

RADIO TEST REPORT

Test Report No. 15860840S-G-R1

Customer	Foster Electric Company, Limited
Description of EUT	Mercedes-Benz Headphones
Model Number of EUT	MB WHP 2
FCC ID	2ASG7649918
Test Regulation	FCC Part 15 Subpart C
Test Result	Complied
Issue Date	October 23, 2025
Remarks	Bluetooth (BR / EDR) parts

Representative Test EngineerHiromasa Sato
Engineer**Approved By**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".

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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)	15860840S-G	August 8, 2025	-
1	15860840S-G-R1	October 23, 2025	P.9, Deleted description of Antenna Conducted test. Since there is only one antenna, no explanation is necessary.
1	15860840S-G-R1	October 23, 2025	P.12, Changed the platform of nominal size
1	15860840S-G-R1	October 23, 2025	P.13, *(Test Distance + SVSWR Volume /2) - r = 3.977 m was corrected to 3.90 m. r: 0.023 m was corrected to 0.1 m.
1	15860840S-G-R1	October 23, 2025	P.13, P.29 to P.37, Distance factor was changed from 2.45 dB to 2.28 dB.
1	15860840S-G-R1	October 23, 2025	P.16, Changed the Conducted Emission data(Tx, Hopping Off, 3DH5 2480 MHz (AC 240 V/ 60 Hz))
1	15860840S-G-R1	October 23, 2025	P.39, Distance factor was changed from 2.45 dB to 2.28 dB, and the plot data was replaced.

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	Foster Electric Company, Limited
Address	1-1-109, Tsutsujigaoka, Akishima City, Tokyo, 196-8550, Japan
Telephone Number	+81-42-546-2311
Contact Person	Shinsaku Morita

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	Mercedes-Benz Headphones
Model Number	MB WHP 2
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	June 9, 2025
Test Date	June 12, 2025 to 20, 2025

2.2 Product Description

General Specification

Rating	DC 3.2 V (DC 3.0 V to 3.65 V) (Battery), DC 5.0 V (USB)
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Radio Specification

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

Bluetooth (BR/EDR / Bluetooth Low Energy)

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	FHSS (GFSK, $\pi/4$ DQPSK, 8 DPSK), GFSK
Antenna Gain ^{a)}	-0.68 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 for ISED
ANSI C63.25.1-2018
KDB 558074 D01 v05r02
RSS-Gen Issue 5/Amendment 1/Amendment 2 for ISED

3.3 Summary of Test Results

Item	Specification	Results	Remarks
Conducted Emission	FCC: Section 15.207 ISED: RSS-Gen 8.8	Complied	-
Carrier Frequency Separation	FCC: Section 15.247(a)(1) ISED: RSS-247 5.1 (b)	Complied	Conducted
20 dB Bandwidth	FCC: Section 15.247(a)(1) ISED: RSS-247 5.1 (a)	Complied	Conducted
Number of Hopping Frequency	FCC: Section 15.247(a)(1)(iii) ISED: RSS-247 5.1 (d)	Complied	Conducted
Dwell time	FCC: Section 15.247(a)(1)(iii) ISED: RSS-247 5.1 (d)	Complied	Conducted
Maximum Peak Output Power	FCC: Section 15.247(b)(1) ISED: RSS-247 5.4 (b)	Complied	Conducted
Spurious Emission & Band Edge Compliance	FCC: Section 15.247(d) ISED: RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10	Complied	Conducted/ Radiated (above 30 MHz) *1)
Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.			
*1) Radiated test was selected over 30 MHz based on section 15.247(d).			

FCC Part 15.31 (e)

The RF part is constantly provided voltage through the regulator 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.

3.4 Addition to Standard

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)

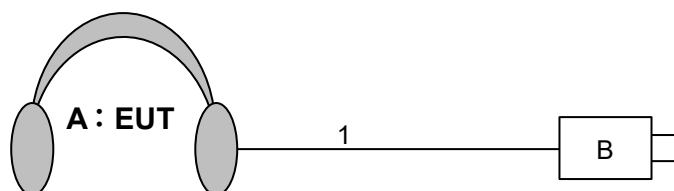
Mode	Remarks*
Bluetooth (BT)	BR (DH5) / EDR (2DH5/3DH5), Payload: PRBS9
*EUT has the power settings by the software as follows; Power Setting: 4 (Setting value) Software: CSR BlueSuite, BlueTest3, Ver 3.3.18 (Date: 2025.06 12, Storage location: Driven by connected PC) *This setting of software is the 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.	

Details of Operating Mode(s)

Test Item	Mode	Hopping	Tested Frequency
Conducted Emission, Radiated Spurious Emission (Below 1 GHz)	Tx 3DH5 *1)	Off	2480 MHz
Radiated Spurious Emission (Above 1 GHz), Conducted Spurious Emission	Tx DH5 Tx 3DH5	Off	2402 MHz 2441 MHz 2480 MHz
Carrier Frequency Separation	Tx DH5 Tx 3DH5	On	2402 MHz 2441 MHz 2480 MHz
20 dB Bandwidth	Tx DH5 Tx 3DH5	Off	2402 MHz 2441 MHz 2480 MHz
Number of Hopping Frequency	Tx DH5 Tx 3DH5	On	-
Dwell time	Tx DH1, DH3, DH5 Tx 3DH1, 3DH3, 3DH5	On	-
Maximum Peak Output Power	Tx DH5 Tx 2DH5 Tx 3DH5	Off	2402 MHz 2441 MHz 2480 MHz
Band Edge Compliance (Conducted)	Tx DH5 Tx 3DH5	On ----- Off	2402 MHz 2480 MHz
99% Occupied Bandwidth	Tx DH5 Tx 3DH5	On ----- Off	2402 MHz 2441 MHz 2480 MHz
*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload length (except Dwell time test) *2DH mode (2 Mb/s EDR: pi/4DQPSK) was excluded for other tests than power measurement by using 3DH mode (3 Mb/s EDR: 8DPSK) as a representative. *It is considered that the non-tested packet type (e.g. inquiry) can be omitted as it is complied with above all the test items based on Bluetooth Core specification. *1) Conducted emissions and Spurious emissions for frequencies below 1 GHz were limited to the channel that had the highest power during the antenna terminal test, as preliminary testing indicated that changing the operating frequency had no significant impact on the emissions in those frequency bands.			

4.2 Configuration and Peripherals

< Radiated Emission and Conducted Emission test >



AC 120 V / 60 Hz
AC 240 V / 60 Hz (Conducted Emission Only)

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

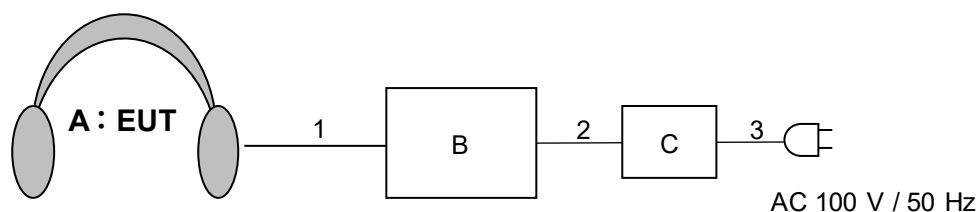
Description of EUT and Support Equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Mercedes-Benz Headphones	MB WHP 2	5P515A000006	Foster Electric Company, Limited	EUT
B	AC Adapter	A1720	FNT948333A4L9J9A0	Apple	-

List of Cables Used

No.	Cable	Length (m)	Shield-Cable	Shield-Connector	Remarks
1	USB	1.3	Shielded	Shielded	-

< Antenna Terminal Conducted test >



Description of EUT and Support Equipment

No.	Item	Model Number	Serial Number	Manufacturer	Remarks
A	Mercedes-Benz Headphones	MB WHP 2	5P516A000006F	Foster Electric	EUT
B	Laptop PC	Latitude 5490	5GV9HR2	DELL	-
C	AC Adapter	HSTNN-DA14	WAWQL0AARZE35R	DELL	-

List of Cables Used

No.	Cable	Length (m)	Shield-Cable	Shield-Connector	Remarks
1	USB	1.3	Shielded	Shielded	-
2	DC	1.1	Unshielded	Unshielded	
3	AC	1.8	Unshielded	Unshielded	

SECTION 5: Conducted Emission

Test Procedure and Conditions

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

For the tests on EUT with other peripherals (as a whole system)

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

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT via AC adapter in a Shielded room.

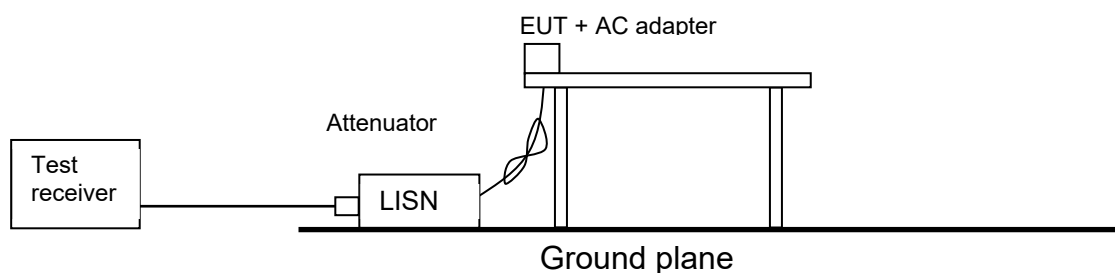
The EUT via AC adapter was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

Test results are rounded off and limit are rounded down, so some differences might be observed.

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

Figure 1: Test Setup



SECTION 6: Radiated Spurious Emission

Test Procedure

[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;

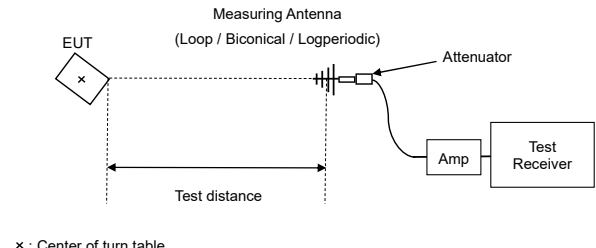
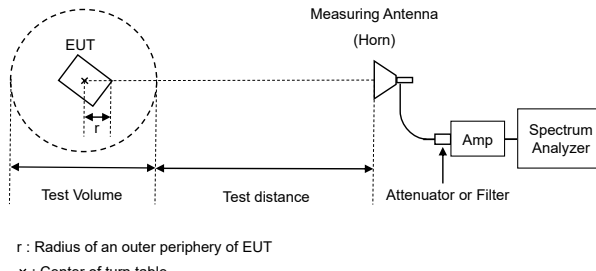
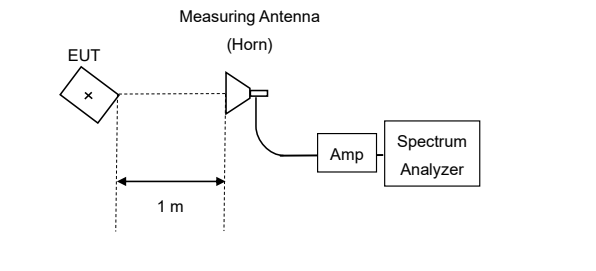
Frequency	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

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).

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	RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (RMS) 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: $20 \times \log (3.90 \text{ m}^* / 3.0 \text{ m}) = 2.28 \text{ dB}$ *(Test Distance + SVSWR Volume / 2) - r = 3.90 m Test Distance: 3 m SVSWR Volume: 2 m (SVSWR Volume has been calibrated based on CISPR 16-1-4.) r: 0.10 m
10 GHz to 26.5 GHz	
 × : Center of turn table	Distance Factor: $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$ *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.

Polarization	Below 1 GHz	1 GHz to 2.8 GHz	2.8 GHz to 10 GHz	Above 10 GHz
Horizontal	Axis-Z	Axis-X	Axis-X	Axis-X
Vertical	Axis-X	Axis-Z	Axis-Z	Axis-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 7: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument Used
20 dB Bandwidth	3 MHz	30 kHz	100 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 *1)	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak/Average *2)	-	Power Meter (Sensor: 160 MHz BW)
Carrier Frequency Separation	3 MHz	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Number of Hopping Frequency	30 MHz	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Dwell Time	Zero Span	100 kHz, 1 MHz	300 kHz, 3 MHz	As necessary capture the entire dwell time per hopping channel	Peak	Clear Write	Spectrum Analyzer
Conducted Spurious Emission *3) *4)	9 kHz to 150 kHz	200 Hz	620 Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150 kHz to 30 MHz	10 kHz	30 kHz				
	30 MHz to 25 GHz	100 kHz	300 kHz				
Conducted Spurious Emission Band Edge compliance	10 MHz	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer

*1) The measurement was performed with Max Hold since the duty cycle was not 100 %. Peak hold was applied as Worst-case measurement.
 *2) Reference data
 *3) 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)
 *4) 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.

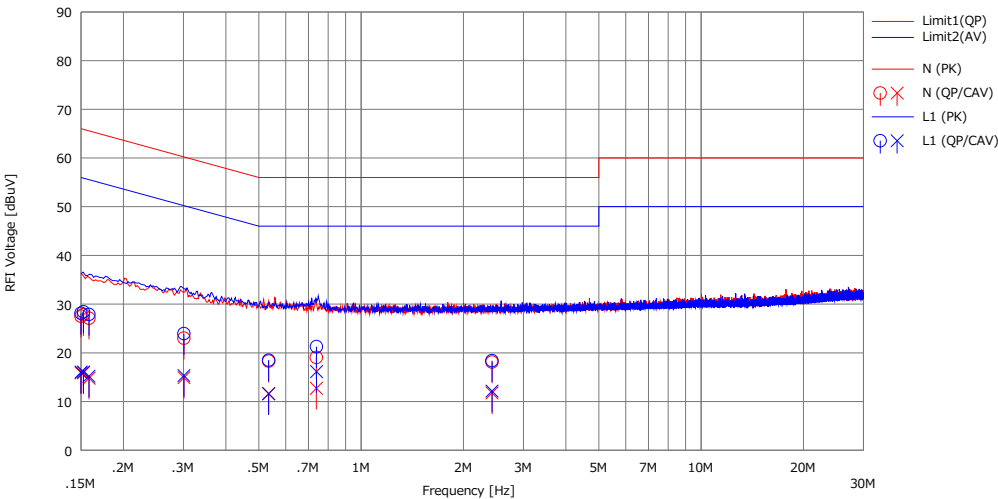
Test Data : APPENDIX
 Test Result : Pass

APPENDIX 1: Test data

Conducted Emission

Mode	Tx, Hopping Off, 3DH5 2480 MHz (AC 120 V/ 60 Hz)
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Date	Test site	Temperature	Humidity	Engineer
June 20, 2025	SR3	26 deg. C	53 % RH	Hiromasa Sato



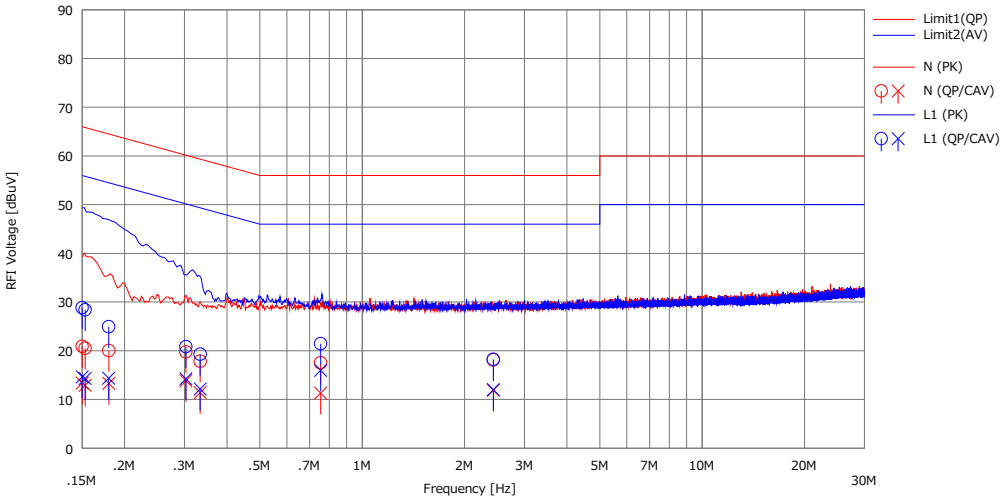
No.	Freq. [MHz]	Reading		LISN [dB]	LOSS [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<CAV> [dBuV]			<QP> [dBuV]	<CAV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	12.29	0.64	9.69	5.53	27.51	15.86	66.00	56.00	38.4	40.1	N	
2	0.15252	12.59	0.69	9.69	5.53	27.81	15.91	65.86	55.86	38.0	39.9	N	
3	0.15839	11.86	-0.45	9.70	5.53	27.09	14.78	65.55	55.55	38.4	40.7	N	
4	0.30126	7.76	-0.34	9.69	5.54	22.99	14.89	60.21	50.21	37.2	35.3	N	
5	0.53455	3.01	-3.71	9.71	5.56	18.28	11.56	56.00	46.00	37.7	34.4	N	
6	0.73879	3.75	-2.56	9.71	5.57	19.03	12.72	56.00	46.00	36.9	33.2	N	
7	2.42659	2.63	-3.68	9.79	5.65	18.07	11.76	56.00	46.00	37.9	34.2	N	
8	0.15000	12.89	0.83	9.68	5.53	28.10	16.04	66.00	56.00	37.9	39.9	L1	
9	0.15251	13.18	0.84	9.68	5.53	28.39	16.05	65.86	55.86	37.4	39.8	L1	
10	0.15833	12.66	0.00	9.68	5.53	27.87	15.21	65.55	55.55	37.6	40.3	L1	
11	0.30117	8.71	0.12	9.68	5.54	23.93	15.34	60.21	50.21	36.2	34.8	L1	
12	0.53460	3.24	-3.61	9.69	5.56	18.49	11.64	56.00	46.00	37.5	34.3	L1	
13	0.73888	5.98	0.86	9.70	5.57	21.25	16.13	56.00	46.00	34.7	29.8	L1	
14	2.42665	2.97	-3.28	9.76	5.65	18.38	12.13	56.00	46.00	37.6	33.8	L1	

Calculation: Result[dBuV]=Reading[dBuV]+C.Fac(LISN(AMN)+Cable+ATT)[dB]
LISN(AMN): LIMS ID 145539

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

Conducted Emission

Mode	Tx, Hopping Off, 3DH5 2480 MHz (AC 240 V/ 60 Hz)			
Date	Test site	Temperature	Humidity	Engineer
June 20, 2025	SR3	26 deg. C	53 % RH	Hiromasa Sato



No.	Freq. [MHz]	Reading		LISN [dB]	LOSS [dB]	Results		Limit		Margin		Phase	Comment
		<QP>	<CAV>			<QP>	<CAV>	<QP>	<AV>	<QP>	<AV>		
		[dBuV]	[dBuV]			[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	5.68	-1.84	9.69	5.53	20.90	13.38	66.00	56.00	45.1	42.6	N	
2	0.15312	5.27	-2.32	9.69	5.53	20.49	12.90	65.83	55.83	45.3	42.9	N	
3	0.17967	4.81	-1.95	9.70	5.53	20.04	13.28	64.50	54.50	44.4	41.2	N	
4	0.30292	4.53	-1.37	9.69	5.54	19.76	13.86	60.16	50.16	40.4	36.3	N	
5	0.33369	2.58	-3.83	9.70	5.55	17.83	11.42	59.36	49.36	41.5	37.9	N	
6	0.75463	2.21	-3.98	9.71	5.58	17.50	11.31	56.00	46.00	38.5	34.6	N	
7	2.42922	2.67	-3.57	9.79	5.65	18.11	11.87	56.00	46.00	37.8	34.1	N	
8	0.15000	13.65	-0.57	9.68	5.53	28.86	14.64	66.00	56.00	37.1	41.3	L1	
9	0.15304	13.19	-0.91	9.68	5.53	28.40	14.30	65.83	55.83	37.4	41.5	L1	
10	0.17953	9.72	-0.86	9.69	5.53	24.94	14.36	64.51	54.51	39.5	40.1	L1	
11	0.30287	5.61	-0.97	9.68	5.54	20.83	14.25	60.16	50.16	39.3	35.9	L1	
12	0.33376	4.04	-3.10	9.69	5.55	19.28	12.14	59.36	49.36	40.0	37.2	L1	
13	0.75470	6.16	0.71	9.70	5.58	21.44	15.99	56.00	46.00	34.5	30.0	L1	
14	2.42912	2.82	-3.41	9.76	5.65	18.23	12.00	56.00	46.00	37.7	34.0	L1	

Calculation: Result[dBuV]=Reading[dBuV]+C.Fac(LISN(AMN)+Cable+ATT)[dB]
LISN(AMN):LIMS ID 145539

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

20 dB Bandwidth, 99 %Occupied Bandwidth and Carrier Frequency Separation

Mode	Tx, Hopping On / Off
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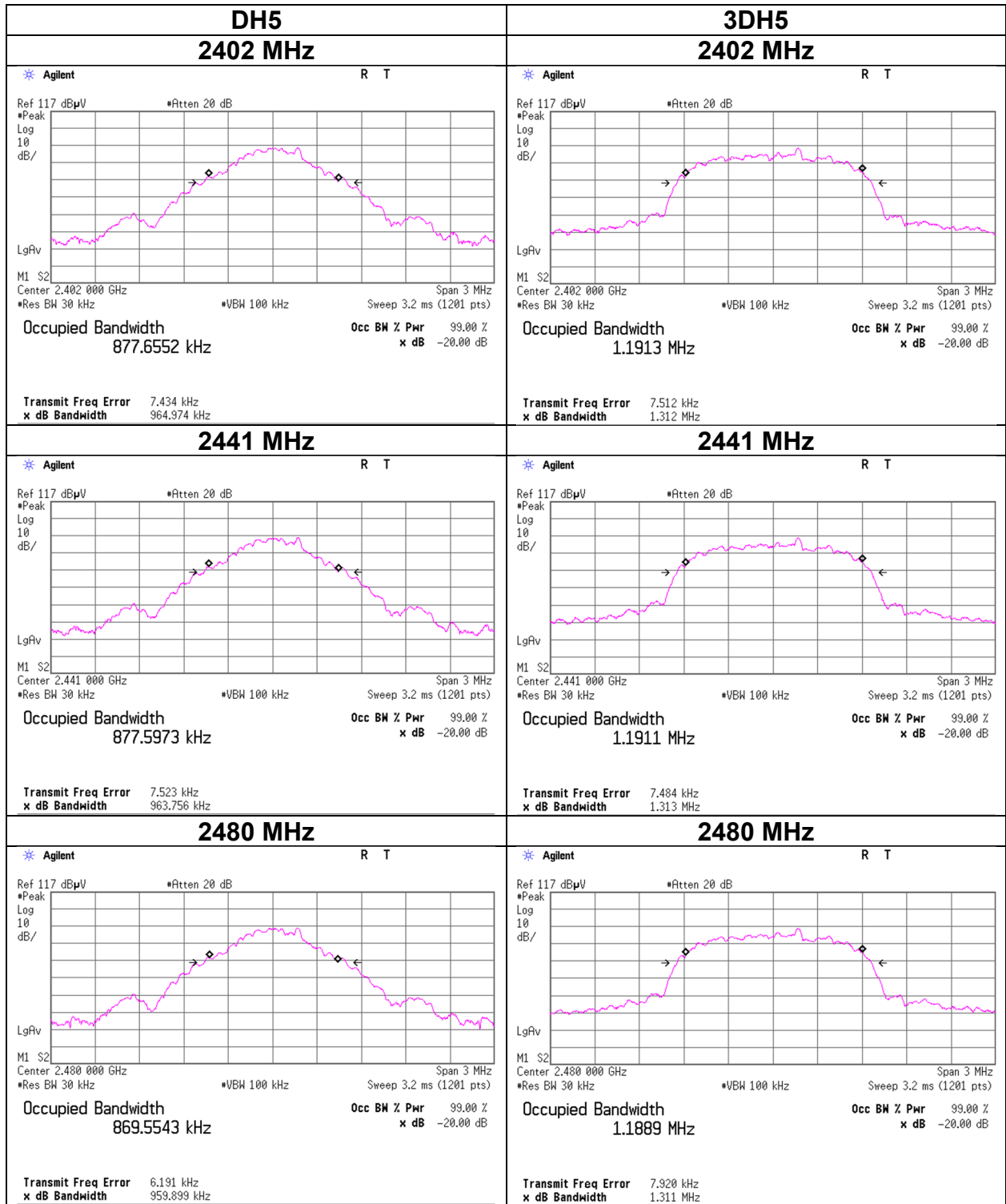
Date	Test site	Temperature	Humidity	Engineer
June 12, 2025	MR2	25 deg. C	57 % RH	Toshinori Yamada
June 13, 2025	MR2	25 deg. C	53 % RH	Kenichi Adachi

Mode	Freq. [MHz]	20 dB Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.965	877.7	1.005	>= 0.643
DH5	2441.0	0.964	877.6	1.005	>= 0.643
DH5	2480.0	0.960	869.6	1.008	>= 0.640
DH5	Hopping On	-	78656.1	-	-
3DH5	2402.0	1.312	1191.3	1.005	>= 0.875
3DH5	2441.0	1.313	1191.1	1.008	>= 0.875
3DH5	2480.0	1.311	1188.9	1.003	>= 0.874
3DH5	Hopping On	-	78741.8	-	-

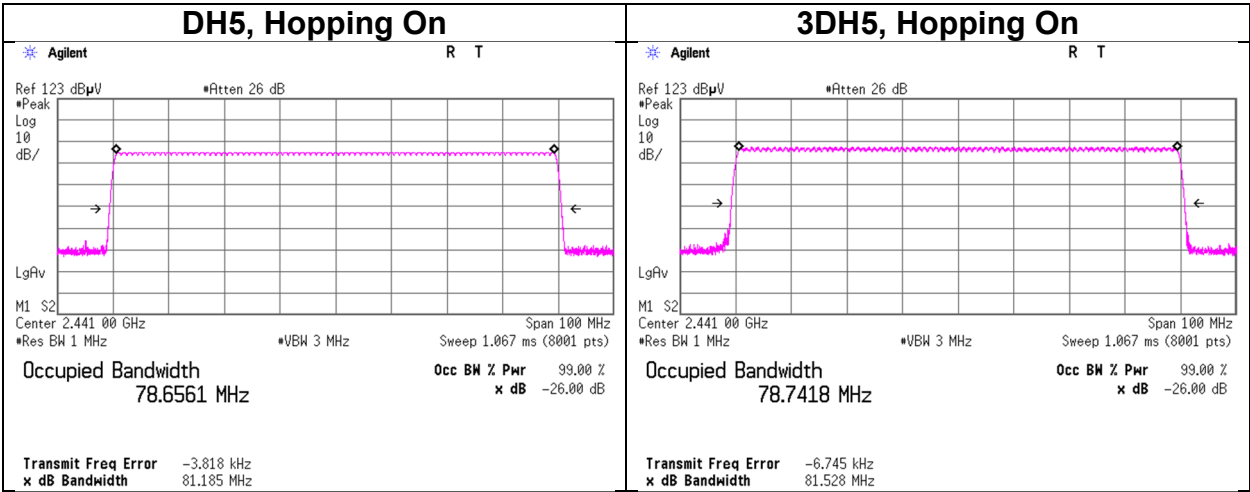
Limit: Two-thirds of 20 dB Bandwidth or 25 kHz (whichever is greater).

No limit applies to 20 dB Bandwidth.

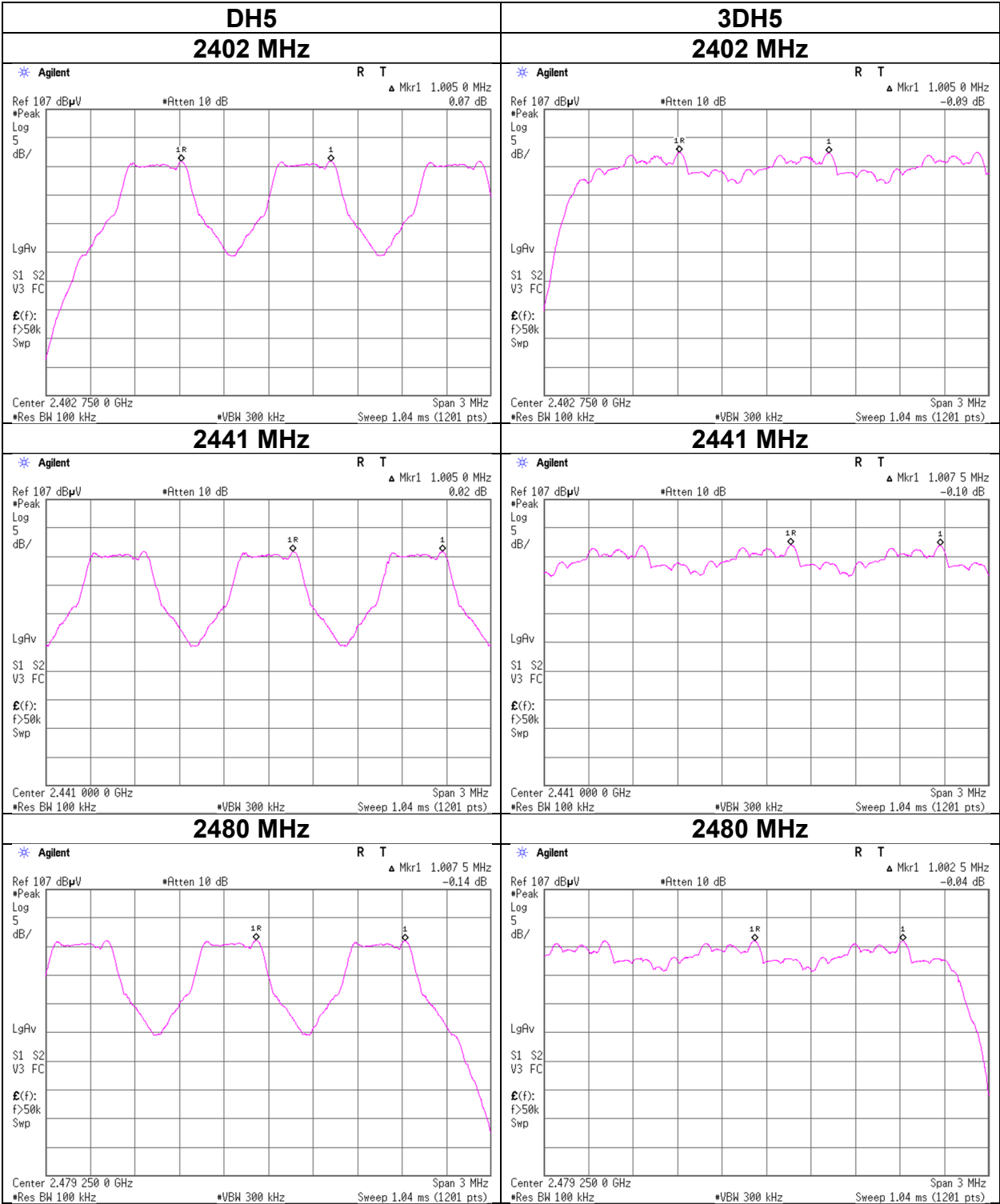
20 dB Bandwidth and 99 % Occupied Bandwidth



20 dB Bandwidth and 99 % Occupied Bandwidth



Carrier Frequency Separation



Number of Hopping Frequency

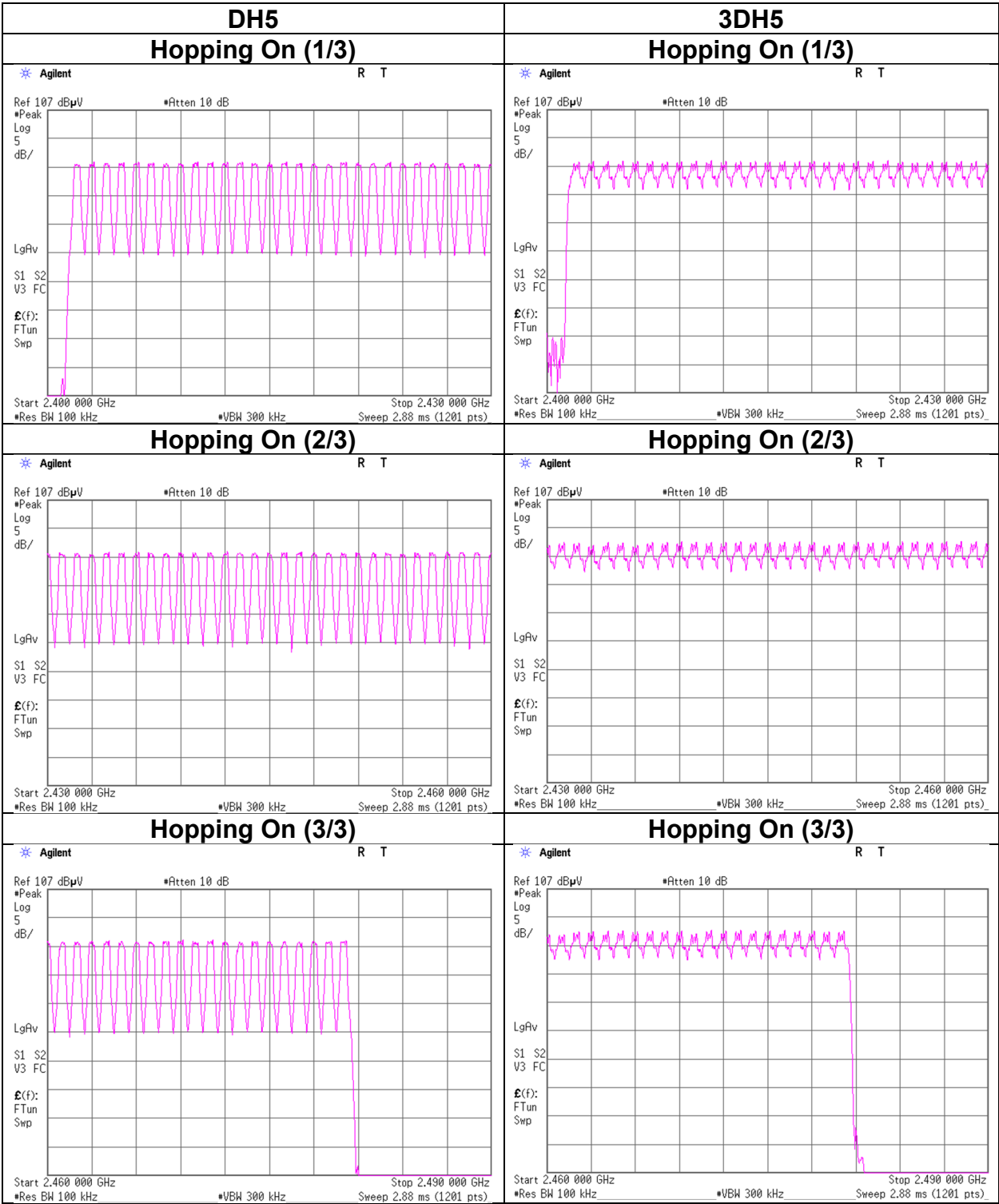
Mode	Tx, Hopping On			
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Date	Test site	Temperature	Humidity	Engineer
June 13, 2025	MR2	25 deg. C	53 % RH	Kenichi Adachi

Mode	Number of channel [channels]	Limit [channels]
DH5	79	>= 15
3DH5	79	>= 15

Test was not performed at AFH mode whose number of hopping channel is 20 channels because this Bluetooth radio is in compliance of Bluetooth Specification.

Number of Hopping Frequency



Dwell time

Mode	Tx, Hopping On
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Date	Test site	Temperature	Humidity	Engineer
June 13, 2025	MR2	25 deg. C	53 % RH	Kenichi Adachi

Mode	Number of transmission in a 31.6 (79 Hopping x0.4)				Length of transmission [ms]	Result [ms]	Limit [ms]
DH1	50.6 times	/	5 s x	31.6 s = 320 times	0.401	128	400
DH3	29.0 times	/	5 s x	31.6 s = 184 times	1.659	305	400
DH5	21.0 times	/	5 s x	31.6 s = 133 times	2.908	387	400
3DH1	50.8 times	/	5 s x	31.6 s = 322 times	0.406	131	400
3DH3	29.2 times	/	5 s x	31.6 s = 185 times	1.655	306	400
3DH5	20.6 times	/	5 s x	31.6 s = 131 times	2.908	381	400

Sample Calculation

Result = Number of transmission x Length of transmission

*Average data of 5 tests.

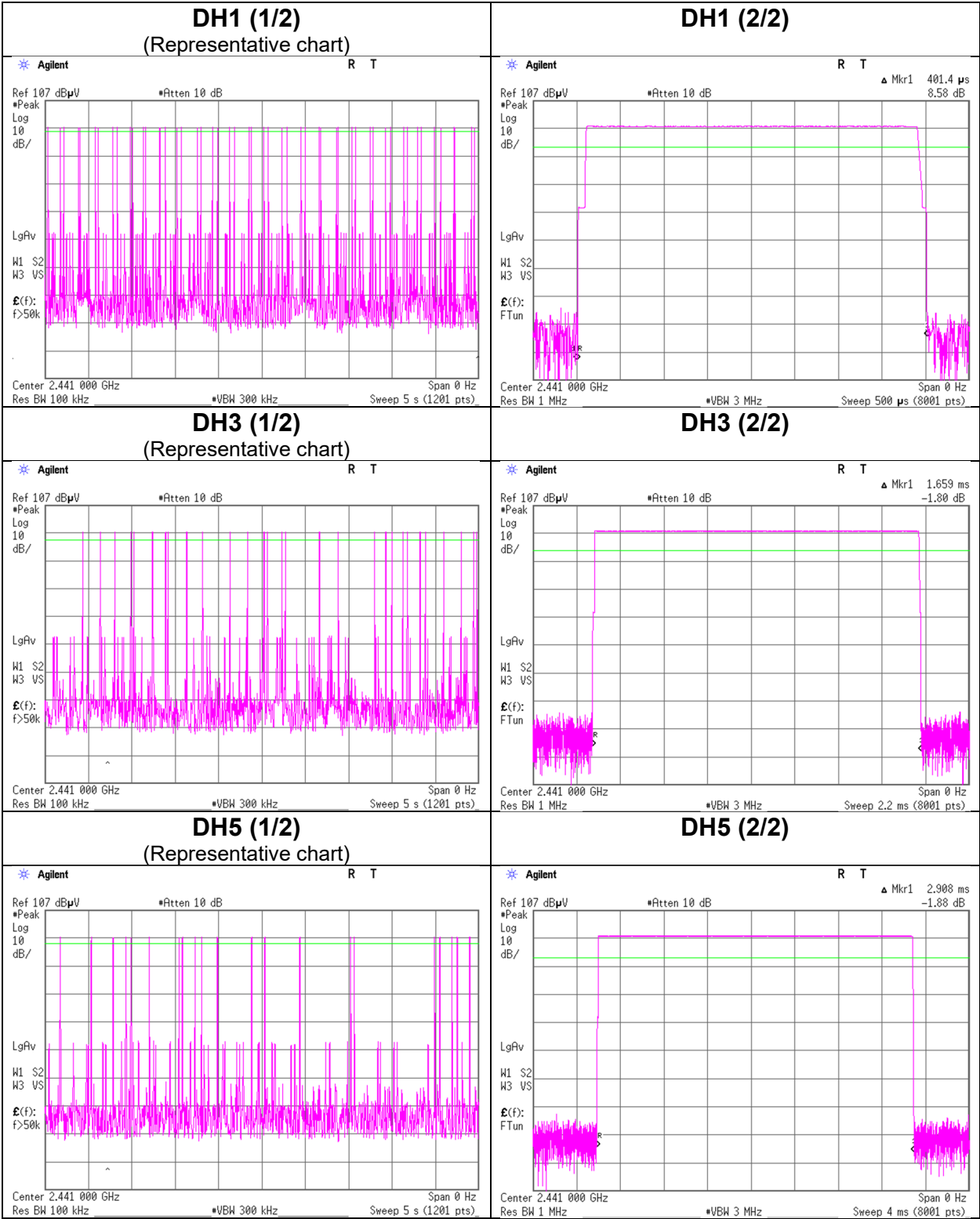
Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	51	50	51	51	50	50.6
DH3	29	30	29	29	28	29
DH5	21	21	20	21	22	21
3DH1	51	51	50	51	51	50.8
3DH3	28	29	30	29	30	29.2
3DH5	20	21	20	22	20	20.6

Sample Calculation

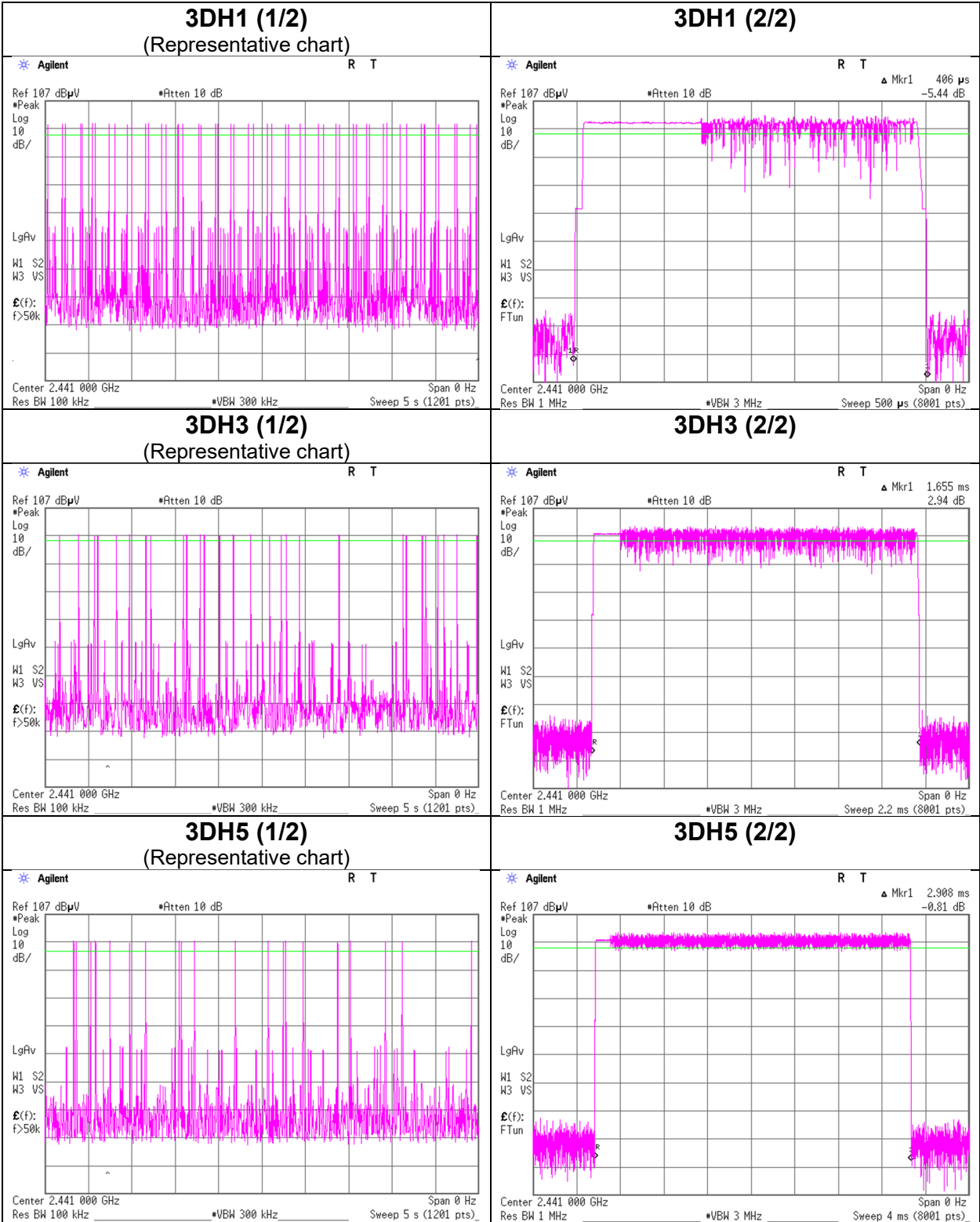
Average = Summation (Sampling 1 to 5) / 5

This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in $N \times 0.4$ s, where N is the number of channels being used in the hopping sequence ($20 \leq N \leq 79$), is always less than 0.4 s regardless of packet size. This is confirmed in the test report for $N = 79$.

Dwell time



Dwell time



Maximum Peak Output Power

Mode	Tx, Hopping Off			
Date	Test site	Temperature	Humidity	Engineer
June 12, 2025	MR2	25 deg. C	57 % RH	Toshinori Yamada

Maximum peak output power

Maximum peak output power					Conducted Power					e.i.r.p. for RSS-247					
Mode	Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
					[dBm]	[mW]	[dBm]	[mW]			[dB]	[dBi]	[dBm]	[mW]	
DH5	2402	-8.79	1.05	9.94	2.20	1.66	20.97	125	18.77	-0.68	1.52	1.42	36.02	4000	34.50
DH5	2441	-8.83	1.05	9.94	2.16	1.65	20.97	125	18.81	-0.68	1.48	1.41	36.02	4000	34.54
DH5	2480	-8.78	1.06	9.94	2.22	1.67	20.97	125	18.75	-0.68	1.54	1.43	36.02	4000	34.48
2DH5	2402	-6.23	1.05	9.94	4.76	2.99	20.97	125	16.21	-0.68	4.08	2.56	36.02	4000	31.94
2DH5	2441	-6.22	1.05	9.94	4.77	3.00	20.97	125	16.20	-0.68	4.09	2.57	36.02	4000	31.93
2DH5	2480	-6.26	1.06	9.94	4.74	2.98	20.97	125	16.23	-0.68	4.06	2.55	36.02	4000	31.96
3DH5	2402	-5.74	1.05	9.94	5.25	3.35	20.97	125	15.72	-0.68	4.57	2.86	36.02	4000	31.45
3DH5	2441	-5.78	1.05	9.94	5.21	3.32	20.97	125	15.76	-0.68	4.53	2.84	36.02	4000	31.49
3DH5	2480	-5.73	1.06	9.94	5.27	3.37	20.97	125	15.70	-0.68	4.59	2.88	36.02	4000	31.43

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.

Test was not performed at AFH mode, because the decrease of number of channel (min: 20 ch) at AFH mode does not influence on the output power and bandwidth of the EUT.

As this device had AFH mode and frequency separation could not meet the requirement of over 20 dB BW without 2/3 relaxation, 125 mW power limit was applied to it.

Average Output Power (Reference data for RF Exposure)

Mode	Tx, Hopping Off			
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Date	Test site	Temperature	Humidity	Engineer
June 12, 2025	MR2	25 deg. C	57 % RH	Toshinori Yamada

Average power (Reference data for RF Exposure)

(*1)

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty factor [dB]	Result (Burst power average)	
					[dBm]	[mW]		[dBm]	[mW]
DH5	2402	-9.13	1.05	9.94	1.86	1.53	0.00	1.86	1.53
DH5	2441	-9.19	1.05	9.94	1.80	1.51	0.00	1.80	1.51
DH5	2480	-9.12	1.06	9.94	1.88	1.54	0.00	1.88	1.54
2DH5	2402	-9.09	1.05	9.94	1.90	1.55	0.00	1.90	1.55
2DH5	2441	-9.08	1.05	9.94	1.91	1.55	0.00	1.91	1.55
2DH5	2480	-9.11	1.06	9.94	1.89	1.55	0.00	1.89	1.55
3DH5	2402	-9.08	1.05	9.94	1.91	1.55	0.00	1.91	1.55
3DH5	2441	-9.13	1.05	9.94	1.86	1.54	0.00	1.86	1.54
3DH5	2480	-9.04	1.06	9.94	1.96	1.57	0.00	1.96	1.57

Sample Calculation:

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

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

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

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

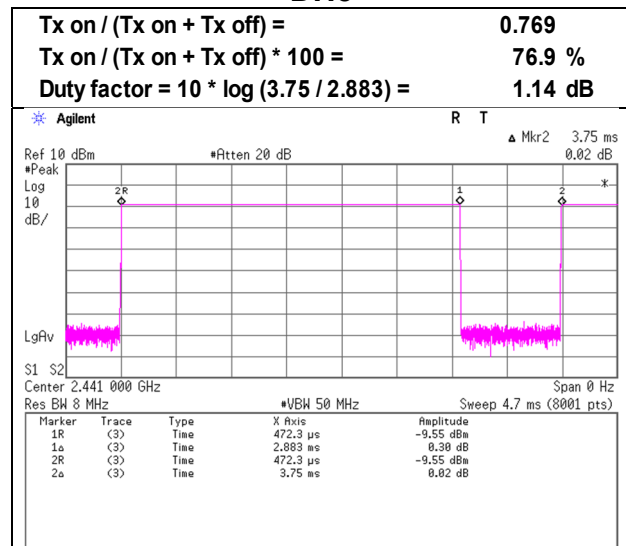
It was measured that the intervals during which the transmitter is off or is transmitting at reduced power level is not included in the average.

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

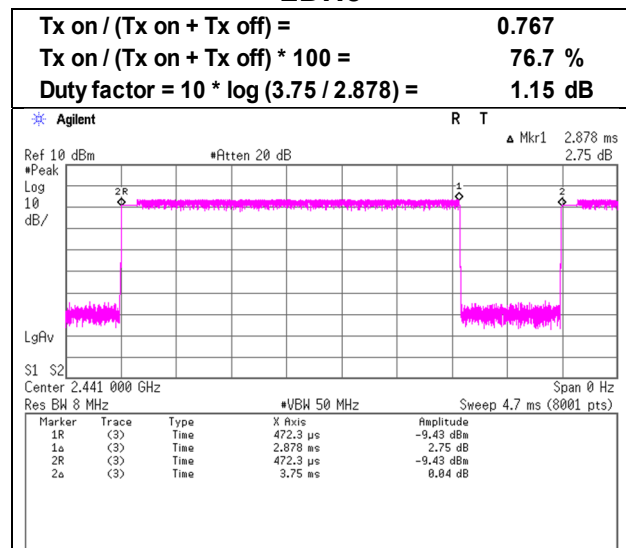
Burst Rate Confirmation

Mode	Tx, Hopping Off			
Date	Test site	Temperature	Humidity	Engineer
June 12, 2025	MR2	25 deg. C	57 % RH	Toshinori Yamada

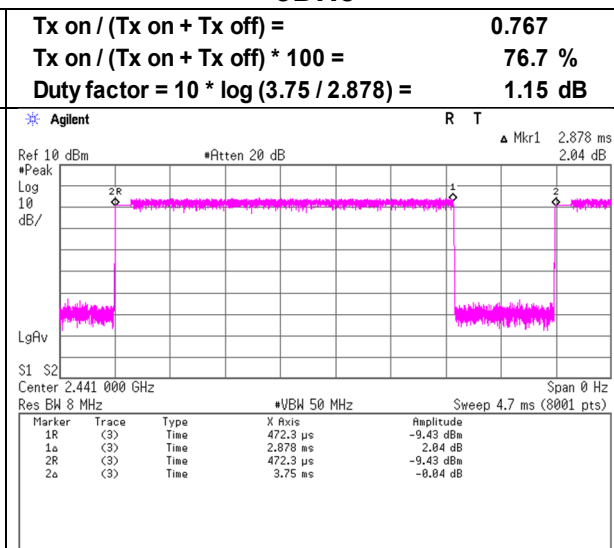
DH5



2DH5



3DH5



Radiated Spurious Emission

Mode	Tx, Hopping Off, DH5, 2402 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
June 16, 2025	WAC1	23 deg. C	70 % RH	Takahiro Suzuki	1 GHz to 2.8 GHz
June 17, 2025	WAC1	25 deg. C	65 % RH	Makoto Hosaka	2.8 GHz to 10 GHz
June 18, 2025	WAC1	24 deg. C	61 % RH	Kouki Yamada	Above 10 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.	2390.000	PK	47.85	27.56	-28.00	-	2.28	49.69	73.9	24.2	163	207	-
Hori.	4804.000	PK	48.29	31.49	-35.33	-	2.28	46.73	73.9	27.1	150	182	-
Hori.	7206.000	PK	47.51	35.86	-34.02	-	2.28	51.63	73.9	22.2	150	233	-
Hori.	9608.000	PK	46.53	37.56	-31.46	-	2.28	54.91	73.9	18.9	172	184	-
Vert.	2390.000	PK	48.12	27.56	-28.00	-	2.28	49.96	73.9	23.9	112	236	-
Vert.	4804.000	PK	46.86	31.49	-35.33	-	2.28	45.30	73.9	28.6	100	266	-
Vert.	7206.000	PK	46.31	35.86	-34.02	-	2.28	50.43	73.9	23.4	100	237	-
Vert.	9608.000	PK	46.10	37.56	-31.46	-	2.28	54.48	73.9	19.4	100	275	-

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 : 20log (3.90 [m] / 3.0 [m]) = 2.28 [dB]

10 GHz to 40 GHz : 20log (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	36.77	27.56	-28.00	-	1.14	2.28	39.75	53.9	14.1	*1)
Hori.	4804.000	AV	36.40	31.49	-35.33	-	1.14	2.28	35.98	53.9	17.9	-
Hori.	7206.000	AV	36.40	35.86	-34.02	-	1.14	2.28	41.66	53.9	12.2	-
Hori.	9608.000	AV	35.35	37.56	-31.46	-	1.14	2.28	44.87	53.9	9.0	-
Vert.	2390.000	AV	36.90	27.56	-28.00	-	1.14	2.28	39.88	53.9	14.0	*1)
Vert.	4804.000	AV	36.65	31.49	-35.33	-	1.14	2.28	36.23	53.9	17.6	-
Vert.	7206.000	AV	36.02	35.86	-34.02	-	1.14	2.28	41.28	53.9	12.6	-
Vert.	9608.000	AV	35.29	37.56	-31.46	-	1.14	2.28	44.81	53.9	9.0	-

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 : 20log (3.90 [m] / 3.0 [m]) = 2.28 [dB]

10 GHz to 40 GHz : 20log (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	95.45	27.57	-27.99	-	2.28	97.31	-	-	Carrier
Hori.	2400.000	PK	44.83	27.57	-27.99	-	2.28	46.69	77.3	30.6	-
Vert.	2402.000	PK	95.97	27.57	-27.99	-	2.28	97.83	-	-	Carrier
Vert.	2400.000	PK	45.02	27.57	-27.99	-	2.28	46.88	77.8	30.9	-

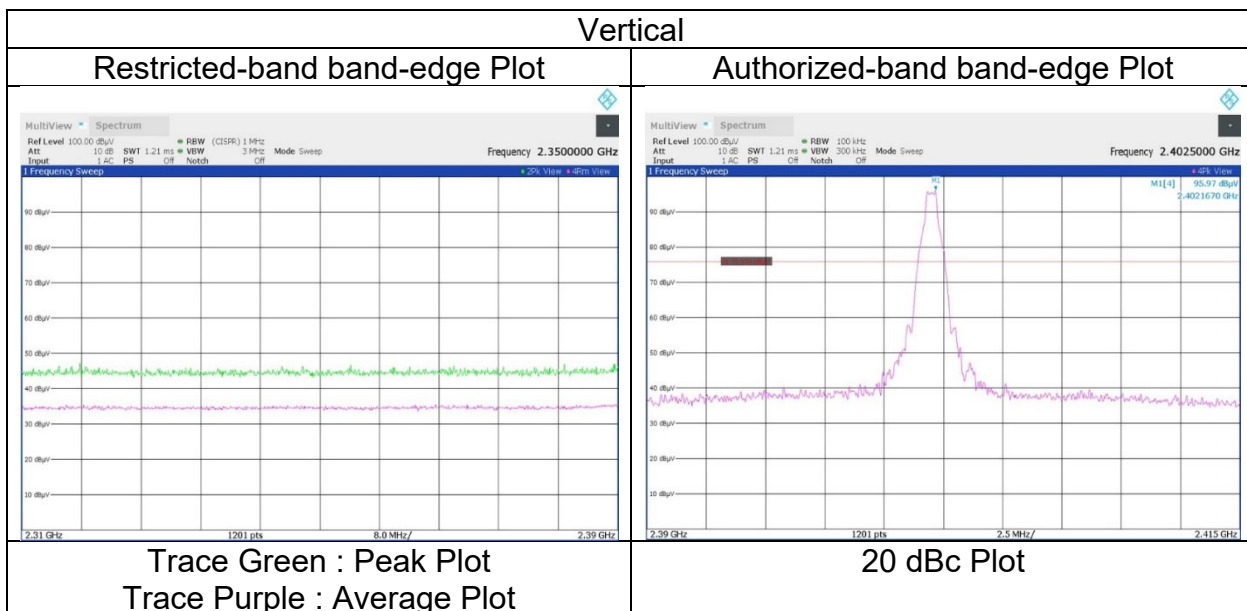
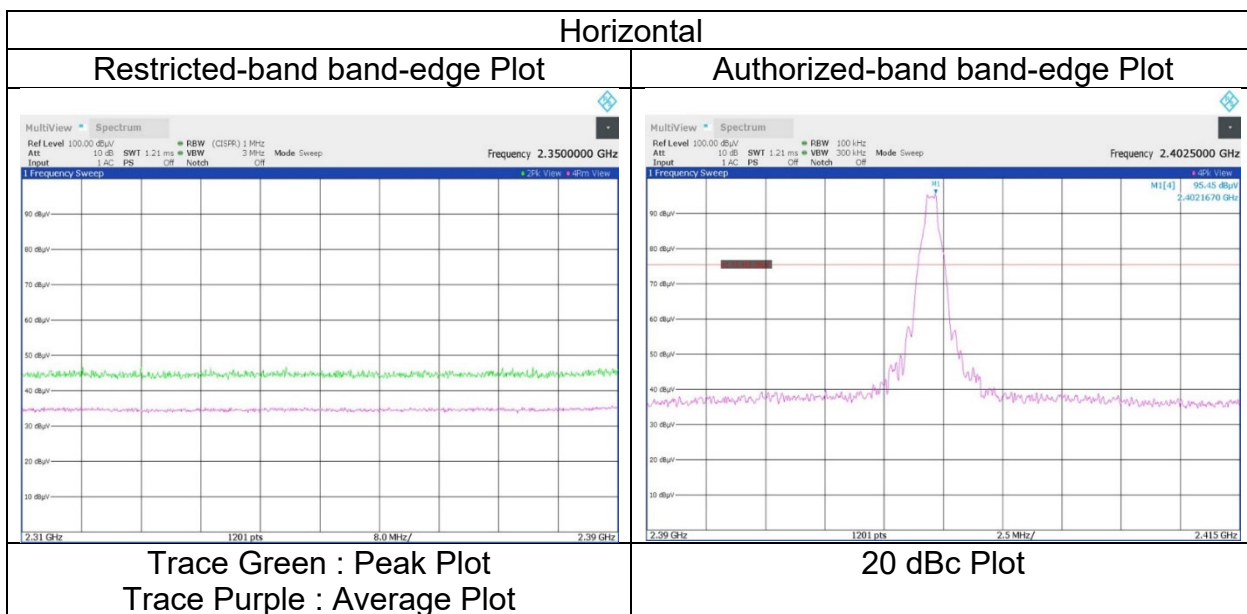
Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz) - Gain(Amp) (1 GHz to 18 GHz)) - Gain(Amp) (only below 1 GHz & above 18 GHz) + Distance Fac.

Distance Fac. : 1 GHz to 10 GHz : 20log (3.90 [m] / 3.0 [m]) = 2.28 [dB]

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

Radiated Spurious Emission (Reference Plot for band-edge)

Mode	Tx, Hopping Off, DH5, 2402 MHz				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
June 16, 2025	WAC1	23 deg. C	70 % RH	Takahiro Suzuki	1 GHz to 2.8 GHz
June 17, 2025	WAC1	25 deg. C	65 % RH	Makoto Hosaka	2.8 GHz to 10 GHz
June 18, 2025	WAC1	24 deg. C	61 % RH	Kouki Yamada	Above 10 GHz



* 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.