

RADIO TEST REPORT

Test Report No. 15928229H-B-R1

Customer	DENSO TEN Limited
Description of EUT	Car Audio
Model Number of EUT	TN0047B
FCC ID	BABTN0047B
Test Regulation	FCC Part 15 Subpart C
Test Result	Complied
Issue Date	November 17, 2025
Remarks	Bluetooth (BR / EDR) parts

Representative Test EngineerJunki Nagatomi
Engineer**Approved By**Ryota Yamanaka
Engineer

CERTIFICATE 5107.02

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

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- 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)	15928229H-B	November 4, 2025	-
1	15928229H-B-R1	November 17, 2025	P.12 Deletion of No.1 Signal Cable in the List of Cables Used table

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

CONTENTS	PAGE
SECTION 1: Customer Information	5
SECTION 2: Equipment Under Test (EUT).....	5
SECTION 3: Test Summary	7
SECTION 4: Operation of EUT during testing	10
SECTION 5: Radiated Spurious Emission.....	13
SECTION 6: Antenna Terminal Conducted Tests	15
APPENDIX 1: Test data	16
20 dB Bandwidth, 99 % Occupied Bandwidth and Carrier Frequency Separation	16
Number of Hopping Frequency	20
Dwell time	22
Maximum Peak Output Power	25
Average Output Power.....	26
Radiated Spurious Emission.....	28
Conducted Spurious Emission.....	39
Conducted Emission Band Edge compliance	45
APPENDIX 2: Test Instruments	47
APPENDIX 3: Photographs of test setup.....	48
Radiated Spurious Emission.....	48
Antenna Terminal Conducted Tests	49

SECTION 1: Customer Information

Company Name	DENSO TEN Limited
Address	2-28, Goshō-dori 1-Chome, Hyogo-ku, KOBE 652-8510 JAPAN
Telephone Number	+81 78 682 2159
Contact Person	Kaoru Abe

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	Car Audio
Model Number	TN0047B
Serial Number	Refer to SECTION 4.2
Condition	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	October 1, 2025
Test Date	October 3 to 6, 2025

2.2 Product Description

General Specification

Rating	DC 12 V
Operating temperature	-20 deg. C to 65 deg. C

Radio Specification-1/2

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.

Radio Specification-1/2

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

Equipment Type	Transceiver
Frequency of Operation	2437 MHz
Type of Modulation	DSSS, OFDM
Antenna Gain	-0.19 dBi

[Bluetooth (BR/EDR)]

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	FHSS (GFSK, $\pi/4$ DQPSK, 8 DPSK)
Antenna Gain ^{a)}	0.25 dBi

Radio Specification-2/2

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

Equipment Type	Transceiver	
Frequency of Operation	20 MHz Band	5765 MHz
	40 MHz Band	5755 MHz
	80 MHz Band	5775 MHz
Type of Modulation	OFDM	
Antenna Gain	1.65 dBi	

[AM/FM/DAB]

Equipment Type	Receiver
Frequency of Operation	AM: 530 kHz to 1625 kHz FM: Band II: 87.5 MHz to 108.0 MHz DAB (Band III): 174.928 MHz to 239.200 MHz
Type of Modulation	AM FM DAB: OFDM
Antenna Connector Type	HFC IV
Impedance	AM, FM: 75 ohm DAB: 50 ohm

2.3 Variant models

There are five types; A, B, C, D, E and H. Tests were performed to Type A (base model) as representative model.

Frequency of Operation for WLAN is as following table.

	Type A (EUT)	Type B	Type C		Type D		Type E	Type H
	A-1	B-1	C-1 C-2	C-3 C-4	D-1 D-2	D-3 D-4	E-1 E-2	H-1 H-2
5735 MHz to 5815 MHz	Y	Y	Y	-	Y	-	Y	Y
2426 MHz to 2448 MHz	Y	-	-	Y	-	Y	-	-

*Wireless block hardware is the same as Type A.

Wifi frequency can be selected between 2.4 GHz or 5 GHz by the product's built-in software.

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
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 8.8	N/A	*1)
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) *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 is not the device that is designed to be connected to the public utility (AC) power line.

*2) Radiated test was selected over 30 MHz based on section 15.247(d).

FCC Part 15.31 (e)

This EUT provides the stable voltage constantly to RF part 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

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 $k = 2$.

Radiated emission

Radiated Emission				
Measurement distance	Frequency range		Unit	Calculated Uncertainty (+/-)
3 m	9 kHz to 30 MHz		dB	3.3
10 m			dB	3.1
3 m	30 MHz to 200 MHz	Horizontal	dB	5.0
		Vertical	dB	5.0
	200 MHz to 1000 MHz	Horizontal	dB	5.2
		Vertical	dB	6.2
10 m	30 MHz to 200 MHz	Horizontal	dB	5.5
		Vertical	dB	5.4
	200 MHz to 1000 MHz	Horizontal	dB	5.5
		Vertical	dB	5.5
3 m	1 GHz to 6 GHz		dB	5.1
	6 GHz to 18 GHz		dB	5.4
1 m	10 GHz to 18 GHz		dB	5.4
	18 GHz to 26.5 GHz		dB	5.3
	26.5 GHz to 40 GHz		dB	4.8
0.5 m	26.5 GHz to 40 GHz		dB	5.0

Antenna Terminal Conducted

Item	Unit	Calculated Uncertainty (+/-)
Antenna terminated conducted emission / Power density / Burst power	dB	3.50
Adjacent channel power (ACP)	dB	2.32
Bandwidth (OBW)	%	0.96
Time readout (time span upto 100 msec)	%	0.11
Time readout (time span upto 1000 msec)	%	0.11
Time readout (time span upto 60 sec)	%	0.02
Power measurement (Power meter < 8 GHz)	dB	1.43
Power measurement (Call box < 6 GHz)	dB	1.89
Frequency readout (Frequency counter)	ppm	0.67
Frequency readout (Spectrum analyzer frequency readout function)	ppm	2.13
Temperature (constant temperature bath)	deg. C	0.69
Humidity (constant temperature bath)	%RH	2.98
Modulation characteristics	%	6.93
Frequency for mobile	ppm	0.08
Contention-based protocol	dB	2.97

3.6 Test Location

UL Japan, Inc. Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 Japan

Telephone: +81-596-24-8999

A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919

ISED Lab Company Number: 2973C / CAB identifier: JP0002

Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber (SAC1)	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber (SAC2)	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber (SAC3)	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room (PR3)	3 m
No.3 shielded room (SR3)	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber (SAC4)	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room (PR4)	3 m
No.4 shielded room (SR4)	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber (SAC5)	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.5 measurement room (MR5)	6.4 x 6.4 x 3.0	6.4 x 6.4	-	-
No.6 shielded room (SR6)	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room (MR6)	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room (SR7)	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room (MR8)	3.1 x 5.0 x 2.7	3.1 x 5.0	-	-
No.9 measurement room (MR9)	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.10 shielded room (SR10)	3.8 x 2.8 x 2.8	3.8 x 2.8	-	-
No.11 measurement room (MR11)	4.0 x 3.4 x 2.5	N/A	-	-
No.12 measurement room (MR12)	2.6 x 3.4 x 2.5	N/A	-	-
Large Chamber	16.9 x 22.1 x 10.17	16.9 x 22.1	-	10 m
Small Chamber	5.3 x 6.69 x 3.59	5.3 x 6.69	-	-

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 / EDR, Payload: PRBS9
*EUT has the power settings by the software as follows; Power Setting: BR: 6.5 dBm EDR: 6 dBm Software: Bluetooth test software V1.0 (Date: August 8, 2024, Storage location: EUT memory) *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
Radiated Spurious Emission (Below 1 GHz)	Tx 3DH5 *1)	Off	2441 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
20dB 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

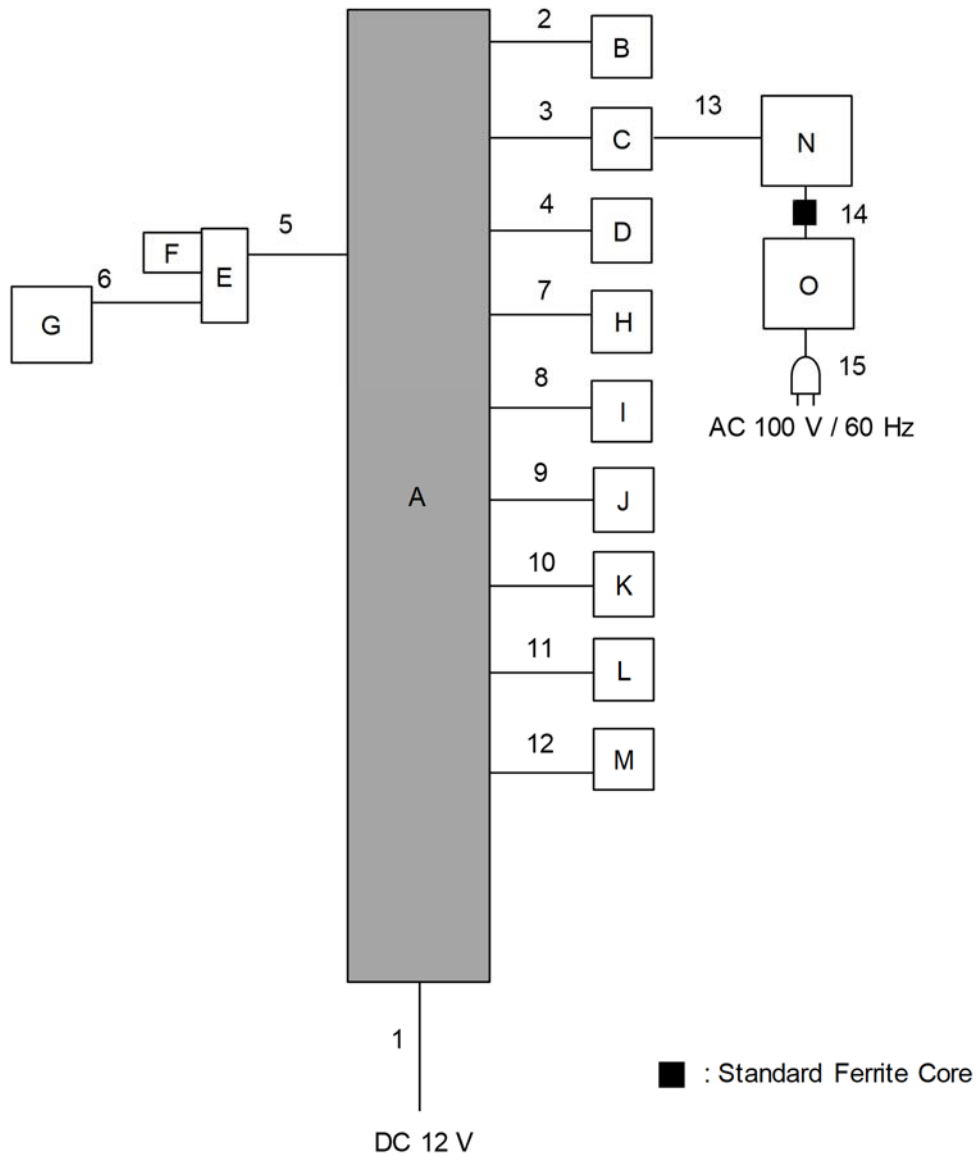
*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload length (except Dwell time test)

*2DH mode (2Mb/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



* 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	Car Audio	TN0047B	100314489-0002 for RE* 100314489-0003 for AT*	DENSO TEN Limited	EUT
B	Microphone	86730-78010	SDD308200901-693	Panasonic	-
C	Jig Board	-	-	-	-
D	Digital Camera	867B0-78070	HX2215003173	Panasonic	-
E	USB I/F BOX	86190-78020	501010	Panasonic	-
F	USB Memory	RUF3-K16GB	P10416	Buffalo Inc.	-
G	iPhone	MQ7A2J/A	F4GVGPWVJC6J	Apple	-
H	Steering Switch	84250-58150-BO	NO1	-	-
I	GNSS Antenna	86880-78010	Vf011904	Harada Industry Co., Ltd.	-
J	Speaker Dummy	SP Dummy	NO1	DENSO TEN Limited	-
K	AM / FM SharkFin Antenna	86760-K0010	NO3	Yokowo Co., Ltd.	-
L	Analog Camera	86790-60670	D310018	Panasonic	-
M	DAB Antenna	863C0-60050	PQB02831	DENSO TEN Limited	-
N	Laptop PC	X1 Carbon	R9-OH8TU 15/9	LENOVO	AT* only
O	AC Adapter	ADLX45NC2A	8SSA10E75794C1SG59R0GHF	LENOVO	AT* only

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	5.0	Unshielded	Unshielded	-
2	Signal Cable	3.0	Unshielded	Unshielded	-
3	Flat Cable	0.1	Unshielded	Unshielded	-
4	Signal Cable	6.0	Unshielded	Unshielded	-
5	Signal Cable	2.8	Unshielded	Unshielded	-
6	USB Cable	1.0	Shielded	Shielded	-
7	Signal Cable	3.0	Unshielded	Unshielded	-
8	GNSS Antenna Cable	3.1	Shielded	Shielded	-
9	Speaker Cable	3.0	Unshielded	Unshielded	-
10	AM / FM Cable	3.1	Shielded	Shielded	-
11	Signal Cable	3.0	Unshielded	Unshielded	-
12	DAB Cable	3.4	Unshielded	Unshielded	-
13	USB Cable	0.9	Shielded	Shielded	AT* only
14	DC Cable	1.7	Unshielded	Unshielded	AT* only
15	AC Cable	2.0	Unshielded	Unshielded	AT* only

* RE: Radiated Spurious Emission test, AT: Antenna Terminal conducted test

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

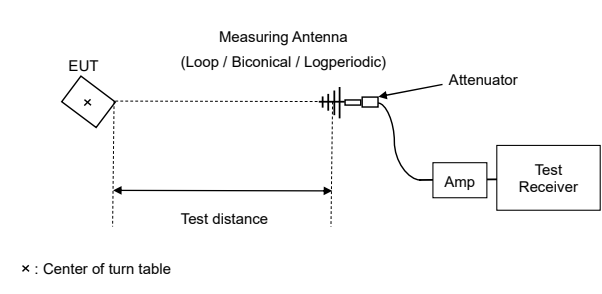
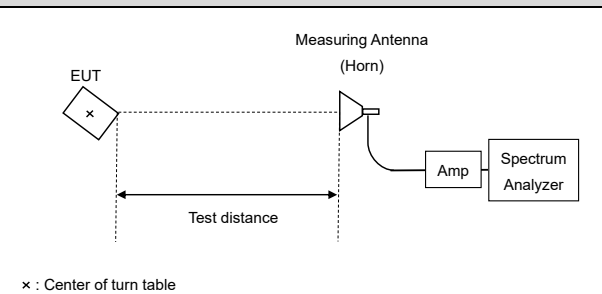
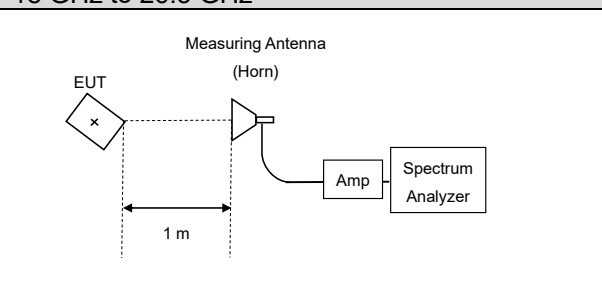
In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired 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	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 1: Test Setup

Below 1 GHz	
 × : Center of turn table	Test Distance: 3 m
1 GHz to 18 GHz	
 × : Center of turn table	Test Distance: 3 m
18 GHz to 26.5 GHz	
 × : Center of turn table	Distance Factor: $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$ *Test Distance: 1 m

The test was made on EUT at the normal use position.

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
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: 50MHz BW)
Carrier Frequency Separation	3 MHz	30 kHz	100 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Number of Hopping Frequency	30 MHz	200 kHz	620 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.

① Then, wide-band noise near the limit was checked separately, however the noise was low enough as shown in the chart. (9 kHz - 150 kHz: RBW = 200 Hz, 150 kHz - 30 MHz: RBW = 10 kHz).

*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

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

Mode	Hopping On / Off
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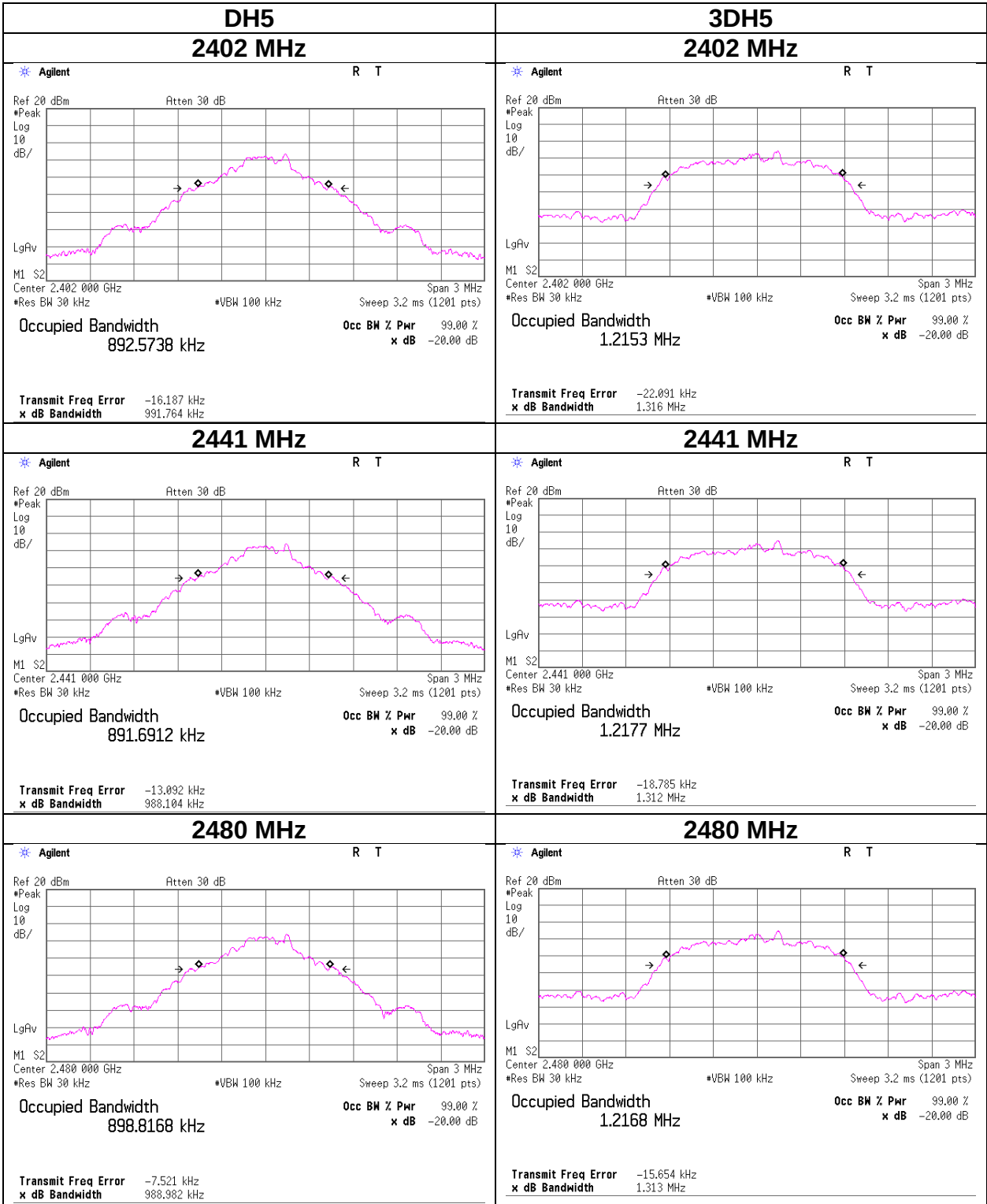
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

Mode	Freq. [MHz]	20 dB Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.992	892.574	1.000	>= 0.661
DH5	2441.0	0.988	891.691	1.000	>= 0.659
DH5	2480.0	0.989	898.817	1.000	>= 0.659
DH5	Hopping On	-	78614.400	-	-
3DH5	2402.0	1.316	1215.298	1.000	>= 0.877
3DH5	2441.0	1.312	1217.678	1.000	>= 0.875
3DH5	2480.0	1.313	1216.754	1.000	>= 0.875
3DH5	Hopping On	-	78747.900	-	-

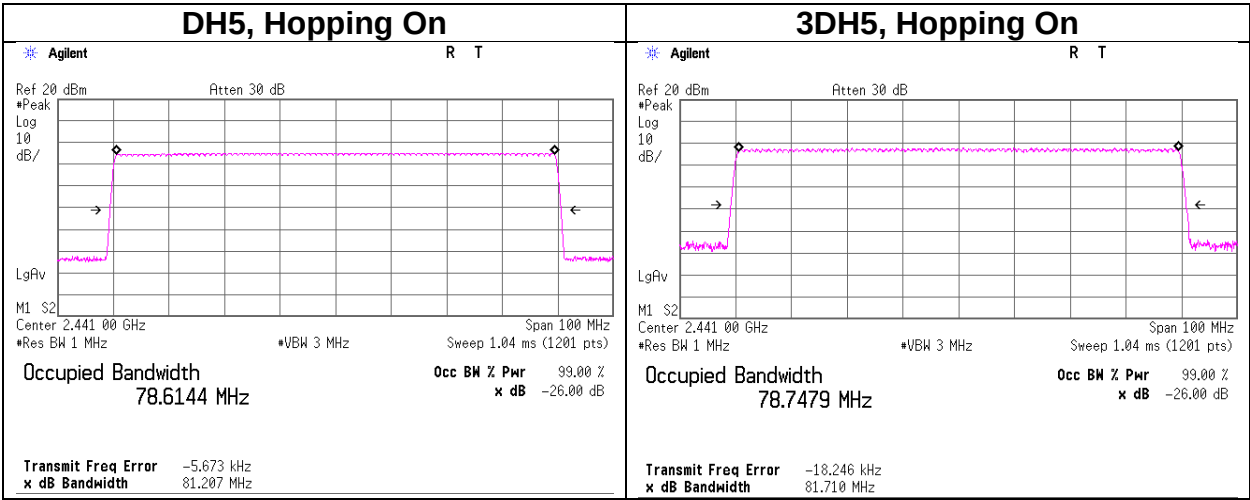
Limit: Two-thirds of 20 dB Bandwidth or 25 kHz (whichever is greater).

No limit applies to 20 dB Bandwidth.

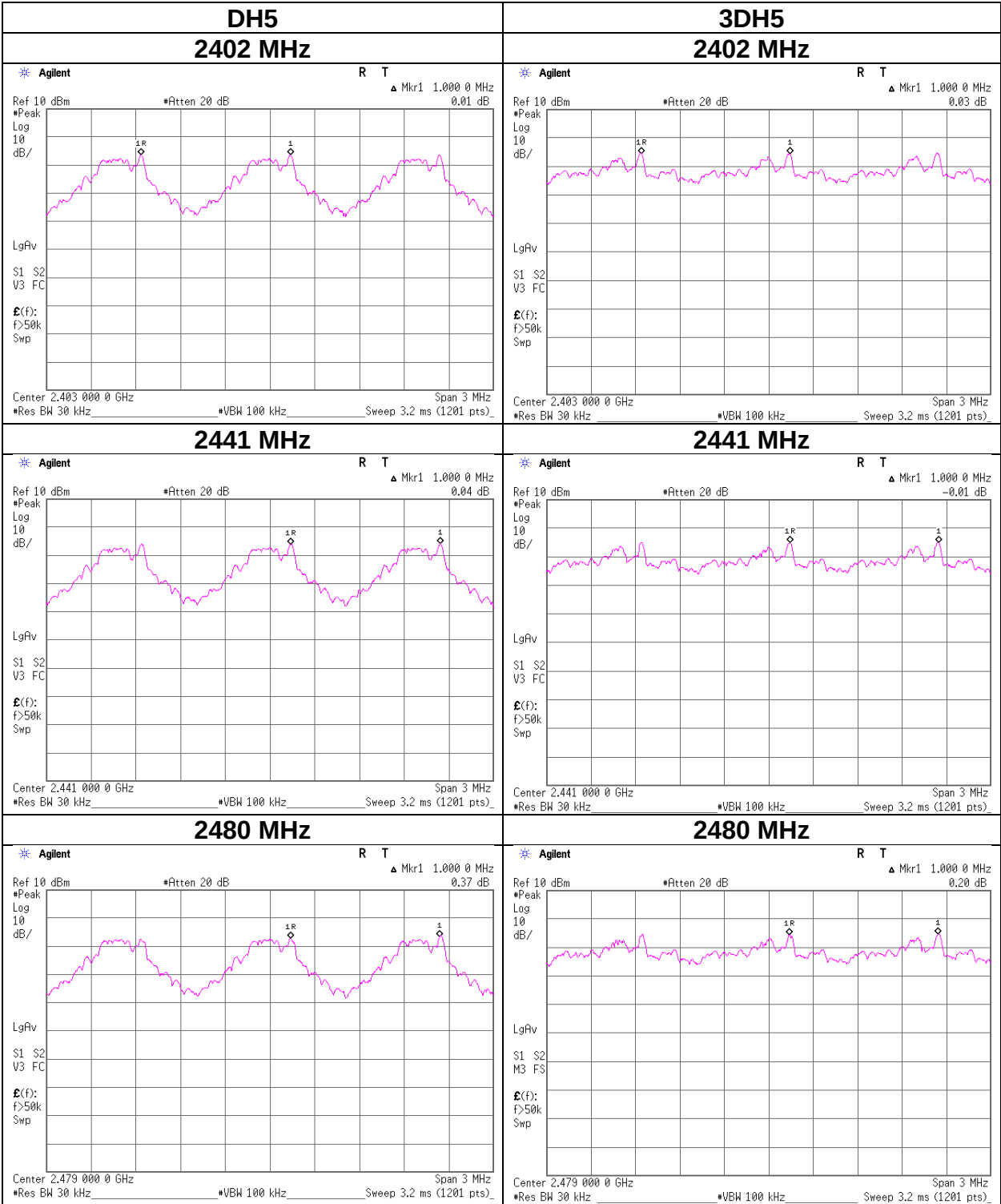
20 dB Bandwidth and 99 % Occupied Bandwidth



20 dB Bandwidth and 99 % Occupied Bandwidth



Carrier Frequency Separation



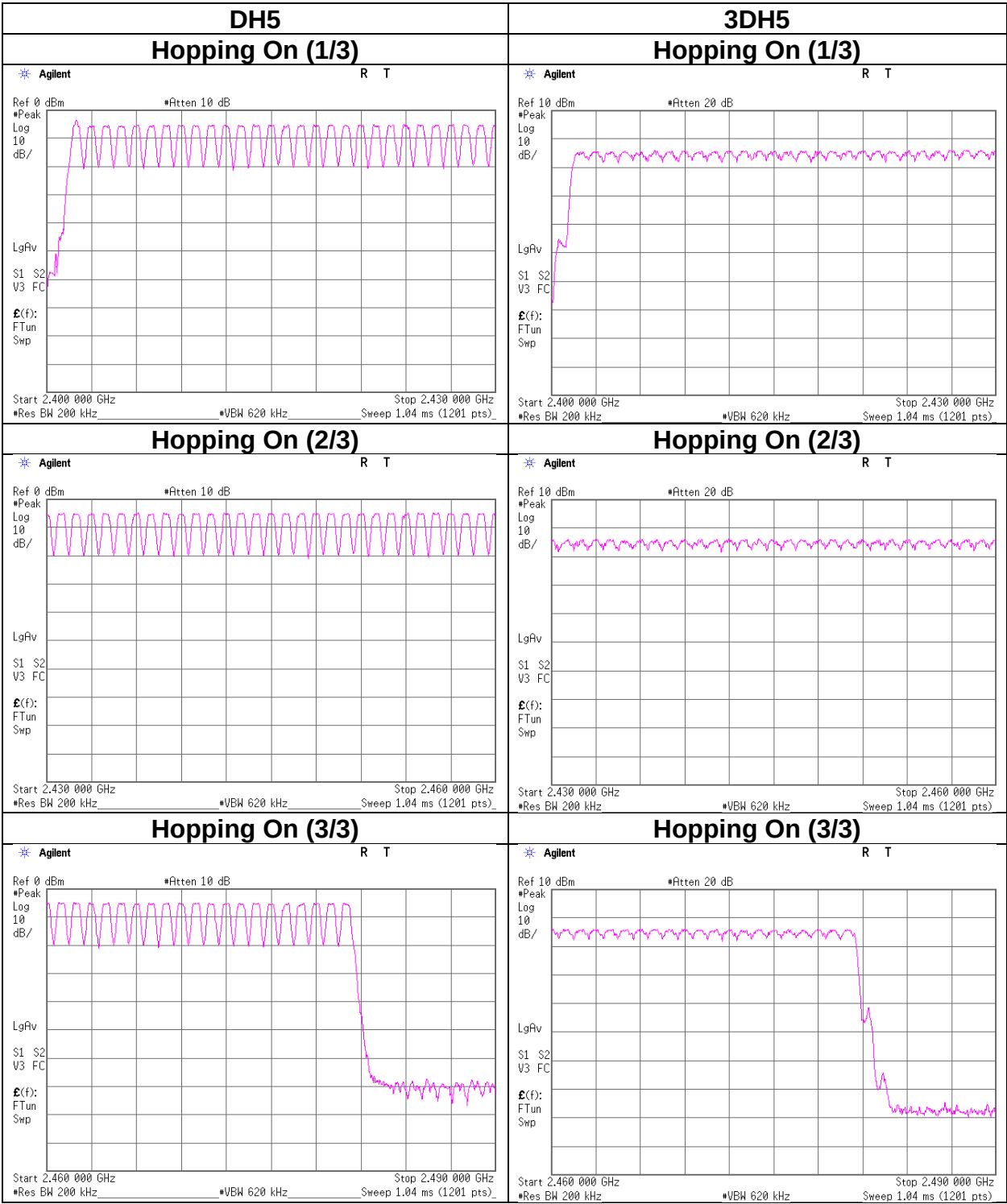
Number of Hopping Frequency

Mode	Tx, Hopping On			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

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			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

Mode	Number of transmission in a 31.6 (79 Hopping x 0.4) / 12.8 (32 Hopping x 0.4) second period						Length of transmission [ms]	Result [ms]	Limit [ms]	
DH1	53.6 times	/	5 s	x	31.6 s	=	339 times	0.422	143	400
DH3	30.8 times	/	5 s	x	31.6 s	=	195 times	1.682	328	400
DH5	19.8 times	/	5 s	x	31.6 s	=	126 times	2.978	375	400
3DH1	51.4 times	/	5 s	x	31.6 s	=	325 times	0.429	139	400
3DH3	29.8 times	/	5 s	x	31.6 s	=	189 times	1.688	319	400
3DH5	21.0 times	/	5 s	x	31.6 s	=	133 times	2.950	392	400

Sample Calculation

Result = Number of transmission x Length of transmission

*Average data of 5 tests.

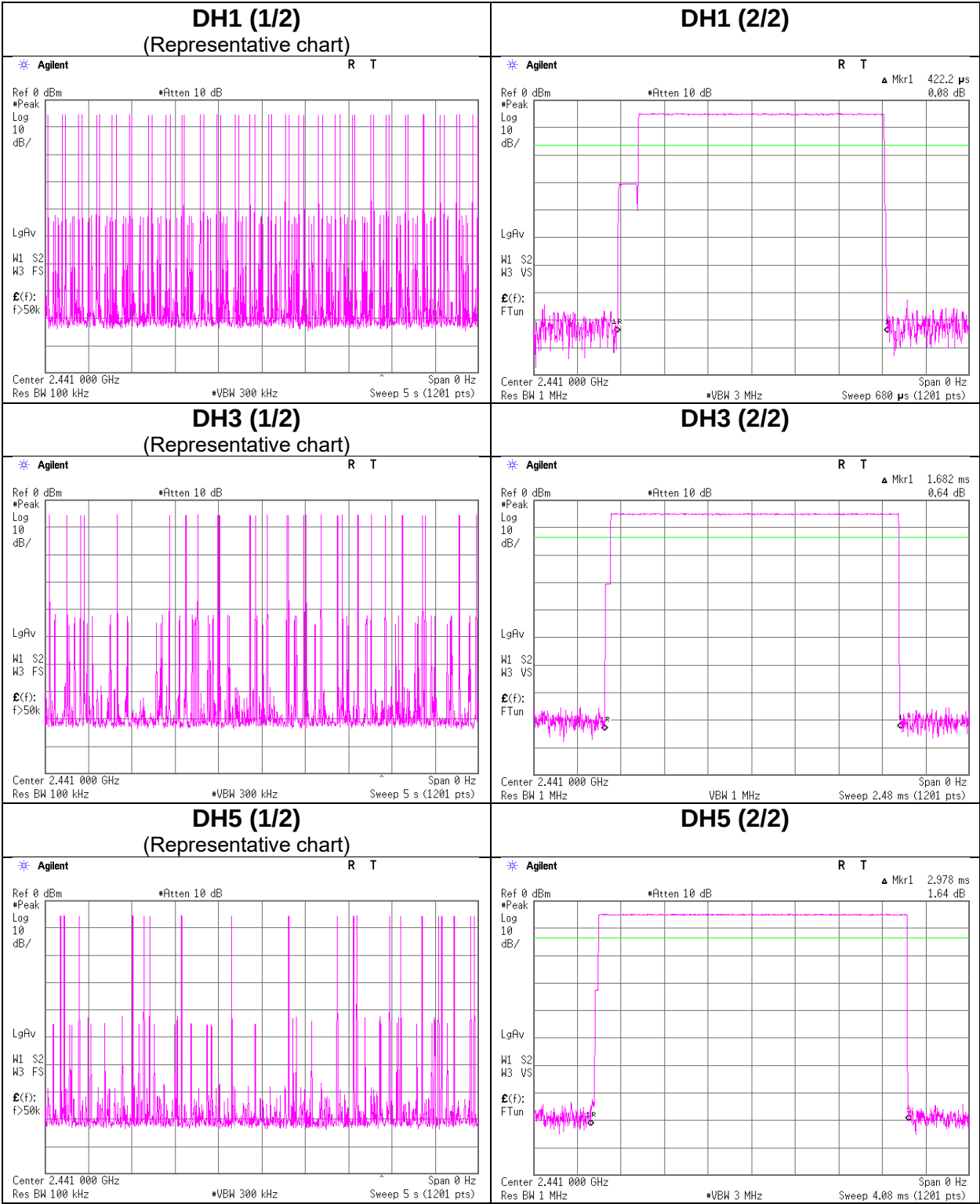
Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	51	51	57	54	55	53.6
DH3	28	27	32	36	31	30.8
DH5	20	21	20	18	20	19.8
3DH1	50	50	55	50	52	51.4
3DH3	28	32	35	27	27	29.8
3DH5	20	23	20	22	20	21

Sample Calculation

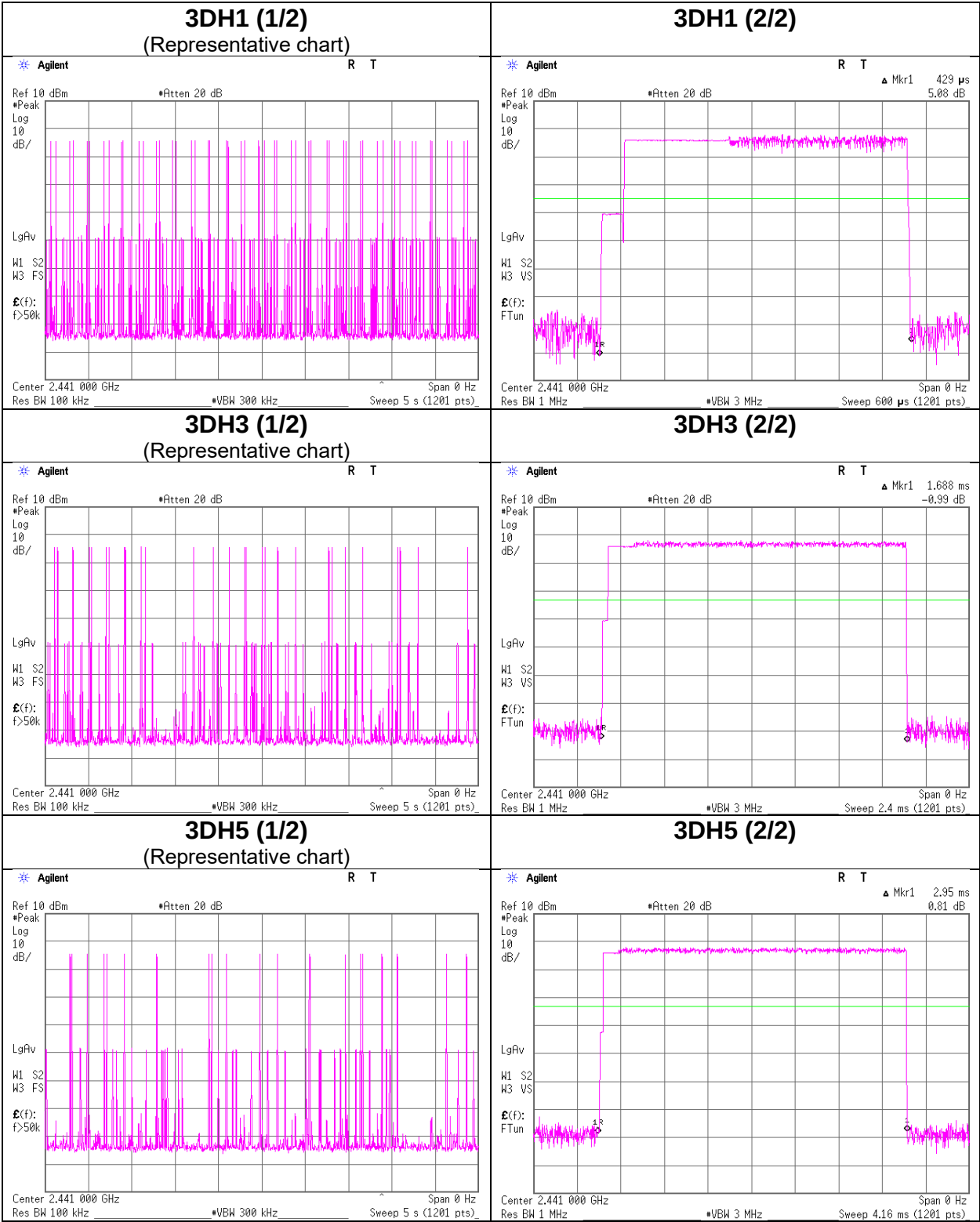
Average = Summation (Sampling 1 to 5) / 5

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
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Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

Mode	Freq.	Reading	Cable Loss	Atten. Loss	Conducted Power					Antenna Gain	e.i.r.p. for RSS-247				
					Result		Limit		Margin		Result		Limit		Margin
					[dBm]	[mW]	[dBm]	[mW]			[dBm]	[mW]	[dB]		
DH5	2402.0	-5.49	1.43	10.03	5.97	3.96	20.96	125	14.99	0.25	6.22	4.19	36.02	4000	29.80
DH5	2441.0	-5.02	1.38	10.03	6.39	4.35	20.96	125	14.57	0.25	6.64	4.61	36.02	4000	29.38
DH5	2480.0	-5.16	1.45	10.03	6.32	4.29	20.96	125	14.64	0.25	6.57	4.54	36.02	4000	29.45
2DH5	2402.0	-3.91	1.43	10.03	7.55	5.69	20.96	125	13.41	0.25	7.80	6.03	36.02	4000	28.22
2DH5	2441.0	-3.76	1.38	10.03	7.65	5.82	20.96	125	13.31	0.25	7.90	6.16	36.02	4000	28.12
2DH5	2480.0	-3.97	1.45	10.03	7.51	5.64	20.96	125	13.45	0.25	7.76	5.97	36.02	4000	28.26
3DH5	2402.0	-3.45	1.43	10.03	8.01	6.33	20.96	125	12.95	0.25	8.26	6.71	36.02	4000	27.76
3DH5	2441.0	-3.24	1.38	10.03	8.17	6.56	20.96	125	12.79	0.25	8.42	6.95	36.02	4000	27.60
3DH5	2480.0	-3.51	1.45	10.03	7.97	6.27	20.96	125	12.99	0.25	8.22	6.64	36.02	4000	27.80

Sample Calculation:

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

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

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
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

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	2402.0	-6.89	1.43	10.03	4.57	2.87	1.14	5.71	3.73
DH5	2441.0	-6.38	1.38	10.03	5.03	3.18	1.14	6.17	4.14
DH5	2480.0	-6.54	1.45	10.03	4.94	3.12	1.14	6.08	4.06
2DH5	2402.0	-7.55	1.43	10.03	3.91	2.46	1.14	5.05	3.20
2DH5	2441.0	-7.30	1.38	10.03	4.11	2.58	1.14	5.25	3.35
2DH5	2480.0	-7.49	1.45	10.03	3.99	2.51	1.14	5.13	3.26
3DH5	2402.0	-7.38	1.43	10.03	4.08	2.56	1.13	5.21	3.32
3DH5	2441.0	-7.14	1.38	10.03	4.27	2.67	1.13	5.40	3.47
3DH5	2480.0	-7.40	1.45	10.03	4.08	2.56	1.13	5.21	3.32

Sample Calculation:

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

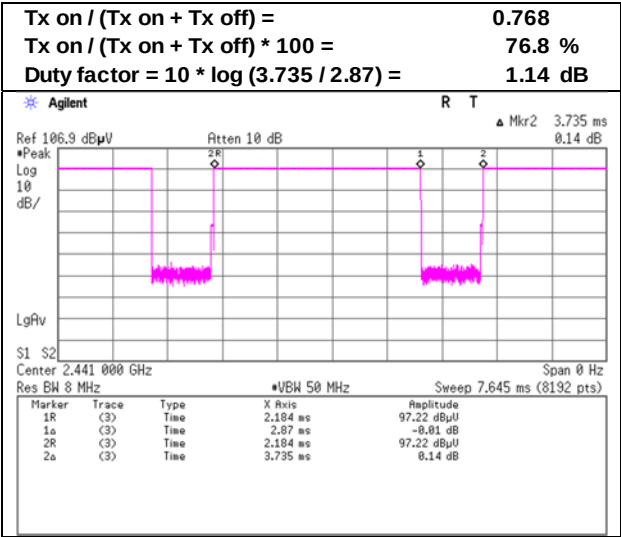
Result (Burst power average) = Time average + Duty factor

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

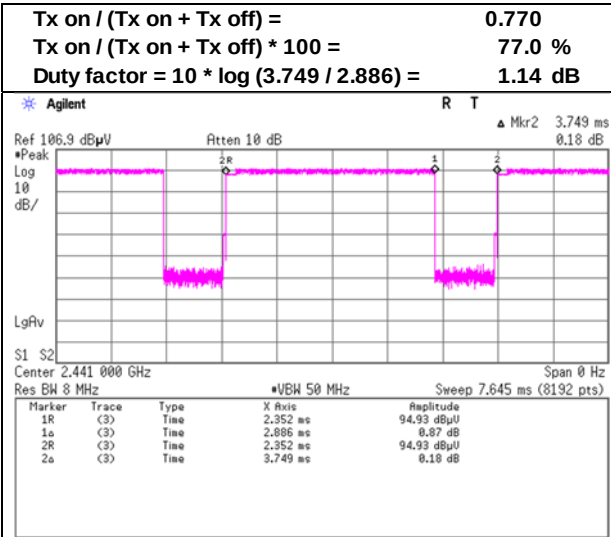
Burst Rate Confirmation

Mode	Tx, Hopping Off			
Date	Test site	Temperature	Humidity	Engineer
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi

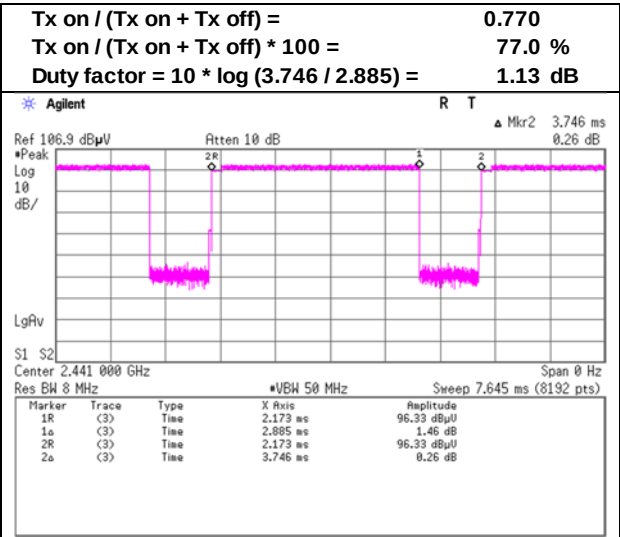
DH5



2DH5



3DH5



Radiated Spurious Emission

Mode	Tx, Hopping Off, DH5, 2402 MHz				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	1 GHz to 18 GHz
October 5, 2025	SAC2	24 deg. C	67 % RH	Takafumi Noguchi	18 GHz to 26.5 GHz

Polarity	Frequency	Reading (QP / PK)	Reading (AV)	Ant. Factor	Loss	Gain	Duty Factor	Result (QP / PK)	Result (AV)	Limit (QP / PK)	Limit (AV)	Margin (QP / PK)	Margin (AV)	Remark
[Hori/Vert]	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	
Hori.	2390.0	46.0	35.5	27.8	3.0	33.2	1.1	43.7	34.3	73.9	53.9	30.2	19.6	*1)
Hori.	4804.0	43.3	35.2	31.4	5.2	32.6	-	47.3	39.2	73.9	53.9	26.6	14.7	Floor noise
Hori.	7206.0	44.3	35.9	35.9	6.4	32.5	-	54.1	45.6	73.9	53.9	19.8	8.3	Floor noise
Hori.	9608.0	44.7	34.9	38.9	7.3	33.2	-	57.6	47.9	73.9	53.9	16.3	6.0	Floor noise
Vert.	2390.0	45.6	35.5	27.8	3.0	33.2	1.1	43.2	34.3	73.9	53.9	30.7	19.6	*1)
Vert.	4804.0	43.6	35.2	31.4	5.2	32.6	-	47.6	39.2	73.9	53.9	26.3	14.7	Floor noise
Vert.	7206.0	44.2	35.9	35.9	6.4	32.5	-	54.0	45.6	73.9	53.9	19.9	8.3	Floor noise
Vert.	9608.0	44.5	34.9	38.9	7.3	33.2	-	57.4	47.9	73.9	53.9	16.5	6.0	Floor noise

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

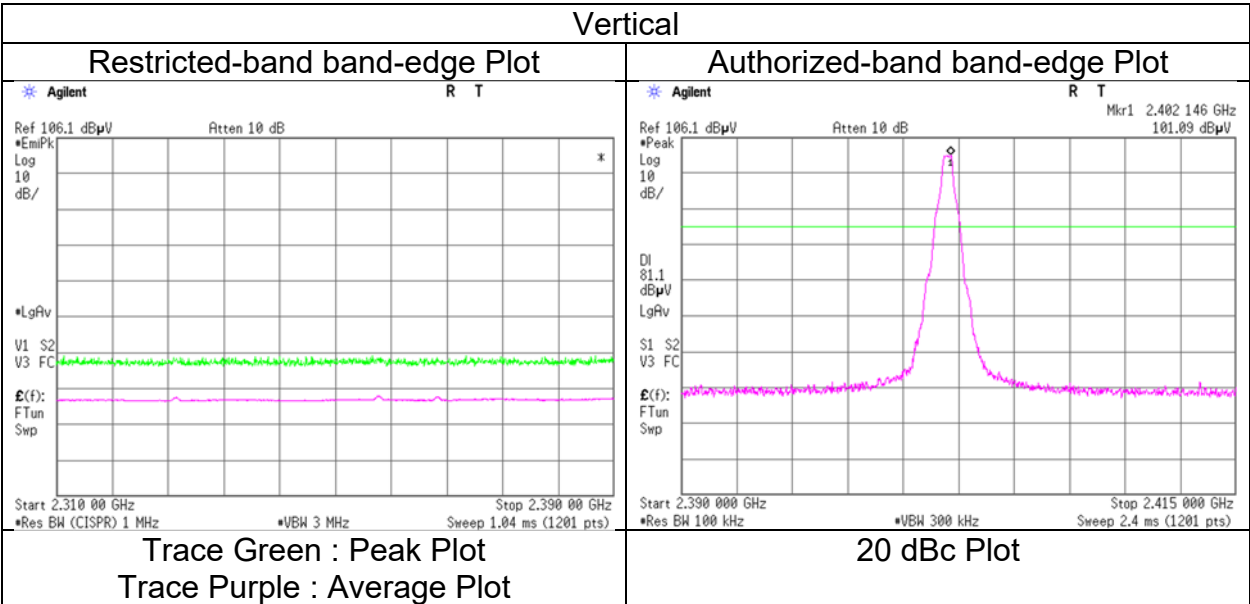
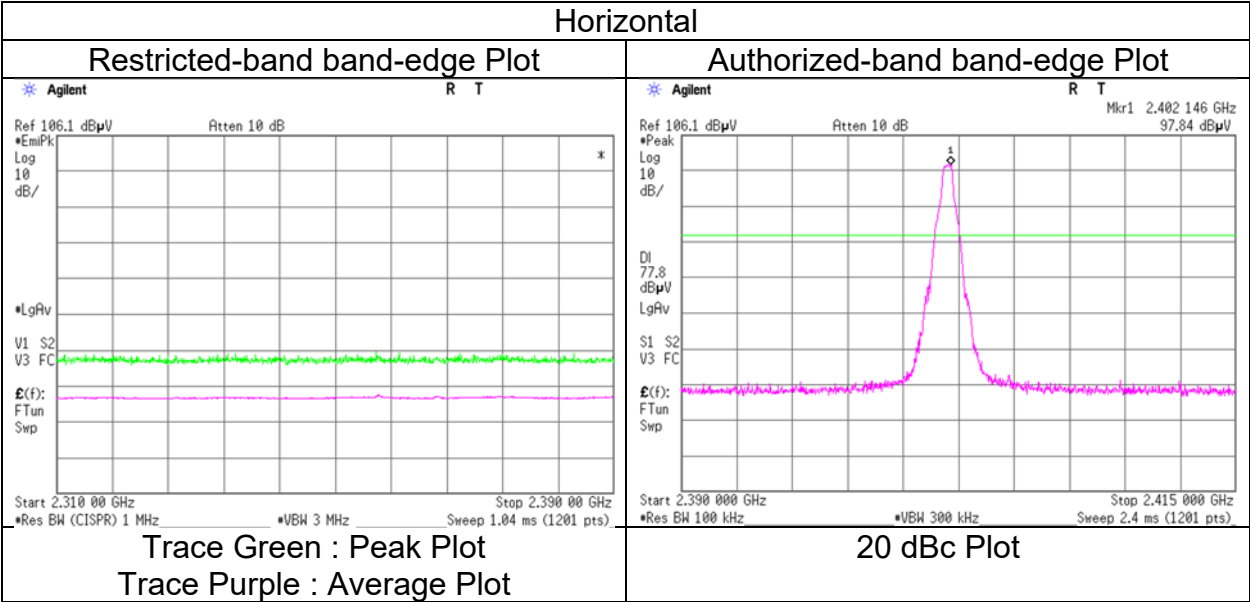
20dBc Data Sheet

Polarity	Frequency	Reading (PK)	Ant Factor	Loss	Gain	Result	Limit	Margin	Remark
[Hori/Vert]	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
Hori.	2402.0	97.8	27.8	3.0	33.2	95.5	-	-	Carrier
Hori.	2400.0	40.9	27.8	3.0	33.2	38.5	75.5	37.0	
Vert.	2402.0	101.1	27.8	3.0	33.2	98.7	-	-	Carrier
Vert.	2400.0	42.6	27.8	3.0	33.2	40.3	78.7	38.5	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)
Distance factor: 18 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Mode	Tx, Hopping Off, DH5, 2402 MHz				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	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 and authorized band edge were shown in tabular data.

Radiated Spurious Emission

Mode	Tx, Hopping Off, DH5, 2441 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	1 GHz to 18 GHz
October 5, 2025	SAC2	24 deg. C	67 % RH	Takafumi Noguchi	18 GHz to 26.5 GHz

Polarity	Frequency	Reading (QP / PK)	Reading (AV)	Ant. Factor	Loss	Gain	Duty Factor	Result (QP / PK)	Result (AV)	Limit (QP / PK)	Limit (AV)	Margin (QP / PK)	Margin (AV)	Remark
[Hori/Vert]	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	
Hori.	4882.0	44.5	35.1	31.5	4.4	32.6	-	47.9	38.4	73.9	53.9	26.0	15.5	Floor noise
Hori.	7323.0	45.1	35.5	36.0	6.4	32.5	-	55.0	45.4	73.9	53.9	18.9	8.5	Floor noise
Hori.	9764.0	44.3	34.4	39.3	7.4	33.2	-	57.7	47.9	73.9	53.9	16.2	6.0	Floor noise
Vert.	4882.0	44.5	35.1	31.5	5.3	32.6	-	48.6	39.2	73.9	53.9	25.3	14.7	Floor noise
Vert.	7323.0	44.8	35.5	36.0	6.4	32.5	-	54.7	45.4	73.9	53.9	19.2	8.5	Floor noise
Vert.	9764.0	44.2	34.4	39.3	7.4	33.2	-	57.7	47.9	73.9	53.9	16.2	6.0	Floor noise

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

Distance factor: 18 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Mode	Tx, Hopping Off, DH5, 2480 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	1 GHz to 18 GHz
October 5, 2025	SAC2	24 deg. C	67 % RH	Takafumi Noguchi	18 GHz to 26.5 GHz

Polarity	Frequency	Reading (QP / PK)	Reading (AV)	Ant. Factor	Loss	Gain	Duty Factor	Result (QP / PK)	Result (AV)	Limit (QP / PK)	Limit (AV)	Margin (QP / PK)	Margin (AV)	Remark
[Hori/Vert]	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	
Hori.	2483.5	47.1	36.9	27.7	3.1	33.2	1.1	44.8	35.7	73.9	53.9	29.1	18.3	*1)
Hori.	4960.0	44.2	35.0	31.6	5.3	32.6	-	48.5	39.3	73.9	53.9	25.4	14.6	Floor noise
Hori.	7440.0	46.0	35.1	36.2	6.4	32.5	-	56.0	45.1	73.9	53.9	17.9	8.8	Floor noise
Hori.	9920.0	43.8	34.4	39.2	7.5	33.2	-	57.3	47.9	73.9	53.9	16.6	6.0	Floor noise
Vert.	2483.5	51.4	39.0	27.7	3.1	33.2	1.1	49.0	37.8	73.9	53.9	24.9	16.1	*1)
Vert.	4960.0	44.3	35.0	31.6	5.3	32.6	-	48.6	39.3	73.9	53.9	25.3	14.6	Floor noise
Vert.	7440.0	45.8	35.1	36.2	6.4	32.5	-	55.9	45.1	73.9	53.9	18.0	8.8	Floor noise
Vert.	9920.0	43.9	34.4	39.2	7.5	33.2	-	57.4	47.9	73.9	53.9	16.5	6.0	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

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

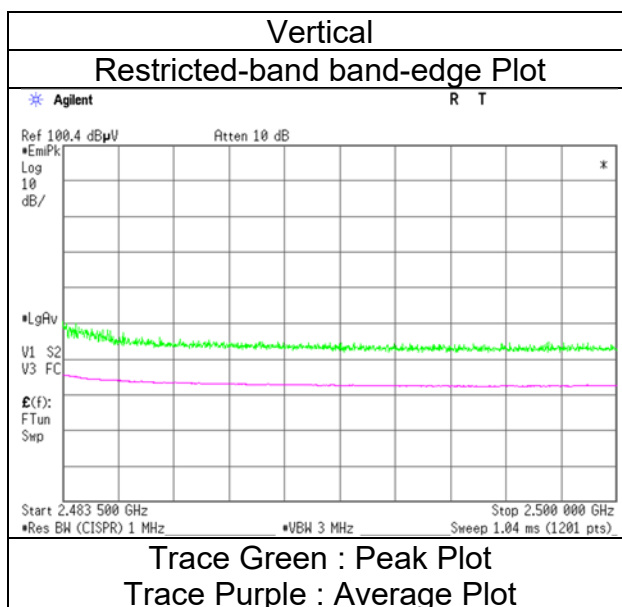
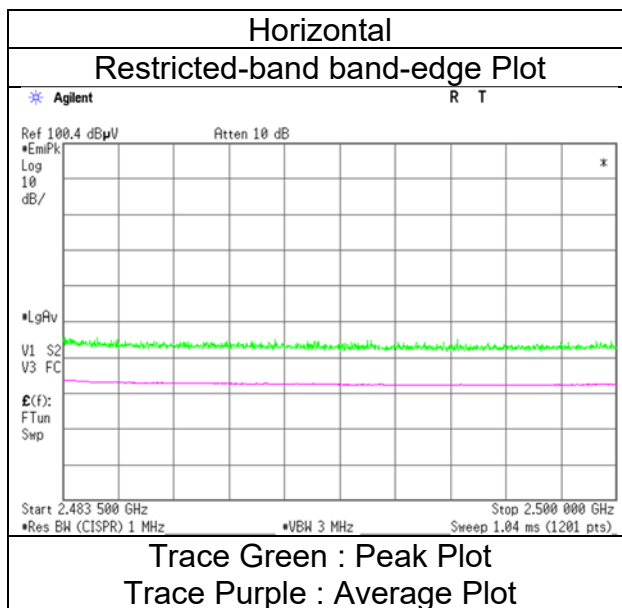
*QP detector was used up to 1GHz

*1) Not Out of Band emission(Leakage Power)

Distance factor: 18 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission (Reference Plot for band-edge)

Mode	Tx, Hopping Off, DH5, 2480 MHz				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	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, Hopping Off, 3DH5, 2402 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	1 GHz to 18 GHz
October 5, 2025	SAC2	24 deg. C	67 % RH	Takafumi Noguchi	18 GHz to 26.5 GHz

Polarity	Frequency	Reading (QP / PK)	Reading (AV)	Ant. Factor	Loss	Gain	Duty Factor	Result (QP / PK)	Result (AV)	Limit (QP / PK)	Limit (AV)	Margin (QP / PK)	Margin (AV)	Remark
[Hori/Vert]	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	
Hori.	2390.0	45.3	35.9	27.8	3.0	33.2	1.1	43.0	34.6	73.9	53.9	30.9	19.3	*1)
Hori.	4804.0	43.3	35.2	31.5	4.4	32.6	-	46.5	38.4	73.9	53.9	27.4	15.5	Floor noise
Hori.	7206.0	44.4	35.8	35.9	6.4	32.5	-	54.1	45.5	73.9	53.9	19.8	8.4	Floor noise
Hori.	9608.0	44.7	34.9	38.9	7.3	33.2	-	57.7	47.9	73.9	53.9	16.2	6.1	Floor noise
Vert.	2390.0	45.2	36.0	27.8	3.0	33.2	1.1	42.8	34.8	73.9	53.9	31.1	19.1	*1)
Vert.	4804.0	43.6	35.2	31.4	5.2	32.6	-	47.6	39.2	73.9	53.9	26.3	14.7	Floor noise
Vert.	7206.0	44.2	35.8	35.9	6.4	32.5	-	54.0	45.5	73.9	53.9	19.9	8.4	Floor noise
Vert.	9608.0	44.5	34.9	38.9	7.3	33.2	-	57.5	47.9	73.9	53.9	16.4	6.1	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

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

*QP detector was used up to 1GHz.

*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

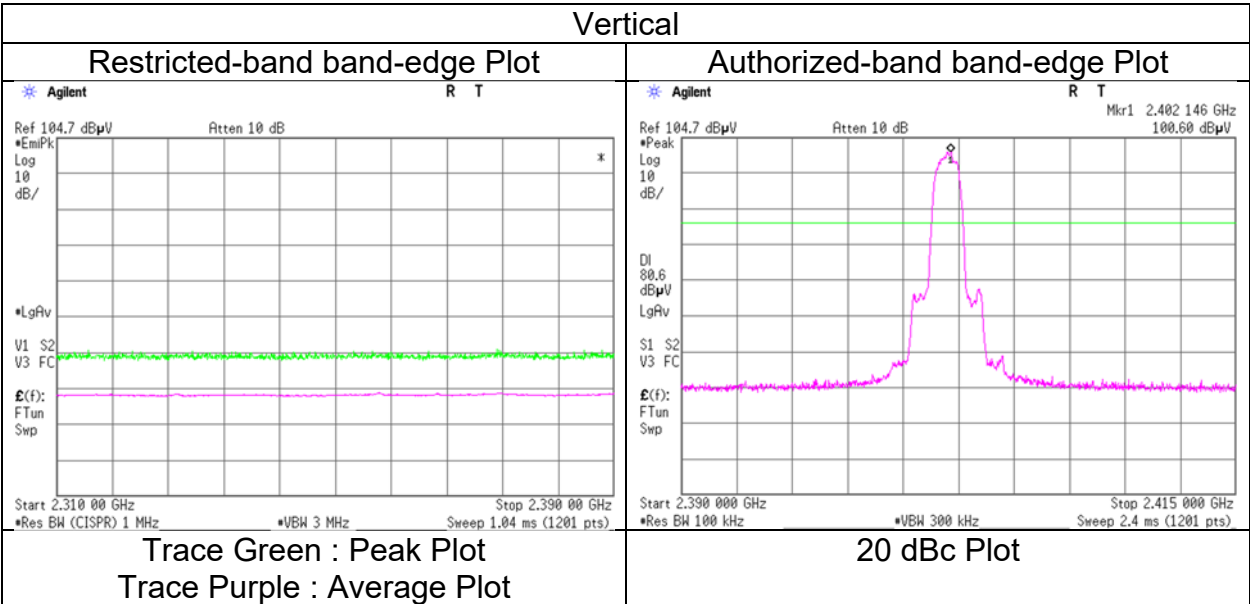
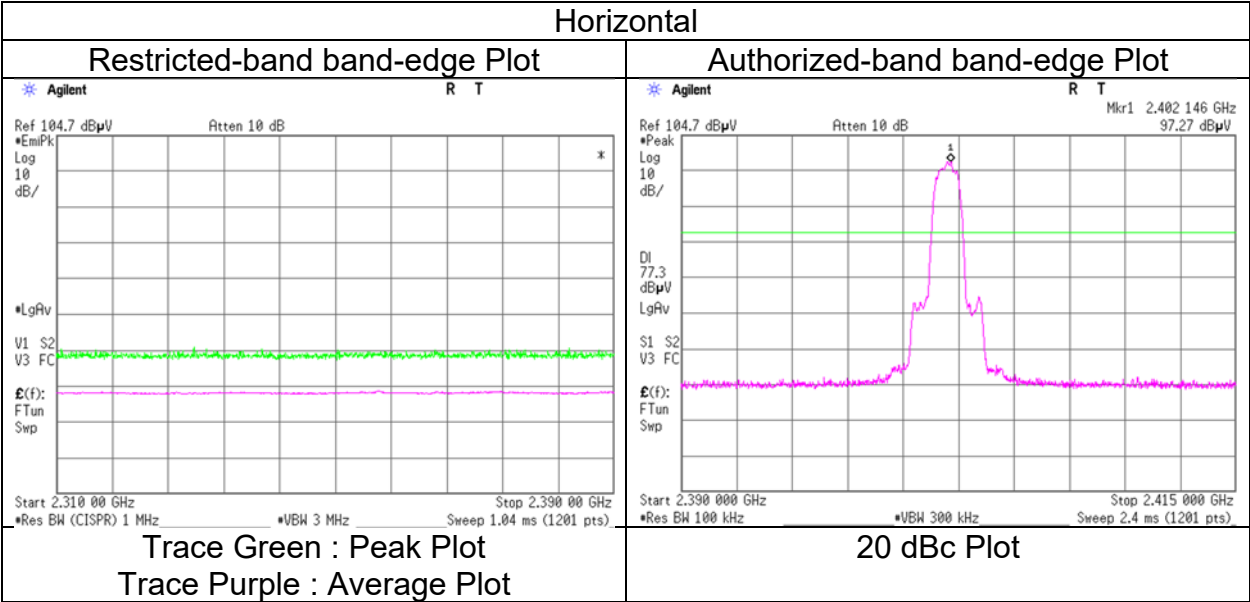
Polarity	Frequency	Reading (PK)	Ant Factor	Loss	Gain	Result	Limit	Margin	Remark
[Hori/Vert]	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
Hori.	2402.0	97.3	27.8	3.0	33.2	94.9	-	-	Carrier
Hori.	2400.0	41.8	27.8	3.0	33.2	39.4	74.9	35.5	
Vert.	2402.0	100.6	27.8	3.0	33.2	98.3	-	-	Carrier
Vert.	2400.0	53.2	27.8	3.0	33.2	50.9	78.3	27.4	

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

Distance factor: 18 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Mode	Tx, Hopping Off, 3DH5, 2402 MHz				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	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 and authorized band edge were shown in tabular data.

Radiated Spurious Emission

Mode	Tx, Hopping Off, 3DH5, 2441 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	1 GHz to 18 GHz
October 5, 2025	SAC2	24 deg. C	67 % RH	Takafumi Noguchi	18 GHz to 26.5 GHz
October 5, 2025	SAC2	24 deg. C	65 % RH	Junki Nagatomi	Below 1 GHz

Polarity [Hori/Vert]	Frequency [MHz]	Reading (QP / PK) [dBuV]	Reading (AV) [dBuV]	Ant. Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result (QP / PK) [dBuV/m]	Result (AV) [dBuV/m]	Limit (QP / PK) [dBuV/m]	Limit (AV) [dBuV/m]	Margin (QP / PK) [dB]	Margin (AV) [dB]	Remark
Hori.	82.9	36.2	-	7.4	7.3	28.5	-	22.5	-	40.0	-	17.5	-	
Hori.	87.7	30.2	-	8.3	7.4	28.5	-	17.4	-	40.0	-	22.6	-	
Hori.	323.2	32.2	-	14.4	8.9	27.9	-	27.6	-	46.0	-	18.4	-	
Hori.	926.3	29.1	-	21.9	11.4	28.8	-	33.6	-	46.0	-	12.4	-	
Hori.	975.0	29.0	-	22.1	11.6	28.7	-	34.0	-	53.9	-	19.9	-	
Hori.	999.9	32.5	-	22.5	11.7	28.6	-	38.1	-	53.9	-	15.8	-	
Hori.	4882.0	44.3	35.1	31.5	5.3	32.6	-	48.4	39.2	73.9	53.9	25.5	14.7	Floor noise
Hori.	7323.0	44.8	35.5	36.0	6.4	32.5	-	54.7	45.4	73.9	53.9	19.2	8.5	Floor noise
Hori.	9764.0	44.4	34.4	39.3	7.4	33.2	-	57.9	47.9	73.9	53.9	16.0	6.0	Floor noise
Vert.	82.9	32.1	-	7.4	7.3	28.5	-	18.4	-	40.0	-	21.6	-	
Vert.	581.6	31.0	-	18.6	10.2	29.3	-	30.5	-	46.0	-	15.5	-	
Vert.	600.0	29.8	-	19.3	10.3	29.3	-	30.0	-	46.0	-	16.0	-	
Vert.	926.2	32.0	-	21.9	11.4	28.8	-	36.5	-	46.0	-	9.5	-	
Vert.	975.0	30.7	-	22.1	11.6	28.7	-	35.7	-	53.9	-	18.2	-	
Vert.	999.9	36.4	-	22.5	11.7	28.6	-	42.0	-	53.9	-	11.9	-	
Vert.	4882.0	44.5	35.1	31.5	5.3	32.6	-	48.6	39.2	73.9	53.9	25.3	14.7	Floor noise
Vert.	7323.0	44.8	35.5	36.0	6.4	32.5	-	54.7	45.4	73.9	53.9	19.2	8.5	Floor noise
Vert.	9764.0	44.4	34.4	39.3	7.4	33.2	-	57.9	47.9	73.9	53.9	16.1	6.0	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

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

*QP detector was used up to 1GHz.

Distance factor: 18 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Mode	Tx, Hopping Off, 3DH5, 2480 MHz
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Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	1 GHz to 18 GHz
October 5, 2025	SAC2	24 deg. C	67 % RH	Takafumi Noguchi	18 GHz to 26.5 GHz

Polarity	Frequency	Reading (QP / PK)	Reading (AV)	Ant. Factor	Loss	Gain	Duty Factor	Result (QP / PK)	Result (AV)	Limit (QP / PK)	Limit (AV)	Margin (QP / PK)	Margin (AV)	Remark
[Hori/Vert]	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	
Hori.	2483.5	47.6	36.9	27.7	3.1	33.2	1.1	45.2	35.6	73.9	53.9	28.7	18.3	*1)
Hori.	4960.0	44.3	35.0	31.6	5.3	32.6	-	48.6	39.3	73.9	53.9	25.3	14.6	Floor noise
Hori.	7440.0	45.9	35.0	36.2	6.4	32.5	-	55.9	45.1	73.9	53.9	18.0	8.8	Floor noise
Hori.	9920.0	43.9	34.3	39.2	7.5	33.2	-	57.4	47.8	73.9	53.9	16.6	6.1	Floor noise
Vert.	2483.5	50.8	38.2	27.7	3.1	33.2	1.1	48.4	37.0	73.9	53.9	25.5	16.9	*1)
Vert.	4960.0	44.3	35.0	31.6	5.3	32.6	-	48.6	39.3	73.9	53.9	25.3	14.6	Floor noise
Vert.	7440.0	45.9	35.0	36.2	6.4	32.5	-	55.9	45.1	73.9	53.9	18.0	8.8	Floor noise
Vert.	9920.0	43.9	34.3	39.2	7.5	33.2	-	57.4	47.8	73.9	53.9	16.5	6.1	Floor noise

Result (QP / PK) = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

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

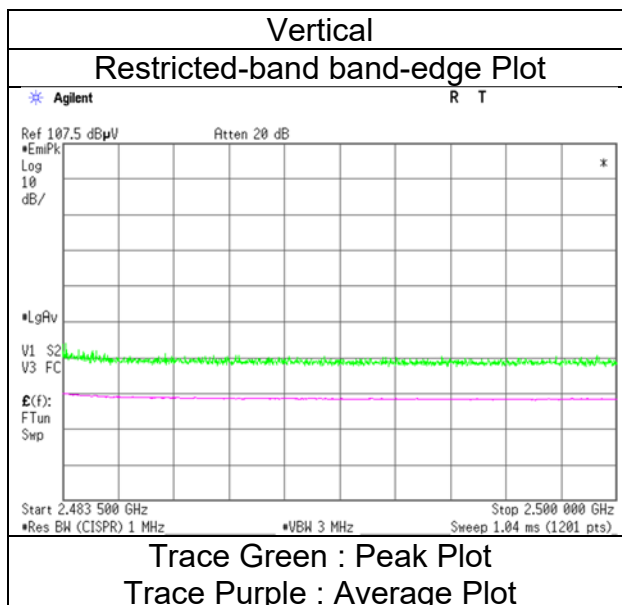
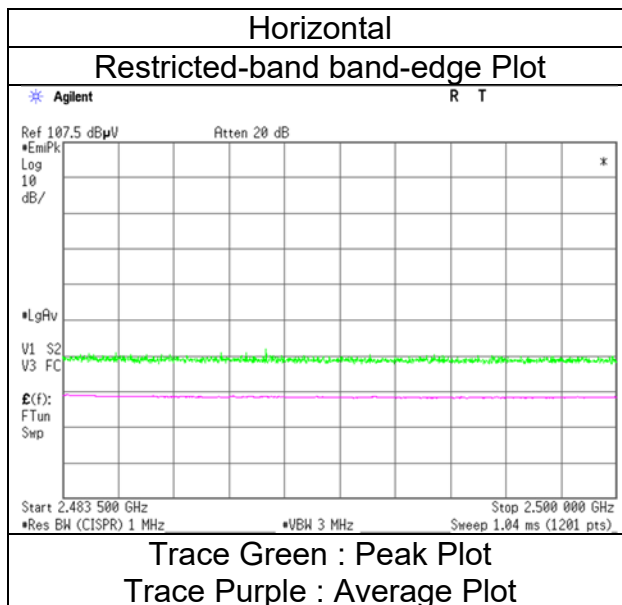
*QP detector was used up to 1GHz

*1) Not Out of Band emission(Leakage Power)

Distance factor: 18 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission (Reference Plot for band-edge)

Mode	Tx, Hopping Off, 3DH5, 2480 MHz				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	1 GHz to 18 GHz

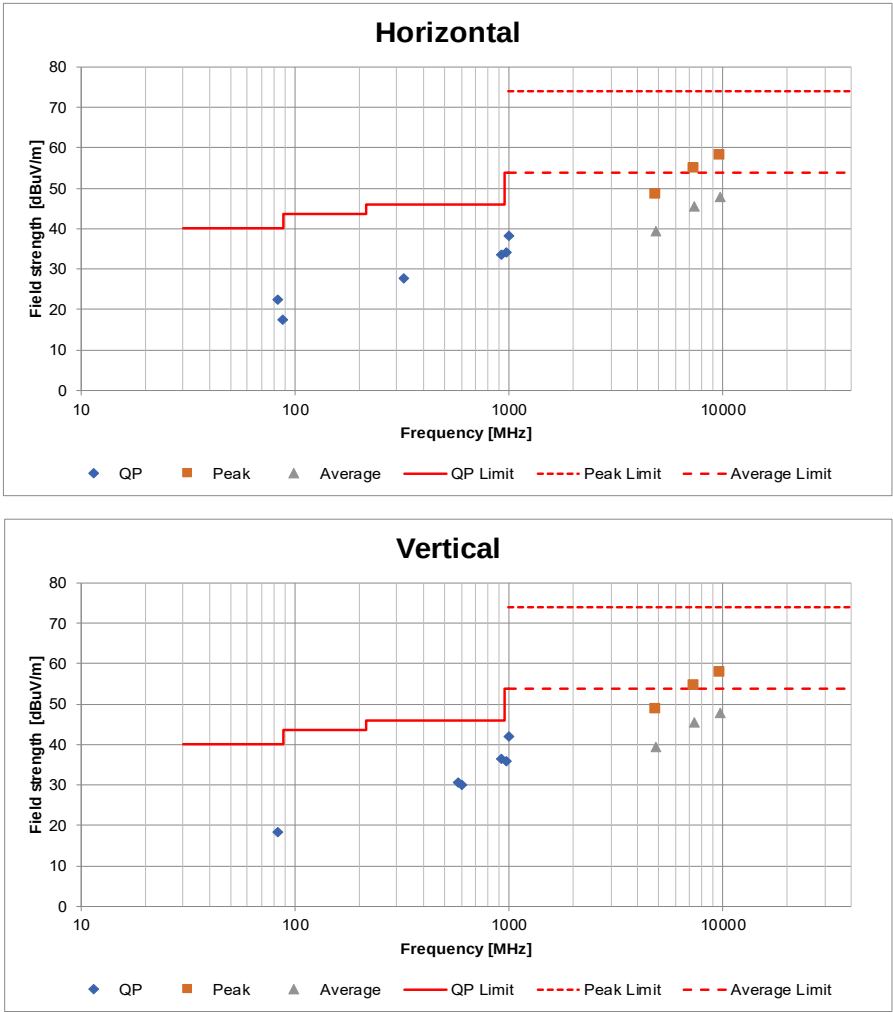


* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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, Hopping On, 3DH5, 2441 MHz				
Date	Test site	Temperature	Humidity	Engineer	Measurement Range
October 3, 2025	SAC2	21 deg. C	64 % RH	Junki Nagatomi	1 GHz to 18 GHz
October 5, 2025	SAC2	24 deg. C	67 % RH	Takafumi Noguchi	18 GHz to 26.5 GHz
October 5, 2025	SAC2	24 deg. C	65 % RH	Junki Nagatomi	Below 1 GHz

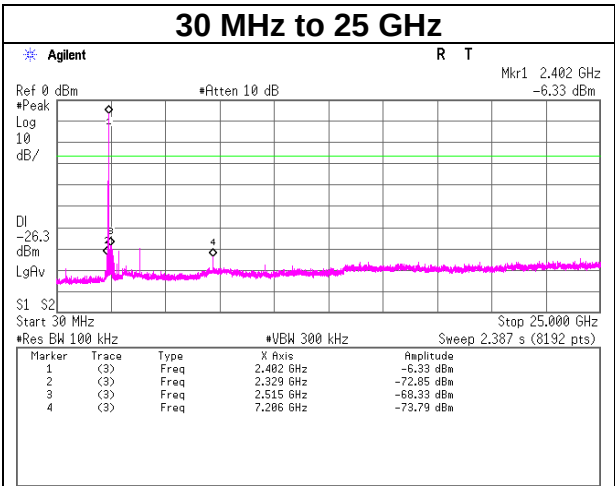
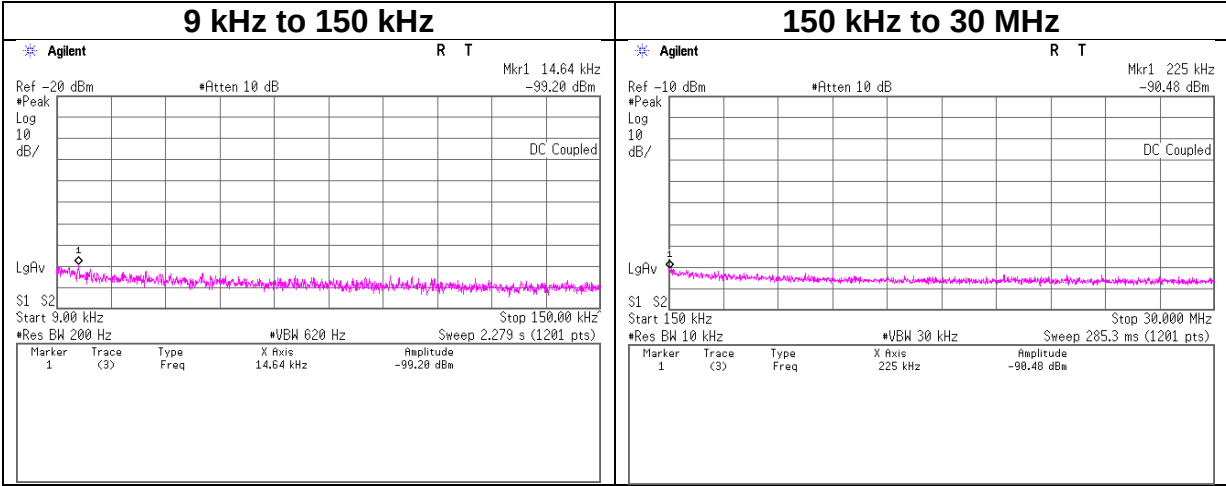


*These plots data contain sufficient number to show the trend of characteristic features for EUT.

Conducted Spurious Emission

Mode	Tx, Hopping Off, DH5			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

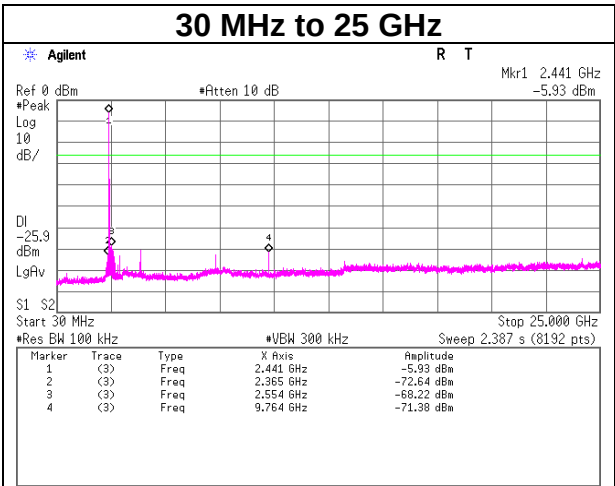
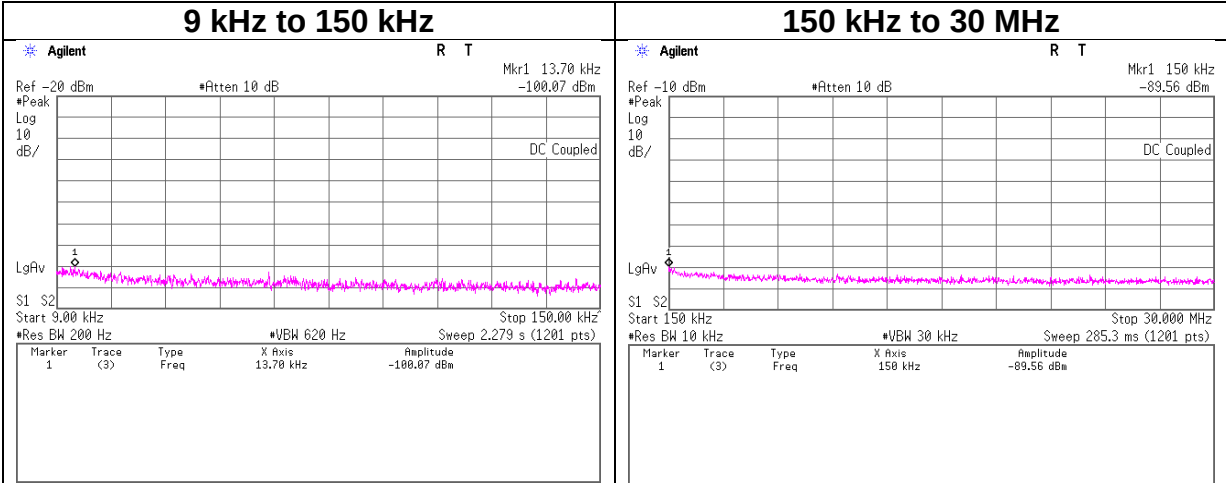
2402 MHz



Conducted Spurious Emission

Mode	Tx, Hopping Off, DH5			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

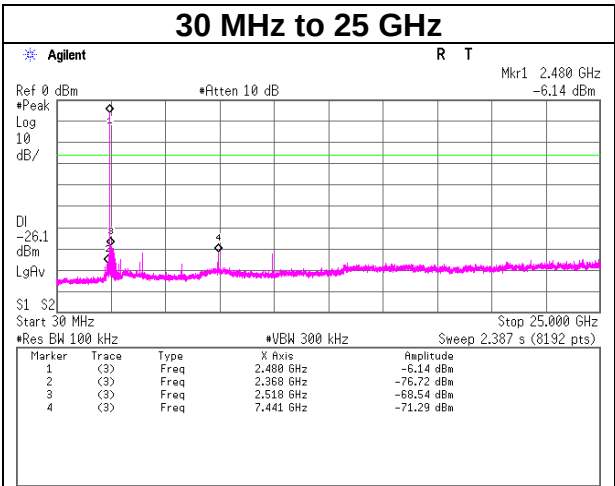
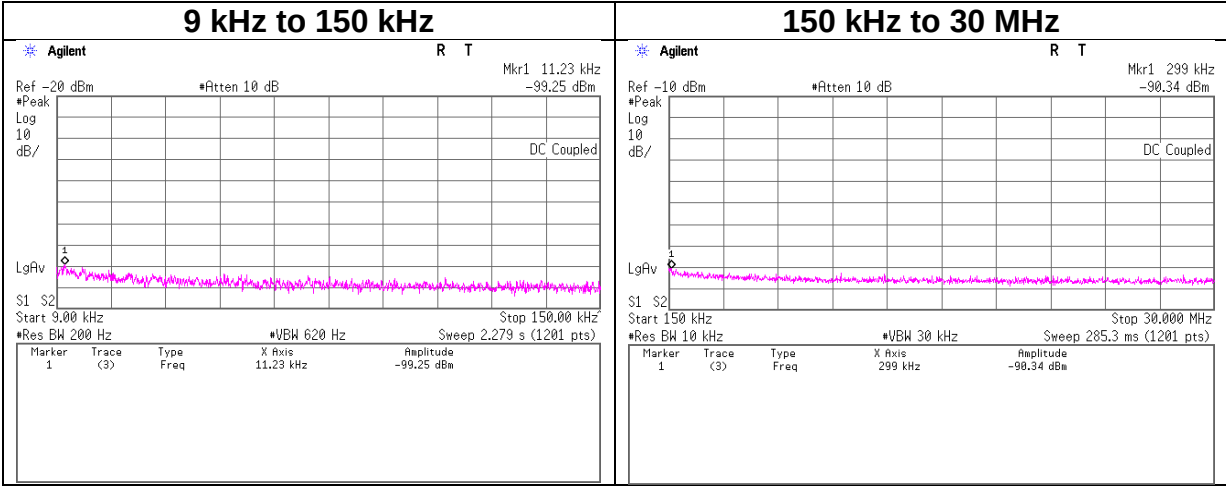
2441 MHz



Conducted Spurious Emission

Mode	Tx, Hopping Off, DH5			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

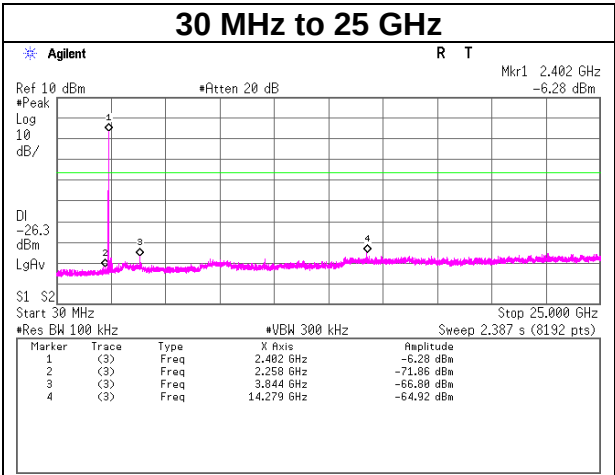
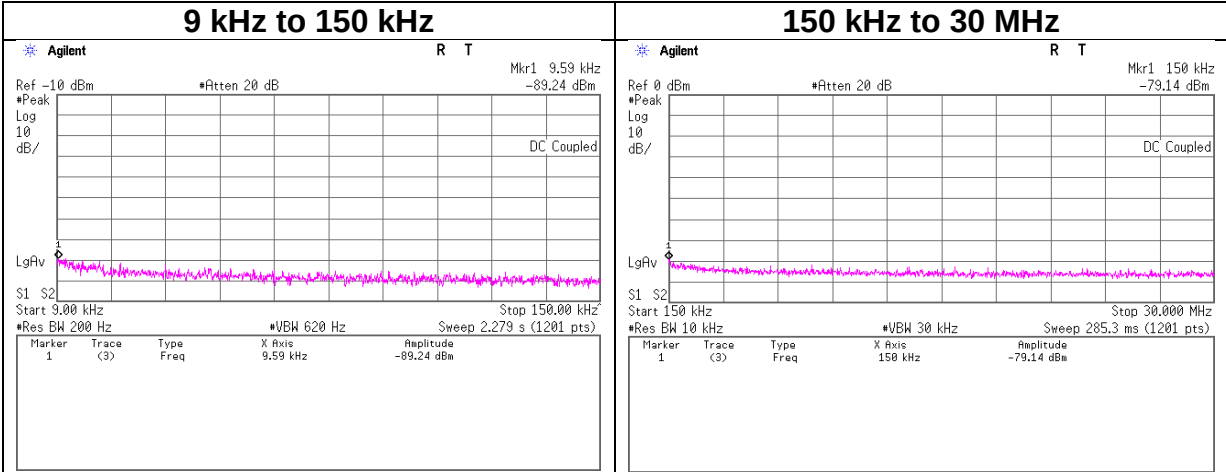
2480 MHz



Conducted Spurious Emission

Mode	Tx, Hopping Off, 3DH5			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

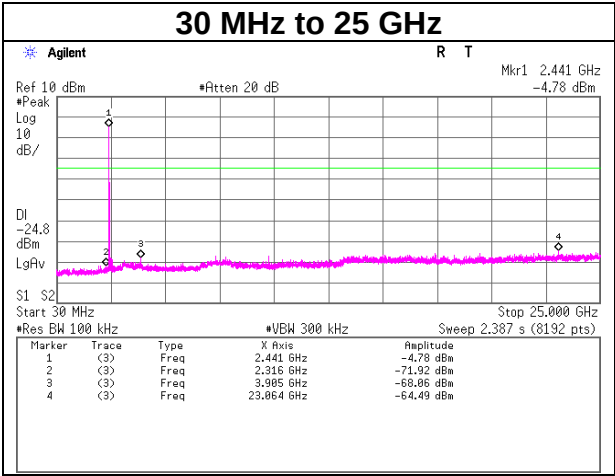
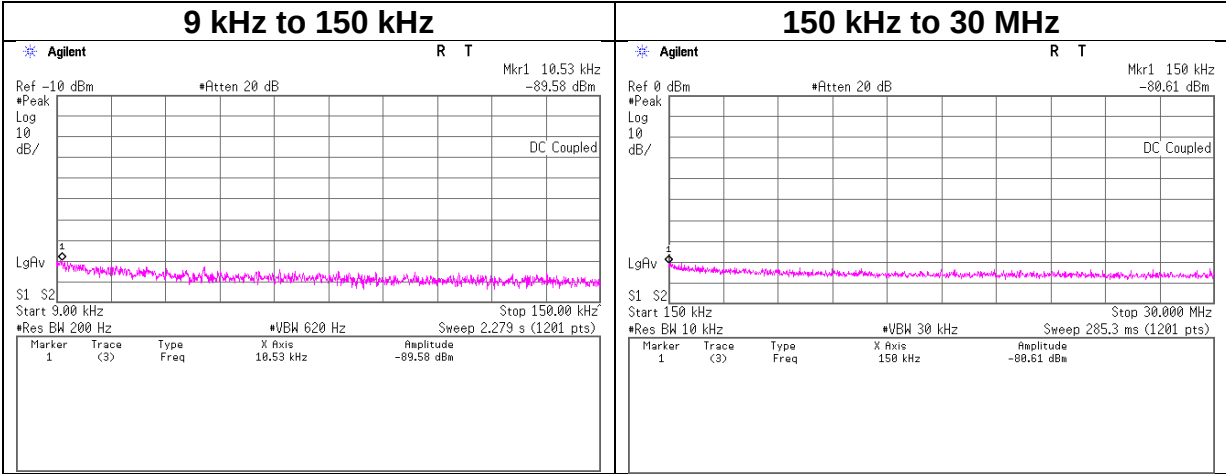
2402 MHz



Conducted Spurious Emission

Mode	Tx, Hopping Off, 3DH5			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

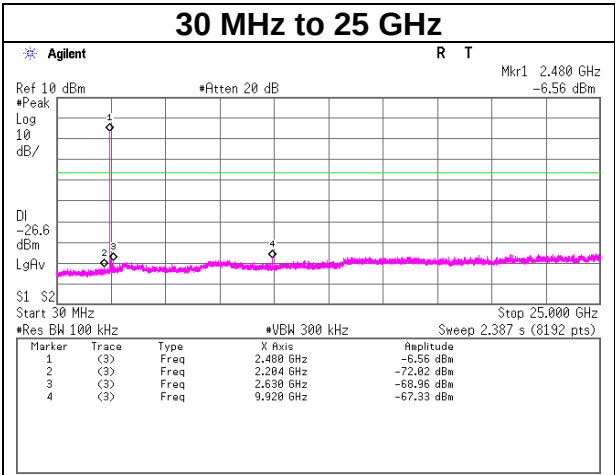
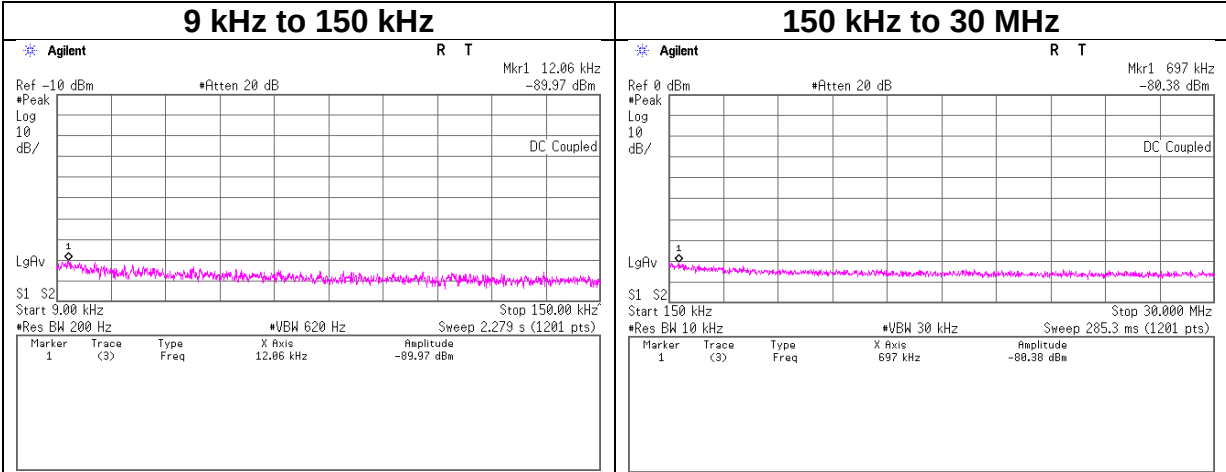
2441 MHz



Conducted Spurious Emission

Mode	Tx, Hopping Off, 3DH5			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

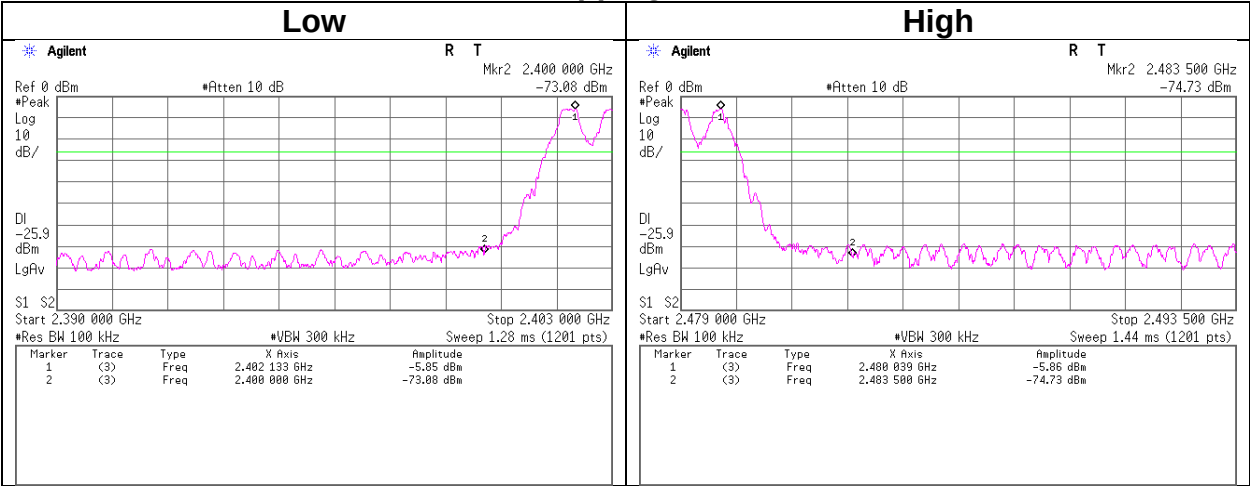
2480 MHz



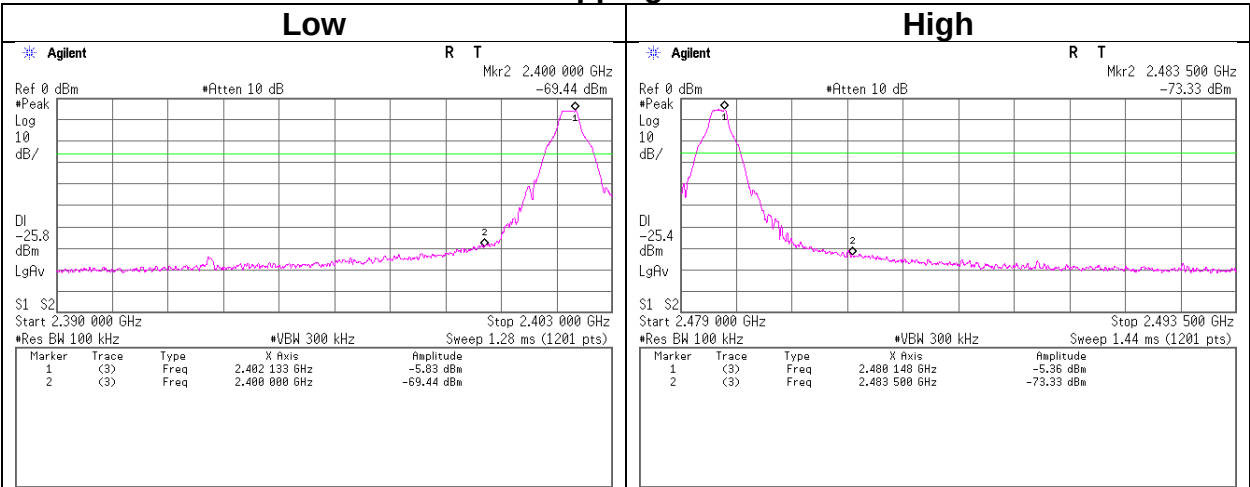
Conducted Emission Band Edge compliance

Mode	Tx DH5			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

Hopping On



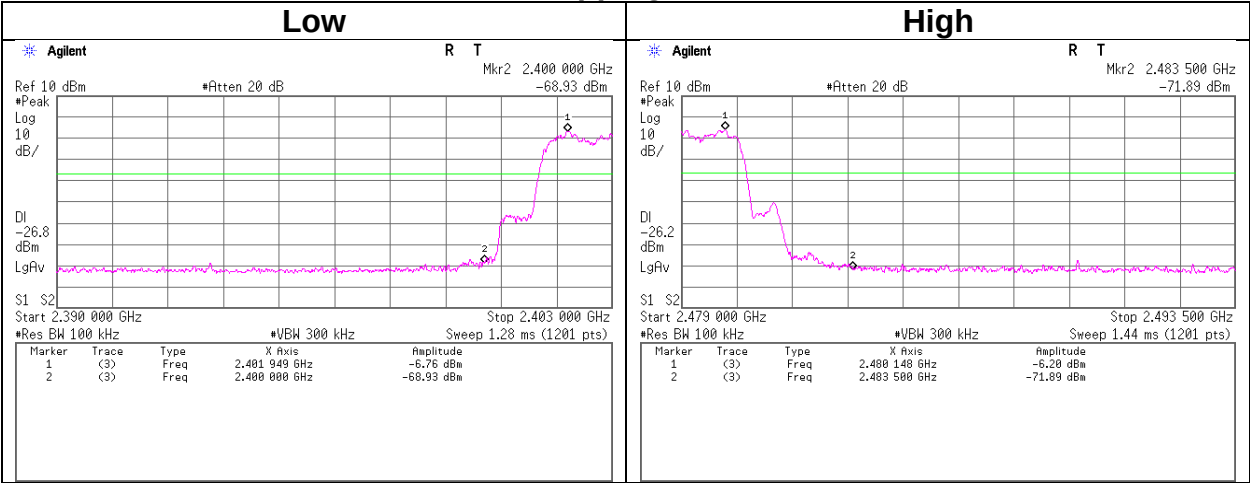
Hopping Off



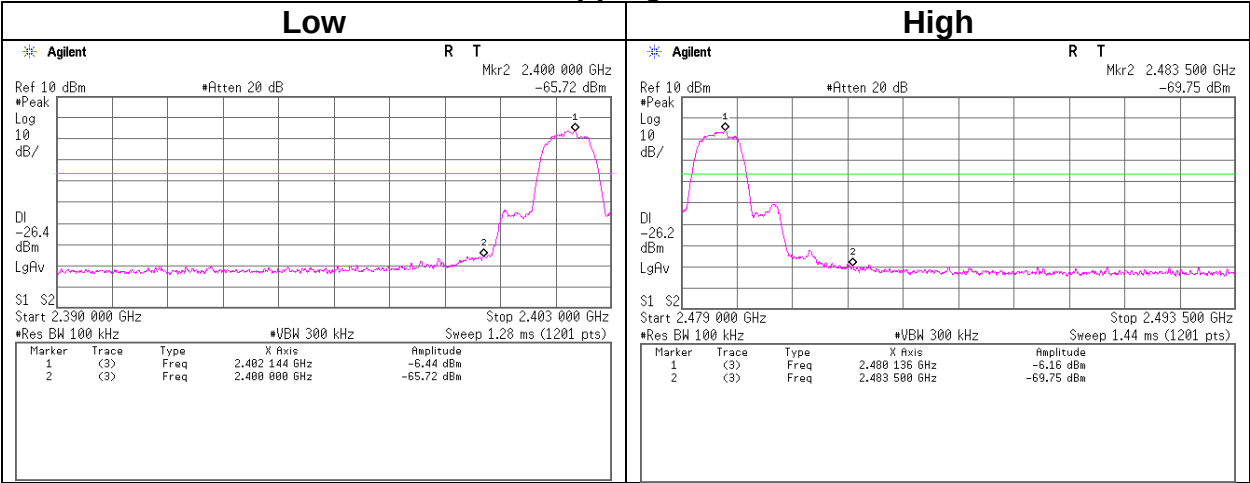
Conducted Emission Band Edge compliance

Mode	Tx 3DH5			
Date	Test site	Temperature	Humidity	Engineer
October 6, 2025	MR8	21 deg. C	62 % RH	Shousei Hamaguchi

Hopping On



Hopping Off



APPENDIX 2: Test Instruments

Test Equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	141265	Logperiodic Antenna (200-1000MHz)	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	9111B-190	07/22/2025	12
RE	141296	High Pass Filter 3.5-18.0GHz	UL-ISE	HPF SELECTOR	002	09/03/2025	12
RE	141317	Coaxial Cable	UL-ISE	-	-	09/29/2025	12
RE	141427	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	VHA9103B+BBA9106	08031	07/22/2025	12
RE	141503	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	06/18/2025	12
RE	141508	Horn Antenna 1-18GHz	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	557	05/20/2025	12
RE	141542	Digital Tester	Fluke Corporation	FLUKE 26-3	78030611	08/01/2025	12
RE	141594	Pre Amplifier	Keysight Technologies Inc	8447D	2944A10150	02/19/2025	12
RE	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	05/15/2025	12
RE	141950	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	11/28/2024	12
RE	142004	AC2_Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	07/08/2025	24
RE	142006	AC2_Semi Anechoic Chamber(SVSWR)	TDK	Semi Anechoic Chamber 3m	DA-06902	04/21/2025	24
RE	142228	Measure, Tape, Steel	KOMELON	KMC-36	-	-	-
RE	178648	EMI measurement program	TSJ (Techno Science Japan)	TEPTO-DV	-	-	-
RE	237927	Broadband Amplifier	ERAVANT	SBB-0115033218-2F2F-E3	27554-01	07/02/2025	12
RE	238713	Double Ridge Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA 9120 C	688	09/17/2025	12
RE	244707	Thermo-Hygrometer	HIOKI E. E. CORPORATION	LR5001	231202102	01/19/2025	12
RE	252663	Microwave Cable	Huber+Suhner	SF126E/11PC35/11PC35/1000MM, 5000MM	616276/126E / 616275/126E	09/03/2025	12
RE	253739	Pre Amplifier	Keysight Technologies Inc	8449B	3008A01919	10/23/2024	12
RE	266727	Attenuator	Huber+Suhner	6806_N-50-1	40701613	07/09/2025	12
AT	141156	Attenuator(10dB)	Weinschel Corp	2	BL1173	11/11/2024	12
AT	141269	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	03/03/2025	12
AT	141557	DIGITAL HiTESTER	HIOKI E. E. CORPORATION	3805	070900530	01/15/2025	12
AT	141805	Power Meter	Anritsu Corporation	ML2495A	6K00003338	08/26/2025	12
AT	141809	Power Meter	Anritsu Corporation	ML2495A	825002	05/15/2025	12
AT	141830	Power sensor	Anritsu Corporation	MA2411B	738285	05/15/2025	12
AT	141840	Power sensor	Anritsu Corporation	MA2411B	011737	08/26/2025	12
AT	141884	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY44020357	05/15/2025	12
AT	141903	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46186390	01/30/2025	12
AT	244711	Thermo-Hygrometer	HIOKI E. E. CORPORATION	LR5001	231202105	01/19/2025	12
AT	263296	Coaxial Cable	GigaLane Co., Ltd	G03SMC005-GUL200HT-G03SMC005-2000mm	#001	05/20/2025	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