

EMC TEST REPORT

Date of Issue: 2025-10-10

Name and Address of the Client: KYOCERA Document Solutions Inc.
2-28, 1-Chome, Tamatsukuri, Chuo-ku, Osaka 540-8585, Japan

Product Name: RFID Module

Model: 2V9A1324

Serial No.: #1

FCC ID: E522V9A1324

ISED Certification Number: 1059B-2V9A1324

Sample No.: 1

Sample Condition: Good

Date of Sample Receipt: 2025-04-04

Test Specification: ☒ Full items with following standard(s)
☐ Limited items with following standard(s)
☐ Requested items by client

FCC Part 15 Subpart C
RSS-Gen Issue 5, RSS-210 Issue 11

Test Result: Refer to "2. Summary of Test Results"

Period of Testing: 2025-07-28 to 2025-08-04

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1. Description of the Tested Sample

1.1 Product Description

Product name	RFID Module
Model (referred to as the EUT)	2V9A1324
Manufacturer	KYOCERA Document Solutions Inc.
Hardware Version	2V9A1324
Firmware Version	2V9A1324
Software Version	2V9A1324
Product Marketing Name	2V9A1324
Type of the Equipment	☐ Stand-alone ☐ Combined Equipment ☒ Plug-in Radio Device ☐ Other
Transmitter Type	☒ RFID
Antenna Type	☒ Integral Antenna (Loop Antenna) ☐ Dedicated External Antenna
Antenna Model	Un-specified
Antenna Gain	---
Operating Frequency	13.56 MHz
Type of Modulation	ASK
Emission Designator	341KP1D
Type of Power Source	☐ AC Mains ☐ Dedicated AC Adaptor ☒ DC Voltage ☐ Battery
Input Power Rating	DC 3.3 / 5 V
Type of Battery (if applicable)	N/A
Thermal Limitation	-20 °C to 50 °C

1.2 EUT Description

Equipment under test is as follow:

Instrument	Model	Serial No.
RFID Module (EUT A)	2V9A1324	#1

Note:

Name and Address of the Client, Serial No., Test Configuration, Mode of Operation, EUT Exercise Software or Hardware, Modifications to EUT, Monitoring Method, Immunity Criteria, Classification, the test condition specified with the manufacturer and the above Product Description were supplied by the client. Therefore, Cosmos Corporation is not liable for any incompleteness in this information.

2. Summary of Test Results

These test results are the test results of the condition specified with “3. Test Condition”.

FCC Section	RSS Section	Test Item	FCC Result	ISED Result
15.207	RSS-Gen 8.8	AC Power Line Conducted Emission	Passed	Passed
15.209, 15.225(d)	RSS-Gen 8.9	Transmitter Spurious Emission (Radiated)	Passed	Passed
15.215(c)	---	20 dB Bandwidth	Passed	---
15.225 (a) (b) (c) (d)	RSS-210 B.6	Field Strength of Fundamental Emission	Passed	Passed
15.225(e)	RSS-210 B.6	Frequency Stability	Passed	Passed
---	RSS-Gen 7.1	Receiver Spurious Emission (Radiated)	---	N/A *
---	RSS-Gen Annex A	Occupied Bandwidth	---	Passed

Note:

*: This item does not apply because this device receives some data only while the radio waves are transmitted.

3. Test Condition

3.1 Mode of Operation

Mode A : RFID Operating

Note:

The EUT makes communication emission with the maximum RF power by a special test program: TEST001.

The test of Field Strength of Fundamental Emission was performed under the following condition:

Voltage: DC 3.3 V / 5 V $\pm$ 15 %

The test of Frequency Stability was performed under the following condition:

Temperature: -20 °C to +50 °C

Voltage: DC 3.3 V / 5 V $\pm$ 15 %

3.2 Additional Equipment

The equipment was tested together with additional peripherals.

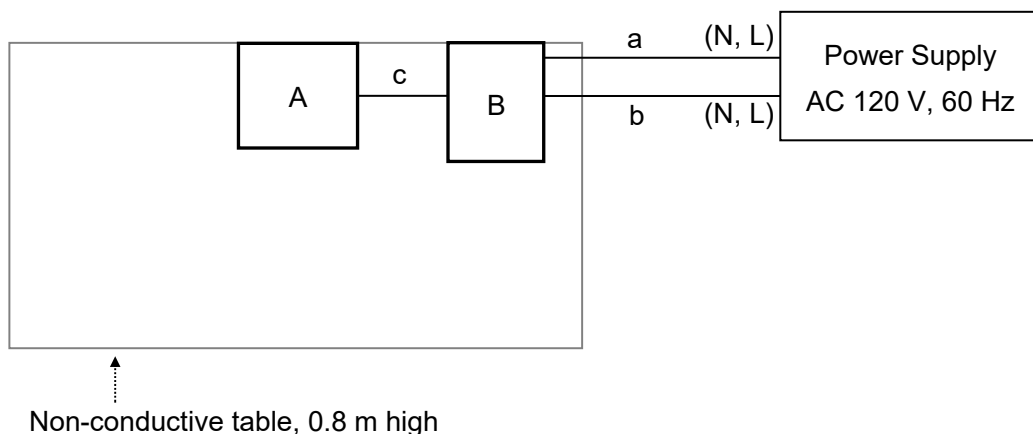
The following peripherals were used during the tests:

Equipment	Model	Serial No.	Manufacturer	FCC ID
DC Power Supply	-	-	-	-

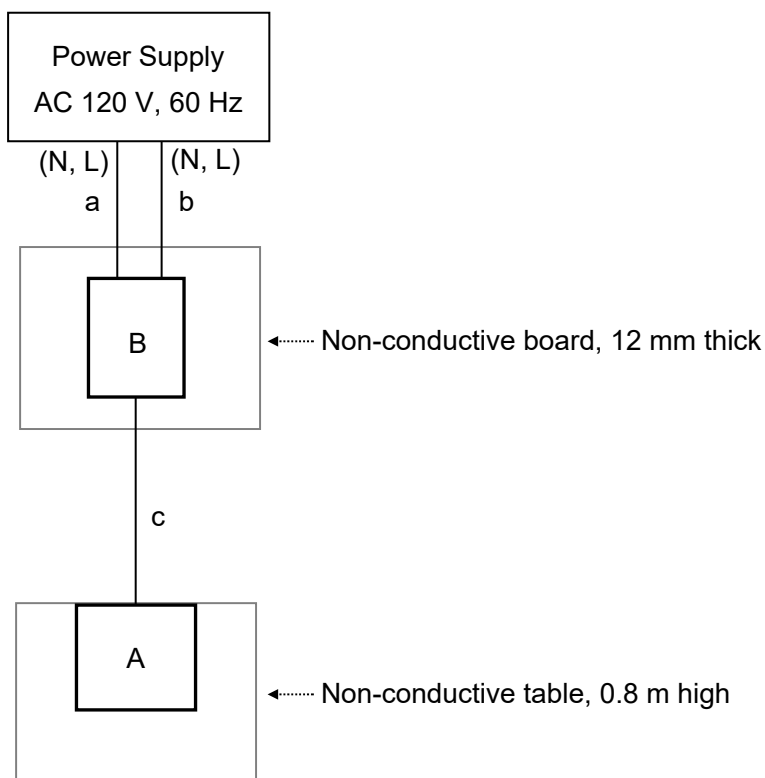
3.3 Configuration

	Equipment	Model		Cable	Length	Shield
A	EUT A	2V9A1324	a	AC Power Cord	1.8 m	×
B	DC Power Supply	-	b	AC Power Cord	1.8 m	×
			c	DC Power Cord	1.0 m	×

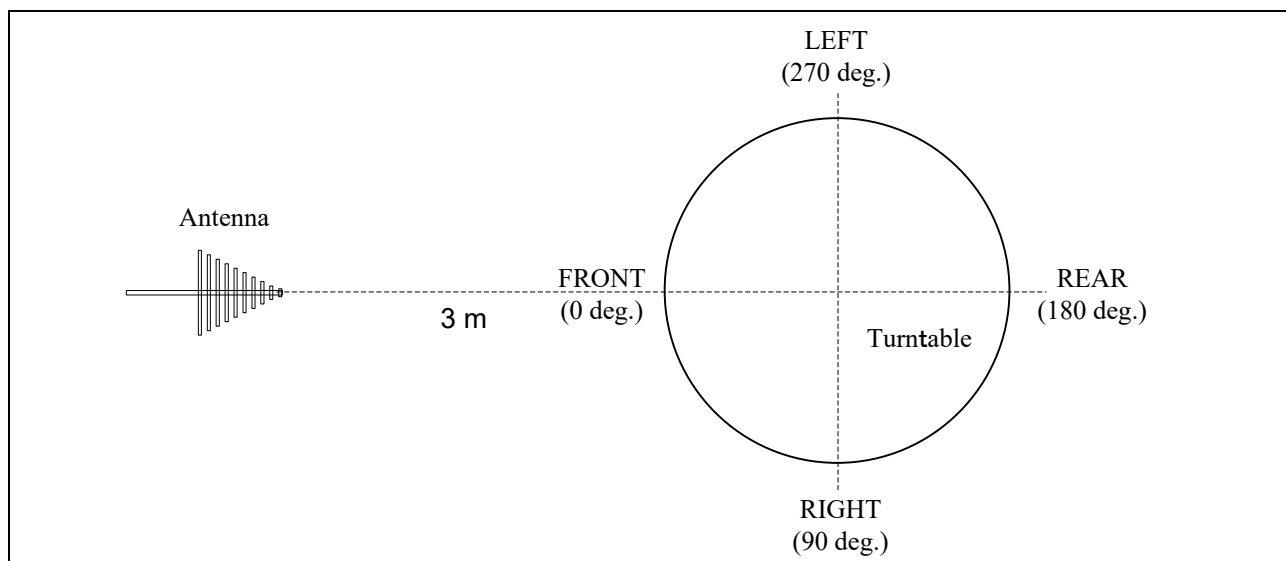
AC Power Line Conducted Emission / 20 dB Bandwidth
 Field Strength of Fundamental Emission / Frequency Stability
 Occupied Bandwidth



Transmitter Spurious Emission (Radiated): below 30 MHz
 Transmitter Spurious Emission (Radiated): above 30 MHz



3.4 EUT Angle



4. General Information

4.1 Test Methodology

All measurement subject to the present test report is carried out according to the procedures in ANSI C63.10-2020.

4.2 Test Facility

The measurement was carried out at the following facility.

Cosmos Corporation EMC Lab. Oonoki
3571-2 Oonoki, Watarai-cho, Watarai-gun, Mie-ken 516-2102, Japan

- ☒ Semi-anechoic Chamber 3 m (COAC3M-01)
- ☒ Shielded Room (COSR-01)
- ☒ Measurement Room

Cosmos Corporation EMC Lab. Oonoki is accredited in accordance with the International Standard ISO/IEC 17025 by the following accreditation bodies and the test facility is registered by the following bodies.

Accreditation: FCC Designation No. JP5224

Registration: ISED Canada CAB ID. JP0007

4.3 Traceability

The calibration of measurement equipment used in the test subject to the present report is designed and operated to ensure that the measurement is traceable to national standards of measurement or equivalent abroad.

5. Test Result

5.1 AC Power Line Conducted Emission (15.207, RSS-Gen 8.8)

5.1.1 Setting Remarks

The conducted disturbance voltage of AC power line in the frequency range from 150 kHz to 30 MHz was measured in accordance with ANSI C63.10-2020.

The non-conductive table, 0.8 m high, was placed on the reference ground plane, and the EUT was put on the non-conductive table. The used Line Impedance Stabilizing Network (LISN) has a rated impedance of 50 Ω /50 μ H as specified in CISPR16-1-2. The test receiver with Quasi Peak and Average detector is in accordance with CISPR 16-1-1. The conducted emission level is calculated by adding Cable Attenuation Factor and Insertion Loss of LISN.

Setting Condition of Test receiver

Frequency range	Detector	RBW
150 kHz to 30 MHz	Quasi Peak	9 kHz
	Average	9 kHz

5.1.2 Limit

Frequency range	Conducted Limit [dB μ V]	
	Quasi Peak	Average
150 kHz to 500 kHz	66 to 56 *	56 to 46 *
500 kHz to 5 MHz	56	46
5 MHz to 30 MHz	60	50

5.1.3 Test Detail

Result: Passed

Uncertainty of measurement result : ± 2.79 dB
Test operator : Junya Takashiba
Date of testing : 2025-08-04
Room temperature : 23 °C
Relative humidity : 50 %

Note:

*: Decrease with the logarithm of the frequency.

5.1.3 Test Detail (Continued)

Sample Calculation

Result = Reading + c.f
= 24.7 + 10.4
= 35.1

Margin = Limit – Result
= 65.9 – 35.1
= 30.8

Note:

c.f (Correction Factor) = Cable Attenuation Factor + LISN Factor

Test Data (DC 3.3 V)

***** Cosmos Corporation *****
<<Conducted Emission -EP5/CE Ver 5.4.40->>

4 August, 2025 14:26
174421E CE Total2 .dat

Limit : FCC15.207, RSS-Gen
Model : 2V9A1324
S/N : #1
Operator : J. Takashiba
Power : AC 120V, 60Hz
Environment : 23°C, 50%, 990hpa
Mode : A
Remark1 : DC 3.3V Side
Remark2 :
Remark3 : RBW : 9kHz(150kHz - 30MHz)

Final Result

--- L1 Phase ---

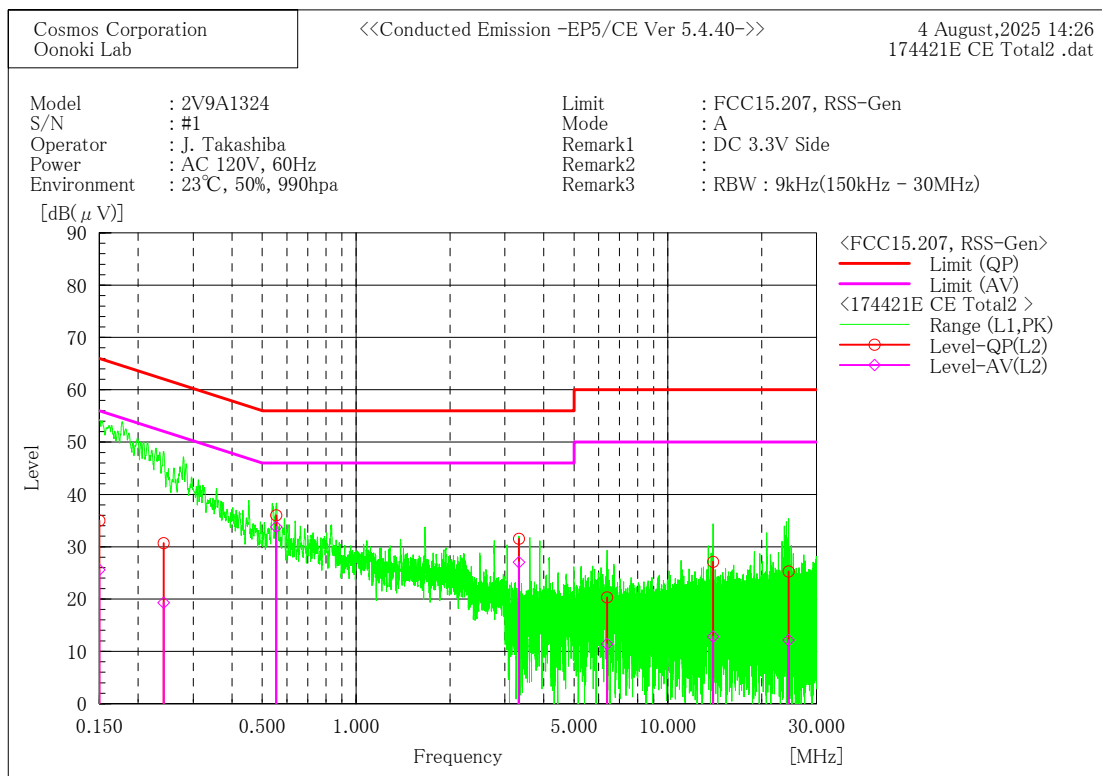
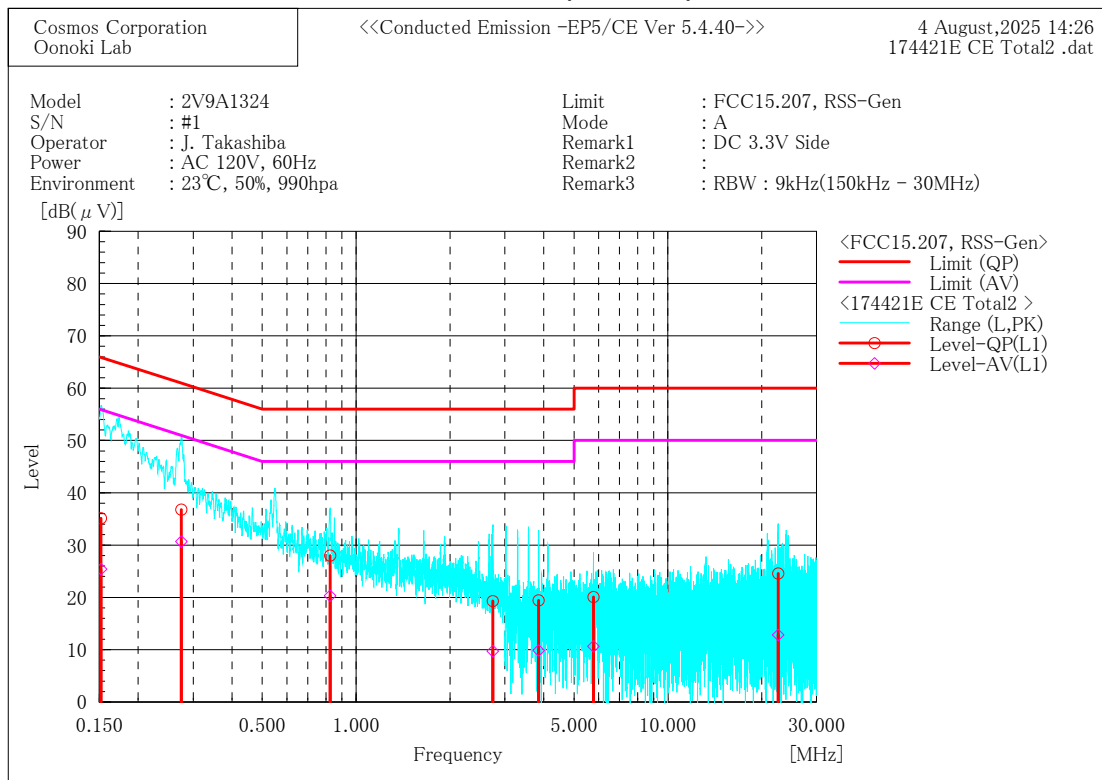
No.	Frequency	Reading QP	Reading CAV	c. f	Result QP	Result CAV	Limit QP	Limit AV	Margin QP	Margin CAV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.152	24.7	15.0	10.4	35.1	25.4	65.9	55.9	30.8	30.5
2	0.2752	26.5	20.4	10.3	36.8	30.7	61.0	51.0	24.2	20.3
3	0.825	17.7	10.0	10.3	28.0	20.3	56.0	46.0	28.0	25.7
4	2.7437	8.9	-0.7	10.4	19.3	9.7	56.0	46.0	36.7	36.3
5	3.8496	8.9	-0.6	10.5	19.4	9.9	56.0	46.0	36.6	36.1
6	5.7711	9.5	0.0	10.6	20.1	10.6	60.0	50.0	39.9	39.4
7	22.5795	13.7	1.9	10.9	24.6	12.8	60.0	50.0	35.4	37.2

--- L2 Phase ---

No.	Frequency	Reading QP	Reading CAV	c. f	Result QP	Result CAV	Limit QP	Limit AV	Margin QP	Margin CAV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.150	24.6	15.2	10.4	35.0	25.6	66.0	56.0	31.0	30.4
2	0.2411	20.4	9.0	10.3	30.7	19.3	62.1	52.1	31.4	32.8
3	0.5545	25.7	23.5	10.3	36.0	33.8	56.0	46.0	20.0	12.2
4	3.3321	21.0	16.5	10.5	31.5	27.0	56.0	46.0	24.5	19.0
5	6.3804	9.7	0.8	10.6	20.3	11.4	60.0	50.0	39.7	38.6
6	13.9836	16.4	2.1	10.7	27.1	12.8	60.0	50.0	32.9	37.2
7	24.3984	14.3	1.2	10.9	25.2	12.1	60.0	50.0	34.8	37.9

5.1.3 Test Detail (Continued)

Test Data (DC 3.3 V)



5.1.3 Test Detail (Continued)

Test Data (DC 5 V)

***** Cosmos Corporation *****
<<Conducted Emission -EP5/CE Ver 5.4.40->>

4 August, 2025 14:12
174421E CE Total1 .dat

Limit : FCC15.207, RSS-Gen
Model : 2V9A1324
S/N : #1
Operator : J. Takashiba
Power : AC 120V, 60Hz
Environment : 23°C, 50%, 990hpa
Mode : A
Remark1 : DC5V Side
Remark2 :
Remark3 : RBW : 9kHz (150kHz - 30MHz)

Final Result

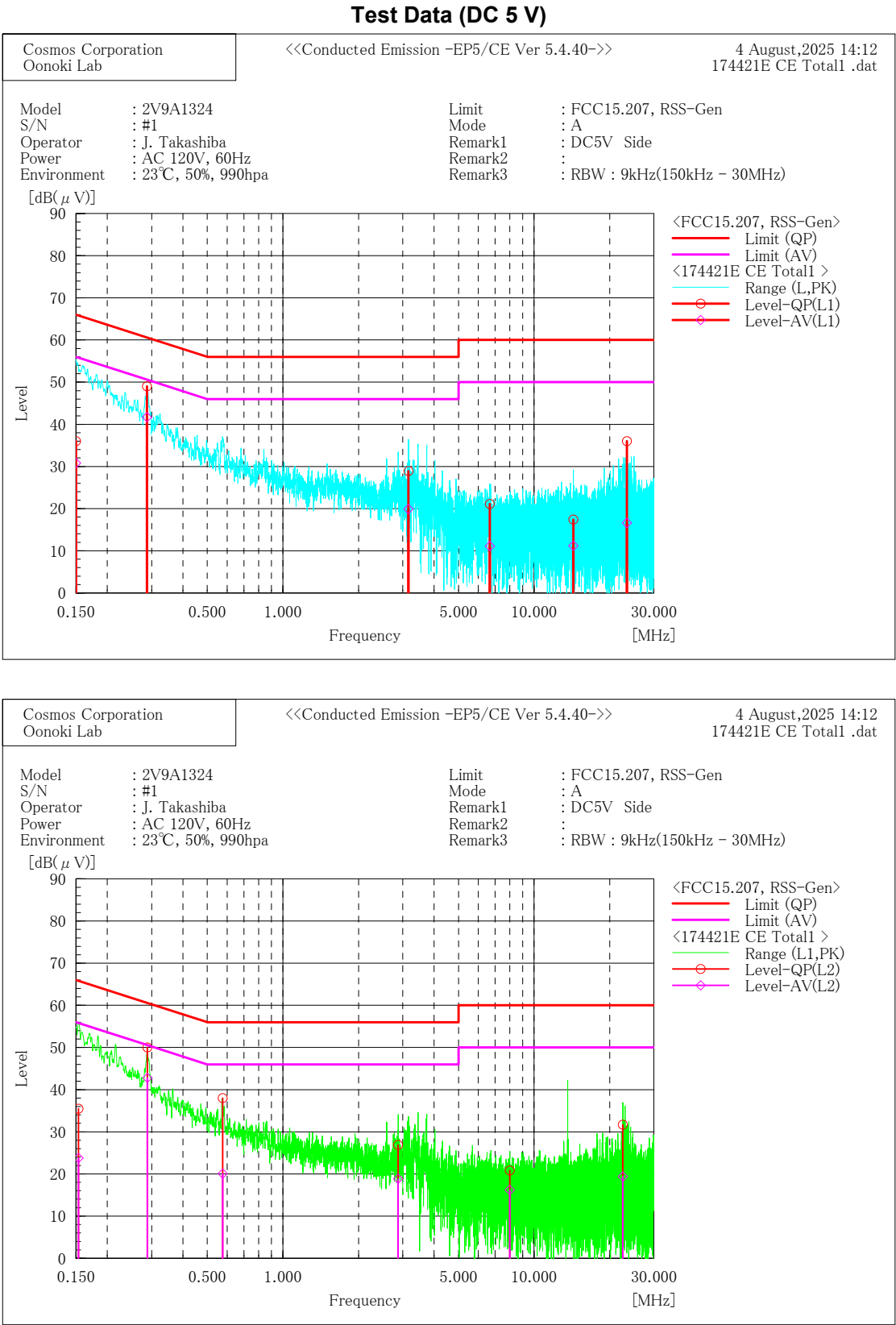
--- L1 Phase ---

No.	Frequency	Reading QP	Reading CAV	c. f	Result QP	Result CAV	Limit QP	Limit AV	Margin QP	Margin CAV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.150	25.6	20.4	10.4	36.0	30.8	66.0	56.0	30.0	25.2
2	0.2876	38.7	31.4	10.3	49.0	41.7	60.6	50.6	11.6	8.9
3	3.1629	18.5	9.5	10.4	28.9	19.9	56.0	46.0	27.1	26.1
4	6.6693	10.5	0.5	10.6	21.1	11.1	60.0	50.0	38.9	38.9
5	14.3274	6.7	0.5	10.7	17.4	11.2	60.0	50.0	42.6	38.8
6	23.4408	25.1	5.7	10.9	36.0	16.6	60.0	50.0	24.0	33.4

--- L2 Phase ---

No.	Frequency	Reading QP	Reading CAV	c. f	Result QP	Result CAV	Limit QP	Limit AV	Margin QP	Margin CAV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.1536	25.2	13.5	10.3	35.5	23.8	65.8	55.8	30.3	32.0
2	0.2884	39.7	32.5	10.3	50.0	42.8	60.6	50.6	10.6	7.8
3	0.5752	27.7	9.8	10.3	38.0	20.1	56.0	46.0	18.0	25.9
4	2.8772	16.5	8.5	10.4	26.9	18.9	56.0	46.0	29.1	27.1
5	8.0004	10.2	5.6	10.6	20.8	16.2	60.0	50.0	39.2	33.8
6	22.5786	20.8	8.5	10.9	31.7	19.4	60.0	50.0	28.3	30.6

5.1.3 Test Detail (Continued)



5.2 Transmitter Spurious Emission (Radiated) (15.209, RSS-Gen 8.9)

5.2.1 Setting Remarks

The electric field strength was measured in accordance with ANSI C63.10-2020, in the frequency range from 9 kHz to 1 GHz (over 10th harmonics) except for the frequency band on which the transmitter is intended to operate.

The test setup was made on the turntable installed in a semi-anechoic chamber.

The non-conductive table, 0.8 m high, was placed on the turntable, and the EUT was put on the non-conductive table. The EUT was measured at 1 m to 4 m height of the antenna above 30 MHz. The turntable was fully rotated. The highest radiation from the equipment was recorded. The measurement above 30 MHz was carried out with both horizontal and vertical antenna polarization. The test receiver with Peak, Quasi Peak and Average detector is in accordance with CISPR 16-1-1.

The measurement was carried out with the measuring distance of 3 m.

Setting Condition of Test receiver

Frequency range	Detector	RBW
9 kHz to 90 kHz	Peak	200 Hz
	Average	200 Hz
90 kHz to 110 kHz	Quasi Peak	200 Hz
110 kHz to 150 kHz	Peak	200 Hz
	Average	200 Hz
150 kHz to 490 kHz	Peak	9 kHz
	Average	9 kHz
490 kHz to 30 MHz	Quasi Peak	9 kHz
30 MHz to 1 GHz	Quasi Peak	120 kHz

5.2.2 Limit

The emission limits shown in the following table are based on measurements employing a CISPR Quasi Peak detector except for the frequency bands 9 kHz to 90 kHz, 110 kHz to 490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an Average detector. The limit on Peak radio frequency emissions is 20 dB above the maximum permitted Average emission limit applicable to the equipment under test.

Frequency range	Field Strength (Distance)	
	[μ V/m]	[dB μ V/m]
9 kHz to 490 kHz	2400/F (kHz) 266.6 to 4.89 (300 m)	128.5 to 93.8 (3 m)
490 kHz to 1.705 MHz	24000/F (kHz) 48.9 to 14.0 (30 m)	73.8 to 62.9 (3 m)
1.705 MHz to 30 MHz	30 (30 m)	69.5 (3 m)
30 MHz to 88 MHz	100 (3 m)	40.0 (3 m)
88 MHz to 216 MHz	150 (3 m)	43.5 (3 m)
216 MHz to 960 MHz	200 (3 m)	46.0 (3 m)
Above 960 MHz	500 (3 m)	53.9 (3 m)

For below 30 MHz, the limits in 47 CFR, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 Ohms. For example, the measurement at frequency X kHz resulted in a level of Y dB μ V/m, which is equivalent to $Y - 51.5 = Z$ dB μ A/m, which has the same margin, W dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

5.2.3 Test Detail

Result: Passed

Uncertainty of measurement result : ± 4.59 dB(30M-1000MHz)
 ± 4.14 dB(150k-30MHz)
Test operator : Junya Takashiba
Date of testing : 2025-08-01
Room temperature : 25 °C
Relative humidity : 40 %

5.2.3 Test Detail (Continued)

Sample Calculation

$$\begin{aligned}\text{Result} &= \text{Reading} + \text{c.f} \\ &= 36.5 + 11.6 \\ &= 48.1\end{aligned}$$

$$\begin{aligned}\text{Margin} &= \text{Limit} - \text{Result} \\ &= 72.4 - 48.1 \\ &= 24.3\end{aligned}$$

Note:

[Below 30 MHz]

$$\text{c.f (Correction Factor)} = \text{Cable Attenuation Factor} + \text{Antenna Factor}$$

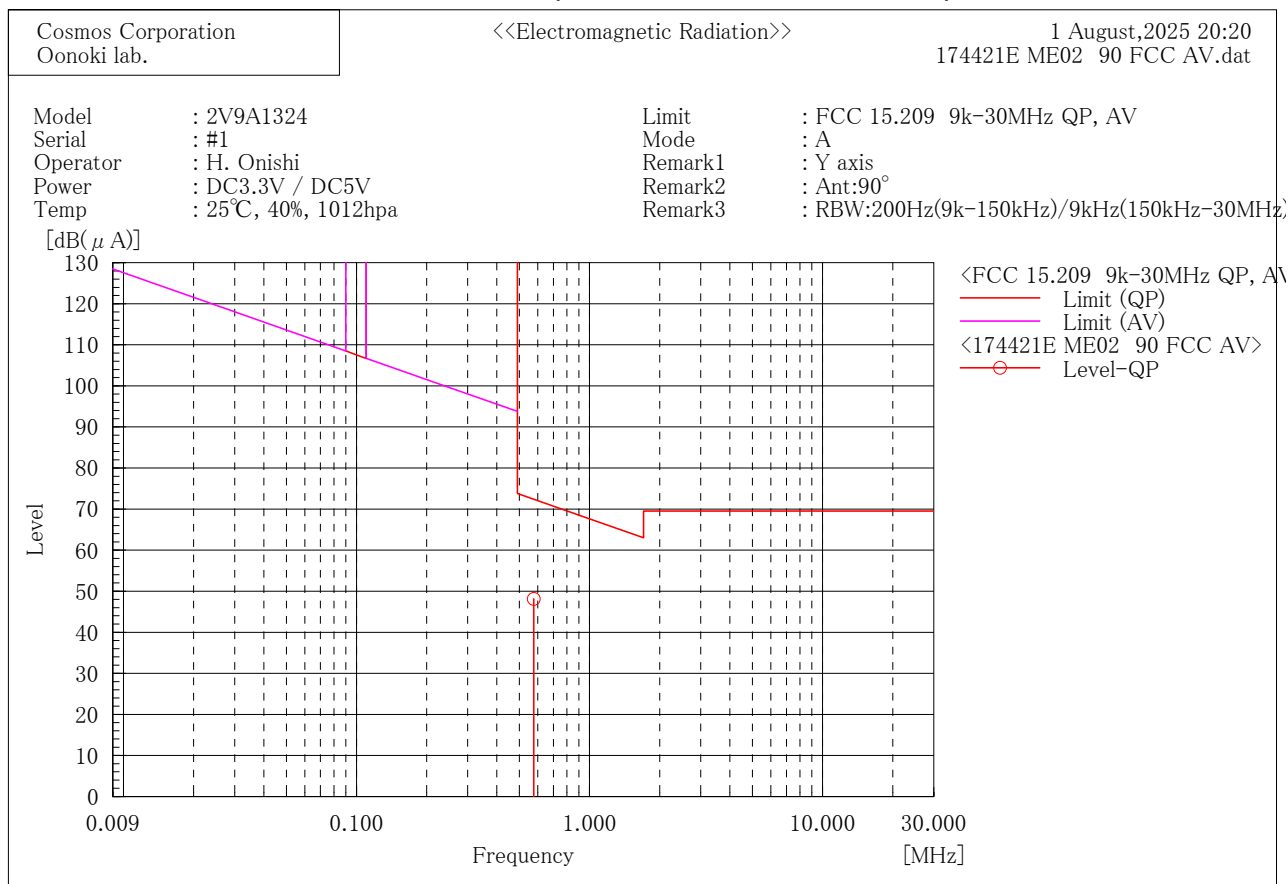
[Above 30 MHz]

$$\text{c.f (Correction Factor)} = \text{Cable Attenuation Factor} + \text{Antenna Factor} + \text{Amplifier Gain}$$

5.2.3 Test Detail (Continued)

<Below 30 MHz>

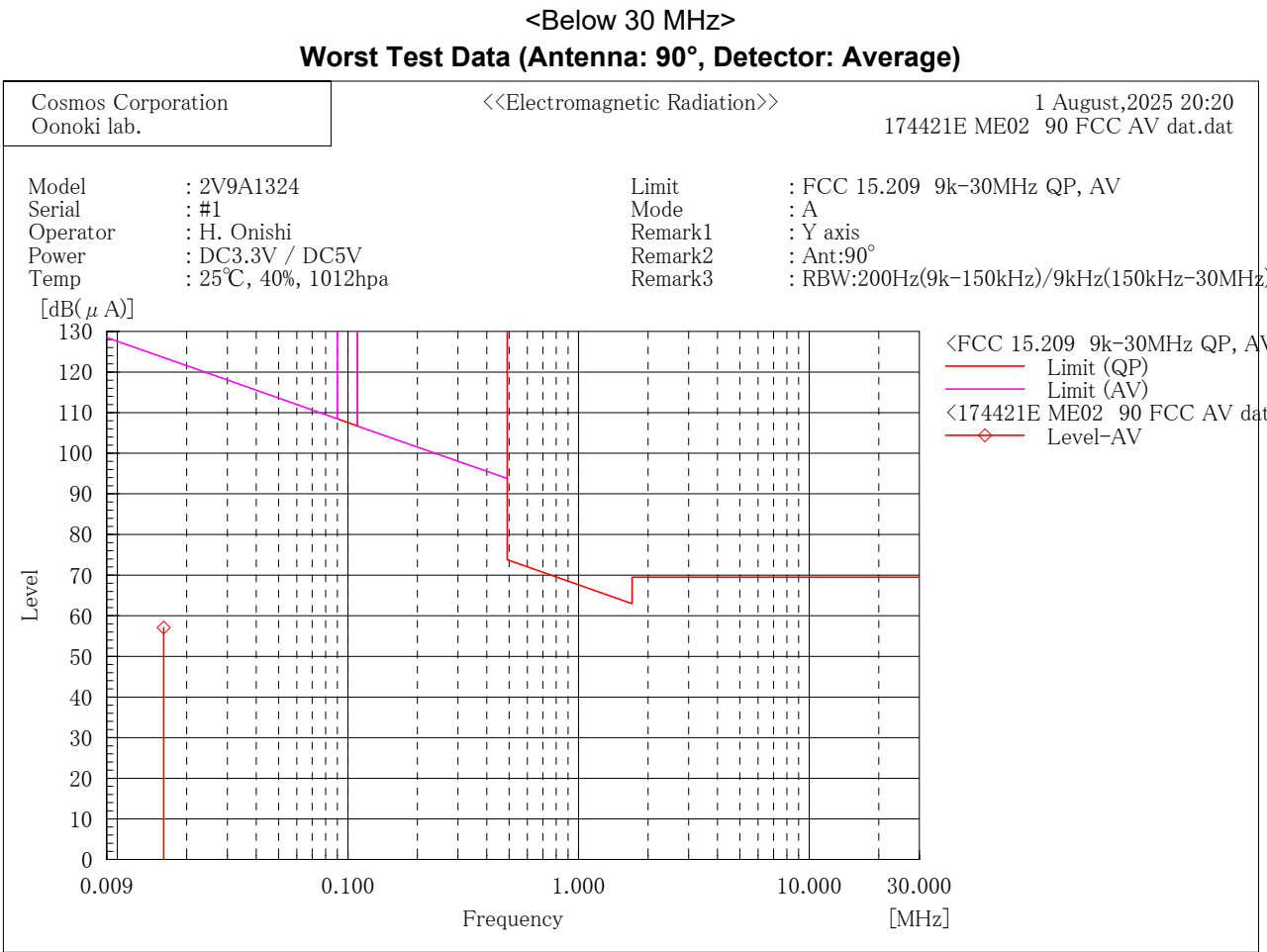
Worst Test Data (Antenna: 90°, Detector: Peak)



Final Result

No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	QP [dB(μV)]	[dB(1/Ω)]	QP [dB(μA)]	QP [dB(μA)]	QP [dB]
1	0.5765	36.5	11.6	48.1	72.4	24.3

5.2.3 Test Detail (Continued)



Final Result

No.	Frequency [MHz]	Reading	c. f [dB(1/Ω)]	Result	Limit	Margin
		AV [dB(μ V)]		AV [dB(μ A)]	AV [dB(μ A)]	AV [dB]
1	0.0159	41.2	15.9	57.1	123.6	66.5

5.2.3 Test Detail (Continued)

<30 MHz to 1 GHz> Worst Test Data (X axis)

***** Cosmos Corporation *****
<<Radiated Emission EP5/RE Ver 5.7.1>> 1 August, 2025 17:04
174421E RE01 FCC.dat

Limit : FCC15.209, RSS-Gen (MHz) 3m
Model : 2V9A1324
Serial : #1
Operator : J. Takashiba
Power : DC3.3V / DC5V
Environment : 25°C, 40%, 1012hpa
Mode : A
Remark : X axis
Remark :
Remark : RBW:120kHz

Final Result

--- Horizontal Polarization (QP)---

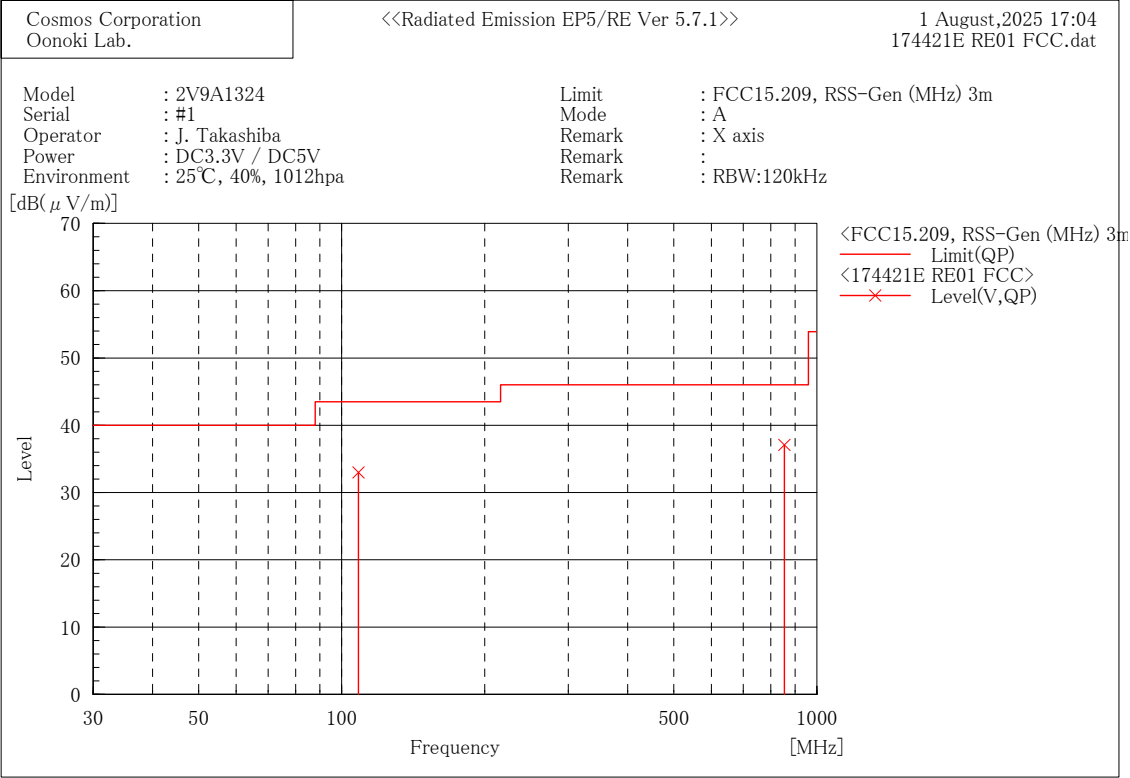
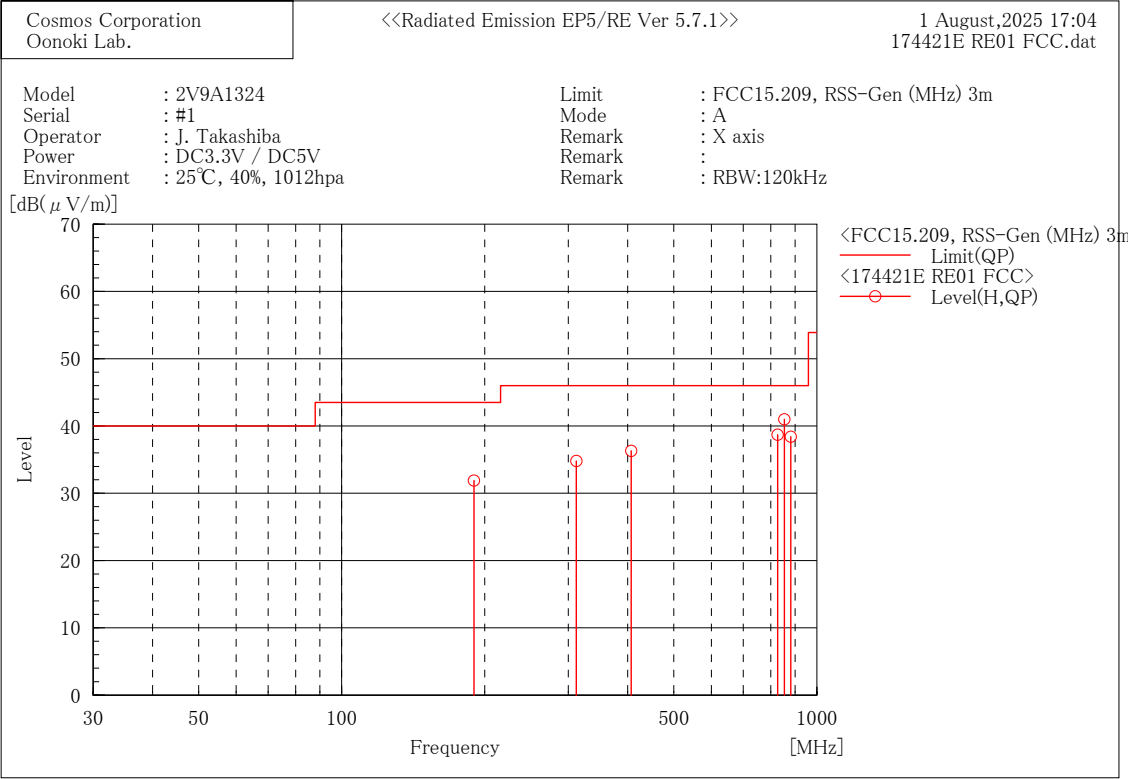
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	189.859	44.2	-12.3	31.9	43.5	11.6	101.0	18.0
2	311.900	46.1	-11.3	34.8	46.0	11.2	101.0	11.0
3	406.800	44.5	-8.2	36.3	46.0	9.7	227.0	0.0
4	827.150	39.8	-1.1	38.7	46.0	7.3	102.0	100.0
5	854.300	41.5	-0.5	41.0	46.0	5.0	101.0	31.0
6	881.400	38.7	-0.3	38.4	46.0	7.6	171.0	322.0

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	108.474	49.9	-16.9	33.0	43.5	10.5	101.0	195.0
2	854.300	37.6	-0.5	37.1	46.0	8.9	198.0	237.0

5.2.3 Test Detail (Continued)

<30 MHz to 1 GHz>
Worst Test Data (X axis)



5.3 20 dB Bandwidth (15.215(c))

5.3.1 Setting Remarks

The both side of 20 dB down value from peak power were measured by using the spectrum analyzer.
The spectrum analyzer is set as following:

·Resolution Bandwidth	: 1% to 5% of the OBW (not less than 1 kHz)
·Video Bandwidth	: Approx. 3 × RBW or greater
·Detector Mode	: Peak
·Trace Mode	: Max Hold

5.3.2 Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section under which the equipment is operated

5.3.3 Test Detail

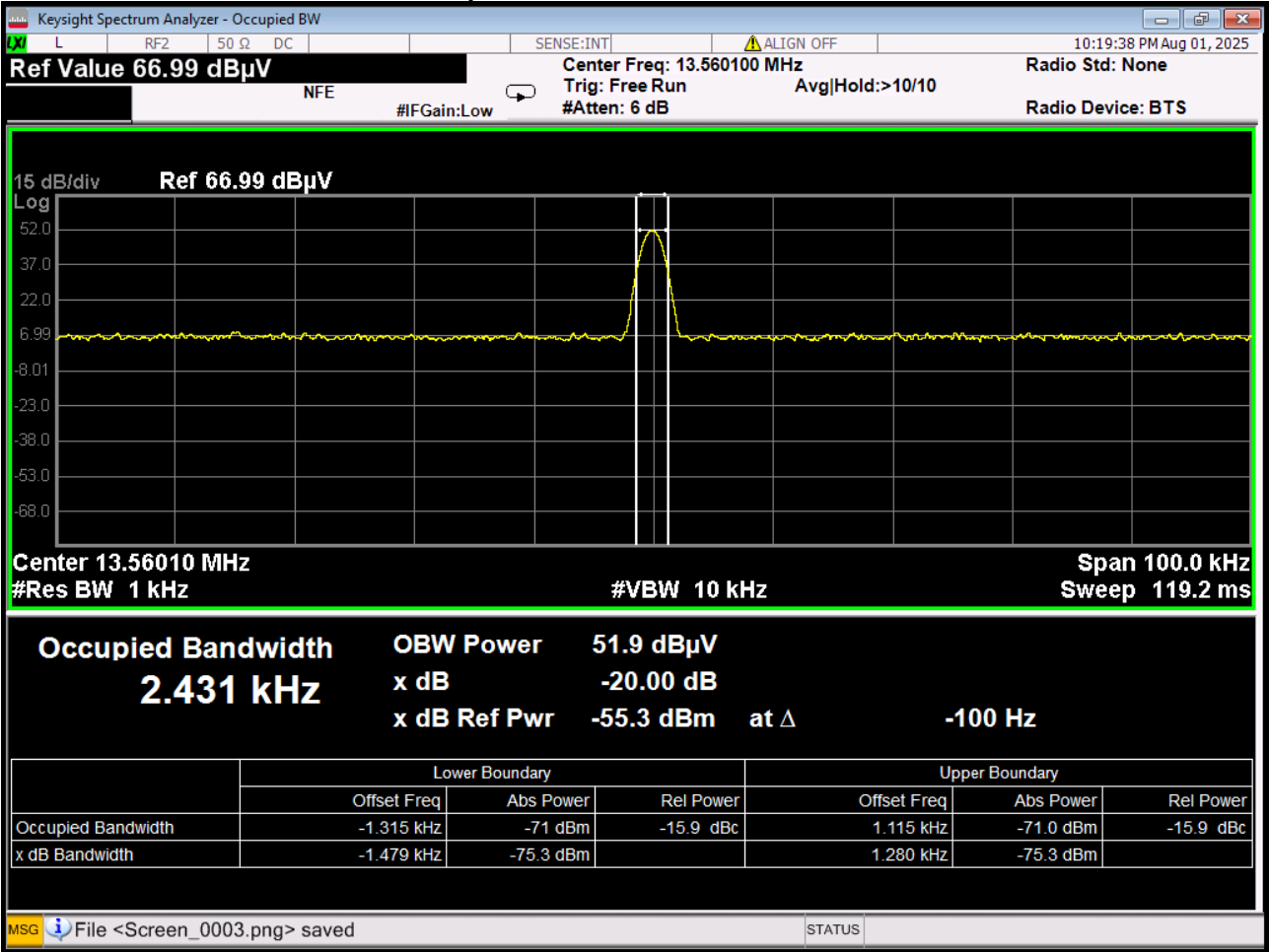
Result: Passed

Uncertainty of measurement result	: ±0.35 %
Test operator	: Junya Takashiba
Date of testing	: 2025-08-01
Room temperature	: 25 °C
Relative humidity	: 40 %

5.3.3 Test Detail (Continued)

Test Data			
Measured Bandwidth	Edge of Bandwidth	Limit	Margin
	[kHz]	[MHz]	[kHz]
	2.759		
	Lower	13.558	13.41 (Restricted Band)
	Higher	13.561	14.01
			148
			449

Representative Waveform Data



5.4 Field Strength of Fundamental Emission (15.225(a) (b) (c) (d), RSS-210 B.6)

5.4.1 Setting Remarks

The test setup was made in accordance with ANSI C63.10:2020 in a semi-anechoic chamber. The non-conductive table, 0.8 m high, was placed on the turntable, and the EUT was put on the non-conductive table. The turntable was fully rotated. The highest radiation from the equipment was recorded. The measurement was carried out with the measuring distance of 3 m. The test receiver with Quasi Peak detector is in accordance with CISPR 16-1-1. Then the limit of 30 m distance was converted to the limit of 3 m distance with the $40\log(30\text{ m}/3\text{ m})$.

5.4.2 Limit

Frequency range	Field Strength (Distance)	
	[$\mu\text{V}/\text{m}$]	[dB $\mu\text{V}/\text{m}$]
13.553 MHz to 13.567 MHz	15848 (30 m)	123.9 (3 m)
13.410 MHz to 13.553 MHz and 13.567 MHz to 13.710 MHz	334 (30 m)	90.4 (3 m)
13.110 MHz to 13.410 MHz and 13.710 MHz to 14.010 MHz	106 (30 m)	80.5 (3 m)
Outside of 13.110 MHz to 14.010 MHz	30 (30 m)	69.5 (3 m)

5.4.3 Test Detail

Result: Passed

Uncertainty of measurement result : $\pm 3.76\text{ dB}$
Test operator : Junya Takashiba
Date of testing : 2025-08-01
Room temperature : $25\text{ }^{\circ}\text{C}$
Relative humidity : 40 %

5.4.3 Test Detail (Continued)

Sample Calculation

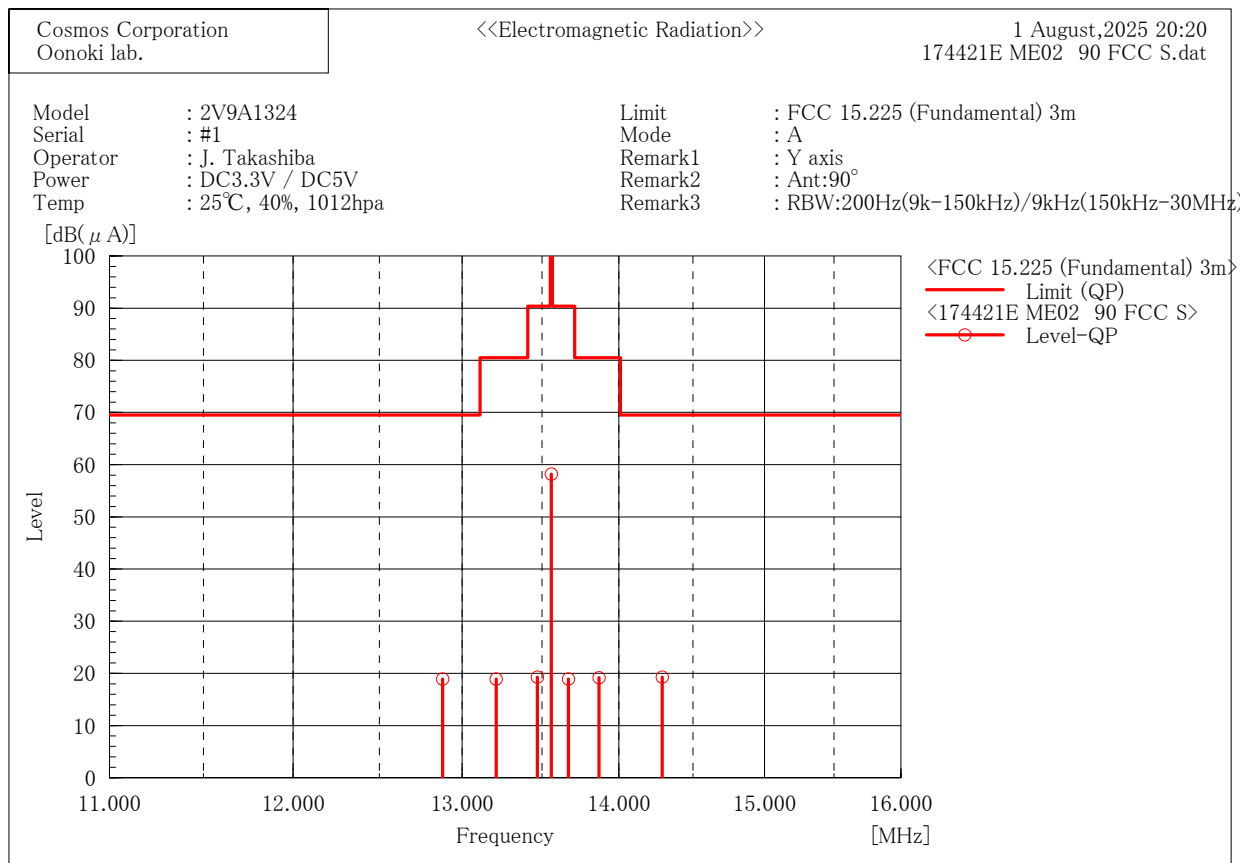
Result = Reading + c.f
= 7.1 + 11.8
= 18.9

Margin = Limit – Result
= 69.5 – 18.9
= 50.6

Note:

c.f (Correction Factor) = Cable Attenuation Factor + Antenna Factor

Test Data



Final Result

No.	Frequency	Reading	c. f	Result	Limit	Margin	Remark
	[MHz]	[dB(μV)]	[dB(1/Ω)]	[dB(μA)]	[dB(μA)]	[dB]	
1	12.880	7.1	11.8	18.9	69.5	50.6	
2	13.210	7.1	11.8	18.9	80.5	61.6	
3	13.470	7.5	11.8	19.3	90.4	71.1	
4	13.560	46.4	11.8	58.2	123.9	65.7	Ant4 67°
5	13.670	7.1	11.8	18.9	90.4	71.5	
6	13.870	7.4	11.8	19.2	80.5	61.3	
7	14.290	7.7	11.6	19.3	69.5	50.2	

5.4.3 Test Detail (Continued)

Test Data (12.003 MHz)

Measured Frequency [MHz]	Power Supply Voltage [V]	Power Supply Voltage [V]	Reading [dBμV]	Difference from Normal Condition	Result (10m) [dBμA/m]	Limit [dBμA/m]	Margin [dB]
12.003			7.6	---	---	---	---
	2.805	4.25	7.7	0.1	-39.1	-16	23.1
		5.00	8.1	0.5	-38.7	-16	22.7
		5.75	8.4	0.8	-38.4	-16	22.4
	3.300	4.25	8.3	0.7	-38.5	-16	22.5
		5.75	7.2	-0.4	-39.6	-16	23.6
	3.795	4.25	7.8	0.2	-39.0	-16	23.0
		5.00	8.5	0.9	-38.3	-16	22.3
		5.75	8.7	1.1	-38.1	-16	22.1

Test Data (12.8685 MHz)

Measured Frequency [MHz]	Power Supply Voltage [V]	Power Supply Voltage [V]	Reading [dBμV]	Difference from Normal Condition	Result (10m) [dBμA/m]	Limit [dBμA/m]	Margin [dB]
12.8685			14.4	---	---	---	---
	2.805	4.25	11.5	-2.9	42.1	-10	-52.1
		5.00	12.6	-1.8	43.2	-10	-53.2
		5.75	13.7	-0.7	44.3	-10	-54.3
	3.300	4.25	13.0	-1.4	43.6	-10	-53.6
		5.75	15.1	0.7	45.7	-10	-55.7
	3.795	4.25	11.3	-3.1	41.9	-10	-51.9
		5.00	12.6	-1.7	43.3	-10	-53.3
		5.75	13.6	-0.8	44.2	-10	-54.2

Test Data (13.2051 MHz)

Measured Frequency [MHz]	Power Supply Voltage [V]	Power Supply Voltage [V]	Reading [dBμV]	Difference from Normal Condition	Result (10m) [dBμA/m]	Limit [dBμA/m]	Margin [dB]
13.2051			33.2	---	---	---	---
	2.805	4.25	31.1	-2.1	42.7	-3.5	-46.2
		5.00	32.9	-0.3	44.5	-3.5	-48.0
		5.75	33.9	0.7	45.5	-3.5	-49.0
	3.300	4.25	32.8	-0.4	44.4	-3.5	-47.9
		5.75	36.1	2.9	47.7	-3.5	-51.2
	3.795	4.25	31.6	-1.6	43.2	-3.5	-46.7
		5.00	33.3	0.1	44.9	-3.5	-48.4
		5.75	34.6	1.4	46.2	-3.5	-49.7

5.4.3 Test Detail (Continued)

Test Data (13.4935 MHz)

Measured Frequency [MHz]	Power Supply Voltage [V]	Power Supply Voltage [V]	Reading [dBμV]	Difference from Normal Condition	Result (10m) [dBμA/m]	Limit [dBμA/m]	Margin [dB]
13.4935			86.2	---	---	---	---
	2.805	4.25	83.2	-3.0	41.9	9	-32.9
		5.00	84.8	-1.4	43.5	9	-34.5
		5.75	85.9	-0.3	44.6	9	-35.6
	3.300	4.25	84.5	-1.7	43.2	9	-34.2
		5.75	87.2	1.0	45.9	9	-36.9
	3.795	4.25	83.2	-3.0	41.9	9	-32.9
		5.00	84.8	-1.4	43.5	9	-34.5
		5.75	86.8	0.6	45.5	9	-36.5

Test Data (13.5599 MHz)

Measured Frequency [MHz]	Power Supply Voltage [V]	Power Supply Voltage [V]	Reading [dBμV]	Difference from Normal Condition	Result (10m) [dBμA/m]	Limit [dBμA/m]	Margin [dB]
13.5599			100.6	---	---	---	---
	2.805	4.25	97.2	-3.4	50.1	60	9.9
		5.00	98.8	-1.8	51.7	60	8.3
		5.75	99.8	-0.8	52.7	60	7.3
	3.300	4.25	98.7	-1.9	51.6	60	8.4
		5.75	101.4	0.8	54.3	60	5.7
	3.795	4.25	97.6	-3.0	50.5	60	9.5
		5.00	99.2	-1.4	52.1	60	7.9
		5.75	100.3	-0.3	53.2	60	6.8

Test Data (13.6859 MHz)

Measured Frequency [MHz]	Power Supply Voltage [V]	Power Supply Voltage [V]	Reading [dBμV]	Difference from Normal Condition	Result (10m) [dBμA/m]	Limit [dBμA/m]	Margin [dB]
13.6859			84.5	---	---	---	---
	2.805	4.25	82.5	-2.0	43.1	9	-34.1
		5.00	84.2	-0.3	44.8	9	-35.8
		5.75	85.2	0.7	45.8	9	-36.8
	3.300	4.25	82.9	-1.6	43.5	9	-34.5
		5.75	85.6	1.1	46.2	9	-37.2
	3.795	4.25	83.2	-1.3	43.8	9	-34.8
		5.00	84.8	0.3	45.4	9	-36.4
		5.75	85.8	1.3	46.4	9	-37.4

5.4.3 Test Detail (Continued)

Test Data (13.8621 MHz)

Measured Frequency [MHz]	Power Supply Voltage [V]	Power Supply Voltage [V]	Reading [dBμV]	Difference from Normal Condition	Result (10m) [dBμA/m]	Limit [dBμA/m]	Margin [dB]
13.8621			33.4	---	---	---	---
	2.805	4.25	31.2	-2.2	43.0	-3.5	-46.5
		5.00	32.9	-0.5	44.7	-3.5	-48.2
		5.75	34.1	0.7	45.9	-3.5	-49.4
	3.300	4.25	31.8	-1.6	43.6	-3.5	-47.1
		5.75	34.8	1.4	46.6	-3.5	-50.1
	3.795	4.25	31.7	-1.7	43.5	-3.5	-47.0
		5.00	33.5	0.1	45.3	-3.5	-48.8
		5.75	34.8	1.4	46.6	-3.5	-50.1

Test Data (14.2467 MHz)

Measured Frequency [MHz]	Power Supply Voltage [V]	Power Supply Voltage [V]	Reading [dBμV]	Difference from Normal Condition	Result (10m) [dBμA/m]	Limit [dBμA/m]	Margin [dB]
14.2467			12.6	---	---	---	---
	2.805	4.25	11.1	-1.5	43.6	-10	-53.6
		5.00	12.5	-0.1	45.0	-10	-55.0
		5.75	13.2	0.6	45.7	-10	-55.7
	3.300	4.25	11.6	-1.0	44.1	-10	-54.1
		5.75	14.5	1.9	47.0	-10	-57.0
	3.795	4.25	11.2	-1.4	43.7	-10	-53.7
		5.00	12.6	0.0	45.1	-10	-55.1
		5.75	13.6	1.0	46.1	-10	-56.1

Test Data (14.9359 MHz)

Measured Frequency [MHz]	Power Supply Voltage [V]	Power Supply Voltage [V]	Reading [dBμV]	Difference from Normal Condition	Result (10m) [dBμA/m]	Limit [dBμA/m]	Margin [dB]
14.9359			8.9	---	---	---	---
	2.805	4.25	7.8	-1.1	44.1	-16	-60.1
		5.00	8.0	-0.9	44.3	-16	-60.3
		5.75	8.2	-0.7	44.5	-16	-60.5
	3.300	4.25	7.9	-1.0	44.2	-16	-60.2
		5.75	8.8	-0.1	45.1	-16	-61.1
	3.795	4.25	7.9	-1.0	44.2	-16	-60.2
		5.00	8.5	-0.4	44.8	-16	-60.8
		5.75	8.6	-0.3	44.9	-16	-60.9

5.5 Frequency Stability (15.225(e), RSS-210 B.6)

5.5.1 Setting Remarks

The EUT was placed in an environmental test chamber, exposed in extreme temperatures until its temperature is stabilized. The measurement was carried out at every 10 °C from -20 °C to +50 °C in the most common nominal supply voltage and the measurement was carried out at $\pm 15\%$ of rated voltage at 20 °C.

5.5.2 Limit

The frequency stability of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency.

5.5.3 Test Detail

Result: Passed

Uncertainty of measurement result	: ± 0.10 Hz
Test operator	: Junya Takashiba
Date of testing	: 2025-07-29
Room temperature	: Refer to Test Data

Sample Calculation

Deviation [Hz] = Measured Frequency – Center Frequency
= 13559950 – 13560000
= -50

Deviation [ppm] = $| \text{Deviation [Hz]} | \div \text{Center Frequency} \times 1000000$
= $| -50 | \div 13560000 \times 1000000$
 $\div 3.7$

Margin = Limit – Deviation [ppm]
= 100 – 3.7
= 96.3

5.5.3 Test Detail (Continued)

Test Data

Temp [°C]	Operation Time	Measured Frequency [Hz]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]	Margin [ppm]
50	Startup	13559950	-50	3.7	100	96.3
	2 min	13559978	-22	1.6	100	98.4
	5 min	13559954	-46	3.4	100	96.6
	10 min	13559942	-58	4.3	100	95.7
40	Startup	13559982	-18	1.3	100	98.7
	2 min	13559899	-101	7.4	100	92.6
	5 min	13559954	-46	3.4	100	96.6
	10 min	13559925	-75	5.5	100	94.5
30	Startup	13560005	5	0.4	100	99.6
	2 min	13560059	59	4.4	100	95.6
	5 min	13559996	-4	0.3	100	99.7
	10 min	13559942	-58	4.3	100	95.7
20	Startup	13559995	-6	0.4	100	99.6
	2 min	13560032	32	2.4	100	97.6
	5 min	13560003	3	0.2	100	99.8
	10 min	13560062	62	4.6	100	95.4
10	Startup	13559994	-6	0.4	100	99.6
	2 min	13560034	34	2.5	100	97.5
	5 min	13560079	79	5.8	100	94.2
	10 min	13560034	34	2.5	100	97.5
0	Startup	13560029	29	2.1	100	97.9
	2 min	13560084	84	6.2	100	93.8
	5 min	13560116	116	8.6	100	91.4
	10 min	13560106	106	7.8	100	92.2
-10	Startup	13560084	84	6.2	100	93.8
	2 min	13560101	101	7.5	100	92.5
	5 min	13560121	121	8.9	100	91.1
	10 min	13560064	64	4.7	100	95.3
-20	Startup	13560039	39	2.9	100	97.1
	2 min	13560044	44	3.2	100	96.8
	5 min	13560016	16	1.2	100	98.8
	10 min	13560029	29	2.1	100	97.9

5.5.3 Test Detail (Continued)

Test Data

Supply Voltage [V]	Supply Voltage [V]	Measured Frequency [Hz]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]	Margin [ppm]
2.805	4.25	13560030	30	2.2	100	97.8
	5.00	13559987	-14	1.0	100	99.0
	5.75	13559995	-5	0.4	100	99.6
3.300	4.25	13560010	10	0.8	100	99.2
	5.00	13560062	62	4.6	100	95.4
	5.75	13560062	62	4.6	100	95.4
3.795	4.25	13560059	59	4.3	100	95.7
	5.00	13560038	38	2.8	100	97.2
	5.75	13560008	8	0.6	100	99.4

Test Data

Temp [°C]	Supply Voltage [V]	Supply Voltage [V]	Measured Frequency [Hz]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]	Margin [ppm]
50	3.3	5	13560519	-123	9.1	100	90.9
20			13560642	reference value			
-20			13560664	22	1.6	100	98.4
20	2.805	4.25	13560584	-58	4.3	100	95.7
		5.00	13560583	-59	4.4	100	95.6
		5.75	13560581	-61	4.5	100	95.5
	3.300	4.25	13560643	1	0.1	100	99.9
		5.75	13560640	-2	0.1	100	99.9
	3.795	4.25	13560677	35	2.6	100	97.4
		5.00	13560681	39	2.9	100	97.1
		5.75	13560678	36	2.7	100	97.3

5.6 Occupied Bandwidth (RSS-Gen Annex A)

5.6.1 Setting Remarks

Occupied Bandwidth is measured by using 99% Bandwidth measurement function.
 The spectrum analyzer is set as following:

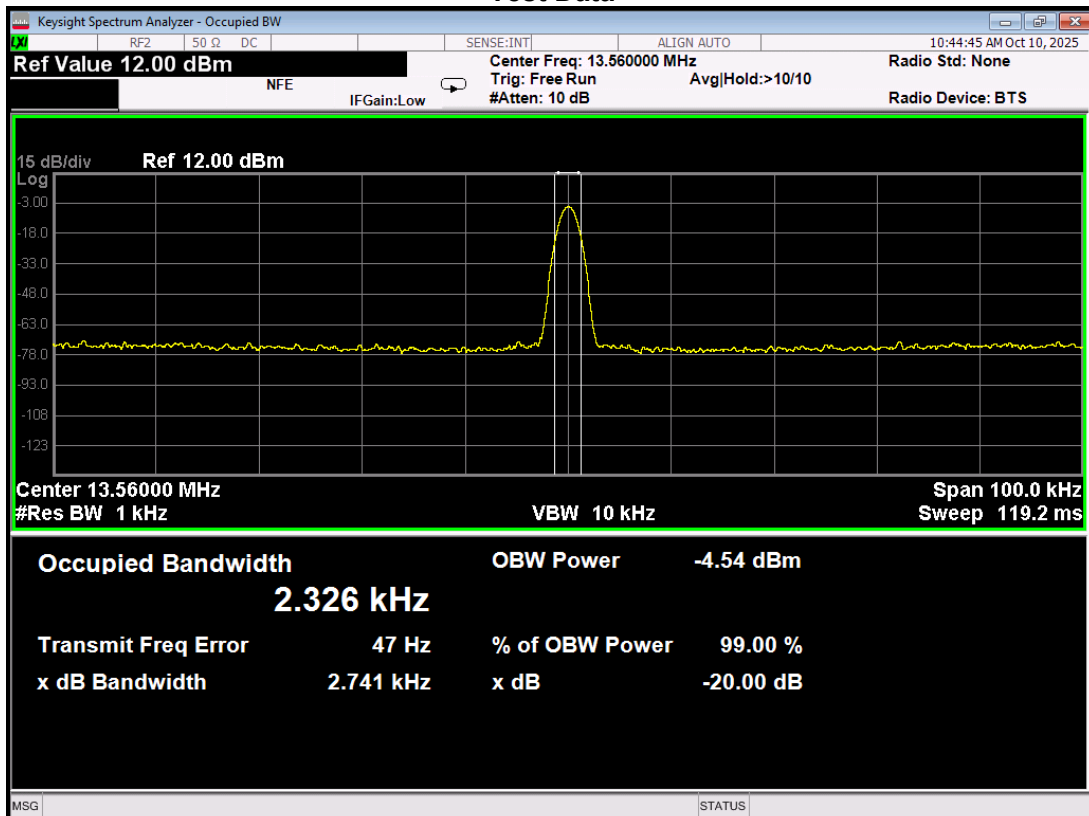
·Resolution Bandwidth	: 1% to 5% of the OBW (not less than 1 kHz)
·Video Bandwidth	: Approx. 3 × RBW or greater
·Detector Mode	: Peak
·Trace Mode	: Max Hold

5.6.2 Test Detail

Result: Passed

Uncertainty of measurement result	: $\pm 0.35\%$
Test operator	: Junya Takashiba
Date of testing	: 2025-10-10
Room temperature	: 25 °C
Relative humidity	: 56 %

Test Data



6. List of Test and Measurement Instruments

AC Power Line Conducted Emission

Instruments	Manufacturer	Model	Serial No.	Calibrated Date/Until	Cosmos ID
Artificial Mains Network	KYORITSU	KNW-242F	8-2038-2	2024-12-09 2025-12-08	ME00192S
Artificial Mains Network	KYORITSU	KNW-407F	8-2035-3	2024-08-30 2025-08-29	ME00193S
Shielded Room	JSE	COSR-01	---	--- ---	OE00030S
Software	TOYO Corporation	EP5/CE (ver5.4.40)	---	--- ---	OE00276
EMI Test Receiver	Agilent Technologies	N9038A	MY54130015	2025-03-31 2026-03-30	OE00383S
RF System Path	---	OSEMICES1	---	2024-10-23 2025-10-22	OE00437
Terminator	TAMAGAWA	CT-01	OE00528	2024-10-07 2025-10-06	OE00528

6. List of Test and Measurement Instruments (Continued)

Transmitter Spurious Emissions (Radiated)

Field Strength of Fundamental Emission

Instruments	Manufacturer	Model	Serial No.	Calibrated Date/Until	Cosmos ID
Log-periodic Antenna	SCHWARZBECK	VUSLP9111	VUSLP 9111-330	2024-11-04 2025-11-03	ME00066S
Biconical Antenna	SCHWARZBECK	VHBB9124/BB A9106	9124-465	2024-11-06 2025-11-05	ME00070S
Pre-amplifier	Sonoma Instrument	310N	292056	2024-10-30 2025-10-29	ME00074S
Active Loop Antenna	ETS LINDGREN	6502	00232742	2025-01-06 2026-01-05	ME00910L
Anechoic Chamber 3m	JSE	COAC3M-01	---	---	OE00029S
Attenuator 3dB	TAMAGAWA	CFA-01	(OE00236)	2024-08-16 2025-08-15	OE00236
Software	TOYO Corporation	EP5/ME (ver.5.1.40)	---	---	OE00270
Software	TOYO Corporation	EP5/RE (ver5.7.1)	---	---	OE00275
EMI Test Receiver	Agilent Technologies	N9038A	MY54130015	2025-03-31 2026-03-30	OE00383S
RF System Path	---	OCEMIRE3RS 2	---	2025-07-25 2026-07-24	OE00429
RF System Path	---	OCEMIREMS3	---	2025-07-25 2026-07-24	OE00517
Normalized Site Attenuation	---	COAC3M-01	---	2025-07-24 2026-07-23	OE00552
Digital Thermo-Hygrometer	ThermoPro	TP-55	---	2024-09-02 2025-09-01	OR10018

6. List of Test and Measurement Instruments (Continued)

20 dB Bandwidth / Frequency Stability / Occupied Bandwidth

Instruments	Manufacturer	Model	Serial No.	Calibrated Date/Until	Cosmos ID
Temperature and Humidity Chamber	TABAI ESPEC CORP.	PL-3KP	14001338	2024-11-20 2025-11-19	ME00897S
EMI Test Receiver	Agilent Technologies	N9038A	MY54130015	2025-03-31 2026-03-30	OE00383S

7. Appendix

Refer to separated files for the following appendixes.

Appendix 1: Photographs of the Test Setup

Appendix 2: External Photographs

Revision History

Revision	Date of Issue	Description	Effect Page	Revised By
00	2025-08-26	Initial Issue	-	-
01	2025-09-11	Addition of Firmware Version and Product Marketing Name.	3	Makoto Kobayashi
		Correction of Hardware Version and Software Version.	3	
02	2025-09-18	Correction of the description.	6	Makoto Kobayashi
		Correction of " 3.3 Configuration ".	7	
03	2025-09-25	Addition of the measurement distance.	8	Makoto Kobayashi
		Correction of mistype.	9, 10, 15, 24	
04	2025-10-10	Correction of the measurement information and Test Data.	32	Makoto Kobayashi

----- End of Report -----