

RADIO TEST REPORT

Test Report No. 15654314S-R2

Customer	Fukuda Denshi Co., Ltd.
Description of EUT	ECG, Respiration and SpO2 Transmitter
Model Number of EUT	LX-1300F
FCC ID	DV8LX13001
Test Regulation	FCC Part 95 Subpart H FCC Part 2 Subpart J
Test Result	Complied
Issue Date	November 19, 2025
Remarks	-

Representative Test Engineer



Kenichi Adachi
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)	15654314S	July 29, 2025	-
1	15654314S-R1	November 7, 2025	p.17-19, p.21-23: modified EIRP value table. (deleted antenna power value)
2	15654314S-R2	November 19, 2025	p.5, Added "(Actual operating voltage range: DC 2.4 V to DC 3.6 V)". p.5, Added test date. p.13 – p.15, Added High voltage measured data. p.26, Added the list of test equipment used in the additional tests.

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	6
SECTION 4: Operation of EUT during testing	8
SECTION 5: Bandwidth and Occupied bandwidth (99 %).....	10
SECTION 6: Frequency Stability	10
SECTION 7: Field Strength (Fundamental Emission and Out of band emissions).....	11
APPENDIX 1: Test data	13
Frequency Stability	13
-26 dB Bandwidth and 99 % Occupied bandwidth.....	16
Field Strength (Electric Field Strength of Fundamental Emission, Spurious Emission and Band Edge Compliance)	17
APPENDIX 2: Test Instruments	25
APPENDIX 3: Photographs of test setup.....	27
Radiated Spurious Emission.....	27
Pre-check of Worst Case Position	28
Frequency Stability	29

SECTION 1: Customer Information

Company Name	Fukuda Denshi Co., Ltd.
Address	2-35-8 Hongo, Bunkyo-ku, Tokyo, 113-8420, Japan
Telephone Number	+81-3-5684-1300
Contact Person	Naoki Yoshida

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	ECG, Respiration and SpO2 Transmitter
Model Number	LX-1300F
Serial Number	Refer to SECTION 4.2
Condition	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	January 16, 2025
Test Date	January 27 to April 16, 2025 and November 17, 2025

2.2 Product Description

Rating	DC 3 V (Battery) (Actual operating voltage range: DC 2.4 V to DC 3.6 V)
Operating Temperature	+10 deg. C to +40 deg. C

Radio Specification

NFC

Equipment Type	Transceiver
Frequency of Operation	13.56 MHz
Type of Modulation	ASK

WMTS

Equipment Type	Transmitter
Frequency of Operation	608.0125 MHz to 613.9875 MHz
Type of Modulation	FSK
Antenna Gain	Less than +2.14 dBi
Frequency stability	+/-2.5 ppm

SECTION 3: Test Summary

3.1 Test Specification

Test Specification	FCC Part 95 Subpart H The latest version on the first day of the testing period
Title	FCC 47 CFR Part 95 Personal Radio Services Subpart H Wireless Medical Telemetry Service

Test Specification	FCC Part 2 Subpart J The latest version on the first day of the testing period
Title	FCC 47 CFR Part 2 Frequency Allocations and Radio Treaty Matters; General Rules and Regulations Subpart J Equipment Authorization Procedures

The EUT is used for the purpose of being related to medical treatment. Therefore this device applies to §15.103(e), exempted from FCC Part 15 Subpart B.

3.2 Reference Standards

ANSI C63.26-2015
ANSI/TIA-603-E-2016

3.3 Summary of Test Results

Item	Specification	Results	Remarks
Conducted Emission	FCC: Section 15.207 ISED: RSS-Gen 8.8	N/A	*1)
WMTS field strength limits	FCC: FCC 95.2369(a) ISED: -	Complied	Radiated
WMTS unwanted emissions limits	FCC: FCC 95.2379 ISED: -	Complied	Radiated
WMTS frequency accuracy	FCC: FCC 95.2365 ISED: -	Complied	Radiated
Bandwidth	FCC: Applicant specification ISED: -	Complied	Radiated
Spurious emission at antenna terminals	FCC: - ISED: -	N/A	*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) The test is not applicable since the EUT has no antenna terminals.			

3.3 Addition to Standard

Item	Specification	Results	Remarks
99 % emission bandwidth	ISED: -	-	Radiated
Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.			

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

3.4 Uncertainty

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

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

Shonan EMC Lab.

Item	Frequency range	Uncertainty (+/-)
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

Antenna terminal test	Uncertainty (+/-)
Frequency Measurement	$1.6 \times E^{-7}$
Bandwidth Measurement	0.012 %
Temperature	2.2 deg.C.
Humidity	3.4 %
Voltage	0.92 %

3.5 Test Location

UL Japan, Inc. Shonan EMC Lab.

1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 Japan

Telephone: +81-463-50-6400

A2LA Certificate Number: 1266.03

(FCC test firm registration number: 626366, ISED lab company number: 2973D / CAB identifier: JP0001)

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

3.6 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

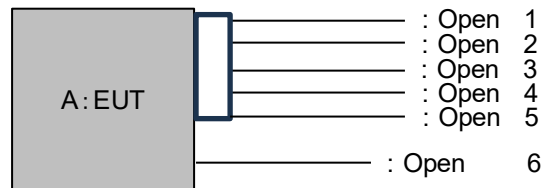
SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

Mode	Operating mode	Tested frequencies
All items	Transmitting (modulated) (Tx)	608.0125 MHz 611.0000 MHz 613.9875 MHz
*EUT has the power settings by the software as follows; Power Setting: High power: 5 mW Low power: 2 mW Software: V01-01 Version: V01-02 (Date: 2025.01.15, 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.		

4.2 Configuration and Peripherals



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

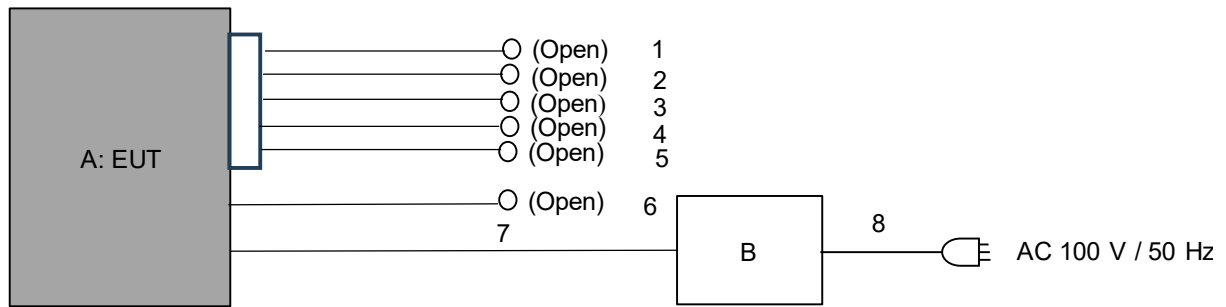
Description of EUT

No.	Item	Model number	Serial Number	Manufacturer	Remarks
A	ECG, Respiration and SpO2 Transmitter	LX-1300F	ZAB00002 (401)	Fukuda Denshi Co., Ltd.	EUT

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal Cable	0.9	Shielded	Unshielded	-
2	Signal Cable	0.9	Shielded	Unshielded	-
3	Signal Cable	0.9	Shielded	Unshielded	-
4	Signal Cable	0.9	Shielded	Unshielded	-
5	Signal Cable	0.9	Shielded	Unshielded	-
6	Signal Cable	1.0	Shielded	Unshielded	-

Frequency Stability (Vmin) Only



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

Description of EUT

No.	Item	Model number	Serial Number	Manufacturer	Remarks
A	ECG, Respiration and SpO2 Transmitter	LX-1300F	ZAB00002 (401)	Fukuda Denshi Co., Ltd.	EUT
B	Power Supply(DC)	PAN35-10A	DE001677	KIKUSUI	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal Cable	0.9	Shielded	Unshielded	-
2	Signal Cable	0.9	Shielded	Unshielded	-
3	Signal Cable	0.9	Shielded	Unshielded	-
4	Signal Cable	0.9	Shielded	Unshielded	-
5	Signal Cable	0.9	Shielded	Unshielded	-
6	Signal Cable	1.0	Shielded	Unshielded	-
7	DC	0.25 + 1.8	Unshielded	Unshielded	-
8	AC	2.0	Unshielded	Unshielded	-

SECTION 5: Bandwidth and Occupied bandwidth (99 %)

Test Procedure

The bandwidth was measured with a spectrum analyzer.

Test data : APPENDIX

Test result : Pass

SECTION 6: Frequency Stability

Test Procedure

The frequency stability was measured with a spectrum analyzer.

The temperature test was started after the temperature stabilization time of 30 minutes.

Tested temperature was -30 deg. C. to +50 deg. C.

*) The test result on 50 deg. C., 0 deg. C., -10 deg. C., -20 deg. C., and -30 deg. C. were reference data,
Since the specification of operating temperature of EUT was +10 deg. C. to +40 deg. C.
(It used the manufacturer's specified conditions (refer to FCC 95.2365))

Test data : APPENDIX

Test result : Pass

SECTION 7: Field Strength (Fundamental Emission and Out of band emissions)

Test Procedure

EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

The table is made of expanded polystyrol and expanded polypropylene and the table top is covered with poly carbonate. That has very low permittivity.

The Field Strength has been measured in a Semi Anechoic Chamber with a ground plane, and at a distance of 3 m.

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 electric field strength.

The 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 measurements were performed for both vertical and horizontal antenna polarization with the test receiver, or spectrum analyzer.

The measurements were made with the following detector function of the test receiver and spectrum analyzer (in liner 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	Below 30 MHz	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Instrument used	Test Receiver	Test Receiver	Test Receiver	Spectrum analyzer *1)
Detector IF bandwi	QP: RBW 200 Hz (9 kHz to 150 kHz) QP: RBW 9 kHz (150 kHz to 30 MHz)	QP: RBW 120 kHz	QP: RBW 120 kHz	AV: RBW 1 MHz VBW 10 Hz (No pulse emission detected)
Antenna Type	Loop	Biconical	Logperiodic	Horn

*1) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

The test results and limit are rounded off to one decimal place, so some differences might be observed.

Band edge

To determine the level of band-edge spurious, we use the following procedure:

Set the resolution bandwidth to 1 kHz in the peak detector mode.

Because we don't want to include in-band emission at BandEdge measurement if center frequencies are "608.0125 MHz" or "613.9875 MHz" and BandEdges are "608 MHz" or "614 MHz".

(The supplementation: There are some granted test report that were measured by 3 kHz RBW for the equipment that has 350 kHz for 26 dB bandwidth in similar case.)

We used RBW = 1 kHz (greater than 1 % bandwidth) to prevent to detect in-band emission. Refer to KDB 971168 D01 (971168 D01 Power Meas License Digital Systems v03r01).

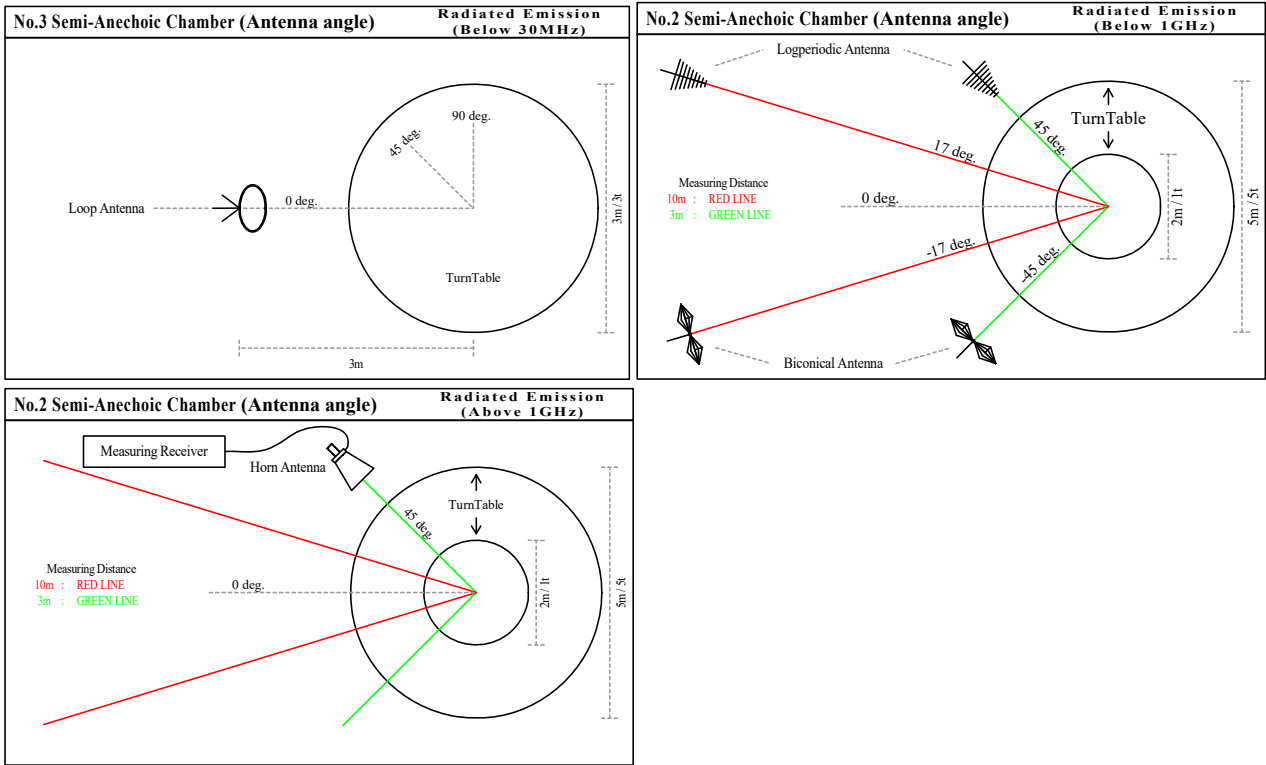
Measure the maximum level of the in-band channel closest to the band edge and the maximum level of the out-of-band emissions close to the same band edge.

Determine the ratio of the in-band signal to the out-of-band emissions. Then, measure the level of the in-band channel in CISPR quasi-peak mode with 120 kHz bandwidth. Using the ratio obtained, we calculate the equivalent level of the out-of-band emissions to determine compliance with the limits.

The emission tests, except for the band edge, were performed with the quasi-peak mode of the spectrum analyzer.

(Bandwidth: 1 MHz)

Figure 1. Antenna angle



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.

		Below 30 MHz	30 MHz to 1 GHz	Above 1 GHz
EUT unit	Horizontal	X	X	Z
	Vertical	X	X	Y
cable	Horizontal	X	X	X
	Vertical	X	Z	Z

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

Measurement range : 9 kHz to 10 GHz
Test data : APPENDIX
Test result : Pass

* No noise from radio part was detected in 9 kHz to 30 MHz.

APPENDIX 1: Test data

Frequency Stability

Test place Shonan EMC Lab.
Date No.3 Shielded Room No.5 Shielded Room No.8 Shielded Room No.5 Shielded Room
February 28, 2025 March 7, 2025 April 10, 2025 November 17, 2025
Temperature / 23 deg. C / 31 % RH 22 deg. C / 34 % RH 22 deg. C / 40 % RH 24 deg. C / 56 % RH
Humidity
Engineer Makoto Hosaka Makoto Hosaka Yuta Shiba Kenichi Adachi
Mode Transmitting 608.0125 MHz

Test Condition deg.C Voltage		Test Timing	Measured frequency [MHz]	Frequency error [MHz]	Result [ppm]	Limit [+/- ppm]	Margin [ppm]
20 deg.C	DC 2.4 V (Vmin)	Power on	608.012735	0.000235	0.39	2.50	2.11
		on 2 min.	608.012704	0.000204	0.34	2.50	2.16
		on 5 min.	608.012729	0.000228	0.38	2.50	2.12
		on 10 min.	608.012801	0.000301	0.50	2.50	2.00
	DC 3 V (Vnom)	Power on	608.012842	0.000341	0.56	2.50	1.94
		on 2 min.	608.012876	0.000376	0.62	2.50	1.88
		on 5 min.	608.012904	0.000404	0.66	2.50	1.84
		on 10 min.	608.013004	0.000504	0.83	2.50	1.67
	DC 3.6 V (Vmax)	Power on	608.012190	-0.000310	-0.51	2.50	1.99
		on 2 min.	608.012080	-0.000420	-0.69	2.50	1.81
		on 5 min.	608.012080	-0.000420	-0.69	2.50	1.81
		on 10 min.	608.011990	-0.000510	-0.84	2.50	1.66
50 deg.C.	DC 3 V	Power on	608.011891	-0.000609	-1.00	-	-
		on 2 min.	608.011831	-0.000669	-1.10	-	-
		on 5 min.	608.011822	-0.000678	-1.12	-	-
		on 10 min.	608.011881	-0.000619	-1.02	-	-
40 deg.C.		Power on	608.012019	-0.000481	-0.79	2.50	1.71
		on 2 min.	608.011878	-0.000622	-1.02	2.50	1.48
		on 5 min.	608.011919	-0.000582	-0.96	2.50	1.54
		on 10 min.	608.011938	-0.000563	-0.93	2.50	1.57
30 deg.C.		Power on	608.012472	-0.000028	-0.05	2.50	2.45
		on 2 min.	608.012485	-0.000015	-0.02	2.50	2.48
		on 5 min.	608.012410	-0.000091	-0.15	2.50	2.35
		on 10 min.	608.012526	0.000025	0.04	2.50	2.46
20 deg.C.		Power on	608.012842	0.000341	0.56	2.50	1.94
		on 2 min.	608.012876	0.000376	0.62	2.50	1.88
		on 5 min.	608.012904	0.000404	0.66	2.50	1.84
		on 10 min.	608.013004	0.000504	0.83	2.50	1.67
10 deg.C.		Power on	608.013185	0.000685	1.13	2.50	1.37
		on 2 min.	608.013123	0.000623	1.02	2.50	1.48
		on 5 min.	608.013142	0.000642	1.06	2.50	1.44
		on 10 min.	608.013335	0.000835	1.37	2.50	1.13
0 deg.C.		Power on	608.012726	0.000225	0.37	-	-
		on 2 min.	608.012798	0.000297	0.49	-	-
		on 5 min.	608.012792	0.000292	0.48	-	-
		on 10 min.	608.012838	0.000338	0.56	-	-
-10deg.C.		Power on	608.012766	0.000266	0.44	-	-
		on 2 min.	608.011216	-0.001285	-2.11	-	-
		on 5 min.	608.011222	-0.001279	-2.10	-	-
		on 10 min.	608.011325	-0.001175	-1.93	-	-
-20 deg.C		Power on	608.009030	-0.003470	-5.71	-	-
		on 2 min.	608.009340	-0.003161	-5.20	-	-
		on 5 min.	608.009214	-0.003286	-5.40	-	-
		on 10 min.	608.009036	-0.003464	-5.70	-	-
-30 deg.C		Power on	608.006454	-0.006047	-9.94	-	-
		on 2 min.	608.006895	-0.005606	-9.22	-	-
		on 5 min.	608.006360	-0.006140	-10.10	-	-
		on 10 min.	608.005866	-0.006634	-10.91	-	-

Limit : 608.0125 MHz +/-0.00025 % (+/-2.5 ppm) = +/- 0.001520 MHz

*The test on 50 deg.C., 0 deg.C., -10 deg.C., -20 deg.C. and -30 deg.C. were reference data, since the specification of operating temperature of EUT was 10 deg.C to 40 deg.C. (It used the manufacturer's specified conditions (refer to FCC 95.2365))

Frequency Stability

Test place Shonan EMC Lab.
Date February 28, 2025 March 7, 2025 April 10, 2025 November 17, 2025
Temperature / Humidity 23 deg. C / 31 % RH 22 deg. C / 34 % RH 22 deg. C / 40 % RH 24 deg. C / 56 % RH
Engineer Makoto Hosaka Makoto Hosaka Yuta Shiba Kenichi Adachi
Mode Transmitting 611.0000 MHz

Test Condition deg.C Voltage		Test Timing	Measured frequency [MHz]	Frequency error [MHz]	Result [ppm]	Limit [+/- ppm]	Margin [ppm]
20 deg.C	DC 2.4 V (Vmin)	Power on	611.000301	0.000300	0.49	2.50	2.01
		on 2 min.	611.000319	0.000319	0.52	2.50	1.98
		on 5 min.	611.000364	0.000364	0.59	2.50	1.91
		on 10 min.	611.000257	0.000256	0.42	2.50	2.08
	DC 3 V (Vnom)	Power on	611.000601	0.000601	0.98	2.50	1.52
		on 2 min.	611.000367	0.000366	0.60	2.50	1.90
		on 5 min.	611.000370	0.000370	0.60	2.50	1.90
		on 10 min.	611.000360	0.000360	0.59	2.50	1.91
	DC 3.6 V (Vmax)	Power on	610.999615	-0.000385	-0.63	2.50	1.87
		on 2 min.	610.999538	-0.000463	-0.76	2.50	1.74
		on 5 min.	610.999525	-0.000475	-0.78	2.50	1.72
		on 10 min.	610.999430	-0.000570	-0.93	2.50	1.57
50 deg.C.		Power on	610.999319	-0.000681	-1.12	-	-
		on 2 min.	610.999375	-0.000625	-1.02	-	-
		on 5 min.	610.999350	-0.000650	-1.06	-	-
		on 10 min.	610.999401	-0.000600	-0.98	-	-
40 deg.C.		Power on	610.999479	-0.000521	-0.85	2.50	1.65
		on 2 min.	610.999619	-0.000381	-0.62	2.50	1.88
		on 5 min.	610.999344	-0.000656	-1.07	2.50	1.43
		on 10 min.	610.999466	-0.000534	-0.87	2.50	1.63
30 deg.C.		Power on	611.000032	0.000031	0.05	2.50	2.45
		on 2 min.	611.000048	0.000047	0.08	2.50	2.42
		on 5 min.	610.999929	-0.000071	-0.12	2.50	2.38
		on 10 min.	611.000029	0.000029	0.05	2.50	2.45
20 deg.C.		Power on	611.000601	0.000601	0.98	2.50	1.52
		on 2 min.	611.000367	0.000366	0.60	2.50	1.90
		on 5 min.	611.000370	0.000370	0.60	2.50	1.90
		on 10 min.	611.000360	0.000360	0.59	2.50	1.91
10 deg.C.	DC 3 V	Power on	611.000804	0.000804	1.32	2.50	1.18
		on 2 min.	611.000695	0.000695	1.14	2.50	1.36
		on 5 min.	611.000710	0.000710	1.16	2.50	1.34
		on 10 min.	611.000798	0.000797	1.31	2.50	1.19
0 deg.C.		Power on	611.000623	0.000622	1.02	-	-
		on 2 min.	611.000645	0.000644	1.05	-	-
		on 5 min.	611.000645	0.000645	1.05	-	-
		on 10 min.	611.000348	0.000347	0.57	-	-
-10deg.C.		Power on	610.998725	-0.001276	-2.09	-	-
		on 2 min.	610.998894	-0.001106	-1.81	-	-
		on 5 min.	610.998944	-0.001057	-1.73	-	-
		on 10 min.	610.998856	-0.001144	-1.87	-	-
-20 deg.C		Power on	610.996580	-0.003420	-5.60	-	-
		on 2 min.	610.996633	-0.003367	-5.51	-	-
		on 5 min.	610.996699	-0.003301	-5.40	-	-
		on 10 min.	610.996408	-0.003592	-5.88	-	-
-30 deg.C		Power on	610.993804	-0.006196	-10.14	-	-
		on 2 min.	610.994088	-0.005912	-9.68	-	-
		on 5 min.	610.993873	-0.006127	-10.03	-	-
		on 10 min.	610.993345	-0.006655	-10.89	-	-

Limit : 611 MHz +/-0.00025 % (+/-2.5 ppm) = +/- 0.001528 MHz

*The test on 50 deg.C., 0 deg.C., -10 deg.C., -20 deg.C. and -30 deg.C. were reference data, since the specification of operating temperature of EUT was 10 deg.C to 40 deg.C. (It used the manufacturer's specified conditions (refer to FCC 95.2365))

Frequency Stability

Test place Shonan EMC Lab.
Date February 28, 2025 March 7, 2025 April 10, 2025 November 17, 2025
Temperature / Humidity 23 deg. C / 31 % RH 22 deg. C / 34 % RH 22 deg. C / 40 % RH 24 deg. C / 56 % RH
Engineer Makoto Hosaka Makoto Hosaka Yuta Shiba Kenichi Adachi
Mode Transmitting 613.9875 MHz

Test Condition deg.C Voltage	Test Timing	Measured frequency [MHz]	Frequency error [MHz]	Result [ppm]	Limit [+/- ppm]	Margin [ppm]
20 deg.C	DC 2.4 V (Vmin)	Power on	613.987651	0.000151	0.25	2.50
		on 2 min.	613.987713	0.000213	0.35	2.15
		on 5 min.	613.987841	0.000341	0.56	1.94
		on 10 min.	613.987763	0.000263	0.43	2.07
	DC 3 V (Vnom)	Power on	613.987974	0.000473	0.77	2.50
		on 2 min.	613.987870	0.000370	0.60	2.50
		on 5 min.	613.987892	0.000391	0.64	2.50
		on 10 min.	613.987932	0.000432	0.70	2.50
	DC 3.6 V (Vmax)	Power on	613.986890	-0.000610	-0.99	2.50
		on 2 min.	613.986870	-0.000630	-1.03	2.50
		on 5 min.	613.986870	-0.000630	-1.03	2.50
		on 10 min.	613.986835	-0.000665	-1.08	2.50
50 deg.C.	DC 3 V	Power on	613.986788	-0.000712	-1.16	-
		on 2 min.	613.986800	-0.000700	-1.14	-
		on 5 min.	613.986910	-0.000591	-0.96	-
		on 10 min.	613.986844	-0.000656	-1.07	-
40 deg.C.	DC 3 V	Power on	613.987032	-0.000468	-0.76	2.50
		on 2 min.	613.986991	-0.000509	-0.83	2.50
		on 5 min.	613.986994	-0.000506	-0.82	2.50
		on 10 min.	613.987003	-0.000497	-0.81	2.50
30 deg.C.	DC 3 V	Power on	613.987401	-0.000100	-0.16	2.50
		on 2 min.	613.987472	-0.000028	-0.05	2.50
		on 5 min.	613.987323	-0.000177	-0.29	2.50
		on 10 min.	613.987470	-0.000030	-0.05	2.50
20 deg.C.	DC 3 V	Power on	613.987974	0.000473	0.77	2.50
		on 2 min.	613.987870	0.000370	0.60	2.50
		on 5 min.	613.987892	0.000391	0.64	2.50
		on 10 min.	613.987932	0.000432	0.70	2.50
10 deg.C.	DC 3 V	Power on	613.988170	0.000670	1.09	2.50
		on 2 min.	613.988126	0.000626	1.02	2.50
		on 5 min.	613.988117	0.000616	1.00	2.50
		on 10 min.	613.988204	0.000704	1.15	2.50
0 deg.C.	DC 3 V	Power on	613.988138	0.000638	1.04	-
		on 2 min.	613.988148	0.000648	1.06	-
		on 5 min.	613.988067	0.000566	0.92	-
		on 10 min.	613.987923	0.000423	0.69	-
-10deg.C.	DC 3 V	Power on	613.986316	-0.001184	-1.93	-
		on 2 min.	613.986503	-0.000997	-1.62	-
		on 5 min.	613.986406	-0.001094	-1.78	-
		on 10 min.	613.986472	-0.001028	-1.68	-
-20 deg.C	DC 3 V	Power on	613.983308	-0.004192	-6.83	-
		on 2 min.	613.983724	-0.003776	-6.15	-
		on 5 min.	613.983824	-0.003676	-5.99	-
		on 10 min.	613.983692	-0.003808	-6.20	-
-30 deg.C	DC 3 V	Power on	613.980935	-0.006565	-10.69	-
		on 2 min.	613.981229	-0.006271	-10.21	-
		on 5 min.	613.980917	-0.006584	-10.72	-
		on 10 min.	613.980395	-0.007105	-11.57	-

Limit : 613.9875 MHz +/-0.00025 % (+/-2.5 ppm) = +/- 0.001535 MHz

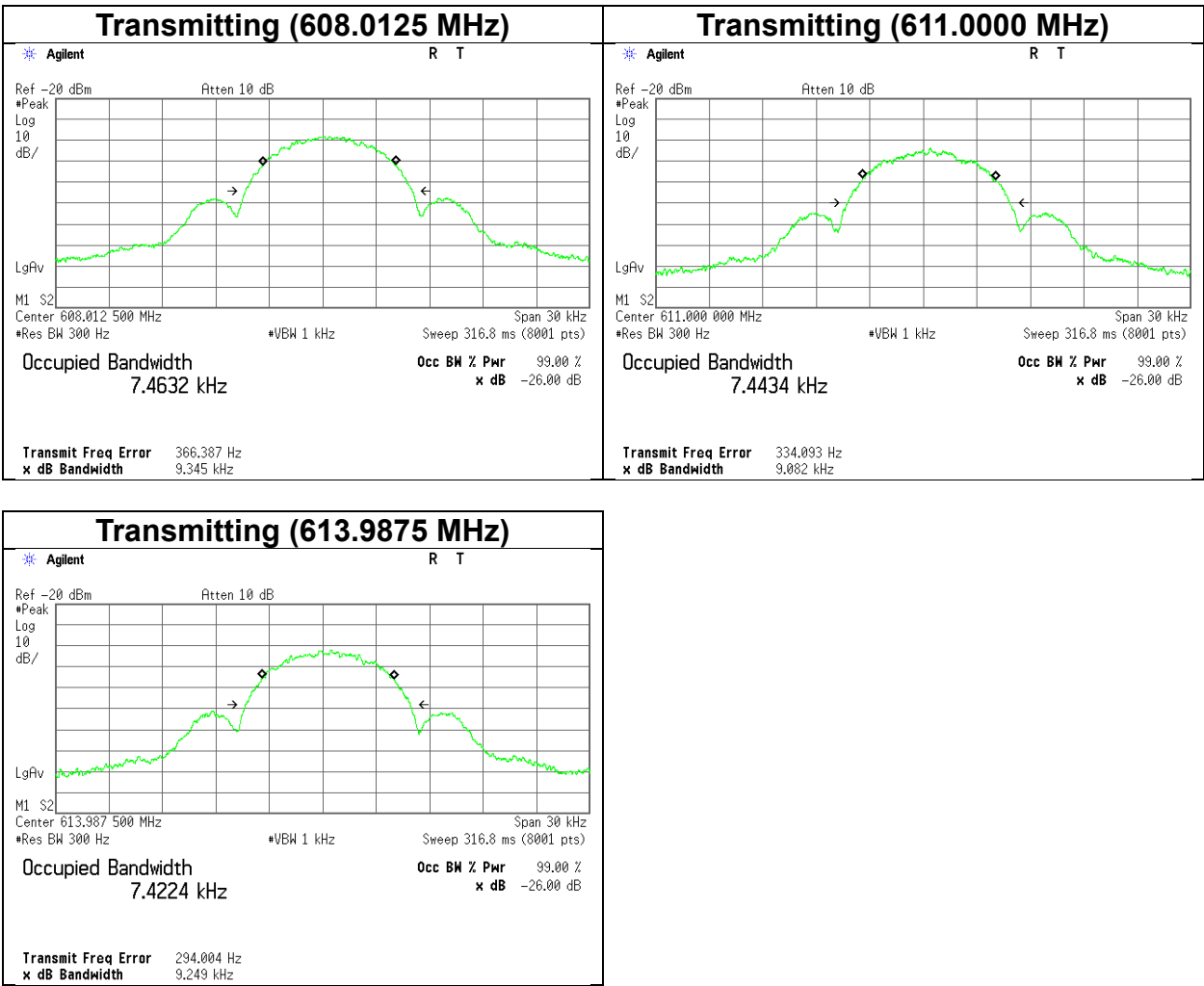
*The test on 50 deg.C., 0 deg.C., -10 deg.C., -20 deg.C. and -30 deg.C. were reference data, since the specification of operating temperature of EUT was 10 deg.C to 40 deg.C. (It used the manufacturer's specified conditions (refer to FCC 95.2365))

-26 dB Bandwidth and 99 % Occupied bandwidth

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	February 28, 2025
Temperature / Humidity	23 deg. C / 31 % RH
Engineer	Makoto Hosaka
Mode	Transmitting, High power

Frequency [MHz]	-26 dB bandwidth [kHz]	99 % Occupied bandwidth [kHz]
608.0125	9.345	7.463
611.0000	9.082	7.443
613.9875	9.249	7.422

No limit applied to -26 dB bandwidth



Field Strength (Electric Field Strength of Fundamental Emission, Spurious Emission and Band Edge Compliance)

Test place	Shonan EMC Lab. No.2 and 3 Semi Anechoic Chamber			
Date	January 27, 2025	February 21, 2025	February 23, 2025	April 16, 2025
Temperature / Humidity	20 deg. C / 26 % RH	23 deg. C / 68 % RH	23 deg. C / 29 % RH	22 deg. C / 32 % RH
Engineer	Kenichi Adachi	Kenichi Adachi	Hiromasa Sato	Masahide Ozaki
Mode	Transmitting 608.0125 MHz, High power			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	456.013	QP	27.11	16.95	7.73	31.68	20.11	46.00	25.89	100	169	
Hori.	608.000	QP	97.62	19.44	8.56	31.64	93.98	46.00	-	159	101	refer to Marker Delta Method table
Hori.	608.0125	QP	97.84	19.44	8.56	31.64	94.20	106.00	11.80	159	101	Carrier
Hori.	1216.025	Av	59.33	24.68	4.68	39.03	49.66	53.90	4.24	101	138	VBW 10 Hz
Hori.	1824.038	Av	52.22	25.09	4.64	39.00	42.95	53.90	10.95	100	149	VBW 10 Hz
Hori.	2432.050	Av	52.10	27.73	5.45	38.76	46.52	53.90	7.38	126	55	VBW 10 Hz
Hori.	3040.063	Av	51.63	28.47	6.05	38.36	47.79	53.90	6.11	100	68	VBW 10 Hz
Hori.	3648.075	Av	51.70	29.16	6.38	38.26	48.98	53.90	4.92	100	163	VBW 10 Hz
Hori.	4256.088	Av	51.32	30.02	6.80	38.37	49.77	53.90	4.13	100	163	VBW 10 Hz
Hori.	4864.100	Av	47.71	31.22	7.27	38.62	47.58	53.90	6.32	100	164	VBW 10 Hz
Hori.	5472.113	Av	42.87	32.07	7.71	38.94	43.71	53.90	10.19	100	329	VBW 10 Hz
Hori.	6080.125	Av	37.29	33.15	8.14	39.04	39.54	53.90	14.36	100	52	VBW 10 Hz
Vert.	456.013	QP	25.01	16.95	7.73	31.68	18.01	46.00	27.99	131	237	
Vert.	608.000	QP	94.22	19.44	8.56	31.64	90.58	46.00	-	201	8	refer to Marker Delta Method table
Vert.	608.0125	QP	94.44	19.44	8.56	31.64	90.80	106.00	15.20	201	8	Carrier
Vert.	1216.025	Av	62.39	24.68	4.68	39.03	52.72	53.90	1.18	103	223	VBW 10 Hz
Vert.	1824.038	Av	53.96	25.09	4.64	39.00	44.69	53.90	9.21	100	223	VBW 10 Hz
Vert.	2432.050	Av	52.79	27.73	5.45	38.76	47.21	53.90	6.69	100	232	VBW 10 Hz
Vert.	3040.063	Av	56.37	28.47	6.05	38.36	52.53	53.90	1.37	104	215	VBW 10 Hz
Vert.	3648.075	Av	52.46	29.16	6.38	38.26	49.74	53.90	4.16	100	278	VBW 10 Hz
Vert.	4256.088	Av	53.19	30.02	6.80	38.37	51.64	53.90	2.26	103	243	VBW 10 Hz
Vert.	4864.100	Av	44.94	31.22	7.27	38.62	44.81	53.90	9.09	103	248	VBW 10 Hz
Vert.	5472.113	Av	44.36	32.07	7.71	38.94	45.20	53.90	8.70	102	235	VBW 10 Hz
Vert.	6080.125	Av	35.55	33.15	8.14	39.04	37.80	53.90	16.10	103	237	VBW 10 Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

Marker Delta Method(Test distance 3 m)

		Polarity	AV			
			Hor.		Ver.	
			[dBuV]	[dBuV/m]	[dBuV]	[dBuV/m]
Step1	Fundamental(608.0125 MHz)	QP	97.8	94.2	94.4	90.8
Step2	Fundamental(608.0125 MHz)	1 kHz/3 kHz	98.2	94.5	94.4	90.7
	Band-edge(608 MHz)	1 kHz/3 kHz	44.6	40.9	43.1	39.4
	Amplitude delta	-	53.6	53.6	51.3	51.3
Step3	Field strength of band-edge	-	-	40.6	-	39.5
	Limit	-	-	46.0	-	46.0
	Margin	-	-	5.4	-	6.5

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

*1 Amplitude delta = Fundamental(RBW:1 kHz,VBW:3 kHz) - Band-edge(RBW:1 kHz,VBW:3 kHz)

*2 Field strength of band-edge = Fundamental(AV) - Amplitude delta

*As we stated at section 7 ("Bandedge" section), we used RBW = 1 kHz (greater than 1 % bandwidth) to prevent to detect in-band emission. Refer to KDB 971168 D01 (KDB 971168 D01 Power Meas Licence Digital System D03r01).

(for RF Exposure sheet)

[RF output power]

	radiated emission [dBuV/m]	EIRP [mW]
carrier	94.20	0.789
Level		

Calculation: (Radiated emission value refer to above table)

EIRP [mW] = (((10⁹Result [dBuV/m] / 20) x 10⁻⁶)

x (distance= 3 [m])²) / (30 x 1) x 10³

Field Strength (Electric Field Strength of Fundamental Emission, Spurious Emission)

Test place	Shonan EMC Lab. No.2 and 3 Semi Anechoic Chamber			
Date	January 27, 2025	February 21, 2025	February 23, 2025	April 16, 2025
Temperature / Humidity	20 deg. C / 26 % RH	23 deg. C / 68 % RH	23 deg. C / 29 % RH	22 deg. C / 32 % RH
Engineer	Kenichi Adachi	Kenichi Adachi	Hiromasa Sato	Masahide Ozaki
Mode	Transmitting 611.0000 MHz, High power			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	458.250	QP	27.97	16.98	7.74	31.68	21.01	46.00	24.99	100	171	
Hori.	611.0000	QP	98.46	19.51	8.58	31.64	94.91	106.00	11.09	160	110	carrier
Hori.	1222.000	Av	57.57	24.71	4.67	39.03	47.92	53.90	5.98	100	137	VBW 10 Hz
Hori.	1833.000	Av	51.43	25.10	4.64	39.00	42.17	53.90	11.73	100	145	VBW 10 Hz
Hori.	2444.000	Av	49.14	27.72	5.47	38.75	43.58	53.90	10.32	124	54	VBW 10 Hz
Hori.	3055.000	Av	48.92	28.52	6.07	38.36	45.15	53.90	8.75	100	72	VBW 10 Hz
Hori.	3666.000	Av	51.46	29.20	6.39	38.26	48.79	53.90	5.11	100	150	VBW 10 Hz
Hori.	4277.000	Av	49.66	30.06	6.82	38.38	48.16	53.90	5.74	100	156	VBW 10 Hz
Hori.	4888.000	Av	45.32	31.23	7.30	38.63	45.22	53.90	8.68	100	166	VBW 10 Hz
Hori.	5499.000	Av	41.30	32.08	7.73	38.96	42.15	53.90	11.75	100	325	VBW 10 Hz
Hori.	6110.000	Av	36.32	33.20	8.18	39.04	38.66	53.90	15.24	100	51	VBW 10 Hz
Vert.	458.250	QP	26.18	16.98	7.74	31.68	19.22	46.00	26.78	130	272	
Vert.	611.0000	QP	94.76	19.51	8.58	31.64	91.21	106.00	14.79	100	7	carrier
Vert.	1222.000	Av	60.86	24.71	4.67	39.03	51.21	53.90	2.69	103	219	VBW 10 Hz
Vert.	1833.000	Av	52.71	25.10	4.64	39.00	43.45	53.90	10.45	100	220	VBW 10 Hz
Vert.	2444.000	Av	50.78	27.72	5.47	38.75	45.22	53.90	8.68	102	217	VBW 10 Hz
Vert.	3055.000	Av	53.70	28.52	6.07	38.36	49.93	53.90	3.97	105	213	VBW 10 Hz
Vert.	3666.000	Av	53.22	29.20	6.39	38.26	50.55	53.90	3.35	100	233	VBW 10 Hz
Vert.	4277.000	Av	48.85	30.06	6.82	38.38	47.35	53.90	6.55	100	220	VBW 10 Hz
Vert.	4888.000	Av	44.38	31.23	7.30	38.63	44.28	53.90	9.62	103	276	VBW 10 Hz
Vert.	5499.000	Av	41.89	32.08	7.73	38.96	42.74	53.90	11.16	102	241	VBW 10 Hz
Vert.	6110.000	Av	35.74	33.20	8.18	39.04	38.08	53.90	15.82	101	237	VBW 10 Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

(for RF Exposure sheet)

[RF output power]

	radiated emission [dBuV/m]	EIRP [mW]
carrier	94.91	0.929
Level		

Calculation: (*Radiated emission value refer to above table)

EIRP [mW] = (((10^{Result [dBuV/m]} / 20) × 10⁻⁶))

× (distance= 3 [m])² / (30 × 1) × 10³

Field Strength (Electric Field Strength of Fundamental Emission, Spurious Emission and Band Edge Compliance)

Test place	Shonan EMC Lab. No.2 and 3 Semi Anechoic Chamber			
Date	January 27, 2025	February 21, 2025	February 23, 2025	April 16, 2025
Temperature / Humidity	20 deg. C / 26 % RH	23 deg. C / 68 % RH	23 deg. C / 29 % RH	22 deg. C / 32 % RH
Engineer	Kenichi Adachi	Kenichi Adachi	Hiromasa Sato	Masahide Ozaki
Mode	Transmitting 613.9875 MHz, High power			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	460.488	QP	28.54	17.01	7.75	31.68	21.62	46.00	24.38	100	169	
Hori.	613.9875	QP	99.26	19.58	8.60	31.64	95.80	106.00	10.20	159	109	carrier
Hori.	614.000	QP	98.92	19.58	8.60	31.64	95.46	46.00	-	159	109	refer to Marker Delta Method table
Hori.	1227.975	Av	56.87	24.73	4.66	39.03	47.23	53.90	6.67	100	139	VBW 10 Hz
Hori.	1841.963	Av	47.33	25.12	4.65	39.00	38.10	53.90	15.80	100	147	VBW 10 Hz
Hori.	2455.950	Av	48.57	27.70	5.50	38.74	43.03	53.90	10.87	118	51	VBW 10 Hz
Hori.	3069.938	Av	47.65	28.55	6.07	38.35	43.92	53.90	9.98	100	53	VBW 10 Hz
Hori.	3683.925	Av	50.05	29.22	6.40	38.26	47.41	53.90	6.49	100	143	VBW 10 Hz
Hori.	4297.913	Av	47.11	30.11	6.84	38.39	45.67	53.90	8.23	100	158	VBW 10 Hz
Hori.	4911.900	Av	42.63	31.27	7.32	38.64	42.58	53.90	11.32	100	167	VBW 10 Hz
Hori.	5525.888	Av	38.19	32.08	7.75	38.96	39.06	53.90	14.84	100	334	VBW 10 Hz
Hori.	6139.875	Av	36.83	33.27	8.19	39.05	39.24	53.90	14.66	100	43	VBW 10 Hz
Vert.	460.488	QP	26.78	17.01	7.75	31.68	19.86	46.00	26.14	132	267	
Vert.	613.9875	QP	94.85	19.58	8.60	31.64	91.39	106.00	14.61	100	8	carrier
Vert.	614.000	QP	94.68	19.58	8.60	31.64	91.22	46.00	-	100	8	refer to Marker Delta Method table
Vert.	1227.975	Av	60.58	24.73	4.66	39.03	50.94	53.90	2.96	103	205	VBW 10 Hz
Vert.	1841.963	Av	51.26	25.12	4.65	39.00	42.03	53.90	11.87	100	211	VBW 10 Hz
Vert.	2455.950	Av	49.88	27.70	5.50	38.74	44.34	53.90	9.56	100	226	VBW 10 Hz
Vert.	3069.938	Av	52.27	28.55	6.07	38.35	48.54	53.90	5.36	103	216	VBW 10 Hz
Vert.	3683.925	Av	50.86	29.22	6.40	38.26	48.22	53.90	5.68	100	280	VBW 10 Hz
Vert.	4297.913	Av	44.75	30.11	6.84	38.39	43.31	53.90	10.59	100	209	VBW 10 Hz
Vert.	4911.900	Av	48.38	31.27	7.32	38.64	48.33	53.90	5.57	103	257	VBW 10 Hz
Vert.	5525.888	Av	38.32	32.08	7.75	38.96	39.19	53.90	14.71	102	231	VBW 10 Hz
Vert.	6139.875	Av	34.81	33.27	8.19	39.05	37.22	53.90	16.68	102	233	VBW 10 Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

Marker Delta Method(Test distance 3 m)

			AV			
		Polarity	Hor.		Ver.	
		RBW V/BW	[dBuV]	[dBuV/m]	[dBuV]	[dBuV/m]
			Reading	Result	Reading	Result
Step1	Fundamental(613.9875 MHz)	QP	99.3	95.8	94.9	91.4
Step2	Fundamental(613.9875 MHz)	1 kHz/3 kHz	97.8	94.3	96.5	93.0
	Band-edge(614 MHz)	1 kHz/3 kHz	42.8	39.4	42.5	39.0
	Amplitude delta	-	54.9	54.9	54.0	54.0
Step3	Field strength of band-edge	-	-	40.9	-	37.4
	Limit	-	-	46.0	-	46.0
	Margin	-	-	5.1	-	8.6

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

*1 Amplitude delta = Fundamental(RBW:1 kHz,VBW:3 kHz) - Band-edge(RBW:1 kHz,VBW:3 kHz)

*2 Field strength of band-edge = Fundamental(AV) - Amplitude delta

*As we stated at section 7 ("Bandedge" section), we used RBW = 1 kHz (greater than 1 % bandwidth) to prevent to detect in-band emission. Refer to KDB 971168 D01 (KDB 971168 D01 Power Meas Licence Digital System D03r01).

(for RF Exposure sheet)

[RF output power]

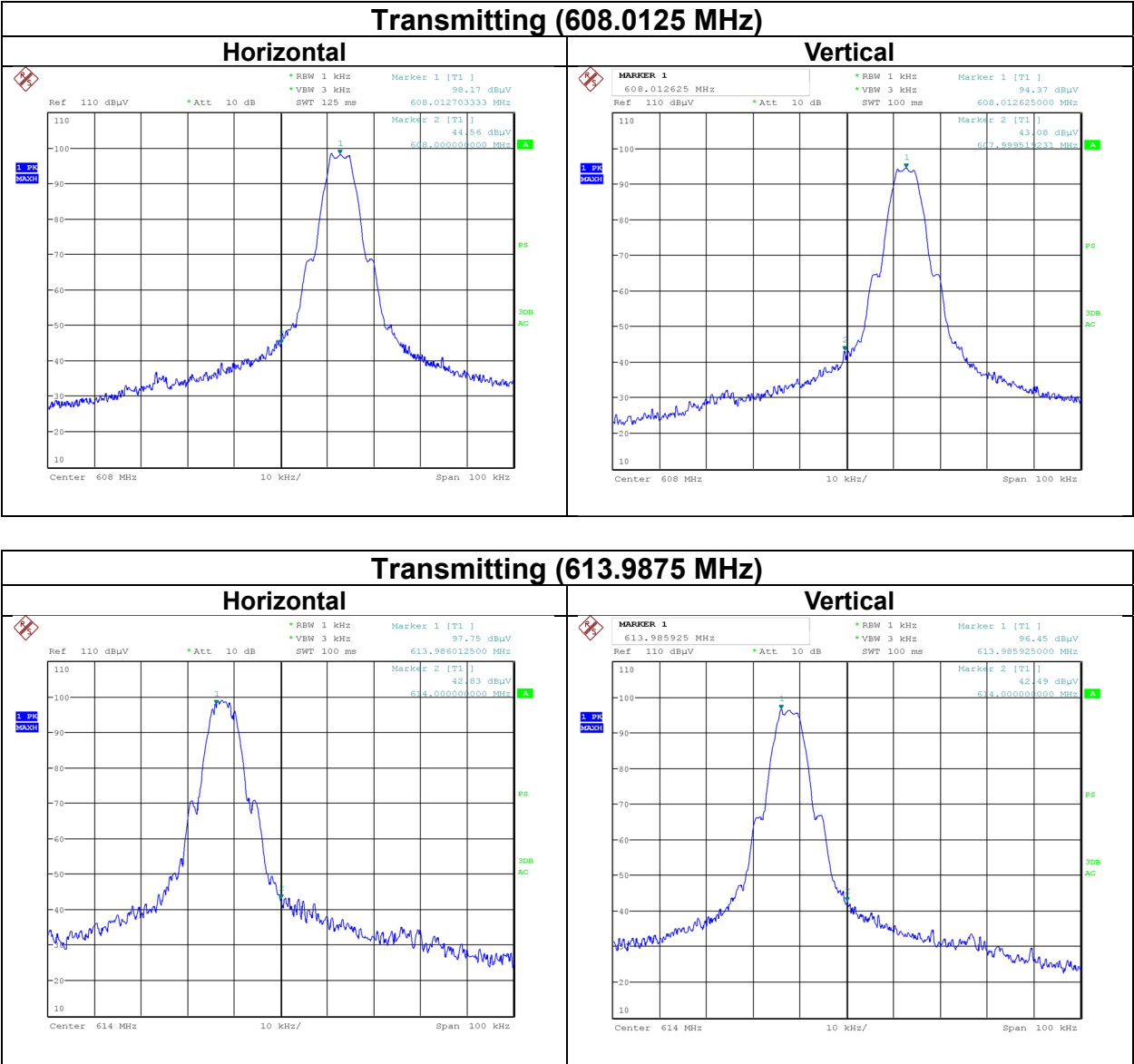
	radiated emission [dBuV/m]	EIRP [mW]
carrier	95.80	1.141
Level		

Calculation: (*Radiated emission value refer to above table)

EIRP [mW] = (((10^{Result [dBuV/m]} / 20) × 10⁻⁶)

× (distance=3 [m])²) / (30 × 1) × 10³

Field Strength (Electric Field Strength of Fundamental Emission, Spurious Emission and Band Edge Compliance)
Band Edge compliance (for Maker Delta Method)



Field Strength (Electric Field Strength of Fundamental Emission, Spurious Emission and Band Edge Compliance)

Test place Shonan EMC Lab. No.2 Semi Anechoic Chamber
Date February 21, 2025
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Kenichi Adachi
Mode Transmitting 608.0125 MHz, Low power

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	608.000	QP	93.98	19.44	8.56	31.64	90.34	46.00	-	160	109	refer to Marker Delta Method table
Hori.	608.0125	QP	94.21	19.44	8.56	31.64	90.57	106.00	15.43	160	109	Carrier
Vert.	608.000	QP	90.37	19.44	8.56	31.64	86.73	46.00	-	203	7	refer to Marker Delta Method table
Vert.	608.0125	QP	90.88	19.44	8.56	31.64	87.24	106.00	18.76	203	7	Carrier

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

Marker Delta Method(Test distance 3 m)

		Polarity	AV			
			Hor.		Ver.	
		RBW \ VBW	[dBuV] Reading	[dBuV/m] Result	[dBuV] Reading	[dBuV/m] Result
Step1	Fundamental(608.0125 MHz)	QP	94.2	90.6	90.9	87.2
Step2	Fundamental(608.0125 MHz)	1 kHz/3 kHz	94.2	90.5	90.8	87.1
	Band-edge(608 MHz)	1 kHz/3 kHz	41.9	38.2	38.2	34.6
	Amplitude delta	-	52.3	52.3	52.6	52.6
Step3	Field strength of band-edge	-	-	38.3	-	34.7
	Limit	-	-	46.0	-	46.0
	Margin	-	-	7.7	-	11.3

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

*1 Amplitude delta = Fundamental(RBW:1 kHz,VBW:3 kHz) - Band-edge(RBW:1 kHz,VBW:3 kHz)

*2 Field strength of band-edge = Fundamental(AV) - Amplitude delta

*As we stated at section 7 ("Bandedge" section), we used RBW = 1 kHz (greater than 1 % bandwidth) to prevent to detect in-band emission. Refer to KDB 971168 D01 (KDB 971168 D01 Power Meas Licence Digital System D03r01).

(for RF Exposure sheet)

[RF output power]

	radiated emission [dBuV/m]	EIRP [mW]
carrier	90.57	0.342
Level		

Calculation: (*Radiated emission value refer to above table)

EIRP [mW] = (((10⁹Result [dBuV/m] / 20) x 10⁹(-6))

x (distance=) 3 [m])²) / (30 x 1) x 10³

Field Strength (Electric Field Strength of Fundamental Emission, Spurious Emission)

Test place Shonan EMC Lab. No.2 Semi Anechoic Chamber
Date February 21, 2025
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Kenichi Adachi
Mode Transmitting 611.0000 MHz, Low power

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	611.0000	QP	94.18	19.51	8.58	31.64	90.63	106.00	15.37	161	111	carrier
Vert.	611.0000	QP	91.33	19.51	8.58	31.64	87.78	106.00	18.22	202	2	carrier

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

(for RF Exposure sheet)

[RF output power]

	radiated emission [dBuV/m]	EIRP [mW]
carrier Level	90.63	0.347

Calculation: (*Radiated emission value refer to above table)

Result 1 [mW] = (((10^(Result [dBuV/m] / 20) × 10⁽⁻⁶⁾)

× (distance=) 3 [m])² / (30 × (gain=) 10^(-7.607 dB / 10)) × 10⁹

Field Strength (Electric Field Strength of Fundamental Emission, Spurious Emission and Band Edge Compliance)

Test place Shonan EMC Lab. No.2 Semi Anechoic Chamber
Date February 21, 2025
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Kenichi Adachi
Mode Transmitting 613.9875 MHz, Low power

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	613.9875	QP	96.06	19.58	8.60	31.64	92.60	106.00	13.40	157	109	carrier
Hori.	614.000	QP	95.54	19.58	8.60	31.64	92.08	46.00	-	157	109	refer to Marker Delta Method table
Vert.	613.9875	QP	92.24	19.58	8.60	31.64	88.78	106.00	17.22	100	13	carrier
Vert.	614.000	QP	91.76	19.58	8.60	31.64	88.30	46.00	-	100	13	refer to Marker Delta Method table

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).
*The 10th harmonic was not seen so the result was its base noise level.

Marker Delta Method(Test distance 3 m)

		Polarity	AV			
			Hor.		Ver.	
		RBW \ VBW	[dBuV] Reading	[dBuV/m] Result	[dBuV] Reading	[dBuV/m] Result
Step1	Fundamental(613.9875 MHz)	QP	96.1	92.6	92.2	92.2
Step2	Fundamental(613.9875 MHz)	1 kHz/3 kHz	96.0	92.5	92.2	88.7
	Band-edge(614 MHz)	1 kHz/3 kHz	42.7	39.2	38.8	35.3
	Amplitude delta	-	53.3	53.3	53.4	53.4
Step3	Field strength of band-edge	-	-	39.3	-	38.9
	Limit	-	-	46.0	-	46.0
	Margin	-	-	6.7	-	7.1

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)
*1 Amplitude delta = Fundamental(RBW:1 kHz,VBW:3 kHz) - Band-edge(RBW:1 kHz,VBW:3 kHz)
*2 Field strength of band-edge = Fundamental(AV) - Amplitude delta
*As we stated at section 7 ("Bandedge" section), we used RBW = 1 kHz(greater than 1 % bandwidth) to prevent to detect in-band emission. Refer to KDB 971168 D01 (KDB 971168 D01 Power Meas Licence Digital System D03r01).

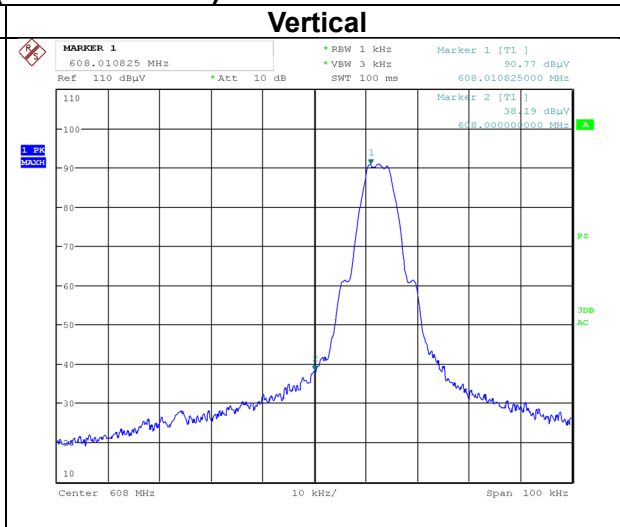
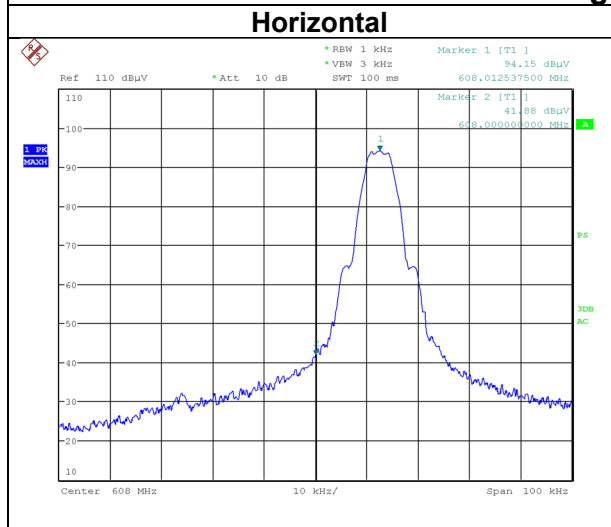
(for RF Exposure sheet)
[RF output power]

	radiated emission [dBuV/m]	EIRP [mW]
carrier	92.60	0.546
Level		

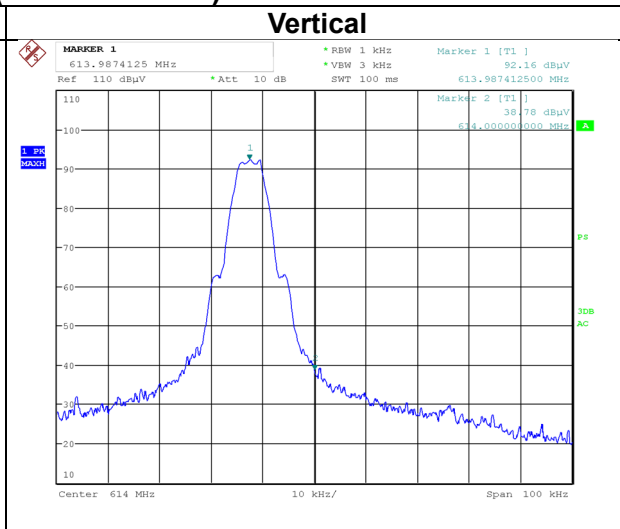
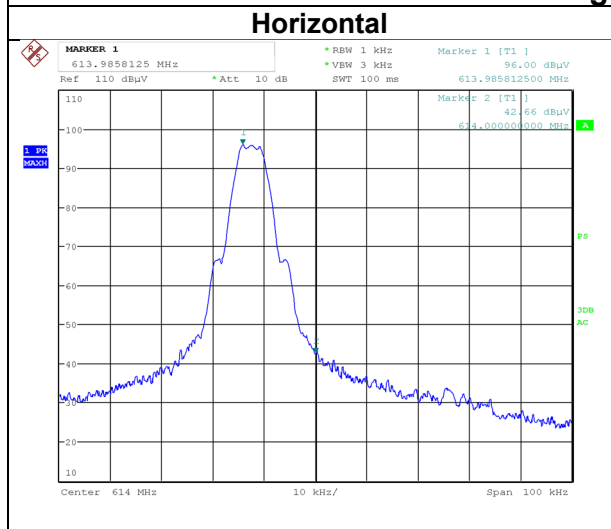
Calculation: (*Radiated emission value refer to above table)
Result 1 [mW] = (((10⁹Result [dBuV/m] / 20) x 10⁹-6))
x (distance=) 3 [m]) ² / (30 x (gain=) 10⁹ -5.638 dB / 10)) x 10³

Band Edge compliance (for Maker Delta Method)

Transmitting (608.0125 MHz)



Transmitting (613.9875 MHz)



APPENDIX 2: Test Instruments

Test Equipment [1/3] (January 27, 2025 to April 16, 2025)

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
Freq	145200	Temperature and Humidity Chamber	Espec	PL-1KT	14020837	2025/04/10	12
Freq	175822	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	-	2024/08/11	12
Freq, BW	201085	Constant Climate Cabinet	Espec	LHU-124	1013000486	2024/10/11	12
Freq, BW	146178	Search coil	Langer	RF-R 400-1	02-0634	-	-
Freq, BW	145089	Spectrum Analyzer	Keysight Technologies Inc	E4446A	MY46180525	2024/08/19	12
Freq, BW, RE	191840	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	-	2024/08/12	12
RE	146105	Antenna Tilt Jig	Intelligent System Engineering Co., Ltd	Antenna Tilt Jig	T-S003	-	-
RE	150921	Attenuator	JFW	50HF-003N	-	2025/02/19	12
RE	167096	Attenuator	JFW	50HF-006N	-	2025/02/19	12
RE	248305	Attenuator	JFW	50HFFA-006-2/18N	-	2025/05/14	12
RE	145022	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	BBA9106	91032665	2025/04/22	12
RE	166491	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S005	2024/12/13	12
RE	178573	Coaxial Cable	Huber+Suhner	SUCOFLEX 104 E	MY13407/4E	2025/03/11	12
RE	194601	Coaxial Cable	Fjikura	5D-2W	-	2024/11/21	12
RE	196985	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	803650/2	2025/03/14	12
RE	243212	Coaxial Cable	Hayashi-Repic co., Ltd.	SMS13-13A26-NMS13-9.0m	49306-01-01	2024/06/12	12
RE	243215	Coaxial Cable	Hayashi-Repic co., Ltd.	SMS13-13A26-NMS13-9.0m	49306-01-03	2024/06/12	12
RE	144975	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-270(RF Selector)	2025/04/05	12
RE	144976	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-270(RF Selector)	2025/04/05	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	145792	Digital Hitester	HIOKI E. E. CORPORATION	3805-50	80997812	2024/09/24	12
RE	146210	Digital Hitester	HIOKI E. E. CORPORATION	3805-50	80997823	2024/09/24	12
RE	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,ME,PE)	Ver 3.1.0546	-	-
RE	145300	Highpass Filter	Micro-Tronics	HPM50115	1	2024/10/10	12
RE	145383	Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	9120D-725	2025/03/03	12
RE	145384	Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	9120D-726	2025/03/11	12
RE	236418	Logperiodic Antenna	Schwarzbeck Mess-Elektronik OHG	VULP 9118 B	00975	2024/07/03	12
RE	245074	Loop(Active) Antenna	ETS-Lindgren	6502	00262458	2025/04/09	12
RE	145004	Pre Amplifier	SONOMA	310N	290212	2025/02/19	12
RE	145126	Pre Amplifier	SONOMA	310N	290213	2025/02/19	12
RE	145127	Pre Amplifier	Toyo Corporation	TPA0118-36	2072554	2024/05/08	12
RE	145128	Pre Amplifier	Toyo Corporation	TPA0118-36	1440490	2024/05/08	12
RE	145568	Semi Anechoic Chamber(ME)	TDK	Semi Anechoic Chamber 3m/10m	1, 2, 3	2024/10/12	24
RE	145563	Semi-Anechoic Chamber	TDK	SAEC-02(NSA)	2	2025/03/05	12

Test Equipment [2/3] (January 27, 2025 to April 16, 2025)

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2025/04/07	12
RE	146432	Tape Measure	TAJIMA	GL19-55	-	-	-
RE	207277	Tape Measure	ASKUL	-	-	-	-
RE	207279	Tape Measure	ASKUL	-	-	-	-
RE	145790	Test Receiver	Rohde & Schwarz	ESU40	100093	2025/04/18	12
RE	213530	Test Receiver	Rohde & Schwarz	ESW44	103068	2025/02/12	12
RE	167990	Thermo-Hygrometer	CUSTOM. Inc	CTH-202	708Q08R	2024/08/11	12
RE	235739	Thermo-Hygrometer	CUSTOM. Inc	CTH-230	-	2025/04/16	12

Test Equipment [3/3] (November 17, 2025)

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
Freq	146178	Search coil	Langer	RF-R 400-1	02-0634	-	-
Freq	236410	Spectrum Analyzer	Keysight Technologies Inc	N9030B	MY63050151	2025/04/29	12
Freq	259714	Thermo-Hygrometer	CUSTOM. Inc	CTH-230	-	2025/04/11	12
Freq	146212	Digital Hitester	HIOKI E. E. CORPORATION	3805-50	80997828	2025/09/10	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:

Freq: Frequency Stability

BW: -26 dB Bandwidth and 99 % Occupied bandwidth

RE: Radiated Emission