RADIO TEST REPORT

Test Report No. 15889607S-A-R2

Customer	**Zebra Technologies Corporation**
Description of EUT	**RFID Module**
Model Number of EUT	**RE40**
FCC ID	**UZ7RE40**
Test Regulation	**FCC Part 15 Subpart C**
Test Result	**Complied**
Issue Date	**September 17, 2025**
Remarks	**Conducted Emission and Radiated Spurious Emission Only**

Representative Test Engineer	Approved By
Hiromasa Sato Engineer	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".

Report Cover Page - Form-ULID-003532 (DCS:13-EM-F0429) Issue# 24.0

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- The information provided by the customer for this report is identified in SECTION 1.
- The laboratory is not responsible for information provided by the customer which can impact the validity of the results.
- 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)	15889607S-A	July 28, 2025	-
1	15889607S-A-R1	August 20, 2025	Caver sheet and Sec.1 Correction of Customer Information From: CANON FINETECH NISCA INC. 1-14-1, Tyuuou, Misato-shi, Saitama 341-8527, Japan +81-48-949-2111 Shingo Takada To: Zebra Technologies Corporation 1 Zebra Plaza, Holtsville, NY 11742 USA 1-416-970-6612 Dharmajit Solanki
			Sec.4.2 Correction of Manufacturer of No.A,B,D From: ZEBRA TECHNOLOGIES CORPORATION To: Zebra Technologies Corporation
2	15889607S-A-R2	September 17, 2025	Sec. 6 Correction of Figure 2: Test Setup From: *(Test Distance + SVSWR Volume /2) - r = 0.2 m To: *(Test Distance + SVSWR Volume /2) - r = 3.8 m
			APPENDIX 1: Burst Rate Confirmation P.16 Correction of calculation From: VBW: 1/x = 45 Hz < 50 Hz x: (Tx on) = 22.67343 ms To: VBW: 1/x = 48 Hz < 50 Hz x: (Tx on) = 21.0015 ms
			APPENDIX 1: Radiated Spurious Emission P.19 Correction of the point at 5416.500 MHz is not harmonic, so the data has been deleted.

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

Company Name	Zebra Technologies Corporation
Address	1 Zebra Plaza, Holtsville, NY 11742 USA
Telephone Number	1-416-970-6612
Contact Person	Dharmajit Solanki

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	RFID Module
Model Number	RE40
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	June 26, 2025
Test Date	June 27 to July 3, 2025

2.2 Product Description

General Specification

Rating	DC 5 V
Operating temperature	-20 deg. C to +60 deg. C

Radio Specification

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

Equipment Type	Transceiver
Frequency of Operation	902.75 MHz to 927.25 MHz
Type of Modulation	ASK
Antenna Gain a)	-11.29 dBi

SECTION 3: Test Summary

3.1 Test Specification

Test Specification	FCC Part 15 Subpart C The latest version on the first day of the testing period
Title	FCC 47 CFR Part 15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

3.2 Reference Standards

ANSI/USEMCSC C63.2-2023
ANSI C63.4-2014/C63.4a-2017
ANSI C63.5-2017
ANSI C63.10-2020
ANSI/USEMCSC C63.10/Cor 1-2023
ANSI/USEMCSC C63.10a-2024 for ISED
ANSI C63.25.1-2018
KDB 558074 D01 v05r02
KDB 662911 D01 v02r01 for FCC MIMO device
RSS-Gen Issue 5/Amendment 1/Amendment 2 for ISED

3.3 Summary of Test Results

Item	Specification	Results	Remarks
Conducted Emission	**FCC:** Section 15.207	Complied	-
	ISED: RSS-Gen 8.8		
	ISED: RSS-247 5.4 (b)		
Spurious Emission & Band Edge Compliance	**FCC:** Section15.247(d)	Complied	Radiated
	ISED: RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10		
Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.			

FCC Part 15.31 (e)
The RF Module has its own regulator.
The RF Module is constantly provided with voltage through the regulator regardless of input voltage.
Therefore, this EUT complies with the requirement.

FCC Part 15.203/212 Antenna requirement
The EUT has an external antenna connector, but it is installed by professionals.
Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.4 Addition to Standard

No addition, exclusion nor deviation has been made from the standard.

3.5 Uncertainty

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

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

Item	Frequency range	Uncertainty (+/-)
Conducted Emission (AC Mains) LISN	150 kHz to 30 MHz	3.0 dB
Radiated Emission (Measurement distance: 3 m)	9 kHz to 30 MHz	3.3 dB
	30 MHz to 200 MHz	4.8 dB
	200 MHz to 1 GHz	6.1 dB
	1 GHz to 6 GHz	4.7 dB
	6 GHz to 18 GHz	5.3 dB
	18 GHz to 40 GHz	5.5 dB
Radiated Emission (Measurement distance: 1 m)	1 GHz to 18 GHz	5.6 dB
	18 GHz to 40 GHz	5.8 dB

3.6 Test Location

UL Japan, Inc. Shonan EMC Lab.
1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 Japan
Telephone: +81-463-50-6400
A2LA Certificate Number: 1266.03
(FCC test firm registration number: 626366, ISED lab company number: 2973D / CAB identifier: JP0001)

Test room	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber (SAC1)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber (SAC2)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber (SAC3)	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber (SAC4)	8.1 x 5.1 x 3.55	8.1 x 5.1	-
Wireless anechoic chamber 1 (WAC1)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
Wireless anechoic chamber 2 (WAC2)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
No.1 Shielded room (SR1)	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 Shielded room (SR2)	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 Shielded room (SR3)	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 Shielded room (SR4)	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 Shielded room (SR5)	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 Shielded room (SR6)	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 Shielded room (SR8)	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room (MR1)	2.55 x 4.1 x 2.5	-	-
No.2 Measurement room (MR2)	4.5 x 3.5 x 2.5	-	-
Wireless shielded room 1 (WSR1)	3.0 x 4.5 x 2.7	3.0 x 4.5	-
Wireless shielded room 2 (WSR2)	3.0 x 4.5 x 2.7	3.0 x 4.5	-

3.7 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

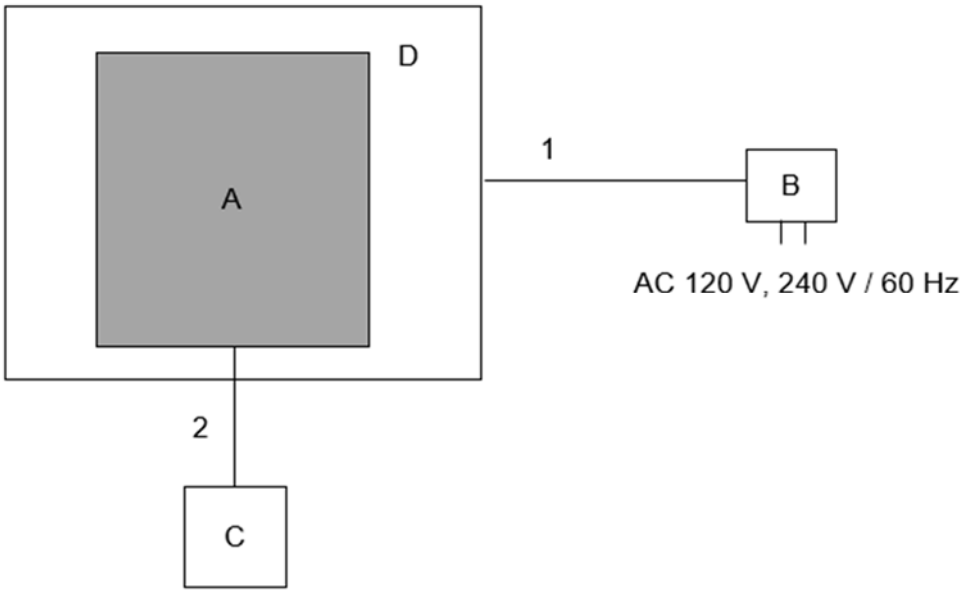
4.1 Operating Mode(s)

Mode	Remarks*
Transmitting (Tx), with modulation	-
*EUT has the power settings by the software as follows; Power Setting: 24 dBm(Setting value) Software: Firmware Version: PAAFBS00-001-R07 (Date: 2025.06.27, 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	Antenna	Hopping	Tested Frequency
Conducted Emission, Radiated Spurious Emission (Below 30 MHz)	-	Off	902.75 MHz *1)
Radiated Spurious Emission (Below 1 GHz) Radiated Spurious Emission (Above 1 GHz)	-	Off	902.75 MHz 914.75 MHz 927.25 MHz
*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.
*As a result of comparing AC 120 V and AC 240 V at pre-check, conducted emission test was performed with AC 120 V of the worst voltage as representative.

Description of EUT and Support Equipment

No.	Item	Model number	Serial Number	Manufacturer	Remarks
A	RFID Module	RE40	23303523070101	Zebra Technologies Corporation	EUT
B	AC Adaptor	SAWA-65-20005A	PWR-WUA5V12W0WW	Zebra Technologies Corporation	-
C	Antenna	4G8-5541	10	CANON FINETECH NISCA INC.	-
D	Jig board	RE40 Development Board	-	Zebra Technologies Corporation	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Cable	2.0	Shielded	Shielded	-
2	RF Cable	0.15	Shielded	Shielded	-

SECTION 5: Conducted Emission

Test Procedure and Conditions

EUT was placed on the platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.
The rear of the platform was located 40 cm to the vertical conducting plane. The rear of EUT, including peripherals was aligned and flushed with rear of the platform. All other surfaces of the platform were at least 80 cm from any other grounded conducting surface. EUT was located 80 cm from a Line Impedance Stabilization Network (LISN) / Artificial mains Network (AMN) and excess AC cable was bundled in center.

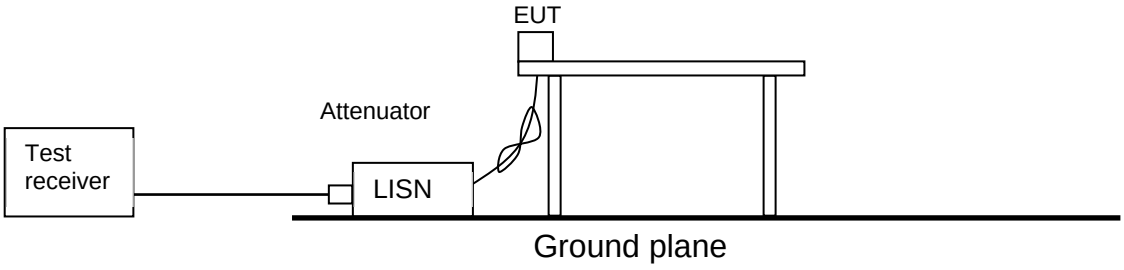
For the tests on EUT with other peripherals (as a whole system)
I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane. All unused 50 ohm connectors of the LISN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

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber.
The EUT via AC adapter was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.

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

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

Figure 1: Test Setup



SECTION 6: Radiated Spurious Emission

Test Procedure

EUT was placed on a urethane 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.

[Limit conversion]

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 Ohmes. 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.

[Frequency: From 9 kHz to 30 MHz]

The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for vertical polarization (antenna angle: 0 deg., 45 deg., 90 deg., and 135 deg.) and horizontal polarization.
*Refer to Figure 2 about Direction of the Loop Antenna.

Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open field test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

These tests were performed in semi anechoic chamber. Therefore the measured level of emissions may be higher than if measurements were made without a ground plane. However test results were confirmed to pass against standard limit.

[Frequency: From 30 MHz to 1 GHz]

The measuring antenna height varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization.

[Test instruments and test settings]

Frequency	Below 30 MHz	30 MHz to 200 MHz	200 MHz to 1 GHz
Antenna Type	Loop	Biconical	Logperiodic

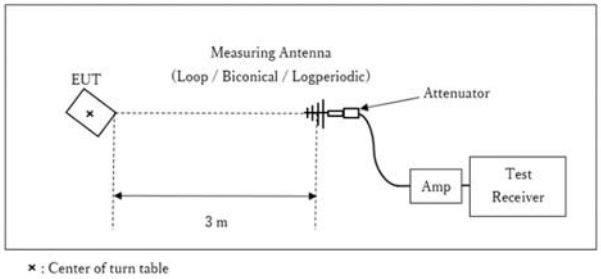
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Frequency	From 9 kHz to 90 kHz and From 110 kHz to 150 kHz	From 90 kHz to 110 kHz	From 150 kHz to 490 kHz	From 490 kHz to 30 MHz	From 30 MHz to 1 GHz
Instrument used	Test Receiver				
Detector	PK / AV	QP	PK / AV	QP	QP
IF Bandwidth	200 Hz	200 Hz	9 kHz	9 kHz	120 kHz
Test Distance	3 m *1)	3 m *1)	3 m *1)	3 m *2)	3 m

*1) Distance Factor: 40 x log (3 m / 300 m) = -80 dB
*2) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Figure 1: Test Setup

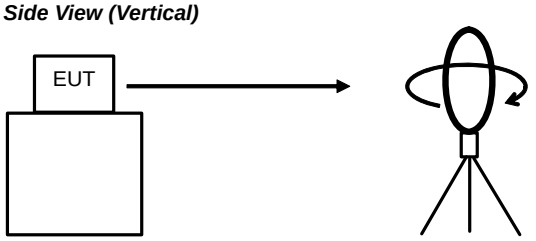
Below 1 GHz



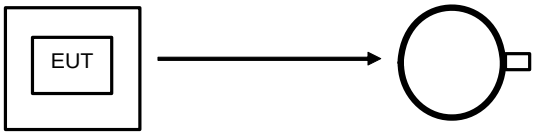
Test Distance: 3 m

Figure 2: Direction of the Loop Antenna

Side View (Vertical)

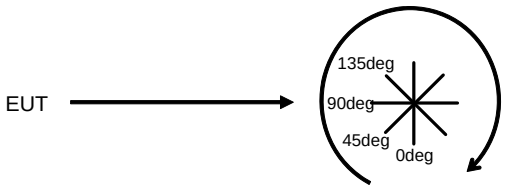


Top View (Horizontal)



Antenna was not rotated.

Top View (Vertical)



Front side: 0 deg.
Forward direction: clockwise

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

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

[For below 1 GHz]
EUT was placed on the platform of nominal size, 0.5 m by 1.0 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	Below 30 MHz	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Loop	Biconical	Log periodic	Horn

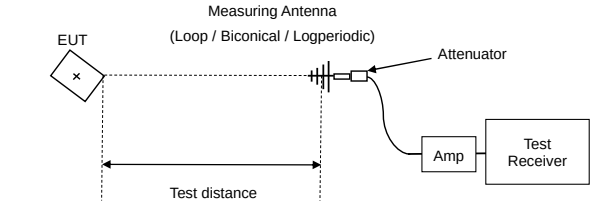
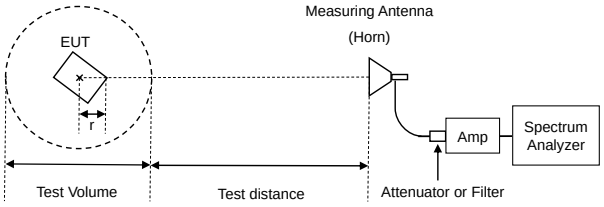
In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired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

20 dBc was applied to the frequency over the limit of FCC 15.209 / Table 4 of RSS-Gen 8.9 (ISED) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (ISED).

Frequency	Below 1 GHz	Above 1 GHz		20 dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer *a)
Detector	QP	PK	AV	PK
IF Bandwidth	BW 120 kHz	RBW: 1 MHz VBW: 3 MHz	RBW: 1 MHz VBW: 1/T (T: burst length, refer to Burst rate confirmation sheet) Detector: Peak	RBW: 100 kHz VBW: 300 kHz

*a) The Spectrum Analyzer was used in 3 dB resolution bandwidth

Figure 2: Test Setup

Below 1 GHz	
 × : Center of turn table	Test Distance: 3 m
1 GHz to 10 GHz	
 r : Radius of an outer periphery of EUT × : Center of turn table	Distance Factor: 20 x log (3.8 m* / 3.0 m) = 2.06 dB *(Test Distance + SVSWR Volume /2) - r = 3.8 m Test Distance: 3 m SVSWR Volume: 2 m (SVSWR Volume has been calibrated based on CISPR 16-1-4.) r: 0.2 m

The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT and Antenna to see the position of maximum noise, and the test was made at the position that has the maximum noise.

EUT

Polarization	Carrier	Below 30 MHz	Below 1 GHz	1 GHz to 10 GHz
Horizontal	Z	X	X	Y
Vertical	Z	X	X	X

Antenna

Polarization	Carrier	Below 30 MHz	Below 1 GHz	1 GHz to 10 GHz
Horizontal	Y	X	X	X
Vertical	Z	X	X	Z

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

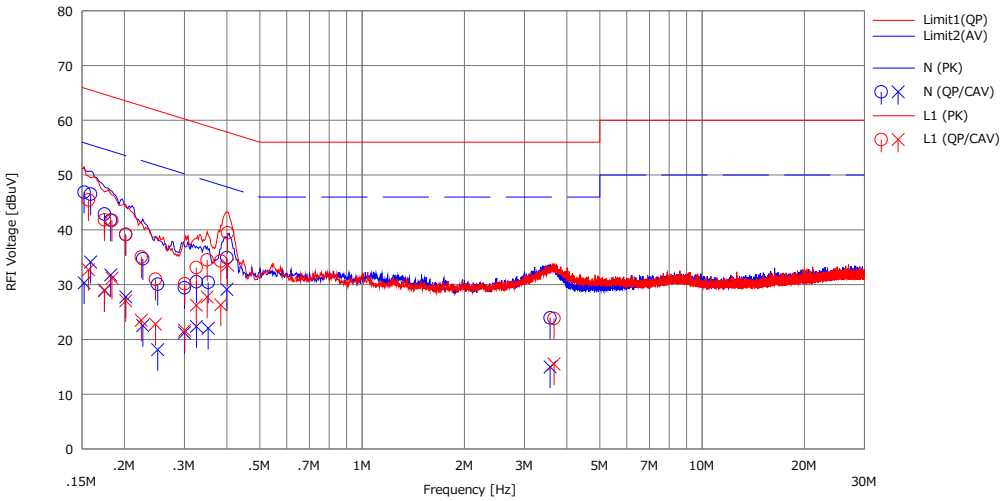
Measurement Range : 9 kHz to 10 GHz
Test Data : APPENDIX
Test Result : Pass

APPENDIX 1: Test data

Conducted Emission

Mode	Tx 902.75 MHz (AC120 V / 60 Hz)

Date	Test site	Temperature	Humidity	Engineer
July 3, 2025	SR2	24 deg. C	61 % RH	Takayuki Kobayashi



No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		〈QP〉	〈CAV〉		〈QP〉	〈CAV〉	〈QP〉	〈AV〉	〈QP〉	〈AV〉		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15220	31.63	15.10	15.23	46.86	30.33	65.88	55.88	19.0	25.5	N	
2	0.15900	31.28	18.88	15.24	46.52	34.12	65.52	55.52	19.0	21.4	N	
3	0.17470	27.64	13.65	15.25	42.89	28.90	64.73	54.73	21.8	25.8	N	
4	0.18220	26.53	16.53	15.24	41.77	31.77	64.38	54.38	22.6	22.6	N	
5	0.20170	23.90	12.52	15.24	39.14	27.76	63.54	53.54	24.4	25.7	N	
6	0.22650	19.47	7.28	15.25	34.72	22.53	62.58	52.58	27.8	30.0	N	
7	0.25040	14.81	2.85	15.26	30.07	18.11	61.74	51.74	31.6	33.6	N	
8	0.30000	14.19	5.96	15.25	29.44	21.21	60.24	50.24	30.8	29.0	N	
9	0.32550	15.26	7.09	15.26	30.52	22.35	59.57	49.57	29.0	27.2	N	
10	0.35250	15.17	6.78	15.26	30.43	22.04	58.90	48.90	28.4	26.8	N	
11	0.40000	19.66	13.86	15.26	34.92	29.12	57.85	47.85	22.9	18.7	N	
12	3.57160	8.33	-0.64	15.60	23.93	14.96	56.00	46.00	32.0	31.0	N	
13	0.15670	30.25	17.51	15.22	45.47	32.73	65.64	55.64	20.1	22.9	L1	
14	0.17470	26.59	13.78	15.23	41.82	29.01	64.73	54.73	22.9	25.7	L1	
15	0.18370	26.52	15.94	15.23	41.75	31.17	64.32	54.32	22.5	23.1	L1	
16	0.20170	23.90	11.80	15.25	39.15	27.05	63.54	53.54	24.3	26.4	L1	
17	0.22420	19.79	8.24	15.25	35.04	23.49	62.66	52.66	27.6	29.1	L1	
18	0.24670	15.73	7.55	15.24	30.97	22.79	61.87	51.87	30.9	29.0	L1	
19	0.30070	14.92	6.40	15.24	30.16	21.64	60.22	50.22	30.0	28.5	L1	
20	0.32540	17.87	11.00	15.25	33.12	26.25	59.57	49.57	26.4	23.3	L1	
21	0.35020	19.25	12.50	15.25	34.50	27.75	58.96	48.96	24.4	21.2	L1	
22	0.38390	19.07	11.05	15.25	34.32	26.30	58.19	48.19	23.8	21.8	L1	
23	0.40190	24.20	18.30	15.25	39.45	33.55	57.81	47.81	18.3	14.2	L1	
24	3.66600	8.24	-0.07	15.58	23.82	15.51	56.00	46.00	32.1	30.4	L1	

Calculation:Result[dBuV]=Reading[dBuV]+C.Fac(ISN(AAN)+Cable)[dB]
ISN(AAN): LIMS ID 145539

Burst Rate Confirmation

Mode	Tx, 902.75 MHz

Date	Test site	Temperature	Humidity	Engineer	Measurement Range
June 27, 2025	SAC3	25 deg. C	47 % RH	Hiromasa Sato	Below 1 GHz

VBW: 1/x = 48 Hz < 50 Hz
x: (Tx on) = 21.0015 ms

* Maximum duty cycle in test mode, used only Radiated Emission test.

Radiated Spurious Emission

Mode	Tx, 902.75 MHz

Date	Test site	Temperature	Humidity	Engineer	Measurement Range
June 27, 2025	SAC3	25 deg. C	47 % RH	Hiromasa Sato	Below 1 GHz
July 2, 2025	SAC2	24 deg. C	57 % RH	Toshinori Yamada	1 GHz to 10 GHz, Below 30 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	140.918	QP	28.72	14.30	7.94	32.12	-	18.84	43.5	24.6	189	41	-
Hori.	153.664	QP	25.14	14.92	8.15	32.11	-	16.10	43.5	27.4	291	87	-
Hori.	480.013	QP	20.84	17.29	10.15	31.98	-	16.30	46.0	29.7	149	260	-
Hori.	2708.250	PK	59.44	27.53	6.02	38.62	2.06	56.43	73.9	17.4	152	241	-
Hori.	3611.000	PK	51.17	28.65	6.66	38.28	2.06	50.26	73.9	23.6	254	220	-
Hori.	4513.750	PK	51.19	30.15	7.35	38.52	2.06	52.23	73.9	21.6	119	224	-
Hori.	5416.500	PK	46.20	31.53	8.06	38.93	2.06	48.92	73.9	24.9	132	232	-
Hori.	2708.250	AV	53.26	27.53	6.02	38.62	2.06	50.25	53.9	**3.6**	152	241	VBW:50 Hz
Hori.	3611.000	AV	43.81	28.65	6.66	38.28	2.06	42.90	53.9	11.0	254	220	VBW:50 Hz
Hori.	4513.750	AV	40.41	30.15	7.35	38.52	2.06	41.45	53.9	12.4	119	224	VBW:50 Hz
Hori.	5416.500	AV	32.70	31.53	8.06	38.93	2.06	35.42	53.9	18.4	132	232	VBW:50 Hz
Vert.	32.368	QP	20.86	17.79	6.58	32.19	-	13.04	40.0	26.9	100	352	-
Vert.	45.481	QP	43.32	12.83	6.87	32.18	-	30.84	40.0	9.1	100	285	-
Vert.	48.793	QP	38.27	11.61	6.90	32.18	-	24.60	40.0	15.4	100	11	-
Vert.	73.159	QP	40.60	6.31	7.24	32.16	-	21.99	40.0	18.0	100	58	-
Vert.	94.581	QP	43.34	9.12	7.70	32.14	-	28.02	43.5	15.4	100	63	-
Vert.	140.672	QP	31.61	14.28	7.94	32.12	-	21.71	43.5	21.7	100	126	-
Vert.	480.188	QP	20.72	17.30	10.15	31.98	-	16.19	46.0	29.8	146	14	-
Vert.	2708.250	PK	55.84	27.53	6.02	38.62	2.06	52.83	73.9	21.0	333	102	-
Vert.	3611.000	PK	49.77	28.65	6.66	38.28	2.06	48.86	73.9	25.0	155	190	-
Vert.	4513.750	PK	50.01	30.15	7.35	38.52	2.06	51.05	73.9	22.8	260	198	-
Vert.	5416.500	PK	45.71	31.53	8.06	38.93	2.06	48.43	73.9	25.4	397	222	-
Vert.	2708.250	AV	48.60	27.53	6.02	38.62	2.06	45.59	53.9	8.3	333	102	VBW:50 Hz
Vert.	3611.000	AV	38.73	28.65	6.66	38.28	2.06	37.82	53.9	16.0	155	190	VBW:50 Hz
Vert.	4513.750	AV	38.78	30.15	7.35	38.52	2.06	39.82	53.9	14.0	260	198	VBW:50 Hz
Vert.	5416.500	AV	31.85	31.53	8.06	38.93	2.06	34.57	53.9	19.3	397	222	VBW:50 Hz

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

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

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

20 dBc Data Sheet

(RBW 100 kHz, VBW 300 kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain *1) [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	902.750	PK	79.76	22.02	11.49	0.00	-	113.27	-	-	Carrier
Hori.	902.000	PK	28.03	22.02	11.49	0.00	-	61.54	93.2	31.6	-
Vert.	902.750	PK	76.97	22.02	11.49	0.00	-	110.48	-	-	Carrier
Vert.	902.000	PK	28.43	22.02	11.49	0.00	-	61.94	90.4	28.4	-

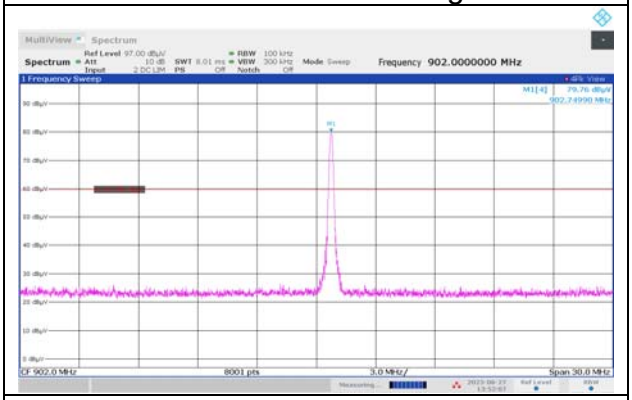
Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain(Amp) + Distance Fac.

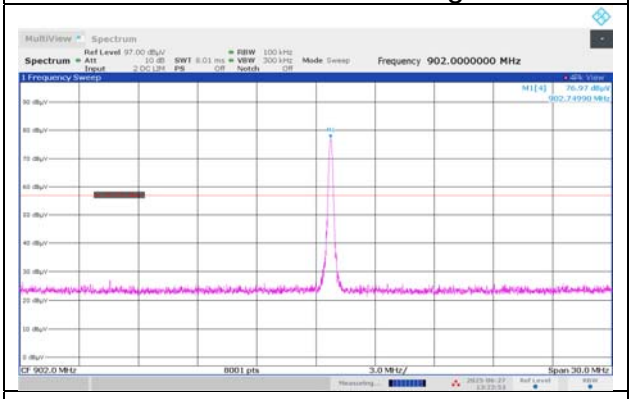
*1) For frequencies where the Gain is 0, Measurements were taken without using an Amp.

Radiated Spurious Emission
(Reference Plot for band-edge)

Mode	Tx, 902.75 MHz

Date	Test site	Temperature	Humidity	Engineer	Measurement Range
June 27, 2025	SAC3	25 deg. C	47 % RH	Hiromasa Sato	Below 1 GHz

Horizontal
Authorized-band band-edge Plot

20 dBc Plot

Vertical
Authorized-band band-edge Plot

20 dBc Plot

* 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, 914.75 MHz

Date	Test site	Temperature	Humidity	Engineer	Measurement Range
June 27, 2025	SAC3	25 deg. C	47 % RH	Hiromasa Sato	Below 1 GHz
July 2, 2025	SAC2	24 deg. C	57 % RH	Toshinori Yamada	1 GHz to 10 GHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	140.873	QP	28.58	14.29	7.94	32.12	-	18.69	43.5	24.8	193	47	-
Hori.	153.658	QP	25.22	14.92	8.15	32.11	-	16.18	43.5	27.3	304	81	-
Hori.	480.002	QP	20.93	17.29	10.15	31.98	-	16.39	46.0	29.6	149	265	-
Hori.	2744.250	PK	56.80	27.64	6.05	38.60	2.06	53.95	73.9	19.9	149	239	-
Hori.	3659.000	PK	51.76	28.78	6.69	38.29	2.06	51.00	73.9	22.9	298	223	-
Hori.	4573.750	PK	51.21	30.34	7.39	38.54	2.06	52.46	73.9	21.4	137	216	-
Hori.	2744.250	AV	48.67	27.64	6.05	38.60	2.06	45.82	53.9	**8.0**	149	239	VBW:50 Hz
Hori.	3659.000	AV	40.71	28.78	6.69	38.29	2.06	39.95	53.9	13.9	298	223	VBW:50 Hz
Hori.	4573.750	AV	41.89	30.34	7.39	38.54	2.06	43.14	53.9	10.7	137	216	VBW:50 Hz
Vert.	32.359	QP	20.79	17.80	6.58	32.19	-	12.98	40.0	27.0	100	355	-
Vert.	45.481	QP	43.21	12.83	6.87	32.18	-	30.73	40.0	9.2	100	282	-
Vert.	48.797	QP	38.19	11.61	6.90	32.18	-	24.52	40.0	15.4	100	16	-
Vert.	73.735	QP	40.34	6.29	7.28	32.16	-	21.75	40.0	18.2	100	45	-
Vert.	94.522	QP	43.20	9.11	7.70	32.14	-	27.87	43.5	15.6	100	70	-
Vert.	140.666	QP	31.55	14.28	7.94	32.12	-	21.65	43.5	21.8	100	122	-
Vert.	480.118	QP	22.12	17.29	10.15	31.98	-	17.58	46.0	28.4	147	26	-
Vert.	2744.250	PK	54.73	27.64	6.05	38.60	2.06	51.88	73.9	22.0	104	320	-
Vert.	3659.000	PK	50.58	28.78	6.69	38.29	2.06	49.82	73.9	24.0	103	334	-
Vert.	4573.750	PK	50.89	30.34	7.39	38.54	2.06	52.14	73.9	21.7	152	177	-
Vert.	2744.250	AV	45.70	27.64	6.05	38.60	2.06	42.85	53.9	11.0	104	320	VBW:50 Hz
Vert.	3659.000	AV	38.16	28.78	6.69	38.29	2.06	37.40	53.9	16.5	103	334	VBW:50 Hz
Vert.	4573.750	AV	40.81	30.34	7.39	38.54	2.06	42.06	53.9	11.8	152	177	VBW:50 Hz

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

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

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

Radiated Spurious Emission

Mode	Tx, 927.25 MHz

Date	Test site	Temperature	Humidity	Engineer	Measurement Range
June 27, 2025	SAC3	25 deg. C	47 % RH	Hiromasa Sato	Below 1 GHz
July 2, 2025	SAC2	24 deg. C	57 % RH	Toshinori Yamada	1 GHz to 10 GHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	141.162	QP	28.88	14.31	7.94	32.12	-	19.01	43.5	24.4	202	58	-
Hori.	153.600	QP	25.08	14.92	8.15	32.11	-	16.04	43.5	27.4	281	84	-
Hori.	480.067	QP	20.78	17.29	10.15	31.98	-	16.24	46.0	29.7	148	255	-
Hori.	2781.750	PK	54.68	27.75	6.09	38.57	2.06	52.01	73.9	21.8	144	240	-
Hori.	3709.000	PK	51.14	28.90	6.72	38.29	2.06	50.53	73.9	23.3	113	223	-
Hori.	4636.250	PK	50.82	30.52	7.45	38.56	2.06	52.29	73.9	21.6	149	258	-
Hori.	2781.750	AV	48.65	27.75	6.09	38.57	2.06	45.98	53.9	**7.9**	144	240	VBW:50 Hz
Hori.	3709.000	AV	37.59	28.90	6.72	38.29	2.06	36.98	53.9	16.9	113	223	VBW:50 Hz
Hori.	4636.250	AV	41.25	30.52	7.45	38.56	2.06	42.72	53.9	11.1	149	258	VBW:50 Hz
Vert.	32.453	QP	21.03	17.76	6.58	32.19	-	13.18	40.0	26.8	100	359	-
Vert.	45.674	QP	43.35	12.76	6.87	32.18	-	30.80	40.0	9.2	100	294	-
Vert.	48.721	QP	38.05	11.64	6.90	32.18	-	24.41	40.0	15.5	100	6	-
Vert.	73.015	QP	40.62	6.32	7.22	32.16	-	22.00	40.0	18.0	100	72	-
Vert.	94.382	QP	42.44	9.08	7.71	32.14	-	27.09	43.5	16.4	100	78	-
Vert.	140.905	QP	31.36	14.30	7.94	32.12	-	21.48	43.5	22.0	100	155	-
Vert.	479.997	QP	20.55	17.29	10.15	31.98	-	16.01	46.0	29.9	150	2	-
Vert.	2781.750	PK	53.17	27.75	6.09	38.57	2.06	50.50	73.9	23.4	378	166	-
Vert.	3709.000	PK	48.87	28.90	6.72	38.29	2.06	48.26	73.9	25.6	153	183	-
Vert.	4636.250	PK	49.98	30.52	7.45	38.56	2.06	51.45	73.9	22.4	214	223	-
Vert.	2781.750	AV	46.02	27.75	6.09	38.57	2.06	43.35	53.9	10.5	378	166	VBW:50 Hz
Vert.	3709.000	AV	36.98	28.90	6.72	38.29	2.06	36.37	53.9	17.5	153	183	VBW:50 Hz
Vert.	4636.250	AV	39.94	30.52	7.45	38.56	2.06	41.41	53.9	12.4	214	223	VBW:50 Hz

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain(Amp) + Distance Fac.
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).
Distance Fac. : 1 GHz to 10 GHz : 20log (3.80 [m] / 3.0 [m]) = 2.06 [dB]

20 dBc Data Sheet

(RBW 100 kHz, VBW 300 kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain *1) [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	927.250	PK	78.96	22.00	11.59	0.00	0.00	112.55	-	-	Carrier
Hori.	928.000	PK	28.05	21.99	11.59	0.00	0.00	61.63	92.5	30.8	-
Vert.	927.250	PK	77.10	22.00	11.59	0.00	0.00	110.69	-	-	Carrier
Vert.	928.000	PK	27.88	21.99	11.59	0.00	0.00	61.46	90.6	29.1	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain(Amp) + Distance Fac.
*1) For frequencies where the Gain is 0, Measurements were taken without using an Amp.

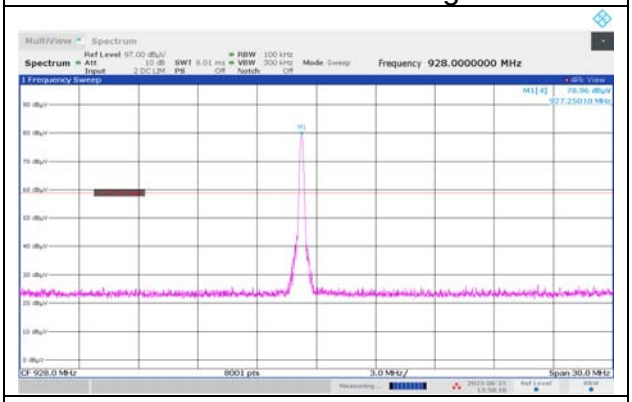
Radiated Spurious Emission
(Reference Plot for band-edge)

Mode	Tx, 927.25 MHz

Date	Test site	Temperature	Humidity	Engineer	Measurement Range
July 2, 2025	SAC3	25 deg. C	47 % RH	Hiromasa Sato	Below 1 GHz

Horizontal

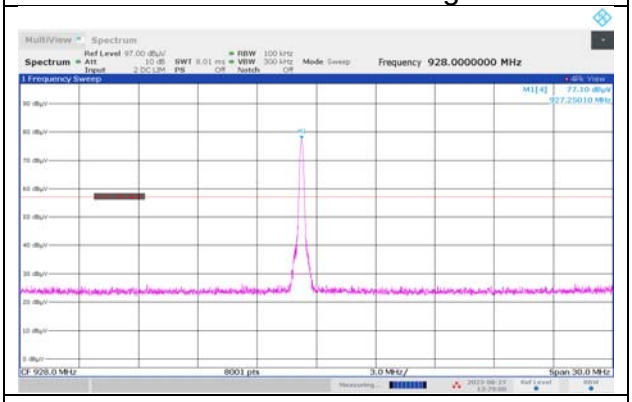
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



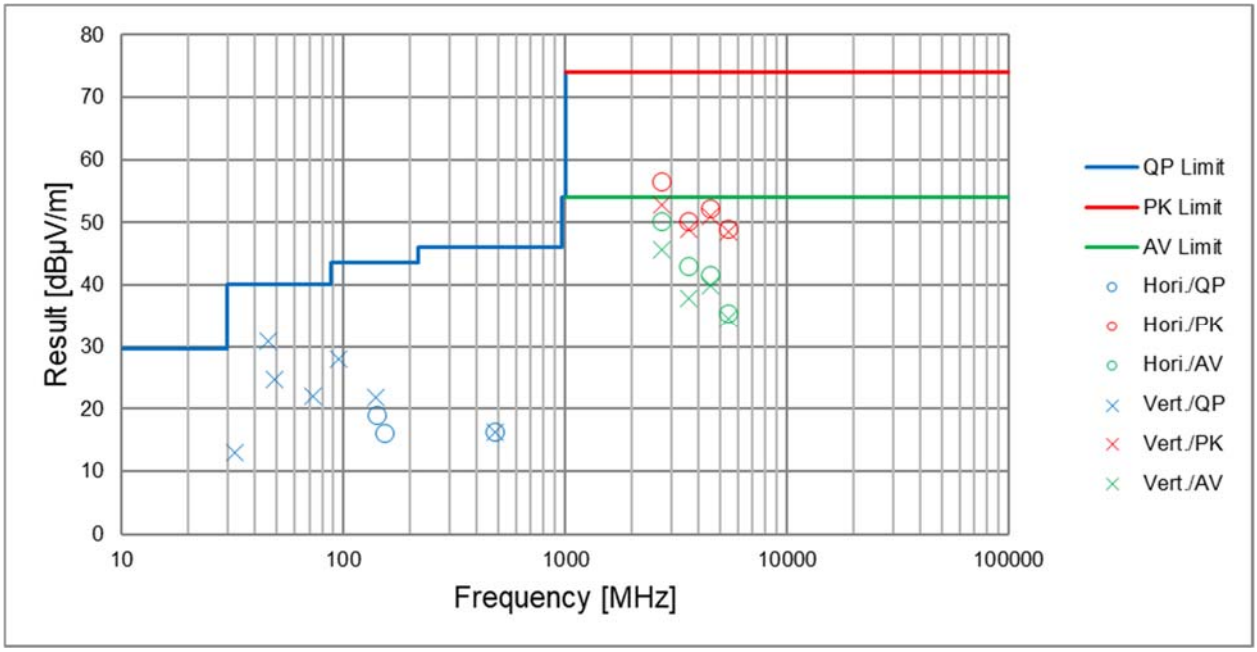
Trace Green : Peak Plot
Trace Purple : Average Plot

* 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, 902.75 MHz

Date	Test site	Temperature	Humidity	Engineer	Measurement Range
June 27, 2025	SAC3	25 deg. C	47 % RH	Hiromasa Sato	Below 1 GHz
July 2, 2025	SAC2	24 deg. C	57 % RH	Toshinori Yamada	1 GHz to 10 GHz, Below 30 MHz



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

APPENDIX 2: Test Instruments

Test Equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
CE	144896	Attenuator	JFW IND. INC.	50HF-003N	-	2024/07/11	12
CE	144970	Coaxial Cable&RF Selector	Suhner/Fujikura/Suhner/Suhner/TOYO	RG223U/12DSFA/141PE/NS4906	-/0901-270(RF Selector)	2025/04/05	12
CE	145539	LISN	Rohde & Schwarz	ENV216	100512	2025/02/01	12
CE,RE	145793	Digital Hitester	HIOKI E. E. CORPORATION	3805-50	80997819	2025/05/23	12
CE,RE	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,ME,PE)	Ver 3.1.0546	-	-
CE,RE	207277	Tape Measure	ASKUL	-	-	-	-
CE,RE	150463	Test Receiver	Rohde & Schwarz	ESW44	101581	2024/08/06	12
CE,RE	259709	Thermo-Hygrometer	CUSTOM. Inc	CTH-230	-	2025/04/11	12
RE	145137	Attenuator	Keysight Technologies Inc	8493C-010	74865	2024/10/10	12
RE	167096	Attenuator	JFW	50HF-006N	-	2025/02/19	12
RE	248303	Attenuator	JFW	50HFFA-006-2/18N	-	2025/05/14	12
RE	241390	Band Rejection Filter(902-928MHz)	Wakoh Communication Industrial Co., Ltd.	WFR-481	19122541	2024/10/11	12
RE	145023	Biconical Antenna	Schwarzbeck Mess-Elektronik OHG	BBA9106	91032666	2025/05/16	12
RE	145031	Coaxial Cable	Fujikura Shoji Co., LTD	5D2W	-	2025/06/04	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	243215	Coaxial Cable	Hayashi-Repic co., Ltd.	SMS13-13A26-NMS13-9.0m	49306-01-03	2025/06/24	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	146210	Digital Hitester	HIOKI E. E. CORPORATION	3805-50	80997823	2024/09/24	12
RE	168802	Highpass Filter	Micro-Tronics	HPM50114	G035	2025/03/11	12
RE	145384	Horn Antenna	Schwarzbeck Mess-Elektronik OHG	BBHA9120D	9120D-726	2025/03/11	12
RE	145529	Logperiodic Antenna	Schwarzbeck Mess-Elektronik OHG	VUSLP9111B	196	2025/05/16	12
RE	245074	Loop(Active) Antenna	ETS-Lindgren	6502	00262458	2025/04/09	12
RE	145126	Pre Amplifier	SONOMA	310N	290213	2025/02/19	12
RE	145128	Pre Amplifier	Toyo Corporation	TPA0118-36	1440490	2025/05/28	12
RE	145568	Semi Anechoic Chamber(ME)	TDK	Semi Anechoic Chamber 3m/10m	1, 2, 3	2024/10/12	24
RE	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2025/04/07	12
RE	145598	Semi-Anechoic Chamber	TDK	SAEC-02(SVSWR)	2	2025/05/09	12
RE	146432	Tape Measure	TAJIMA	GL19-55	-	-	-
RE	213530	Test Receiver	Rohde & Schwarz	ESW44	103068	2025/02/12	12
RE	191840	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	-	2024/08/12	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:

CE: Conducted Emission
RE: Radiated Emission