate confirmation" sheet.

Radiated Spurious Emission

Mode	Tx BT LE 1M-PHY 2480 MHz											
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz
October 10, 2025	WAC1	23 deg. C	49 % RH	Yasumasa Owaki	10 GHz to 26.5 GHz

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

Polarity	Frequency	Detector	Reading	Ant.Fac.	Loss	Gain	Distance	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	Fac. [dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[deg.]	
Hori.	1039.391	PK	54.93	23.78	-29.31	-	2.06	51.46	73.9	22.4	156	208	-
Hori.	2483.500	PK	48.62	27.65	-27.77	-	2.06	50.56	73.9	23.3	157	65	-
Hori.	2555.905	PK	50.04	27.49	-27.70	-	2.06	51.89	73.9	22.0	153	247	-
Hori.	4960.000	PK	48.16	32.16	-35.35	-	2.06	47.03	73.9	26.8	164	298	-
Hori.	5111.651	PK	49.57	32.10	-35.25	-	2.06	48.48	73.9	25.4	144	141	-
Hori.	6374.743	PK	50.95	33.65	-34.14	-	2.06	52.52	73.9	21.3	121	230	-
Hori.	7440.000	PK	47.99	36.30	-33.29	-	2.06	53.06	73.9	20.8	150	0	Floor Noise
Hori.	9920.000	PK	46.98	37.54	-30.80	-	2.06	55.78	73.9	18.1	150	0	Floor Noise
Hori.	1039.391	AV	45.99	23.78	-29.31	-	2.06	42.52	53.9	11.3	156	208	-
Hori.	2555.905	AV	40.58	27.49	-27.70	-	2.06	42.43	53.9	11.4	153	247	-
Hori.	5111.651	AV	40.25	32.10	-35.25	-	2.06	39.16	53.9	14.7	144	141	-
Hori.	6374.743	AV	43.73	33.65	-34.14	-	2.06	45.30	53.9	8.6	121	230	-
Hori.	7440.000	AV	37.08	36.30	-33.29	-	2.06	42.15	53.9	11.7	150	0	Floor Noise
Hori.	9920.000	AV	36.22	37.54	-30.80	-	2.06	45.02	53.9	8.8	150	0	Floor Noise
Vert.	1039.391	PK	54.65	23.78	-29.31	-	2.06	51.18	73.9	22.7	190	332	-
Vert.	2483.500	PK	49.47	27.65	-27.77	-	2.06	51.41	73.9	22.4	151	77	-
Vert.	2555.905	PK	49.98	27.49	-27.70	-	2.06	51.83	73.9	22.0	146	282	-
Vert.	4960.000	PK	48.99	32.16	-35.35	-	2.06	47.86	73.9	26.0	158	225	-
Vert.	5111.651	PK	52.52	32.10	-35.25	-	2.06	51.43	73.9	22.4	116	217	-
Vert.	6374.743	PK	51.77	33.65	-34.14	-	2.06	53.34	73.9	20.5	165	169	-
Vert.	7440.000	PK	47.47	36.30	-33.29	-	2.06	52.54	73.9	21.3	150	0	Floor Noise
Vert.	9920.000	PK	46.52	37.54	-30.80	-	2.06	55.32	73.9	18.5	150	0	Floor Noise
Vert.	1039.391	AV	45.13	23.78	-29.31	-	2.06	41.66	53.9	12.2	190	332	-
Vert.	2555.905	AV	41.43	27.49	-27.70	-	2.06	43.28	53.9	10.6	146	282	-
Vert.	5111.651	AV	46.94	32.10	-35.25	-	2.06	45.85	53.9	8.0	116	217	-
Vert.	6374.743	AV	44.67	33.65	-34.14	-	2.06	46.24	53.9	7.6	165	169	-
Vert.	7440.000	AV	37.00	36.30	-33.29	-	2.06	42.07	53.9	11.8	150	0	Floor Noise
Vert.	9920.000	AV	36.06	37.54	-30.80	-	2.06	44.86	53.9	9.0	150	0	Floor Noise

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Distance Fac.

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

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80 [m] / 3.0 [m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00 [m] / 3.0 [m]) = -9.54 [dB]$

Average measurement value with Duty Factor

Polarity	Frequency	Detector	Reading	Ant.Fac.	Loss	Gain	Duty	Distance	Result	Limit	Margin	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	Fac. [dB]	Fac. [dB]	[dBuV/m]	[dBuV/m]	[dB]	
Hori.	2483.500	AV	35.55	27.65	-27.77	-	0.72	2.06	38.21	53.9	15.6	*1)
Hori.	4960.000	AV	37.19	32.16	-35.35	-	0.72	2.06	36.78	53.9	17.1	-
Vert.	2483.500	AV	38.10	27.65	-27.77	-	0.72	2.06	40.76	53.9	13.1	*1)
Vert.	4960.000	AV	38.19	32.16	-35.35	-	0.72	2.06	37.78	53.9	16.1	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Duty Fac. + Distance Fac.

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80 [m] / 3.0 [m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00 [m] / 3.0 [m]) = -9.54 [dB]$

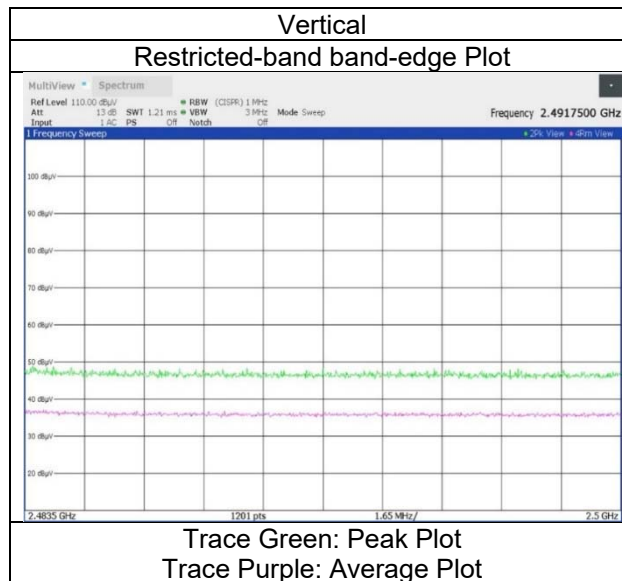
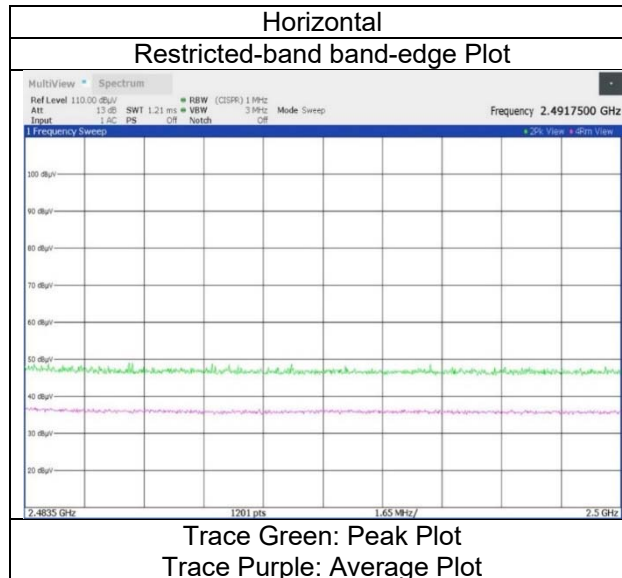
Duty factor refer to "Burst rate confirmation" sheet.

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

Radiated Spurious Emission

Mode	Tx BT LE 1M-PHY 2480 MHz				
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz



* 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

Mode	Tx BT LE 2M-PHY 2402 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz
October 10, 2025	WAC1	23 deg. C	49 % RH	Yasumasa Owaki	10 GHz to 26.5 GHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	1039.391	PK	54.64	23.78	-29.31	-	2.06	51.17	73.9	22.7	155	209	-
Hori.	2390.000	PK	47.83	27.56	-27.83	-	2.06	49.62	73.9	24.2	163	49	-
Hori.	2555.905	PK	49.93	27.49	-27.70	-	2.06	51.78	73.9	22.1	138	246	-
Hori.	4804.000	PK	47.99	31.49	-35.20	-	2.06	46.34	73.9	27.5	150	53	-
Hori.	5111.651	PK	50.13	32.10	-35.25	-	2.06	49.04	73.9	24.8	158	141	-
Hori.	6374.743	PK	51.59	33.65	-34.14	-	2.06	53.16	73.9	20.7	121	229	-
Hori.	7206.000	PK	47.59	35.86	-33.66	-	2.06	51.85	73.9	22.0	150	0	Floor Noise
Hori.	9608.000	PK	46.28	37.56	-31.07	-	2.06	54.83	73.9	19.0	150	0	Floor Noise
Hori.	1039.391	AV	45.04	23.78	-29.31	-	2.06	41.57	53.9	12.3	155	209	-
Hori.	2555.905	AV	40.49	27.49	-27.70	-	2.06	42.34	53.9	11.5	138	246	-
Hori.	5111.651	AV	40.11	32.10	-35.25	-	2.06	39.02	53.9	14.8	158	141	-
Hori.	6374.743	AV	44.33	33.65	-34.14	-	2.06	45.90	53.9	8.0	121	229	-
Hori.	7206.000	AV	36.70	35.86	-33.66	-	2.06	40.96	53.9	12.9	150	0	Floor Noise
Hori.	9608.000	AV	35.93	37.56	-31.07	-	2.06	44.48	53.9	9.4	150	0	Floor Noise
Vert.	1039.391	PK	55.19	23.78	-29.31	-	2.06	51.72	73.9	22.1	192	331	-
Vert.	2390.000	PK	47.68	27.56	-27.83	-	2.06	49.47	73.9	24.4	171	73	-
Vert.	2555.905	PK	49.90	27.49	-27.70	-	2.06	51.75	73.9	22.1	194	280	-
Vert.	4804.000	PK	48.90	31.49	-35.20	-	2.06	47.25	73.9	26.6	168	228	-
Vert.	5111.651	PK	52.52	32.10	-35.25	-	2.06	51.43	73.9	22.4	120	220	-
Vert.	6374.743	PK	52.30	33.65	-34.14	-	2.06	53.87	73.9	20.0	177	169	-
Vert.	7206.000	PK	48.16	35.86	-33.66	-	2.06	52.42	73.9	21.4	150	0	Floor Noise
Vert.	9608.000	PK	47.48	37.56	-31.07	-	2.06	56.03	73.9	17.8	150	0	Floor Noise
Vert.	1039.391	AV	45.28	23.78	-29.31	-	2.06	41.81	53.9	12.0	192	331	-
Vert.	2555.905	AV	41.25	27.49	-27.70	-	2.06	43.10	53.9	10.8	194	280	-
Vert.	5111.651	AV	47.07	32.10	-35.25	-	2.06	45.98	53.9	7.9	120	220	-
Vert.	6374.743	AV	44.42	33.65	-34.14	-	2.06	45.99	53.9	7.9	177	169	-
Vert.	7206.000	AV	37.05	35.86	-33.66	-	2.06	41.31	53.9	12.5	150	0	Floor Noise
Vert.	9608.000	AV	36.01	37.56	-31.07	-	2.06	44.56	53.9	9.3	150	0	Floor Noise

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Distance Fac.

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

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80[m] / 3.0[m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00[m] / 3.0[m]) = -9.54 [dB]$

Average measurement value with Duty Factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Fac. [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	36.94	27.56	-27.83	-	2.48	2.06	41.21	53.9	12.6	*1)
Hori.	4804.000	AV	37.52	31.49	-35.20	-	2.48	2.06	38.35	53.9	15.5	-
Vert.	2390.000	AV	35.14	27.56	-27.83	-	2.48	2.06	39.41	53.9	14.4	*1)
Vert.	4804.000	AV	38.10	31.49	-35.20	-	2.48	2.06	38.93	53.9	14.9	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Duty Fac. + Distance Fac.

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80[m] / 3.0[m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00[m] / 3.0[m]) = -9.54 [dB]$

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 Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	101.07	27.57	-27.82	-	2.06	102.88	-	-	Carrier
Hori.	2400.000	PK	69.96	27.57	-27.82	-	2.06	71.77	82.8	11.0	-
Vert.	2402.000	PK	99.36	27.57	-27.82	-	2.06	101.17	-	-	Carrier
Vert.	2400.000	PK	68.42	27.57	-27.82	-	2.06	70.23	81.1	10.8	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Distance Fac.

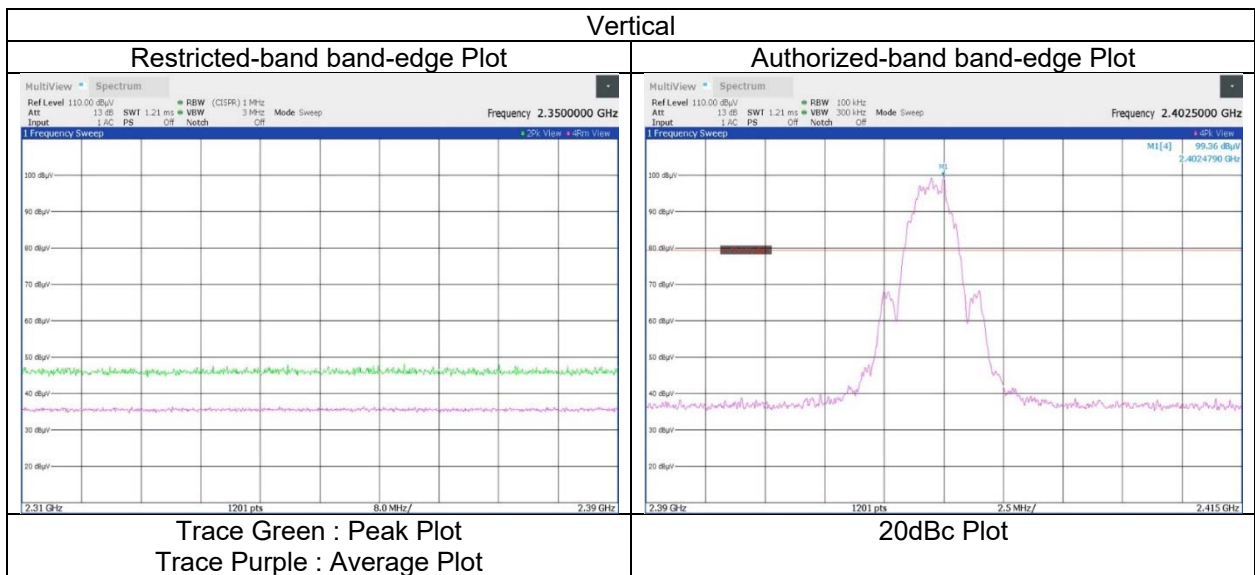
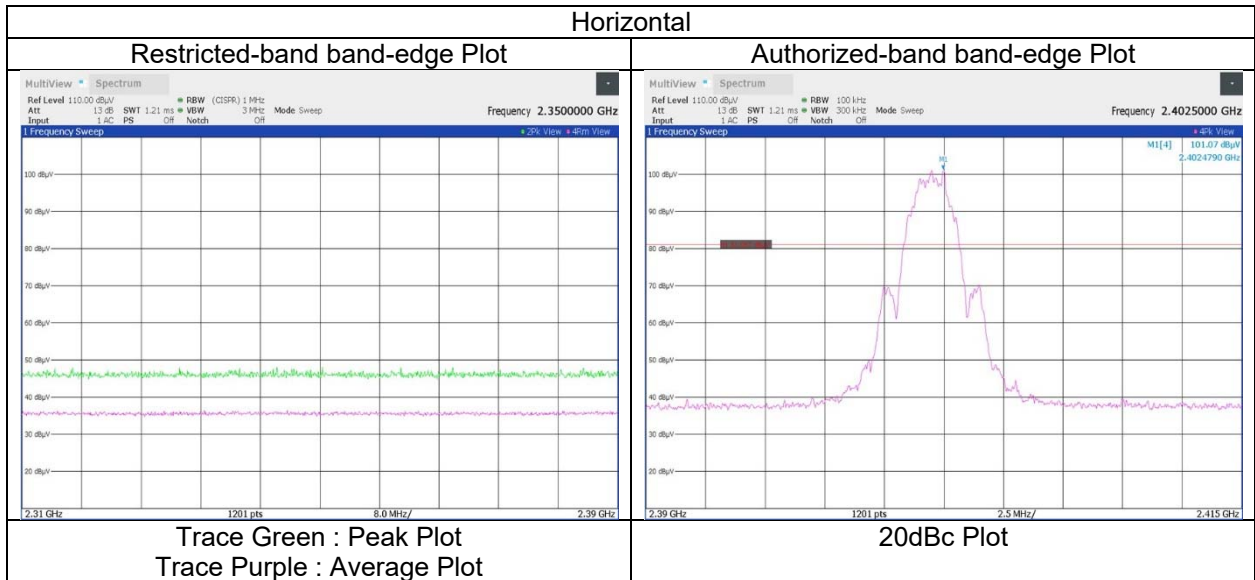
Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80[m] / 3.0[m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00[m] / 3.0[m]) = -9.54 [dB]$

Radiated Spurious Emission

Mode	Tx BT LE 2M-PHY 2402 MHz				
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz



* 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

Mode	Tx BT LE 2M-PHY 2440 MHz											
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz
October 10, 2025	WAC1	23 deg. C	49 % RH	Yasumasa Owaki	10 GHz to 26.5 GHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	1039.391	PK	54.22	23.78	-29.31	-	2.06	50.75	73.9	23.1	153	208	-
Hori.	2555.905	PK	49.66	27.49	-27.70	-	2.06	51.51	73.9	22.3	136	246	-
Hori.	4880.000	PK	48.22	31.91	-35.27	-	2.06	46.92	73.9	26.9	169	312	-
Hori.	5111.651	PK	49.82	32.10	-35.25	-	2.06	48.73	73.9	25.1	162	141	-
Hori.	6374.743	PK	52.10	33.65	-34.14	-	2.06	53.67	73.9	20.2	118	229	-
Hori.	7320.000	PK	48.16	36.24	-33.47	-	2.06	52.99	73.9	20.9	150	0	Floor Noise
Hori.	9760.000	PK	47.17	37.52	-30.95	-	2.06	55.80	73.9	18.1	150	0	Floor Noise
Hori.	1039.391	AV	44.48	23.78	-29.31	-	2.06	41.01	53.9	12.8	153	208	-
Hori.	2555.905	AV	40.39	27.49	-27.70	-	2.06	42.24	53.9	11.6	136	246	-
Hori.	5111.651	AV	40.17	32.10	-35.25	-	2.06	39.08	53.9	14.8	162	141	-
Hori.	6374.743	AV	44.83	33.65	-34.14	-	2.06	46.40	53.9	7.5	118	229	-
Hori.	7320.000	AV	37.00	36.24	-33.47	-	2.06	41.83	53.9	12.0	150	0	Floor Noise
Hori.	9760.000	AV	36.11	37.52	-30.95	-	2.06	44.74	53.9	9.1	150	0	Floor Noise
Vert.	1039.391	PK	54.52	23.78	-29.31	-	2.06	51.05	73.9	22.8	205	331	-
Vert.	2555.905	PK	49.92	27.49	-27.70	-	2.06	51.77	73.9	22.1	193	280	-
Vert.	4880.000	PK	49.49	31.91	-35.27	-	2.06	48.19	73.9	25.7	163	226	-
Vert.	5111.651	PK	52.44	32.10	-35.25	-	2.06	51.35	73.9	22.5	123	221	-
Vert.	6374.743	PK	51.25	33.65	-34.14	-	2.06	52.82	73.9	21.0	172	169	-
Vert.	7320.000	PK	47.96	36.24	-33.47	-	2.06	52.79	73.9	21.1	150	0	Floor Noise
Vert.	9760.000	PK	47.21	37.52	-30.95	-	2.06	55.84	73.9	18.0	150	0	Floor Noise
Vert.	1039.391	AV	44.87	23.78	-29.31	-	2.06	41.40	53.9	12.5	205	331	-
Vert.	2555.905	AV	41.19	27.49	-27.70	-	2.06	43.04	53.9	10.8	193	280	-
Vert.	5111.651	AV	46.65	32.10	-35.25	-	2.06	45.56	53.9	8.3	123	221	-
Vert.	6374.743	AV	43.90	33.65	-34.14	-	2.06	45.47	53.9	8.4	172	169	-
Vert.	7320.000	AV	37.27	36.24	-33.47	-	2.06	42.10	53.9	11.8	150	0	Floor Noise
Vert.	9760.000	AV	36.17	37.52	-30.95	-	2.06	44.80	53.9	9.1	150	0	Floor Noise

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Distance Fac.

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

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80[m] / 3.0[m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00[m] / 3.0[m]) = -9.54 [dB]$

Average measurement value with Duty Factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Fac. [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4880.000	AV	37.48	31.91	-35.27	-	2.48	2.06	38.66	53.9	15.2	-
Vert.	4880.000	AV	38.34	31.91	-35.27	-	2.48	2.06	39.52	53.9	14.3	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Duty Fac. + Distance Fac.

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80[m] / 3.0[m]) = 2.06 [dB]$

10 GHz to 40 GHz : $20\log(1.00[m] / 3.0[m]) = -9.54 [dB]$

Duty factor refer to "Burst rate confirmation" sheet.

Radiated Spurious Emission

Mode	Tx BT LE 2M-PHY 2480 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz
October 10, 2025	WAC1	23 deg. C	49 % RH	Yasumasa Owaki	10 GHz to 26.5 GHz
December 15, 2025	SAC3	20 deg. C	33 % RH	Yuta Shiba	30 MHz to 1000 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	573.754	QP	28.10	18.35	10.35	31.98	0.00	24.82	46.0	21.1	138	70	-
Hori.	607.546	QP	31.90	19.53	10.48	31.96	0.00	29.95	46.0	16.0	100	23	-
Hori.	933.896	QP	30.80	21.97	11.70	30.74	0.00	33.73	46.0	12.2	122	296	-
Hori.	1039.391	PK	54.37	23.78	-29.31	-	2.06	50.90	73.9	23.0	156	210	-
Hori.	2483.500	PK	51.38	27.65	-27.77	-	2.06	53.32	73.9	20.5	159	299	-
Hori.	2555.905	PK	49.49	27.49	-27.70	-	2.06	51.34	73.9	22.5	137	247	-
Hori.	4960.000	PK	48.09	32.16	-35.35	-	2.06	46.96	73.9	26.9	164	300	-
Hori.	5111.651	PK	50.00	32.10	-35.25	-	2.06	48.91	73.9	24.9	159	140	-
Hori.	6374.743	PK	51.62	33.65	-34.14	-	2.06	53.19	73.9	20.7	118	229	-
Hori.	7440.000	PK	48.06	36.30	-33.29	-	2.06	53.13	73.9	20.7	150	0	Floor Noise
Hori.	9920.000	PK	44.80	37.54	-30.80	-	2.06	53.60	73.9	20.3	150	0	Floor Noise
Hori.	1039.391	AV	44.91	23.78	-29.31	-	2.06	41.44	53.9	12.4	156	210	-
Hori.	2555.905	AV	40.18	27.49	-27.70	-	2.06	42.03	53.9	11.8	137	247	-
Hori.	5111.651	AV	40.44	32.10	-35.25	-	2.06	39.35	53.9	14.5	159	140	-
Hori.	6374.743	AV	44.28	33.65	-34.14	-	2.06	45.85	53.9	8.0	118	229	-
Hori.	7440.000	AV	36.91	36.30	-33.29	-	2.06	41.98	53.9	11.9	150	0	Floor Noise
Hori.	9920.000	AV	34.48	37.54	-30.80	-	2.06	43.28	53.9	10.6	150	0	Floor Noise
Vert.	30.849	QP	27.10	18.40	6.58	32.19	0.00	19.89	40.0	20.1	100	110	-
Vert.	553.150	QP	28.90	17.90	10.27	31.99	0.00	25.08	46.0	20.9	100	221	-
Vert.	575.833	QP	31.70	18.43	10.36	31.97	0.00	28.52	46.0	17.4	131	340	-
Vert.	609.184	QP	36.40	19.56	10.48	31.95	0.00	34.49	46.0	11.5	100	354	-
Vert.	668.244	QP	29.00	19.37	10.73	31.89	0.00	27.21	46.0	18.7	100	70	-
Vert.	884.725	QP	28.20	21.95	11.53	31.09	0.00	30.59	46.0	15.4	145	314	-
Vert.	890.980	QP	25.10	21.97	11.55	31.04	0.00	27.58	46.0	18.4	147	356	-
Vert.	933.886	QP	31.60	21.97	11.70	30.74	0.00	34.53	46.0	11.4	128	323	-
Vert.	1039.391	PK	54.70	23.78	-29.31	-	2.06	51.23	73.9	22.6	203	332	-
Vert.	2483.500	PK	51.10	27.65	-27.77	-	2.06	53.04	73.9	20.8	151	78	-
Vert.	2555.905	PK	50.55	27.49	-27.70	-	2.06	52.40	73.9	21.5	193	281	-
Vert.	4960.000	PK	48.99	32.16	-35.35	-	2.06	47.86	73.9	26.0	100	225	-
Vert.	5111.651	PK	52.85	32.10	-35.25	-	2.06	51.76	73.9	22.1	124	218	-
Vert.	6374.743	PK	51.67	33.65	-34.14	-	2.06	53.24	73.9	20.6	181	170	-
Vert.	7440.000	PK	48.04	36.30	-33.29	-	2.06	53.11	73.9	20.7	150	0	Floor Noise
Vert.	9920.000	PK	46.78	37.54	-30.80	-	2.06	55.58	73.9	18.3	150	0	Floor Noise
Vert.	1039.391	AV	45.20	23.78	-29.31	-	2.06	41.73	53.9	12.1	203	332	-
Vert.	2555.905	AV	41.63	27.49	-27.70	-	2.06	43.48	53.9	10.4	193	281	-
Vert.	5111.651	AV	46.94	32.10	-35.25	-	2.06	45.85	53.9	8.0	124	218	-
Vert.	6374.743	AV	44.39	33.65	-34.14	-	2.06	45.96	53.9	7.9	181	170	-
Vert.	7440.000	AV	37.11	36.30	-33.29	-	2.06	42.18	53.9	11.7	150	0	Floor Noise
Vert.	9920.000	AV	36.23	37.54	-30.80	-	2.06	45.03	53.9	8.8	150	0	Floor Noise

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Distance Fac.

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

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80[m]/3.0[m]) = 2.06[dB]$

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54[dB]$

Average measurement value with Duty Factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Fac. [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	39.79	27.65	-27.77	-	2.48	2.06	44.21	53.9	9.6	*1)
Hori.	4960.000	AV	37.12	32.16	-35.35	-	2.48	2.06	38.47	53.9	15.4	-
Vert.	2483.500	AV	39.80	27.65	-27.77	-	2.48	2.06	44.22	53.9	9.6	*1)
Vert.	4960.000	AV	38.68	32.16	-35.35	-	2.48	2.06	40.03	53.9	13.8	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Duty Fac. + Distance Fac.

Distance Fac. : 1 GHz to 10 GHz : $20\log(3.80[m]/3.0[m]) = 2.06[dB]$

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54[dB]$

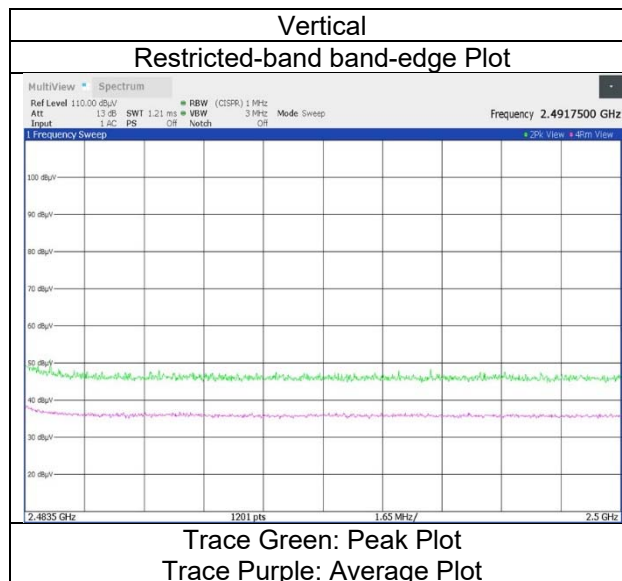
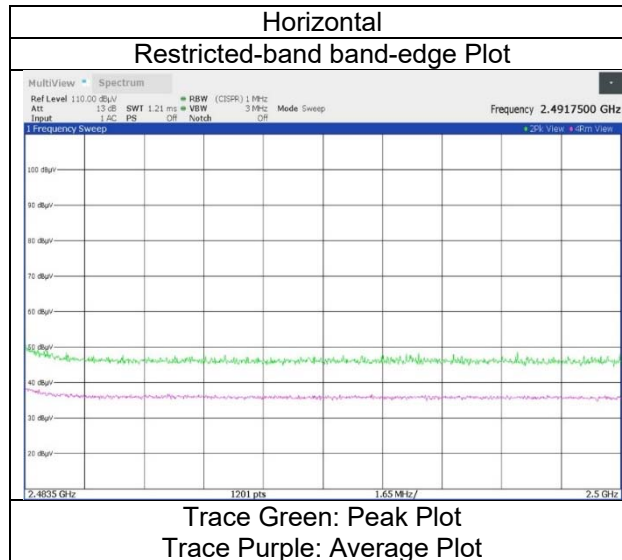
Duty factor refer to "Burst rate confirmation" sheet.

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

Radiated Spurious Emission

Mode	Tx BT LE 2M-PHY 2480 MHz				
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz

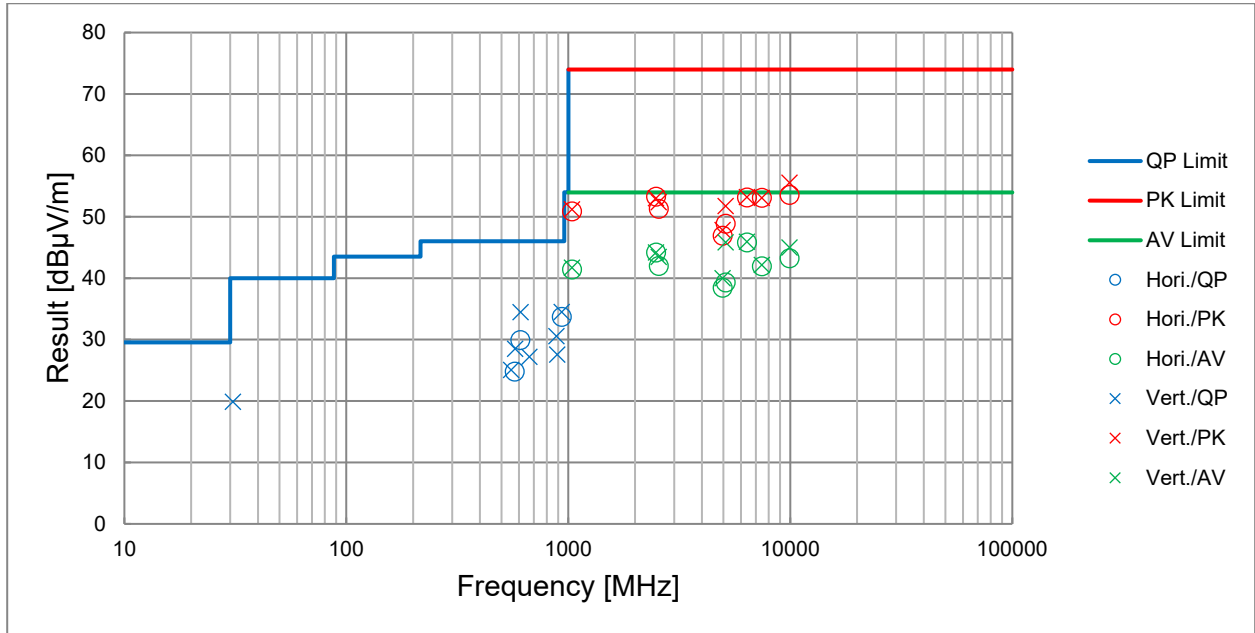


* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

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

Mode	Tx BT LE 2M-PHY 2480 MHz				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 9, 2025	WAC1	25 deg. C	50 % RH	Takayuki Kobayashi	1 GHz to 10 GHz
October 10, 2025	WAC1	23 deg. C	49 % RH	Yasumasa Owaki	10 GHz to 26.5 GHz
December 15, 2025	SAC3	20 deg. C	33 % RH	Yuta Shiba	30 MHz to 1000 MHz

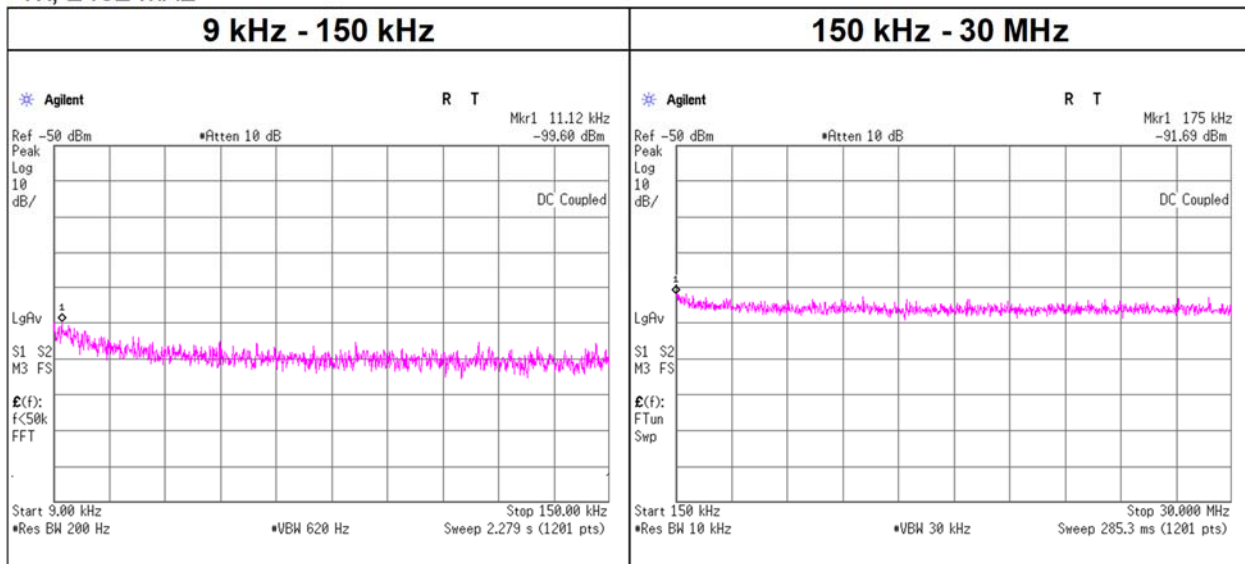


*These plots data contain sufficient number to show the trend of characteristic features for EUT.

Conducted Spurious Emission

Mode	Tx BTLE 1M-PHY 2402 MHz			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	SR2	21 deg. C	59 % RH	Yuta Shiba

Tx, 2402 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	-99.6	1.3	9.9	2.0	1.0	-86.4	300	6.0	-25.1	46.6	71.7	-
175.00	-91.7	1.3	9.9	2.0	1.0	-78.5	300	6.0	-17.2	22.7	39.9	-

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

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

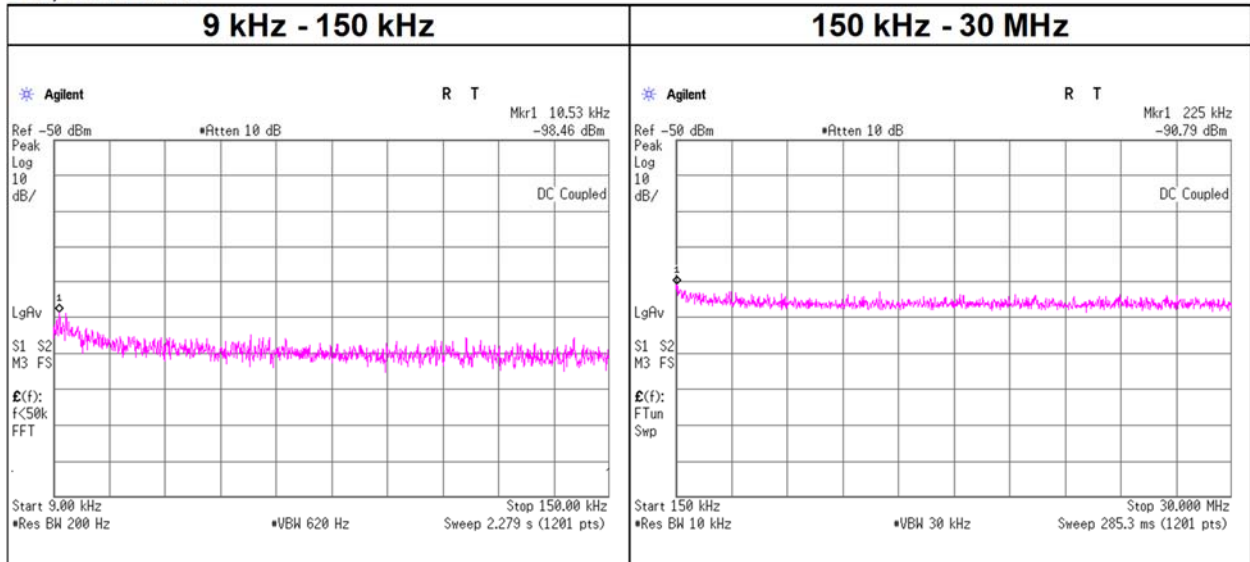
N: Number of output

*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

Mode	Tx BTLE 1M-PHY 2440 MHz			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	SR2	21 deg. C	59 % RH	Yuta Shiba

Tx, 2440 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
10.53	-98.5	1.3	9.9	2.0	1.0	-85.2	300	6.0	-24.0	47.1	71.1	-
225.00	-90.8	1.3	9.9	2.0	1.0	-77.5	300	6.0	-16.3	20.5	36.8	-

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

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

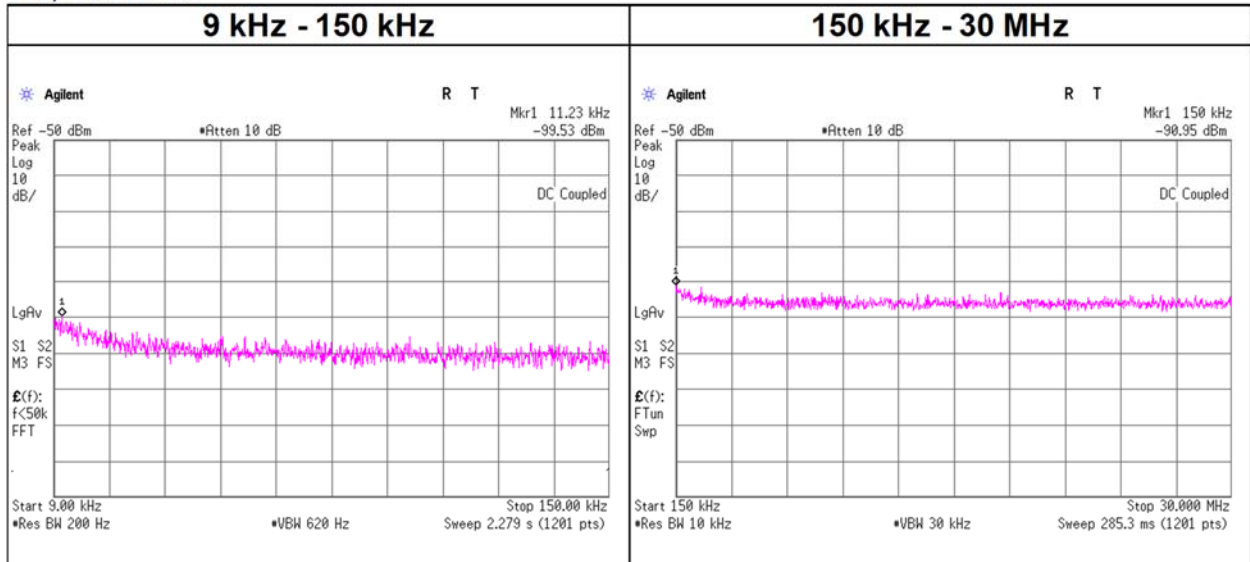
N: Number of output

*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

Mode	Tx BTLE 1M-PHY 2480 MHz			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	SR2	21 deg. C	59 % RH	Yuta Shiba

Tx, 2480 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
11.23	-99.5	1.3	9.9	2.0	1.0	-86.3	300	6.0	-25.0	46.5	71.5	-
150.00	-91.0	1.3	9.9	2.0	1.0	-77.7	300	6.0	-16.5	24.0	40.5	-

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

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

N: Number of output

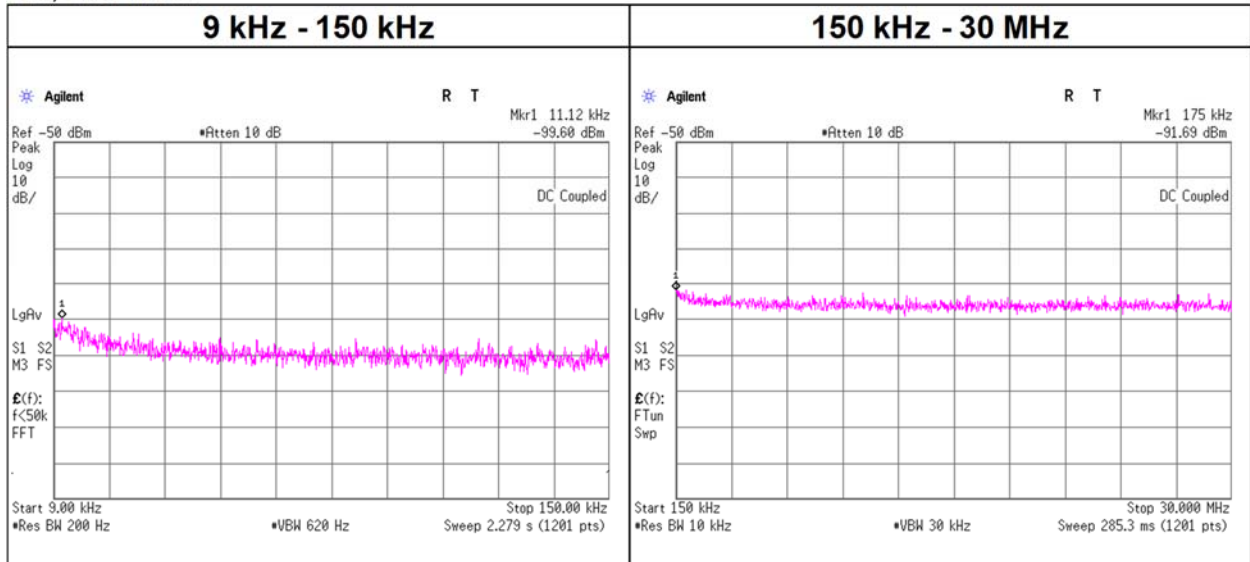
*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

Conducted Spurious Emission

Mode	Tx BTLE 2M-PHY 2402 MHz			
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Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	SR2	21 deg. C	59 % RH	Yuta Shiba

Tx, 2402 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	-99.6	1.3	9.9	2.0	1.0	-86.4	300	6.0	-25.1	46.6	71.7	-
175.00	-91.7	1.3	9.9	2.0	1.0	-78.5	300	6.0	-17.2	22.7	39.9	-

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

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

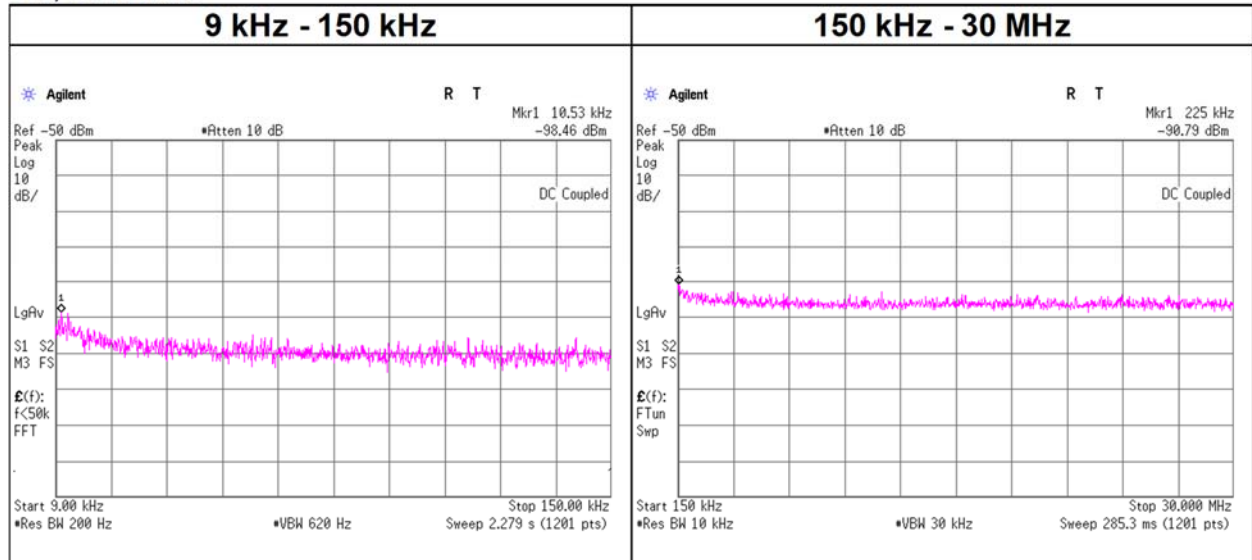
N: Number of output

*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

Mode	Tx BTLE 2M-PHY 2440 MHz			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	SR2	21 deg. C	59 % RH	Yuta Shiba

Tx, 2440 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
10.53	-98.5	1.3	9.9	2.0	1.0	-85.2	300	6.0	-24.0	47.1	71.1	-
225.00	-90.8	1.3	9.9	2.0	1.0	-77.5	300	6.0	-16.3	20.5	36.8	-

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

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

N: Number of output

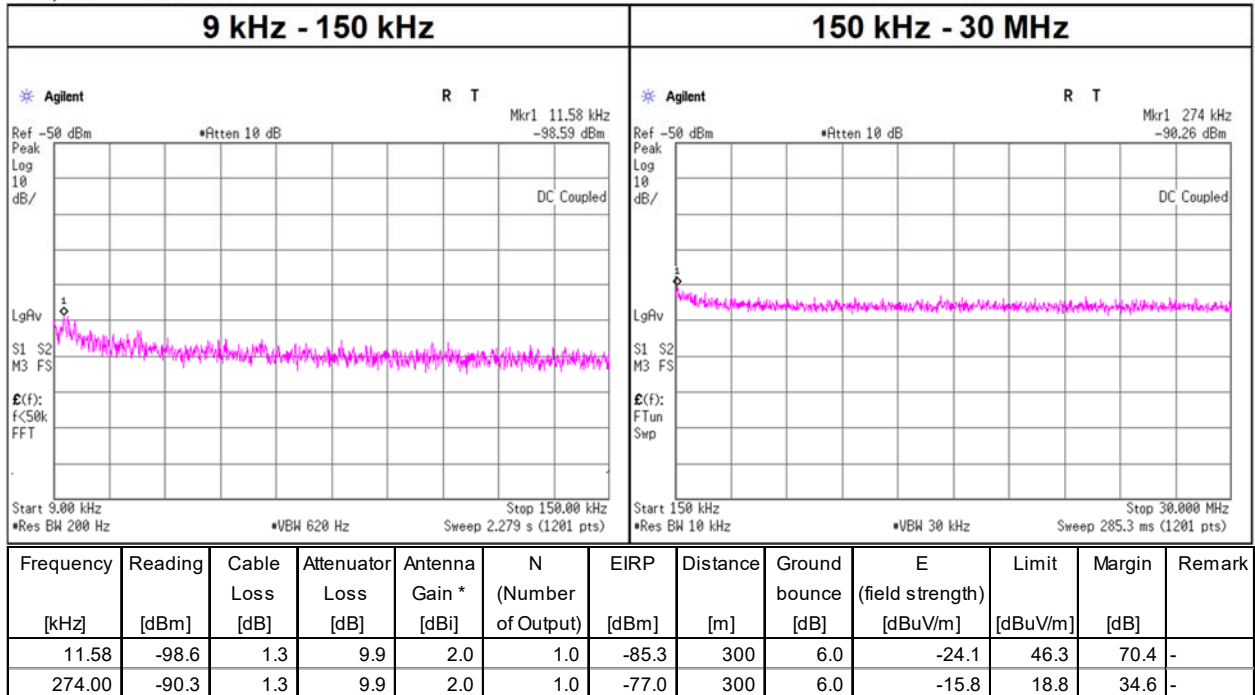
*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

Conducted Spurious Emission

Mode	Tx BTLE 2M-PHY 2480 MHz			
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Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	SR2	21 deg. C	59 % RH	Yuta Shiba

Tx, 2480 MHz



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

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

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

Mode	Tx
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Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	SR2	21 deg. C	59 % RH	Yuta Shiba

BT LE 1M-PHY

Frequency [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	2402.017	-20.02	1.94	9.97	-8.11	8.00	16.11
2440	2440.016	-19.81	1.95	9.97	-7.89	8.00	15.89
2480	2480.016	-19.77	1.95	9.97	-7.85	8.00	15.85

BT LE 2M-PHY

Frequency [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	2401.814	-24.55	1.94	9.97	-12.64	8.00	20.64
2440	2439.963	-23.15	1.95	9.97	-11.23	8.00	19.23
2480	2479.963	-22.99	1.95	9.97	-11.07	8.00	19.07

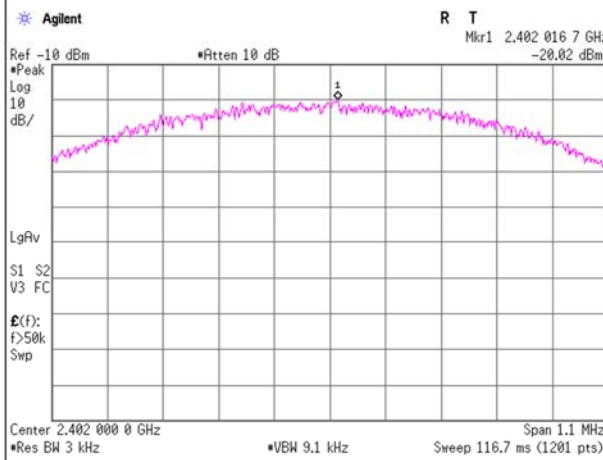
Sample Calculation:

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.

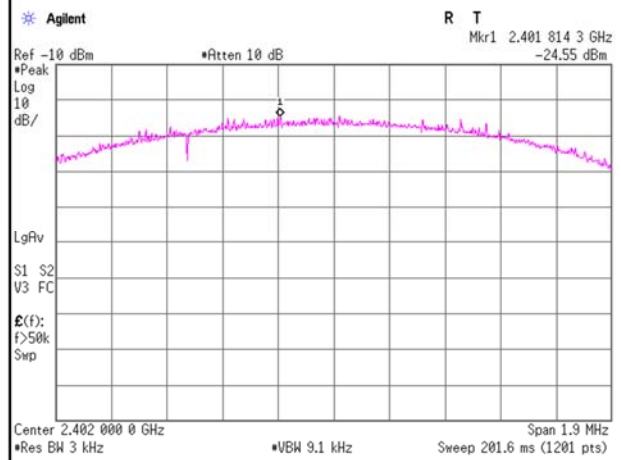
BT LE 1M-PHY

2402 MHz

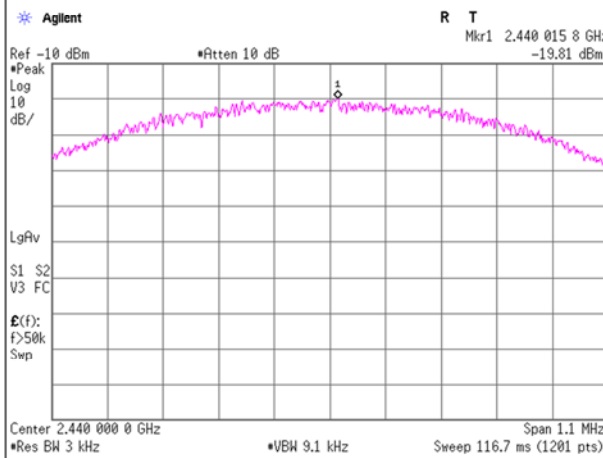


BT LE 2M-PHY

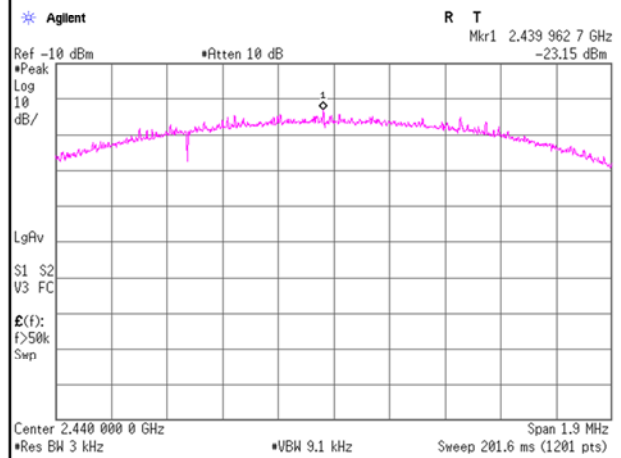
2402 MHz



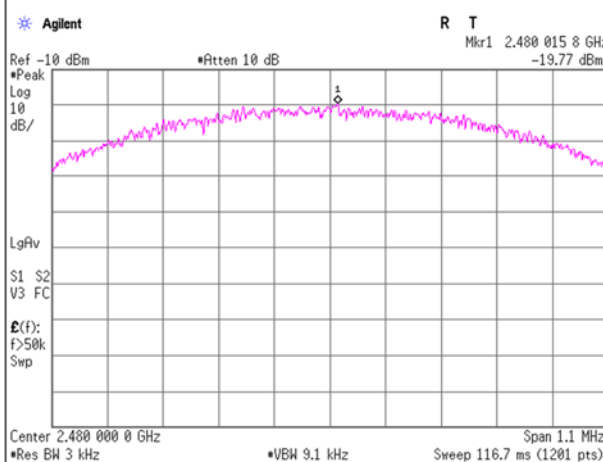
2440 MHz



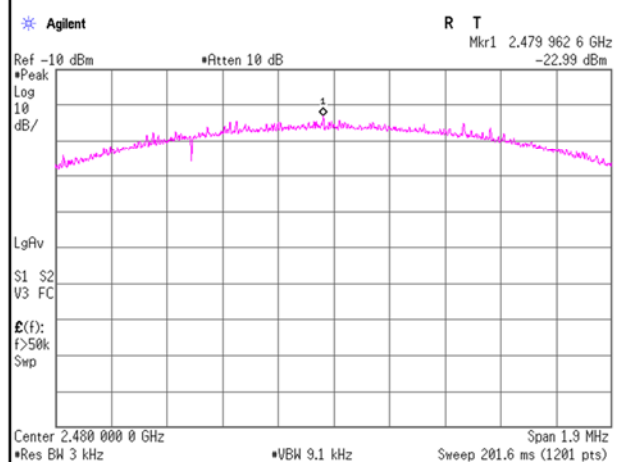
2440 MHz



2480 MHz



2480 MHz



APPENDIX 2: Test Instruments

Test Equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	145137	Attenuator	Keysight Technologies Inc	8493C-010	74865	2025/10/16	12
AT	196946	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	803411/2	2025/03/11	12
AT	169910	Power Meter	Keysight Technologies Inc	8990B	MY51000448	2025/05/21	12
AT	169911	Power sensor	Keysight Technologies Inc	N1923A	MY57270004	2025/05/21	12
AT	235604	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY45300743	2025/08/07	12
AT	259710	Thermo-Hygrometer	CUSTOM. Inc	CTH-230	-	2025/04/11	12
AT,RE	146210	Digital Hitester	HIOKI E. E. CORPORATION	3805-50	80997823	2025/09/10	12
RE	264093	Attenuator	JFW	50HF-006N	-	2025/06/10	12
RE	145023	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	BBA9106	91032666	2025/05/16	12
RE	236710	Coaxial Cable	Hayashi-Repic co., Ltd.	KMS020B-GL140sE-KMS020B-7.0m	47256-03-01	2025/05/27	12
RE	239643	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	2306S021	2025/08/27	12
RE	243209	Coaxial Cable	Hayashi-Repic co., Ltd.	SMS13-13A26-NFS13-1.0m	49190-01-01	2024/12/05	12
RE	243689	Coaxial Cable	Huber+Suhner	GL310C(Hayashi-Repic)/SF106/SF106	49373-01-01/2000781/2001160	2025/06/27	12
RE	264040	Coaxial Cable	Hayashi-Repic co., Ltd.	SMS13-13A26-SFS13-0.5m	53292-01-01	2025/06/20	12
RE	253628	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	5D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	2025/04/05	12
RE	235639	DIGITAL MULTIMETER	HIOKI E. E. CORPORATION	DT4261	230313156	2025/05/22	12
RE	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,ME,PE)	Ver 3.1.0612	-	-
RE	236585	Horn Antenna	AINFO Inc.	LB-42-25-C2-KF	2020087000103	2025/04/01	12
RE	236686	Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA 9120 C	787	2025/04/01	12
RE	236769	Horn Antenna	AINFO Inc.	LB-8180-NF	2030013000111	2025/04/01	12
RE	145529	Logperiodic Antenna	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	196	2025/05/16	12
RE	145126	Pre Amplifier	SONOMA	310N	290213	2025/02/19	12
RE	237718	Pre Amplifier	TSJ (Techno Science Japan)	MLA-18265-J03	23060016	2025/06/19	12
RE	237784	RF RELAY MATRIX with preamplifier	TSJ (Techno Science Japan)	RFM-E221261R	07795	2025/11/23	12
RE	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2025/04/07	12
RE	236616	Semi-Anechoic Chamber	TDK	SWAC-01(SVSWR)	1	2025/06/12	12
RE	146432	Tape Measure	TAJIMA	GL19-55	-	-	-
RE	207280	Tape Measure	ASKUL	-	-	-	-
RE	146208	Test Receiver	Rohde & Schwarz	ESCI	101259	2025/11/14	12
RE	235267	Test Receiver	Rohde & Schwarz	ESW44	103018	2025/03/18	12
RE	175822	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	-	2025/08/15	12
RE	235735	Thermo-Hygrometer	CUSTOM. Inc	CTH-230	-	2025/04/16	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

RE: Radiated Emission