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Test Report on

Radio Emissions

per

Japan: Radio Law: Article 2, Paragraph 1, Item 8 (Emissions)
ANT: Density Antenna Specification (Performance)

are herein reported for

Density Inc. Waffle

Test Report No.: 20250826-RPTDENS100402Ar4

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Date of Issue: August 26, 2025

Results of testing completed on or before October 13, 2025 are as follows.

AUT Performance: Antenna Under Test (AUT) measurements completed on or before October 13, 2025 are summarized in the following pages. Detailed measurement procedures employed in characterizing the AUT(s), followed by individual pages of data showing the key results of testing are included herein.

Emissions: The transmitter intentional emissions **COMPLY** with the regulatory limit(s) by no less than 7.0 dB. Transmit chain spurious or harmonic emissions **COMPLY** by no less than 7.4 dB.

Revision History

Rev. No.	Date	Details	Revised By
r0	August 26, 2025	Initial Release.	J. Brunett
r1	September 6, 2025	New contact info.	J. Brunett
r2	September 25, 2025	Address TCB Comments.	J. Brunett
r3	October 14, 2025	Retest per TCB Request.	J. Brunett
r4	October 16, 2025	Address TCB Comments.	J. Brunett

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Test Result Summary Table

JRL Rule Part	Technical Requirement	Testing State	Result		Comment		
			C	NC	NA	MD	NE
Article 6.4.2	Frequency Range	Transmitter Enabled	X				
Article 49-14		Transmitter Disabled	X		X		
Article 5	Frequency Tolerance	Transmitter Enabled	X				
Annex 1. Table 9.34		Transmitter Disabled	X		X		
Article 6	Occupied Bandwidth	Transmitter Enabled	X				
Annex 2.28		Transmitter Disabled	X		X		
Article 49-14.12	Antenna Power	Transmitter Enabled	X				
Article 49-14.13		Transmitter Disabled	X		X		
Article 4-4, 4	Antenna Power Tolerance	Transmitter Enabled	X				
Article 14. Table 9		Transmitter Disabled	X		X		
Article 49-14.12	EIRP	Transmitter Enabled	X				
Article 49-14.13		Transmitter Disabled	X		X		
Article 49-14.13	Transmission Antenna Gain	Transmitter Enabled	X			X	
		Transmitter Disabled	X		X		
Article 7	Unwanted Emission Strength	Transmitter Enabled	X				
Annex 3. 61		Transmitter Disabled	X				
Article 24.2	Secondary Radiated Emission Strength	Transmitter Enabled	X				
		Transmitter Disabled	X				
Article 49-14.12	Housing Requirements	Transmitter Enabled	X			X	
Article 49-14.13		Transmitter Disabled	X				
Article 49-14.12	Radio Emission Stop Function	Transmitter Enabled	X			X	
		Transmitter Disabled	X				
Article 49-14.12	Transmission Time Restriction	Transmitter Enabled	X				
		Transmitter Disabled	X		X		
Article 49-14.13	Carrier Sensing Function	Transmitter Enabled	X			X	
		Transmitter Disabled	X		X		
Article 9-4.3	Interference Prevention Function	Transmitter Enabled	X			X	
Article 6-2.5		Transmitter Disabled	X		X		
Article 15.1	Condition for Frequency Stabilization	Voltage Fluctuation	X				
Article 15.2		Environment	X				
Article 15.3		Vibration	X				X

C: EUT is Compliant, NC: EUT is Not Compliant,

NA: Not applicable to the EUT, MD: See the Manufacturer's Declaration, NE: Not evaluated

NOTE: RADAR Device alternates Tx and Rx during normal operation. Measurements of both Transmitter Enabled and Transmitter Disabled are covered under normal operating mode.

1 Test Report Scope and Limitations

1.1 Laboratory Authorization

Facility description and OATS attenuation characteristics are on file with NVLAP under AHD, LC accreditation no 200129-0.

1.2 Report Retention

For equipment verified to comply with the regulations herein, the manufacturer is obliged to retain this report with the product records for the life of the product, and no less than ten years. A copy of this Report will remain on file with this laboratory until September 2035.

1.3 Subcontracted Testing

This report does not contain data produced under subcontract.

1.4 Limitation of Results

The test results contained in this report relate only to the item(s) tested. Any electrical or mechanical modification made to the test item subsequent to the test date shall invalidate the data presented in this report. Any electrical or mechanical modification made to the test item subsequent to this test date shall require reevaluation.

1.5 Copyright

This report shall not be reproduced, except in full, without the written approval of Willow Run (WR) Test Labs, Inc.

1.6 Endorsements

This report shall not be used to claim product endorsement by any accrediting, regulatory, or governmental agency.

1.7 Test Location

The EUT AUT was fully tested by **Willow Run (WR) Test Labs, Inc.**, headquartered at 7117 Fieldcrest Dr., Brighton, Michigan 48116 USA. Table 1.7.0 lists all sites employed herein. Specific test sites utilized are also listed in the test results sections of this report where needed.

Table 1.7.0 Test Site List.

Description	Location	Quality Num.
OATS (3 m)	3615 E Grand River Rd., Williamston, Michigan 48895	OATSD

1.8 Traceability and Equipment Used

Pertinent test equipment used for measurements at this facility is listed in Table 1.8.0. The quality system employed at Willow Run (WR) Test Labs, Inc. has been established to ensure all equipment has a clearly identifiable classification, calibration expiry date, and that all calibrations are traceable to the SI through NIST, other recognized national laboratories, accepted fundamental or natural physical constants, ratio type of calibration, or by comparison to consensus standards. All equipment is evaluated on a cycle no greater than 12 months following laboratory validation procedures and is calibrated following manufacturer recommended intervals.

Table 1.8.0 Equipment List.

Description	Manufacturer/Model	SN	Quality Num.	Cal/Ver By / Date Due
Spectrum Analyzer	R & S / FSW67	103233	RSFSW67	RS ^(ha) / 2026/09/15
Harmonic Mixer	VDI / SAX 108	A30316	MIX60TO9001	AHD ⁽ⁿⁱ⁾ / On-Use
Biconical	EMCO / 93110B	9802-3039	BICEMCO01	Keysight ^(ha) / 2027/08/06
Log Periodic Antenna	EMCO / 3146	9305-3614	LOGEMCO01	Keysight ^(ha) / 2027/08/13
Quad Ridge Horn	Singer / A6100	C35200	HQR1TO18S01	Keysight ^(ha) / 2026/08/05
K-Band Horn	JEF / NRL Std.	001	HRNK01	AHD ⁽ⁿⁱ⁾ / On Use
Ka-Band Horn	JEF / NRL Std.	001	HRNKA001	AHD ⁽ⁿⁱ⁾ / On Use
U-Band Horn	Cust. Micro. / HO19R	-	HRNU01	Cust.M. ⁽ⁿⁱ⁾ / On-Use
E-Band Horn	Flann / 26240-25-1030B	250901	HRNE01	Flann ⁽ⁿⁱ⁾ / On-Use
W-Band Horn	Cust. Micro. / HO10R	-	HRNW01	Cust.M. ⁽ⁿⁱ⁾ / On-Use

As indicated above, all equipment calibrations align with the methods permitted under Article 24-2, Paragraph 4, Item 2 of the Japan Radio Law items: *(ha)*: Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraphs (1), or *(ni)*: Calibration conducted by using other equipment that listed above from (i) to (ha) of the standard.

2 Test Specifications and Procedures

2.1 Test Specification and General Procedures

The goal of Density Inc. is to demonstrate that the Equipment Under Test (EUT) complies with the Rules and/or Directives below. Detailed in this report are the results of testing the Density Inc. Waffle for compliance to:

Country/Region/Manu.	Rules or Directive	Referenced Section(s)
Japan	Japan Radio Law	Radio Law: Article 2, Paragraph 1, Item 8

It has been determined that the equipment under test is subject to the rules and directives above at the date of this testing. In conjunction with these rules and directives, the following specifications and procedures are followed herein to demonstrate compliance (in whole or in part) with these regulations.

ANSI C63.5:2017	"Radiated Emission Measurements in Electromagnetic Interference (EMI) Control — Calibration and Qualification of Antennas (9 kHz to 40 GHz)"
TELEC-T320 e2.1	MIC Approved TELEC Procedure "Characteristic Test Method for 60GHz Band Specific Low-power Equipment for Mobile Detection Sensors."

3 Configuration and Identification of the Equipment Under Test

3.1 Description and Declarations

The EUT is an indoor field disturbance sensor. The EUT is approximately 8 x 8 x 2 cm in dimension, and is depicted in Figure 3.1.0 . It is powered by 100 Vac AC power adapter. In use, this device is permanently affixed by professional installers above a door or on a wall in a commercial room or office. Table 3.1.0 outlines provider declared EUT specifications.

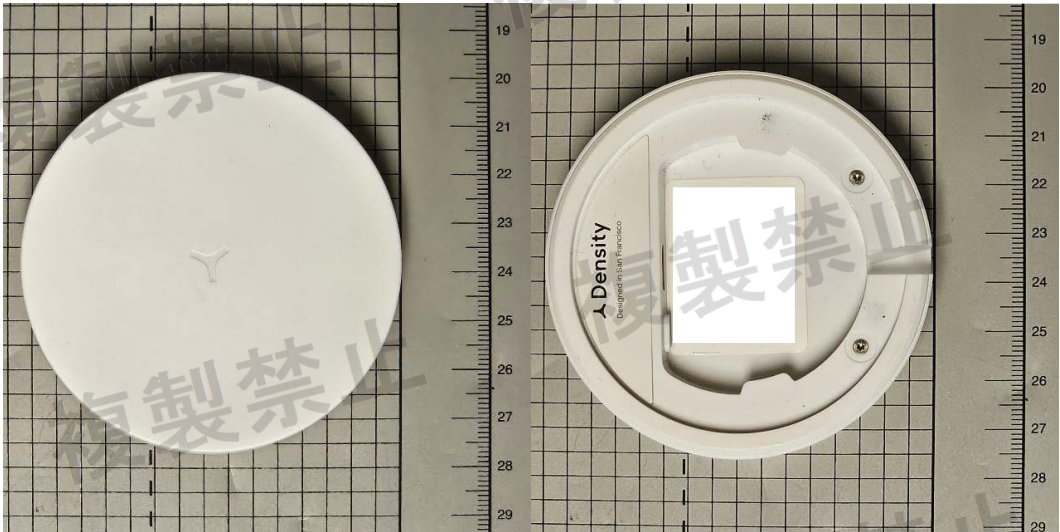


Figure 3.1.0 Photos of EUT.

Table 3.1.0 EUT Declarations.

General Declarations	
Equipment Type:	Field Disturbance Sensor
Country of Origin:	USA
Nominal Supply:	100 Vac
Oper. Temp Range:	0°C to +35°C (manuf. declared)
Frequency Range:	59.9 to 61.5 GHz
Antenna Dimension:	6cm
Antenna Type:	integral patch arrays
Antenna Gain:	9 dBi (TX1+TX2 arrayed), 6.8 dBi alone
Number of Channels:	1
Channel Spacing:	Not Applicable
Alignment Range:	Not Declared
Type of Modulation:	FMCW - ON TIME 27us, PERIOD 255us, Emission Designator: 1G48N0N

3.1.1 EUT Configuration

The EUT is configured for testing as depicted in Figure 3.1.1 .

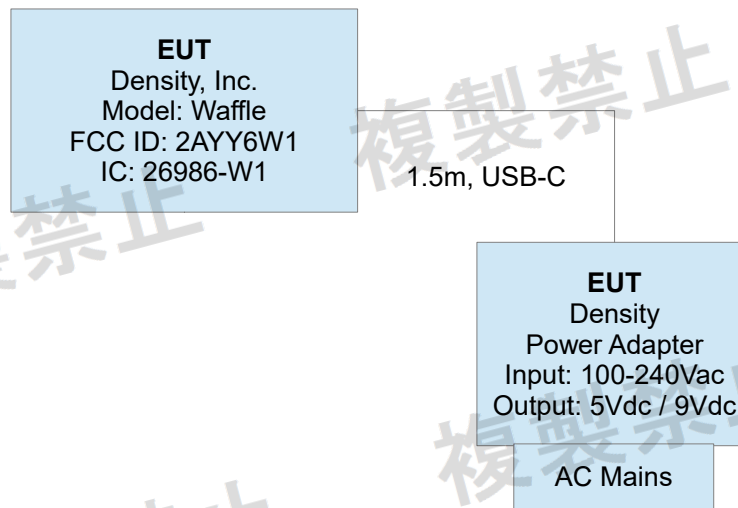


Figure 3.1.1 EUT Test Configuration Diagram.

3.1.2 Modes of Operation

The EUT is fully tested for with a wideband FMCW chirp.

3.1.3 Variants

There is only a single variant of the EUT, as tested.

3.1.4 Test Samples

Two normal operating samples were provided for testing.

3.1.5 Functional Exerciser

Normal operating EUT functionality was verified prior to testing by observation of the emissions spectrum.

3.1.6 Modifications Made

There were no modifications made to the EUT by this laboratory.

3.1.7 Production Intent

The EUT appears to be a production ready sample.

3.1.8 Declared Exemptions and Additional Product Notes

This product is professionally installed in commercial environments. In addition to its radar functionality, the EUT implements a pre-certified modular muRata BLE/WILAN transceiver Model LBES5PL2EL, MIC Approval R 001-P02018 following the module manufacturer's guidelines, and was verified to remain in compliance during testing performed in this report. All testing performed here is completed with the modular radio active.

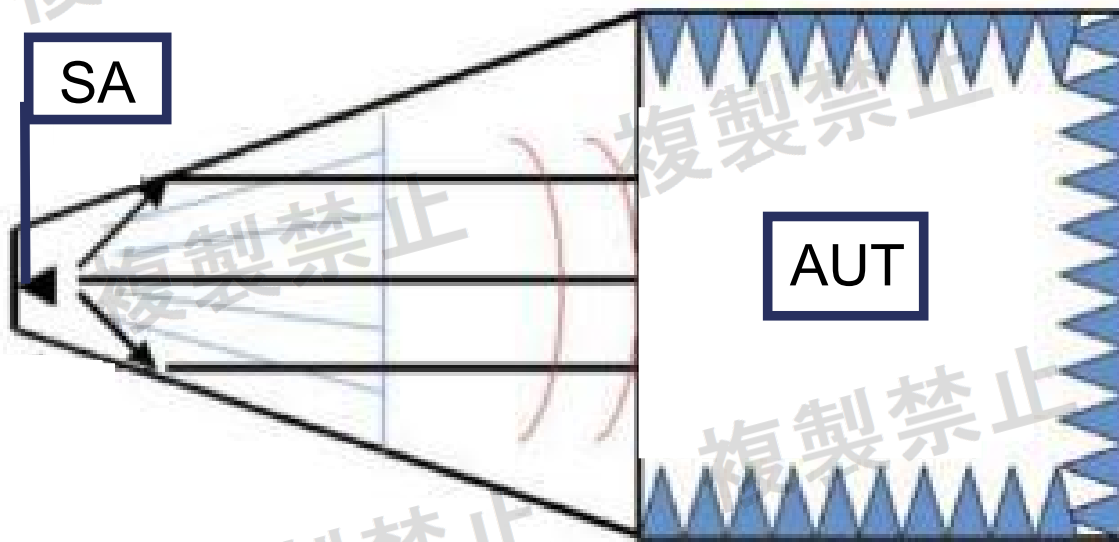
4 Antenna Characteristics

4.1 Antenna Gain and Pattern (ANSI C63.5)

4.1.1 Test Setup

Antenna gain and pattern over the frequency range defined in the results section was prepared by the manufacturer, and that data is provided here. The AUT is rotated and pattern and gain information is collected. **The EUT Front is defined as:** The EUT's FRONT is the face where the radome is employed. **The EUT top is defined as:** The EUT's TOP is the side above the radome with the interface cable toward the bottom. Figure 4.1.1 details the facility, instrumentation, and EUT position.

Figure 4.1.1 Antenna Test Cell (Calibration and Test Setup).



4.1.2 Test Procedure

During testing the AUT is placed within the antenna test chamber. Antenna gain and pattern are measured across each declared band of operation. In the case of an active antenna, gain is recorded at the declared maximum output power rating of the AUT. If the gain of the antenna can be modified, the test is carried out at the maximum gain setting. For antennas that require ground plane mounting, the AUT is mounted to a 1m diameter ground plate. The AUT is aligned for optimal polarization match with the test antenna, and the AUT is rotated. Stimuli power levels are selected such that the output power from any active antenna is at the maximum level declared by the manufacturer. Test stimuli are applied and evaluated in relation to a passive standard (calibration) antenna - substitution method.

4.1.3 Test Results

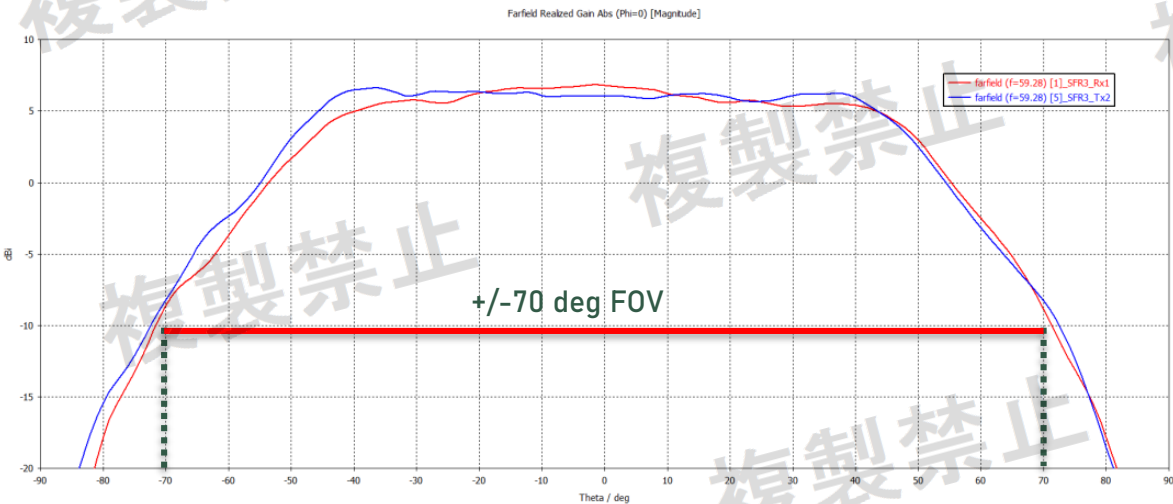
Following the test procedures outlined in the previous section, the EUT was evaluated against(for) Antenna Gain and Pattern as detailed in Table 4.1.3 .

Table 4.1.3 Antenna Gain and Pattern Test Results.

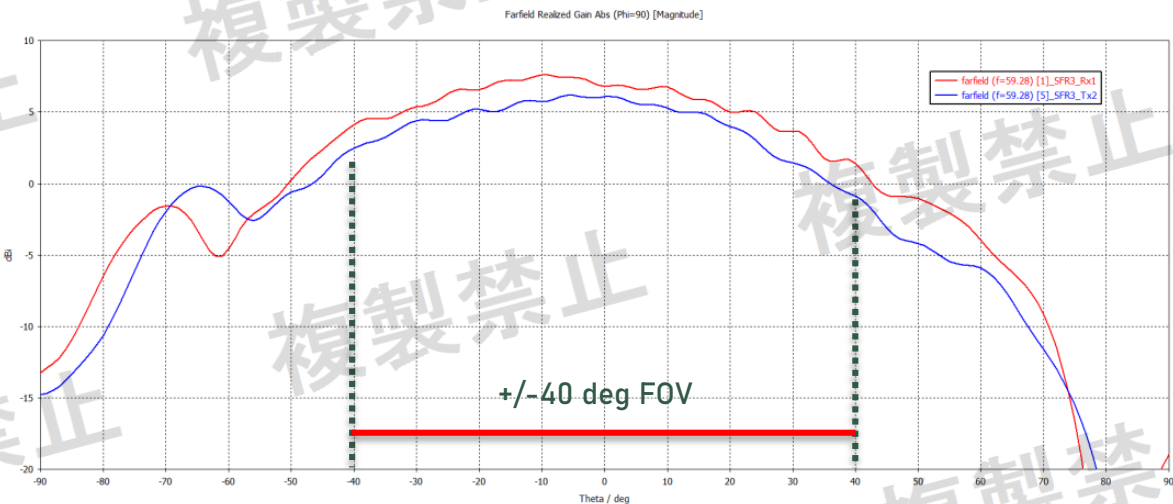
Gain patterns @ 59.28 GHz

© Convergentia Ltd.

Azimuth plane



Elevation plane



5 Emissions

5.1 General Test Procedures

5.1.1 Radiated Test Setup and Procedures

Radiated electromagnetic emissions from the EUT are first pre-scanned in our shielded anechoic chamber or GTEM test cell. Spectrum and modulation characteristics of all emissions are recorded. Instrumentation, including spectrum analyzers and other test equipment as detailed in Section 1.7 are employed. For exposure testing, the EUT is fully pre-scanned to determine the worst case measurement locations about the EUT. After pre-scan, emission measurements are made on the test site of record. If the EUT connects to auxiliary equipment and is table or floor standing, the configurations prescribed in relevant test standards are followed. Alternatively, a layout closest to normal use (as declared by the provider) is employed if the resulting emissions appear to be worst-case in such a configuration. See Figure 5.1.1 . All intentionally radiating elements that are not fixed-mounted in use are placed on the test table lying flat, on their side, and on their end (3-axes) and the resulting worst case emissions are recorded. If the EUT is fixed-mounted in use, measurements are made with the device oriented in the manner consistent with installation and then emissions are recorded. If the EUT exhibits spurious emissions due to internal receiver circuitry, such emissions are measured with an appropriate carrier signal applied.

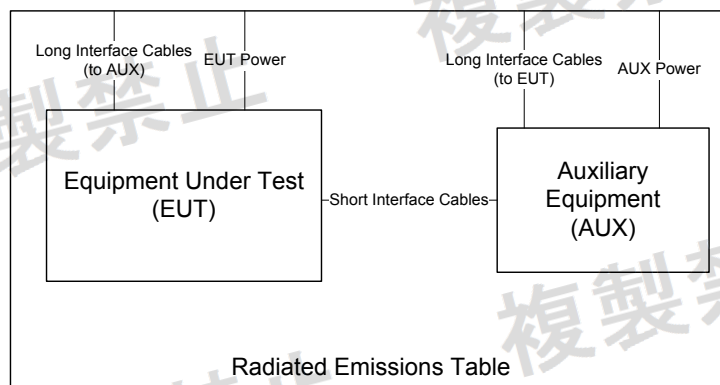


Figure 5.1.1 Radiated Emissions Diagram of the EUT.

For devices with intentional emissions below 30 MHz, a shielded loop antenna and/or E-field and H-Field broadband probes are used depending on the regulations. Shielded loops are placed at a 1 meter receive height at the desired measurement distance. For exposure in this band, the broadband probes employed are 10cm diameter single-axis shielded transducers and measurements are repeated and summed over three axes at the worst case test locations determined during prescan.

Emissions between 30 MHz and 1 GHz are measured using tuned dipoles and/or calibrated broadband antennas. For both horizontal and vertical polarizations, the test antenna is raised and lowered from 1 to 4 m in height until a maximum emission level is detected. The EUT is then rotated through 360° in azimuth until the highest emission is detected. The test antenna is then raised and lowered one last time from 1 to 4 m and the worst case value is recorded. Emissions above 1 GHz are characterized using standard gain horn or broadband ridge-horn antennas on our OATS with a 4 × 5 m rectangle of H-4 absorber placed over the ground screen covering the OATS ground screen and a 1.5m table height. Care is taken to ensure that test receiver resolution and video bandwidths meet the regulatory requirements, and that the emission bandwidth of the EUT is not reduced. Photographs of the test setup employed are depicted in Figure 5.1.1 .

Where regulations allow for direct measurement of field strength, power values (dBm) measured on the test receiver / analyzer are converted to dBμV/m at the regulatory distance, using

$$E_{dist} = 107 + P_R + K_A - K_G + K_E - C_F$$

where P_R is the power recorded on spectrum analyzer, in dBm, K_A is the test antenna factor in dB/m, K_G is the combined pre-amplifier gain and cable loss in dB, K_E is duty correction factor (when applicable) in dB, and C_F is

a distance conversion (employed only if limits are specified at alternate distance) in dB. This field strength value is then compared with the regulatory limit. If effective isotropic radiated power (EIRP) is computed, it is computed as

$$EIRP(dBm) = E_{3m}(dB\mu V/m) - 95.2.$$

When presenting data at each frequency, the highest measured emission under all possible EUT orientations (3-axes) is reported.

Where regulations call for substitution method measurements, the EUT is replaced by a substitution antenna if field strength measurements indicate the emission is close to the regulatory limit. This antenna is co-polarized with the test antenna and tuned (when necessary) to the emission frequency, after which the test antenna height is again optimized. The substitution antenna's signal level is adjusted such that its emission is equal to the level measured from the EUT. The signal level applied to the substitution antenna is then recorded. Effective isotropic radiated power (EIRP) and effective radiated power (ERP) in dBm are formulated from

$$EIRP = P_T - G_A = ERP + 2.16, \quad (1)$$

where P_T is the power applied to substitution antenna in dBm, including correction for cable loss, and G_A is the substitution antenna gain, in dBi.

When microwave measurements are made at a range different than the regulatory distance or made at close-range to improve receiver sensitivity, the reading is corrected back to the regulatory distance. This is done using a 20 dB/decade field behavior as dictated by the test procedures. When measurements are made in the near-field, the near-field/far-field boundary (N/F) is reported. It is computed as

$$N/F = 2D^2/\lambda$$

where D is the maximum dimension of the transmitter or receive antenna, and λ is the wavelength at the measurement frequency. Typically for high frequency measurements the receive antenna is connected to test receiver / analyzer through an external mixer. In this case, cable loss, IF amplifier gain, and mixer conversion losses are corrected for in the data table, or directly in the spectrum analyzer.

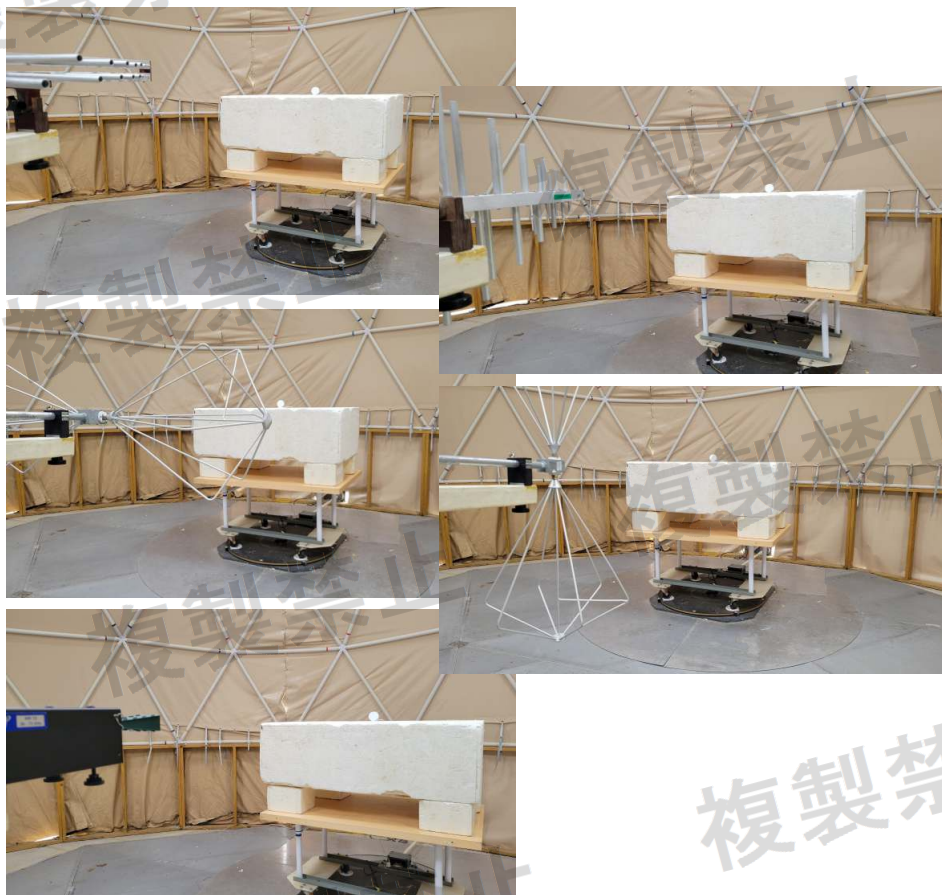


Figure 5.1.1 Radiated Emissions Test Setup Photograph(s).

5.1.2 Power Supply Variation

Tests at extreme supply voltages are made if required by the procedures specified in the test standard, and results of this testing are detailed in this report.

5.1.3 Thermal Variation

Tests at extreme temperatures are made if required by the procedures specified in the test standard, and results of this testing are detailed in this report. The provider has declared that the EUT is designed for operation over the temperature range 0°C to +35°C (manuf. declared). Before any temperature measurements are made, the equipment is allowed to reach a thermal balance in the test chamber, temperature and humidity are recorded, and thermal balance is verified via a thermocouple-based probe.

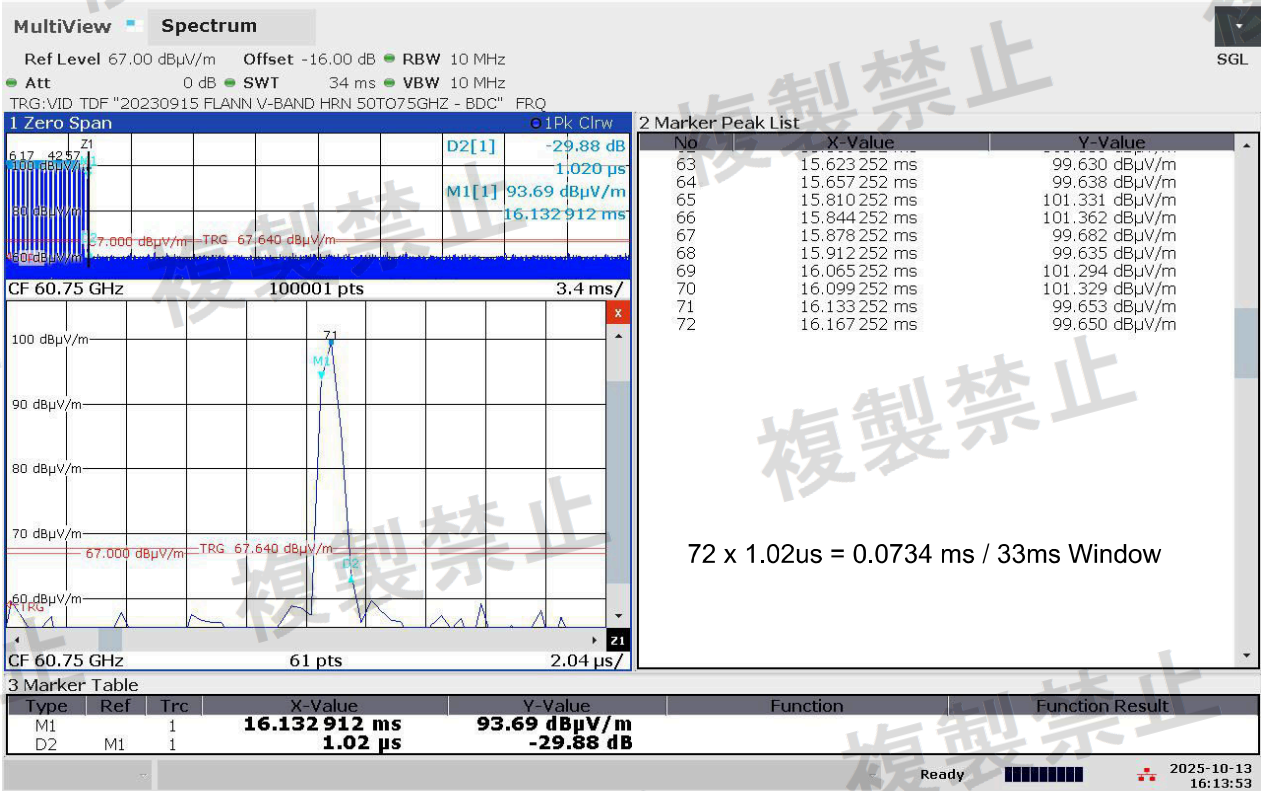
5.2 Intentional Emissions

5.2.1 Duty and Transmission Cycle, Pulsed Operation (OR 49-14, Note 308)

The details and results of testing the EUT for pulsed operation are summarized in Table 5.2.1 . Plots showing the measurements made to obtain these values are provided in Figure 5.2.1 .

Table 5.2.1 Pulsed Emission Characteristics (Duty Cycle).

EUT: Density Waffle					EUT Mod		a1 Normal Operating Mode						
Test Date(s): 10/13/25							a2						
Test Engineer: J. Brunett							a3						
							a4						
FMCW Details – Duty Cycle													
R0	Transmit Mode	Test Voltage	Test Temp	Test Hum.	Meas. Freq.	Test Receiver Bandwidth		Total Cycle Time ms	Chirps per 33ms #	On-Time per Chirp (meas.) us	On-Time per 33ms Window		Exposure Duty Estimate dB
		V	C	%	GHz	RBW VBW MHz	Calculated				Limit		
R1	a1	100.0	20.6	48.0	60.750	10.000	10.000	>33ms	72	1.02	0.073	3.0	-26.5
R2													
#	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
(ROW)		(COLUMN)											
R0	C2,C3,C4				It has been confirmed that when input voltage, temperature, and humidity fluctuate by more than 10%, the input voltage to the radio circuit of the EUT varies by less than 1%. EUT radio circuit is regulated at 5V/3.3V dc.								
R0	C5				Worst-case frequency selected at center of operating band.								
R0	C8				EUT chirps for 153ms with a Cycle time of 200ms. Worst-case window of 33ms within 153ms chirp set.								
R1	C9				Maximum number of chirps in a 33ms window as measured.								
R0	C10				On-time of a single chirp as measured.								
R0	C11				C7 x C8 = C9								
R0	C13				Exposure Duty Estimate = 10*Log(On-Time per 33ms / 33ms) Actual value is less than this estimate.								



04:13:54 PM 10/13/2025

Figure 5.2.1 Pulsed Emission Characteristics (Duty Cycle).

5.2.2 Frequency Tol. and Bandwidth (OR Art. 5, An. 1, Note 306, OR Art. 6, An. 2, Note 19)

The occupied bandwidth (OBW) of the EUT is measured with the device placed in the test worst case test modes employed. Emissions are recorded following the test procedures listed in Section 2.1. The OBW (the 99% power bandwidth) is measured across the range environmental factors required by the test standard. The results of this testing are summarized in Table 5.2.2 . Plots showing examples of the measurements employed to obtain the emission bandwidths reported are provided in Figure 5.2.2 .

Table 5.2.2 Intentional Emission Bandwidth.

Det Pk	IF Bandwidth 10 MHz	Video Bandwidth 10 MHz	EUT: Test Date(s): Test Engineer:	Density Waffle 10/13/2025 J. Brunett
EUT Modes:	a1 a2 a3 a4	Normal Operating Mode		

Occupied Bandwidth												
R0	Transmit Mode	Channel	Temperature C	Voltage V	fL* MHz	fL Limit MHz	fH* MHz	fH Limit MHz	99% OBW MHz	OBW Limit MHz	Tolerance ppm	Notes/Pass/Fail
R1	a1		35.0	110.0	59972.6	57000.0	61449.1	64000.0	1476.5	7000.0	96.0	
R2			35.0	90.0	59973.6	57000.0	61449.5	64000.0	1475.9	7000.0	91.0	
R3			0.0	110.0	59975.1	57000.0	61450.7	64000.0	1475.7	7000.0	89.1	
R4			0.0	90.0	59974.4	57000.0	61450.2	64000.0	1475.8	7000.0	90.2	
R5			20.0	100.0	59979.9	57000.0	61444.9	64000.0	1465.0	7000.0	0.0	
R11				fL_MIN	59972.6	fH_MAX	61450.7	OBW_MAX	1476.5	7000.0		Pass
#	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
(ROW) R0		(COLUMN) C5, C7		NOTES								
Measured for variations in supply voltage and declared operating temperature. Data collected in Thermal Chamber.												

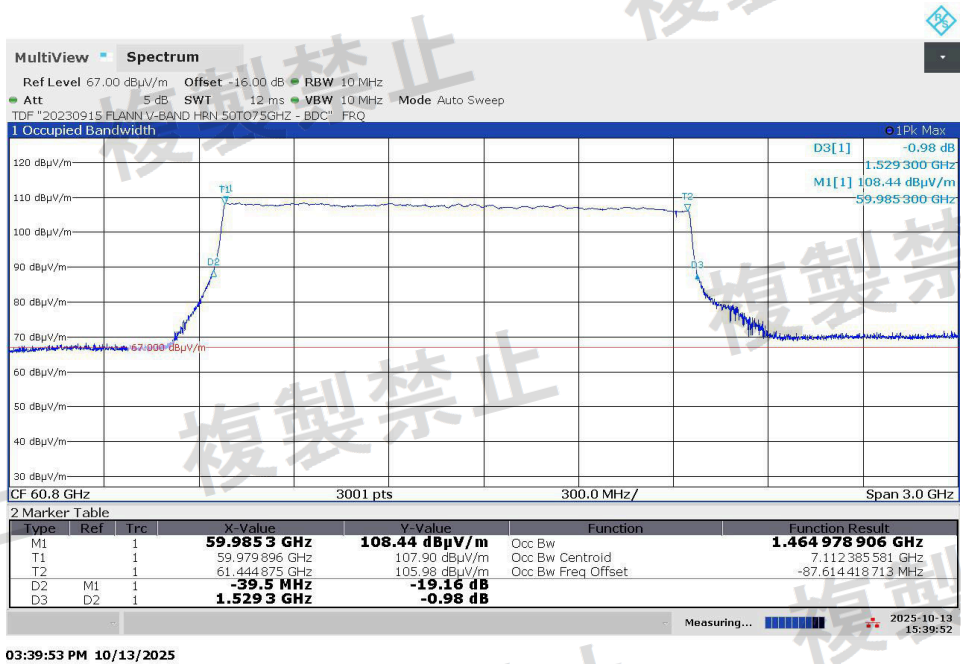


Figure 5.2.2 Intentional Emission Bandwidth Example Plot.

5.2.3 Antenna Power, Gain, EIRP, and Power Tolerance (OR Art 6 Note 307, Art 49-14)

Pursuant to the regulations, antenna power measurements are made on the EUT under normal and voltage extreme test conditions. Table 5.2.3 outlines the resulting Antenna Power ratings for all tested mode(s) of the EUT.

Table 5.2.3 Antenna Power and EIRP

EUT: Density Waffle

Test Date(s): 10/09/25

Test Engineer: J. Brunett

EUT Modes: a1 Normal Operating Mode

a2

a3

a4

a5

a6

a7

a8

R0	Frequency		Temp. C	Table Angle deg	Site				EUT		Test Antenna				Cable Mixer CL/Kg dB	Receiver Bandwidth RBW/VBW MHz	EIRP			EUT Ant.		Ant. Power		Details Pass/Fail dB	Comments			
	Start	Stop			MR	DR	N/F	CF	Mode	Volt. V	Ant. Dim cm	Pol.	Ant. Height m	Dim.			Ka	Meas.	Limit	Exp. Avg. Calc.	Limit	Gain Decl.	Limit			Pk Calc.	Limit	
	MHz	MHz			m	m		dB							dB/m		dBm					dBm						
R1	SETUP				OATSD				SAMPLE A		HRNV01				VDIV01		FSW67											
R2	59900.0	61500.0	20	0.0	1.0	3.0	0.4	9.5	a1	110.0	1.0	H/V	1.5	3.0	-6.0	3.00	3.00	6.0	13.0	-5.83	9.0	-3.0	10.0	7.0				
R3	59900.0	61500.0		0.0	1.0	3.0	0.4	9.5		100.0	1.0	H/V	1.5	3.0	-6.0	3.00	3.00	5.3	13.0	-6.51	9.0	-3.7	10.0	7.7				
R4	59900.0	61500.0		0.0	1.0	3.0	0.4	9.5		90.0	1.0	H/V	1.5	3.0	-6.0	3.00	3.00	5.5	13.0	-6.36	9.0	-3.5	10.0	7.5				
R5	59900.0	61500.0		0.0	1.0	3.0	0.4	9.5		110.0	1.0	H/V	1.5	3.0	-6.0	3.00	3.00	5.2	13.0	-6.65	9.0	-3.8	10.0	7.8				
R6	59900.0	61500.0	0	0.0	1.0	3.0	0.4	9.5		100.0	1.0	H/V	1.5	3.0	-6.0	3.00	3.00	5.2	13.0	-6.63	9.0	-3.8	10.0	7.8				
R7	59900.0	61500.0		0.0	1.0	3.0	0.4	9.5		90.0	1.0	H/V	1.5	3.0	-6.0	3.00	3.00	5.5	13.0	-6.30	9.0	-3.5	10.0	7.5				
R8	59900.0	61500.0		0.0	1.0	3.0	0.4	9.5		110.0	1.0	H/V	1.5	3.0	-6.0	3.00	3.00	4.5	13.0	-7.35	9.0	-4.5	10.0	8.5				
R9	59900.0	61500.0		0.0	1.0	3.0	0.4	9.5		100.0	1.0	H/V	1.5	3.0	-6.0	3.00	3.00	4.7	13.0	-7.14	9.0	-4.3	10.0	8.3				
R10	59900.0	61500.0	35	0.0	1.0	3.0	0.4	9.5		90.0	1.0	H/V	1.5	3.0	-6.0	3.00	3.00	4.8	13.0	-7.01	9.0	-4.2	10.0	8.2				
#	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28

Declared Antenna Power (DAP)				
DAP	DAP	-70% DAP	+50% DAP	
mW	dBm	mW	mW	
0.398	-4	0.12	0.60	

Minimum Measured Antenna Power				
min(AP)	min(AP)	DAP Dev.	DAP Dev. Limit	Pass By
dBm	mW	(%)	(%)	(%)
-4.5	0.3531	-11.3	-70	58.7

Maximum Measured Antenna Power				
max(AP)	max(AP)	DAP Dev.	DAP Dev. Limit	Pass By
dBm	mW	(%)	(%)	(%)
-3.0	0.50086	25.8	50	24.2

(ROW)

(COLUMN)

NOTE:
R0 C3 20C Nominal measurements made on OATS @ 3m. Measurements at extreme temperatures report relative data from thermal chamber.
R0 C5 MR is Measurement Range, which may be reduced from DR to achieve necessary SNR.
R0 C6 DR is the regulatory Desired Range measurement distance (where applicable).
R0 C7 N/F is Near-Field / Far-Field distance computed for max of Antenna Dimension (C11 or C14) computed above 1 GHz.
R0 C8 CF is computed using a 20 dB/decade Decay Rate.
R0 C19 EIRP meas = Efield @ 3m - 95.2 dB
R0 C20 EIRP Exp. Avg = EIRP meas - Exposure Duty
R0 C25 Antenna Power = EIRP - EUT Antenna Gain

5.3 Unintentional Emissions

5.3.1 Transmit Chain Spurious Emissions (OR Art. 7 Ann 3 + Art. 24)

The results for the measurement of transmit chain spurious emissions at the nominal voltage and temperature for all modes of operation are provided in Figure-Table 5.3.1 .

Table 5.3.1 (i) Transmit Chain Spurious Emissions.

EUT Modes: a1 Normal Operating Mode
a5
a2 EUT: Density Waffle
a6
Test Date(s): 10/08/25 a3
Test Engineer: J. Brunett a4
a7
a8

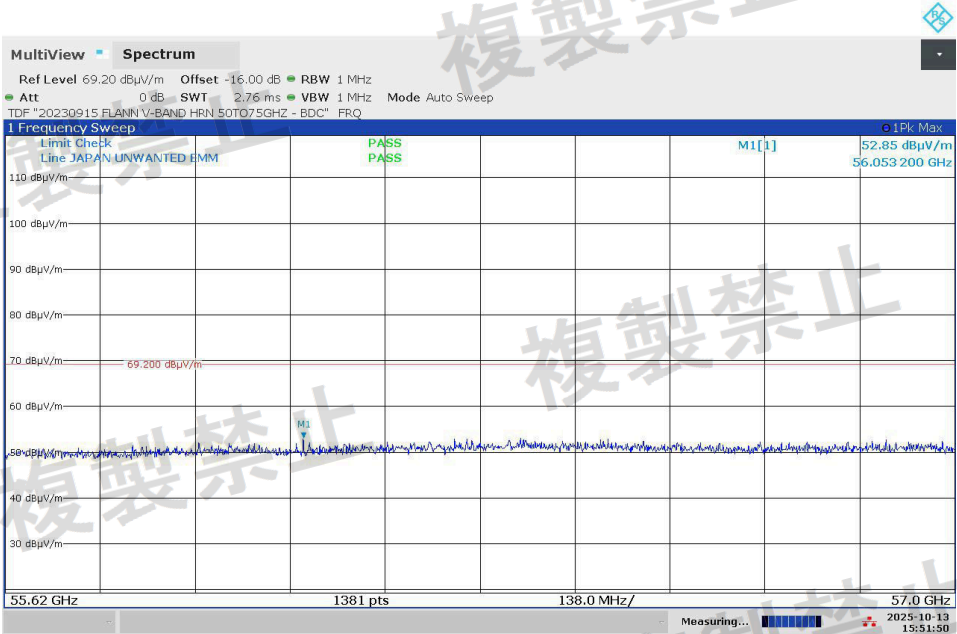
R0	Frequency		Temp. Hum C, %	Site		N/F	CF	EUT		Pol.	Test Antenna		Cable Mixer CL/Kg dB	Receiver Bandwidth RBW/VBW MHz	Field Strength @ DR		EIRP		Regulation Japan ORE §	Pass/Fail dB	Comments								
	Start MHz	Stop MHz		Table Angle deg	MR m			Mode	Volt. (V)		Dim cm	Ant. Height m			Dim. cm	Ka	Meas Ppk dBuV/m	Lim. Ppk dBuV/m				Calc. Ppk dBm	Lim. Ppk/Avg dBm						
R1	SETUP			OATSD				SAMPLE 1			BICEMCO01																		
R2	30.0	88.0	22.49	0.0	3.0	3.0	0.0	a1	100.0	1.0	H/V	1-4		0.10	0.10	35.8	24.4	-59.4	-70.8	-30.0	Art. 7, Tab. 3 61	40.8							
R3	88.0	216.0	22.49	0.0	3.0	3.0	0.0	a1	100.0	1.0	H/V	1-4		0.10	0.10	28.4	22.8	-66.8	-72.4	-30.0	Art. 7, Tab. 3 61	42.4							
R4	SETUP			OATSD				SAMPLE 1			LOGEMCO01																		
R5	216.0	1000.0	22.49	0.0	3.0	3.0	0.0	a1	100.0	1.0	H/V	1-4		0.10	0.10	38.6	39.1	-56.6	-56.1	-30.0	Art. 7, Tab. 3 61	26.1							
R6	360.0	360.0	22.49	0.0	3.0	3.0	0.0	a1	100.0	1.0	H	1-4		0.10	0.10	37.9	36.7	-57.3	-58.5	-30.0	Art. 7, Tab. 3 61	28.5							
R7	360.0	360.0	22.49	0.0	3.0	3.0	0.0	a1	100.0	1.0	V	1-4		0.10	0.10	38.6	39.1	-56.6	-56.1	-30.0	Art. 7, Tab. 3 61	26.1							
R8	SETUP			OATSD				SAMPLE 1			HORITO18S01																		
R9	1000.0	6000.0	22.49	0.0	3.0	3.0	0.9	a1	100.0	1.0	H/V	1.5	15.0	1.00	1.00	48.9	34.7	-46.3	-60.5	-30.0	Art. 7, Tab. 3 61	30.5							
R10	2388.4	2388.4	22.49	0.0	3.0	3.0	0.4	a1	100.0	1.0	H/V	1.5	15.0	1.00	1.00	48.9	34.7	-46.3	-60.5	-30.0	Art. 7, Tab. 3 61	30.5							
R11	2483.5	2483.5	22.49	0.0	3.0	3.0	0.4	a1	100.0	1.0	H/V	1.5	15.0	1.00	1.00	44.6	31.3	-50.6	-63.9	-30.0	Art. 7, Tab. 3 61	33.9							
R12	6000.0	18000.0	22.49	0.0	3.0	3.0	2.7	a1	100.0	1.0	H/V	1.5	15.0	1.00	1.00	51.4	42.3	-43.8	-52.9	-30.0	Art. 7, Tab. 3 61	22.9							
R13	16000.0	16000.0	22.49	0.0	3.0	3.0	1.1	a1	100.0	1.0	H	1.5	10.2	1.00	1.00	49.7	41.1	-45.5	-54.1	-30.0	Art. 7, Tab. 3 61	24.1							
R14	16000.0	16000.0	22.49	0.0	3.0	3.0	1.1	a1	100.0	1.0	V	1.5	10.2	1.00	1.00	48.8	40.0	-46.4	-55.2	-30.0	Art. 7, Tab. 3 61	25.2							
R15	SETUP			OATSD				SAMPLE 1			HRNK01																		
R16	18000.0	26500.0	22.49	0.0	3.0	3.0	1.8	a1	100.0	1.0	H/V	1.5	10.2	1.00	1.00	49.7	41.1	-45.5	-54.1	-30.0	Art. 7, Tab. 3 61	24.1							
R17	SETUP			OATSD				SAMPLE 1			HRNKA01																		
R18	26500.0	40000.0	22.49	0.0	3.0	3.0	2.3	a1	100.0	1.0	H/V	1.5	9.2	1.00	1.00	43.5		-51.7	-51.7	-30.0	Art. 7, Tab. 3 61	21.7							
R19																		-51.7	-51.7	-30.0									
R20																													
#	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29
(ROW)	(COLUMN)		NOTE:																										
R0	C5		MR is Measurement Range, which may be reduced from DR to achieve necessary SNR.																										
R0	C6		DR is the regulatory Desired Range measurement distance.																										
R0	C7		N/F is Near-Field / Far-Field distance computed for max of Antenna Dimension (C10 or C14) computed above 1 GHz.																										
R0	C8		CF is computed using a 20 dB/decade Decay Rate.																										
All	C28		Rx is continuously active during Tx for radar device, both Rx and Tx spurious are addressed herein.																										

Table 5.3.1 (ii) Transmit Chain Spurious Emissions.

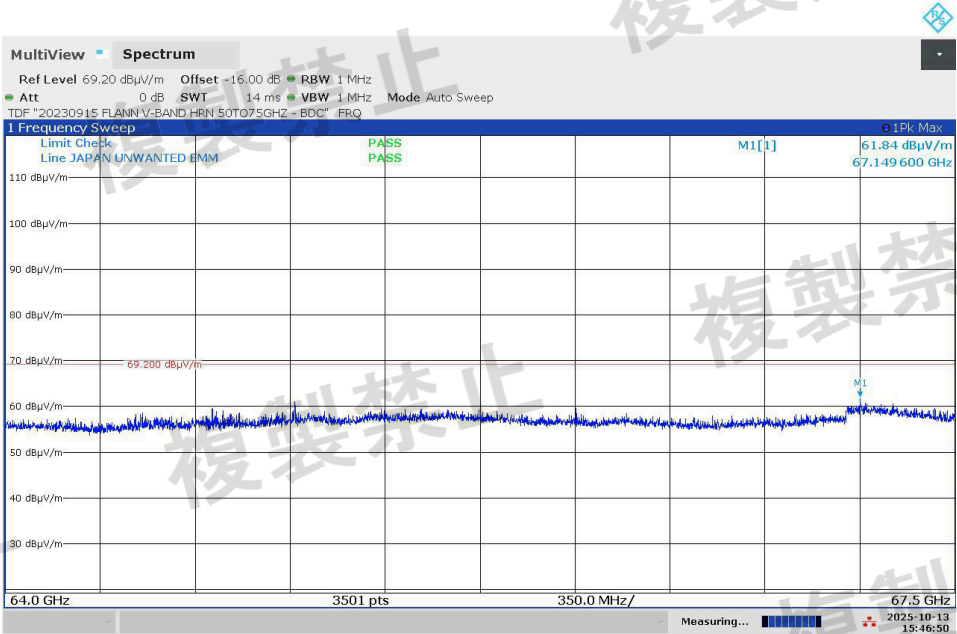
EUT Modes: a1 Normal Operating Mode
a5
a2 EUT: Density Waffle
a6
Test Date(s): 10/08/25, 10/13/2025 a3
Test Engineer: J. Brunett a4
a7
a8

R0	Frequency		Temp. Hum C, %	Site		N/F	CF	EUT		Pol.	Test Antenna		Cable Mixer CL/Kg dB	Receiver Bandwidth RBW/VBW MHz	Field Strength @ DR		EIRP		Regulation Japan ORE §	Pass/Fail dB	Comments								
	Start GHz	Stop GHz		Table Angle deg	MR m			Mode	Volt. V		Ant. Dim cm	Ant. Height m			Dim. cm	Meas. Ppk dBuV/m	Lim. Ppk dBuV/m	Calc. Ppk dBm				Avg Calc. dBm							
R1	SETUP			OATSD				SAMPLE A			HRNU01																		
R2	40.00	55.62	20.42	0.0	1.0	3.0	1.5	20.0	a1	100.0	1.0	H/V	1.5	6.3	1.00	1.00	55.6	46.2	-39.6	-49.0	-30.0	Art. 7, Tab. 3 61	19.0	noise floor					
R3	SETUP			OATSD				SAMPLE A			HRNE01																		
R4	55.62	57.00	20.42	0.0	1.0	3.0	0.2	9.5	a1	100.0	1.0	H/V	1.5	2.0	1.00	1.00	52.8		-42.4		-26.0	Art. 24.2	16.4	noise floor					
R5	64.00	67.50	20.42	0.0	1.0	3.0	0.2	9.5	a1	100.0	1.0	H/V	1.5	2.0	1.00	1.00	61.8		-33.4		-26.0	Art. 24.2	7.4	noise floor					
R6	67.50	90.00	20.42	0.0	1.0	3.0	0.2	9.5	a1	100.0	1.0	H/V	1.5	2.0	1.00	1.00	60.4	51.3	-34.8	-43.9	-30.0	Art. 7, Tab. 3 61	13.9	noise floor					
R7	SETUP			OATSD				SAMPLE A			HRNF01																		
R8	90.00	140.00	20.42	0.0	1.0	3.0	0.3	9.5	a1	100.0	1.0	H/V	1.5	1.8	1.00	1.00	62.9	53.7	-32.3	-41.5	-30.0	Art. 7, Tab. 3 61	11.5	noise floor					
R9	SETUP			OATSD				SAMPLE A			HRNG01																		
R10	140.00	220.00	20.42	0.0	1.0	3.0	0.1	9.5	a1	100.0	1.0	H	1.5	1.0	1.00	1.00	65.7	56.9	-29.5	-38.3	-30.0	Art. 7, Tab. 3 61	8.3	noise floor					
R11																													
R12																													
#	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29
(ROW)	(COLUMN)		NOTE:																										
R0	C5		MR is Measurement Range, which may be reduced from DR to achieve necessary SNR.																										
R0	C6		DR is the regulatory Desired Range measurement distance.																										
R0	C7		N/F is Near-Field / Far-Field distance computed for max of Antenna Dimension (C11 or C14) computed above 1 GHz.																										
R0	C8		CF is computed using a 20 dB/decade Decay Rate.																										
R0	C23		EIRP is computed from field strength at 3 meter distance in a 1 MHz RBW / 3 MHz VBW.																										
All	C28		Rx is continuously active during Tx for radar device, both Rx and Tx spurious are addressed herein.																										

Table 5.3.1 (iii) Transmit Chain Spurious Emissions.



03:51:51 PM 10/13/2025



03:46:51 PM 10/13/2025

6 Measurement Uncertainty

The maximum values of measurement uncertainty for the laboratory test equipment and facilities associated with each test are given in the table below. This uncertainty is computed for a 95.45% confidence level based on a coverage factor of $k = 2$.

Table 6.0.0 Measurement Uncertainty.

Measured Parameter	Measurement Uncertainty [†]
Radio Frequency	$\pm(f_{Mkr}/10^7 + RBW/10 + (SPN/(PTS - 1))/2 + 1 \text{ Hz})$
Conducted Emm. Amplitude	$\pm 1.59 \text{ dB}$
3-axis Exp. Amplitude (9 kHz – 30 MHz)	$\pm 0.8 \text{ dB}$
Radiated Emm. Amplitude (30 – 200 MHz)	$\pm 3.27 \text{ dB}$
Radiated Emm. Amplitude (200 – 1000 MHz)	$\pm 3.58 \text{ dB}$
Radiated Emm. Amplitude ($f > 1000 \text{ MHz}$)	$\pm 3.22 \text{ dB}$
Conducted Imm. Amplitude (0.15 - 400 MHz)	$\pm 2.7 \text{ dB}$
Radiated Imm. Amplitude (80 - 6000 MHz)	$\pm 2.6 \text{ dB}$
Electrostatic Discharge	ISO 10605 Compliant
DC and Low Frequency Voltages	$\pm 2\%$
Temperature	$\pm 0.5^\circ\text{C}$
Humidity	$\pm 5\%$

[†]Ref: CISPR 16-4-2:2011+A1:2014







