

TEST REPORT

Date of Issue: 2023-09-15

Name and Address of the Client: Enagic International Co., Ltd.
1-40-1 Hoshidakita, Katano-shi, Osaka 576-0017, Japan

Product Name: Purify Water Machine

Model: Leveluk JrIVDX

Serial No.: WC000057DM / WC000058DM

FCC ID: 2AEBAA2902

ISED Certification Number: 20009-A2902

Sample No.: 1

Sample Condition: Good

Date of Sample Receipt: 2023-05-24

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

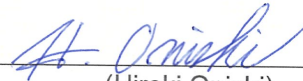
FCC Part 15 Subpart C
RSS-Gen Issue 5, RSS-210 Issue 10

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

Period of Testing: 2023-05-29 to 2023-08-21

Test Personnel: 
(Junya Takashiba) EMC Dept.
INARTE : EMC-147054-E

Checked by: 
(Keisuke Miyaji) EMC Dept.
INARTE : EMC-003627-NE

Approved by: 
(Hiroki Onishi) EMC Dept.
INARTE : EMC-003318-NT



Cosmos Corporation
718-1 Katsurase-cho, Matsusaka-shi, Mie 515-1104, JAPAN

Note:

- 1.This test report should not be reproduced except in full, without the written approval of Cosmos Corporation.
- 2.The test result of this test report is based on the tests made for sample provided, and it is not applicable to individual product identical to the sample or similar product.
- 3.The results of this test report validates the test item only specified in "2. Summary of Test Results".
- 4.The measuring instruments used for the tests in this report are traceable to the National standard or the International standard.
- 5.The opinions and the interpretations to the result of the description in this report are outside scope where Cosmos Corp. been accredited.
- 6.This Test Report is issued by private test house (Cosmos Corporation), therefore this test report must not be used by the customer to claim product certification, approval, or endorsement by A2LA or US government

Contents	Page
1. Description of the Tested Sample.....	3
1.1 Product Description.....	3
1.2 Antenna Description.....	3
1.3 EUT Description.....	4
2. Summary of Test Results	5
3. Test Condition	6
3.1 Mode of Operation	6
3.2 Configuration.....	6
3.3 EUT Angle.....	8
4. General Information.....	9
4.1 Test Methodology.....	9
4.2 Test Facility.....	9
4.3 Traceability.....	9
5. Test Result	10
5.1 AC Power Line Conducted Emission (15.207, RSS-Gen 8.8).....	10
5.2 Transmitter Spurious Emission (Radiated) (15.209, RSS-Gen 8.9).....	13
5.3 20 dB Bandwidth (15.215(c)).....	18
5.4 Field Strength of Fundamental Emission (15.225(a) (b) (c) (d), RSS-210 B.6)	20
5.5 Frequency Stability (15.225(e), RSS-210 B.6).....	24
5.6 Occupied Bandwidth (RSS-Gen Annex A)	27
6. List of Test and Measurement Instruments.....	28
7. Appendix	32
Revision History	33

1. Description of the Tested Sample

1.1 Product Description

Product	Purify Water Machine
Model (referred to as the EUT)	LeveLuk JrIVDX
Manufacturer	Enagic International Co., Ltd
Hardware Version	LeveLuk JrIVDX
Software Version	Ver1.1-1
Type of the Equipment	☐ Stand-alone ☒ Combined Equipment ☐ Plug-in Radio Device ☐ Other ()
Transmitter Type	☒ RFID ☐ Other ()
Antenna Type	☒ Integral Antenna ☐ Dedicated External Antenna
Operating Frequency	13.56 MHz
Type of Modulation	OOK
Emission Designator	341KP1D
Type of Power Source	☒ AC Mains ☐ Dedicated AC Adaptor ☐ DC Voltage ☐ Battery
Input Power Rating	AC 100-240 V, 50/60 Hz, 2.6-1.2 A
Type of Battery (if applicable)	N/A
Thermal Limitation	0 °C to 40 °C

1.2 Antenna Description

Model	Gain	Antenna Type
Un-specified	-58.3 dBi	Loop Antenna

1.3 EUT Description

Equipment under test is as follow:

Instrument	Model	Serial No.
Purify Water Machine (EUTA) *1	LeveLuk JrIVDX	WC000057DM
Purify Water Machine (EUTB) *2	LeveLuk JrIVDX	WC000058DM

Note:

*1: This equipment was used during the following tests;

AC Power Line Conducted Emission, Transmitter Spurious Emission (Radiated),
Field Strength of Fundamental Emission

*2: This equipment was used during the following tests;

20 dB Bandwidth, Frequency Stability and Occupied Bandwidth.

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 Normal Operation.

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

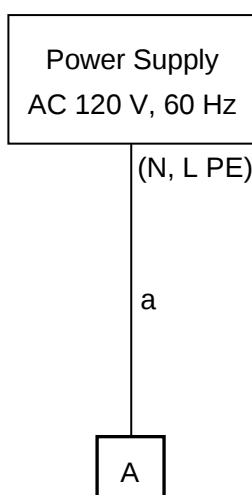
Temperature: -20 °C to +50 °C

Voltage: AC 120 V ±15 %

3.2 Configuration

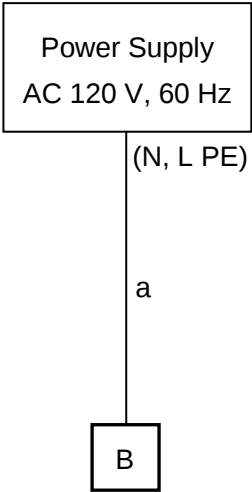
	Equipment	Model		Cable	Length	Shield
A	EUT A	LeveLuk JrIVDX (S/N: WC000057M)	a	AC Power Cord	2.0 m	×
B	EUT B	LeveLuk JrIVDX (S/N: WC000058M)				

AC Power Line Conducted Emission
Transmitter Spurious Emission (Radiated)
Field Strength of Fundamental Emission

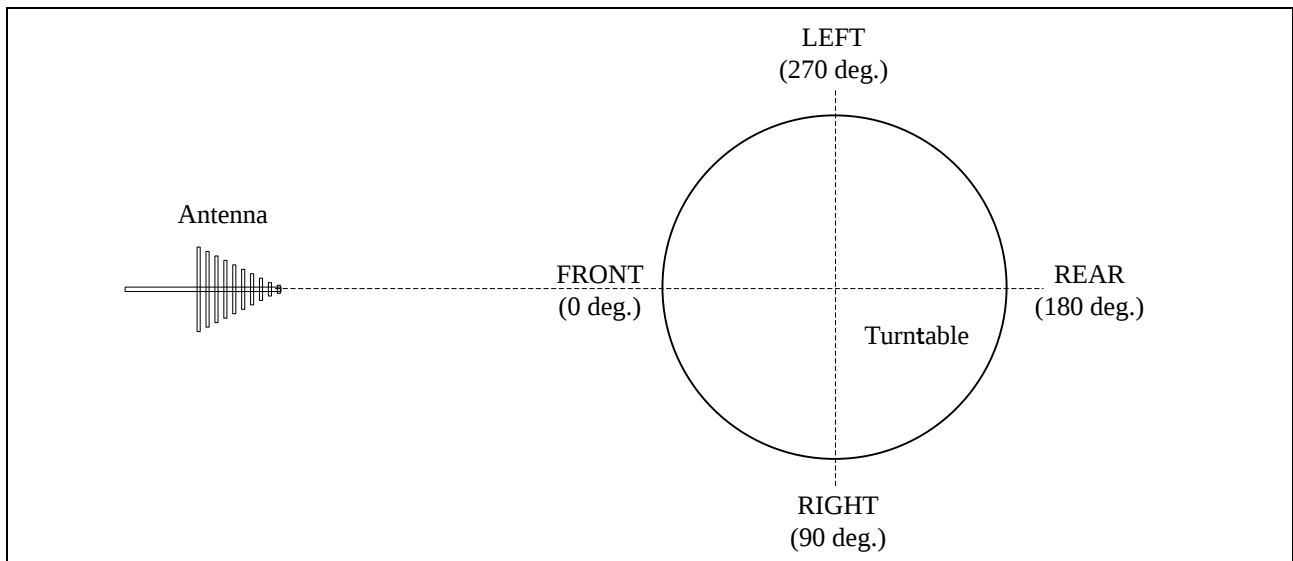


3.2 Configuration (Continued)

20 dB Bandwidth
Frequency Stability
Occupied Bandwidth



3.3 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 C63.10-2013.

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. JP5182

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 C63.10-2013, Clause 6.2. The non-conductive table 0.8 m, 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 : ± 2.68 dB
Test operator : Junya Takashiba
Date of testing : 2023-07-31
Room temperature : 26 $^{\circ}$ C
Relative humidity : 56 %

Note:

*: Decrease with the logarithm of the frequency.

5.1.3 Test Detail (Continued)

Sample Calculation

Result = Reading + c.f
= 8.2 + 10.2
= 18.4

Margin = Limit – Result
= 60.3 – 18.4
= 41.9

Note:

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

Test Data

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

31 July, 2023 17:52
170658E CE Total01.dat

Limit : FCC15.207, RSS-Gen
Model : LeveLuk JrDX
S/N : WC000057DM
Operator : J. Takashiba
Power : AC 120V, 60Hz
Environment : 26°C, 56%, 1013hPa
Mode : A
Remark1 :
Remark2 :
Remark3 : RBW : 9kHz (0.15-30MHz)

Final Result

--- L1 Phase ---

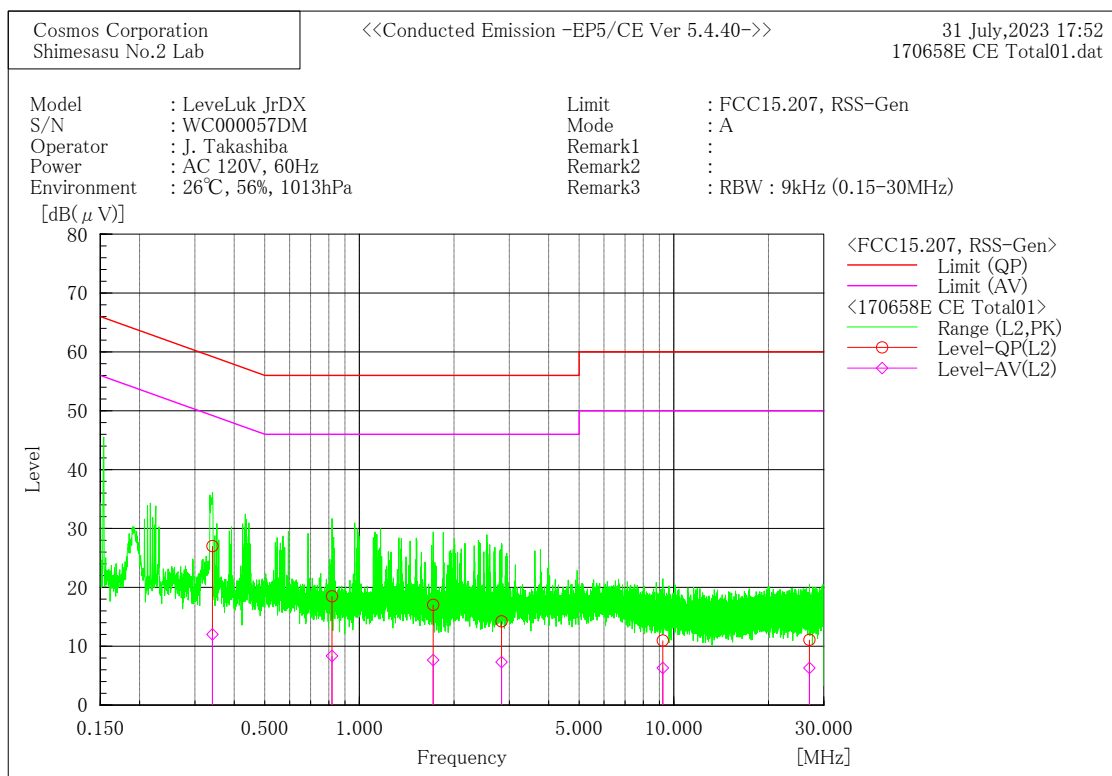
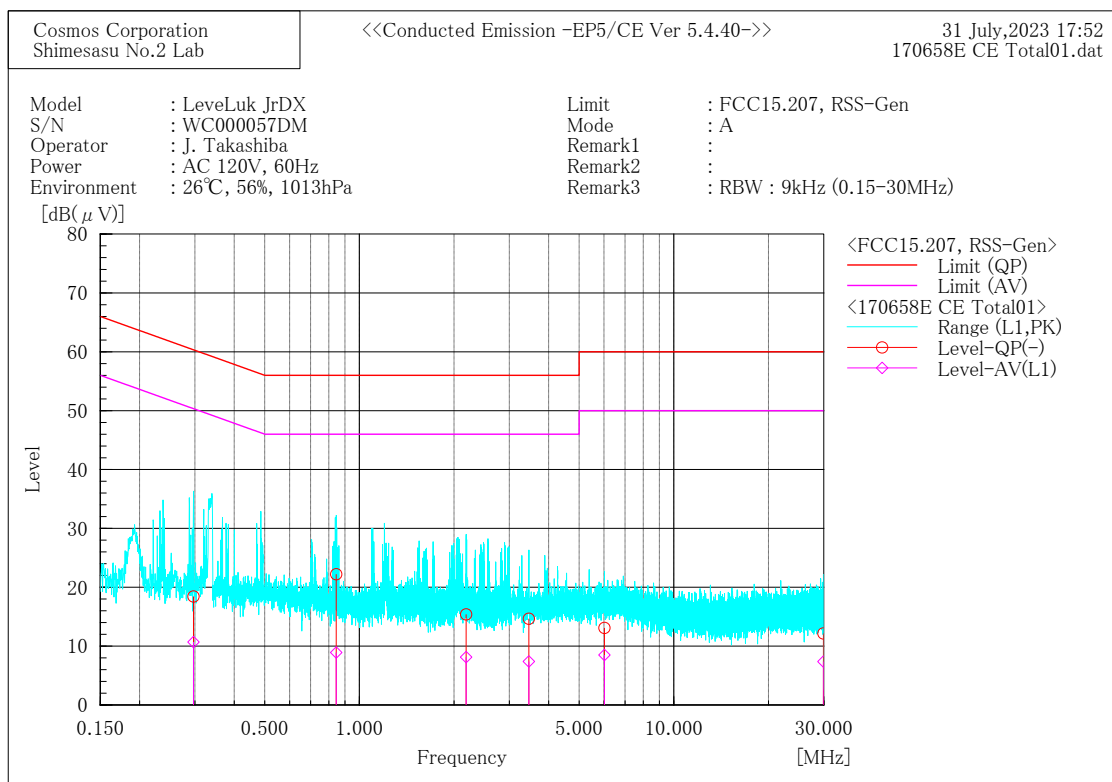
No.	Frequency	Reading QP	Reading AV	c. f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.2968	8.2	0.5	10.2	18.4	10.7	60.3	50.3	41.9	39.6
2	0.84408	11.9	-1.4	10.3	22.2	8.9	56.0	46.0	33.8	37.1
3	2.18546	5.1	-2.2	10.3	15.4	8.1	56.0	46.0	40.6	37.9
4	3.45955	4.2	-3.0	10.4	14.6	7.4	56.0	46.0	41.4	38.6
5	6.01712	2.6	-2.0	10.5	13.1	8.5	60.0	50.0	46.9	41.5
6	29.92813	1.2	-3.5	10.9	12.1	7.4	60.0	50.0	47.9	42.6

--- L2 Phase ---

No.	Frequency	Reading QP	Reading AV	c. f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.34106	16.8	1.8	10.2	27.0	12.0	59.2	49.2	32.2	37.2
2	0.81853	8.3	-1.9	10.2	18.5	8.3	56.0	46.0	37.5	37.7
3	1.71698	6.7	-2.7	10.3	17.0	7.6	56.0	46.0	39.0	38.4
4	2.8342	3.9	-3.0	10.3	14.2	7.3	56.0	46.0	41.8	38.7
5	9.22513	0.5	-4.2	10.5	11.0	6.3	60.0	50.0	49.0	43.7
6	27.00834	0.4	-4.4	10.7	11.1	6.3	60.0	50.0	48.9	43.7

5.1.3 Test Detail (Continued)

Test Data



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 C63.10-2013, Clause 6.4 and 6.5, 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 : ± 4.58 dB
Test operator : Junya Takashiba
Date of testing : 2023-06-19
Room temperature : 25 °C
Relative humidity : 63 %

5.2.3 Test Detail (Continued)

Sample Calculation

$$\begin{aligned}\text{Result} &= \text{Reading} + \text{c.f} \\ &= 34.5 + (-13.7) \\ &= 20.8\end{aligned}$$

$$\begin{aligned}\text{Margin} &= \text{Limit} - \text{Result} \\ &= 43.5 - 20.8 \\ &= 22.7\end{aligned}$$

Note:

[Below 30 MHz]

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

[Above 30 MHz]

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

<Below 30 MHz>

No spurious emission for RF Module was Found

5.2.3 Test Detail (Continued)

<Above 30 MHz>

Test Data

***** Cosmos Corporation *****
<<Radiated Emission EP5/RE Ver 5.7.1>> 19 June, 2023 13:39
170658E RE Total01 .dat

Limit : FCC15.209, RSS-Gen (MHz) 3m
Model : LeveLuk JrIVDX
Serial : WC000057DM
Operator : J. Takashiba
Power : AC 120V, 60Hz
Environment : 25°C, 63%, 1002hPa
Mode : A
Remark :
Remark :
Remark : RBW:120kHz

Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c.f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [°]
1	94.920	34.5	-13.7	20.8	43.5	22.7	251.0	186.0
2	149.161	38.7	-10.6	28.1	43.5	15.4	230.0	335.0
3	284.760	36.8	-2.5	34.3	46.0	11.7	104.0	336.0
4	596.664	37.5	-1.4	36.1	46.0	9.9	115.0	172.0
5	786.479	36.9	1.5	38.4	46.0	7.6	100.0	347.0

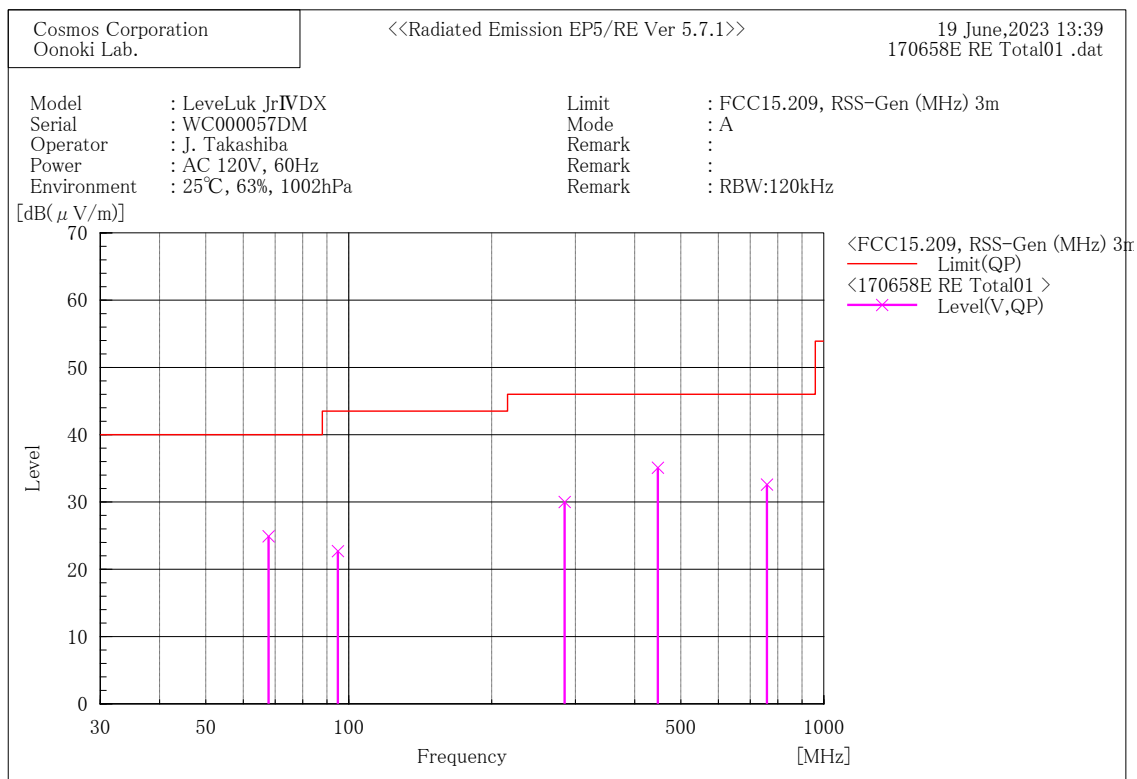
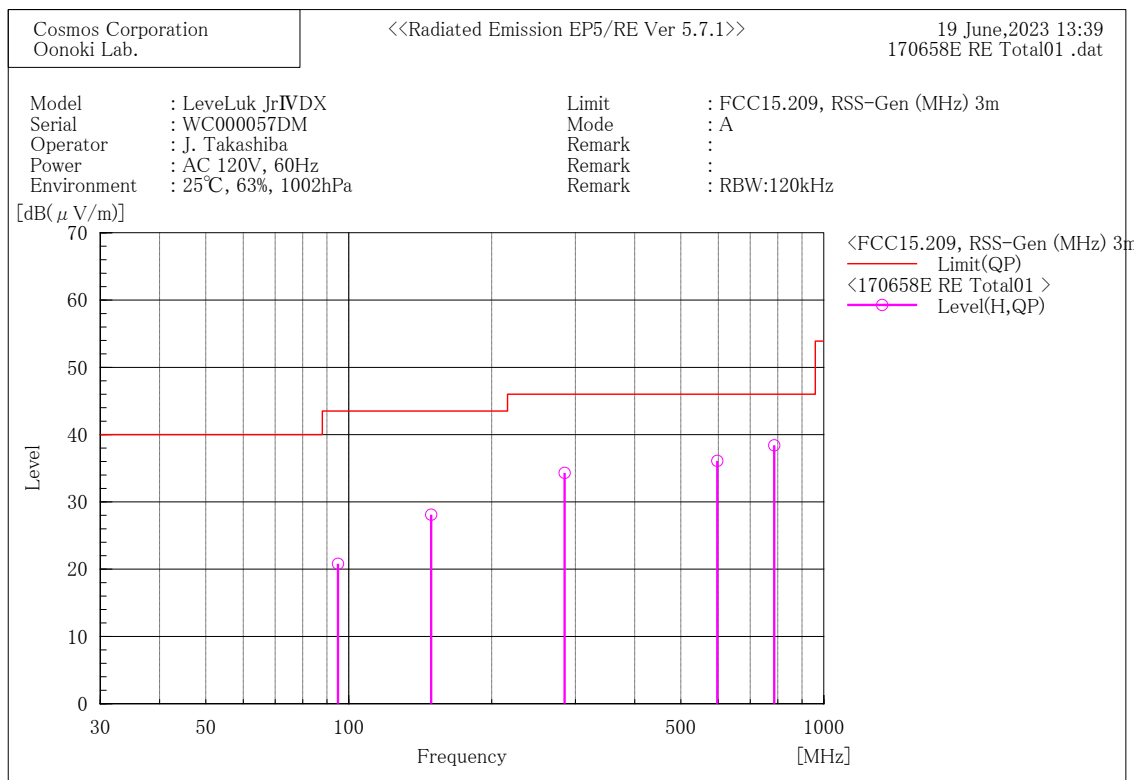
--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c.f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [°]
1	67.800	39.6	-14.7	24.9	40.0	15.1	100.0	87.0
2	94.901	36.4	-13.7	22.7	43.5	20.8	104.0	205.0
3	284.779	32.5	-2.5	30.0	46.0	16.0	152.0	167.0
4	447.438	39.2	-4.1	35.1	46.0	10.9	108.0	90.0
5	759.375	31.3	1.3	32.6	46.0	13.4	115.0	232.0

5.2.3 Test Detail (Continued)

<Above 30 MHz>

Test Data



5.3 20 dB Bandwidth (15.215(c))

5.3.1 Setting Remarks

The test was performed in accordance with ANSI C63.10-2013, Clause 6.9.

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	: ±1.02 %
Test operator	: Junya Takashiba
Date of testing	: 2023-08-24
Room temperature	: 25 °C
Relative humidity	: 57 %

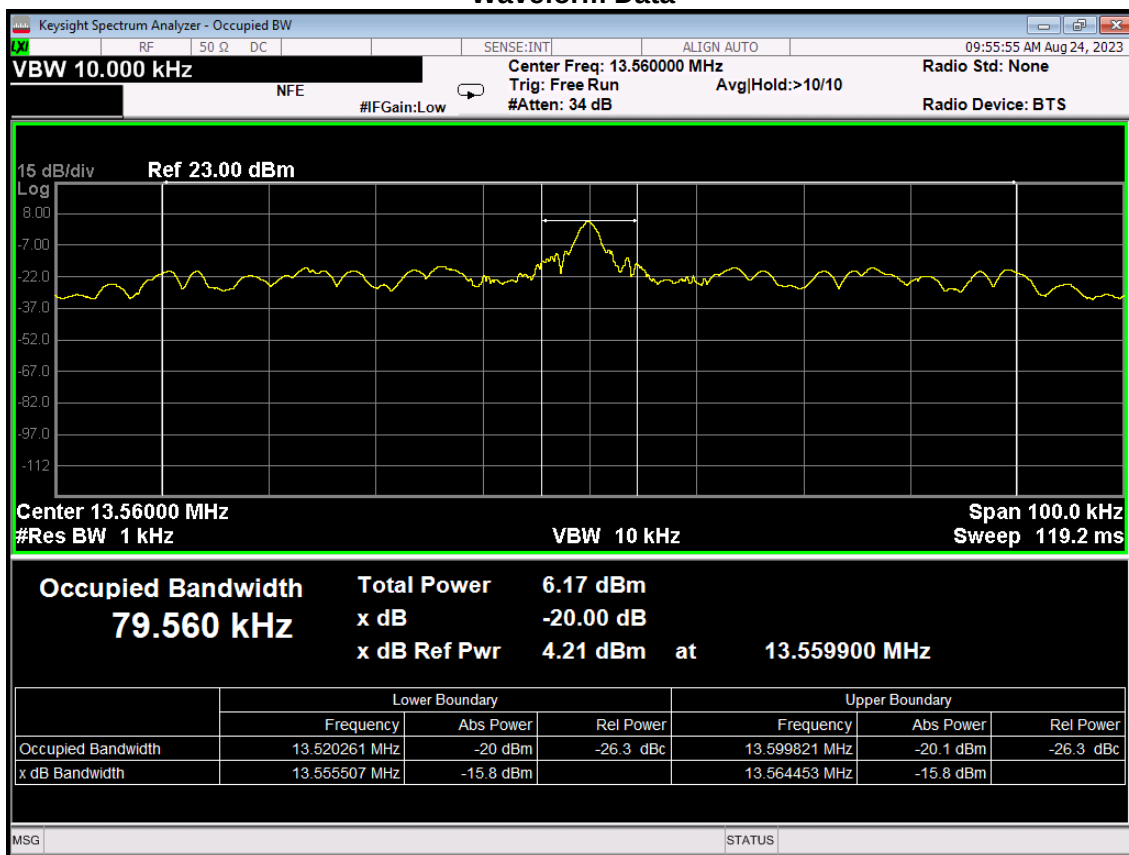
5.3.3 Test Detail (Continued)

Test Data

Measured
Bandwidth
8.95 kHz

	Edge of Bandwidth [MHz]	Limit [MHz]	Margin [kHz]
Lower	13.555507	13.41 (Restricted Band)	146
Higher	13.564453	14.01	446

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 C63.10:2013, Clause 6.4 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 : $\pm 3.34\text{ dB}$
 Test operator : Junya Takashiba
 Date of testing : 2023-06-09
 Room temperature : $25\text{ }^{\circ}\text{C}$
 Relative humidity : 51 %

5.4.3 Test Detail (Continued)

Sample Calculation

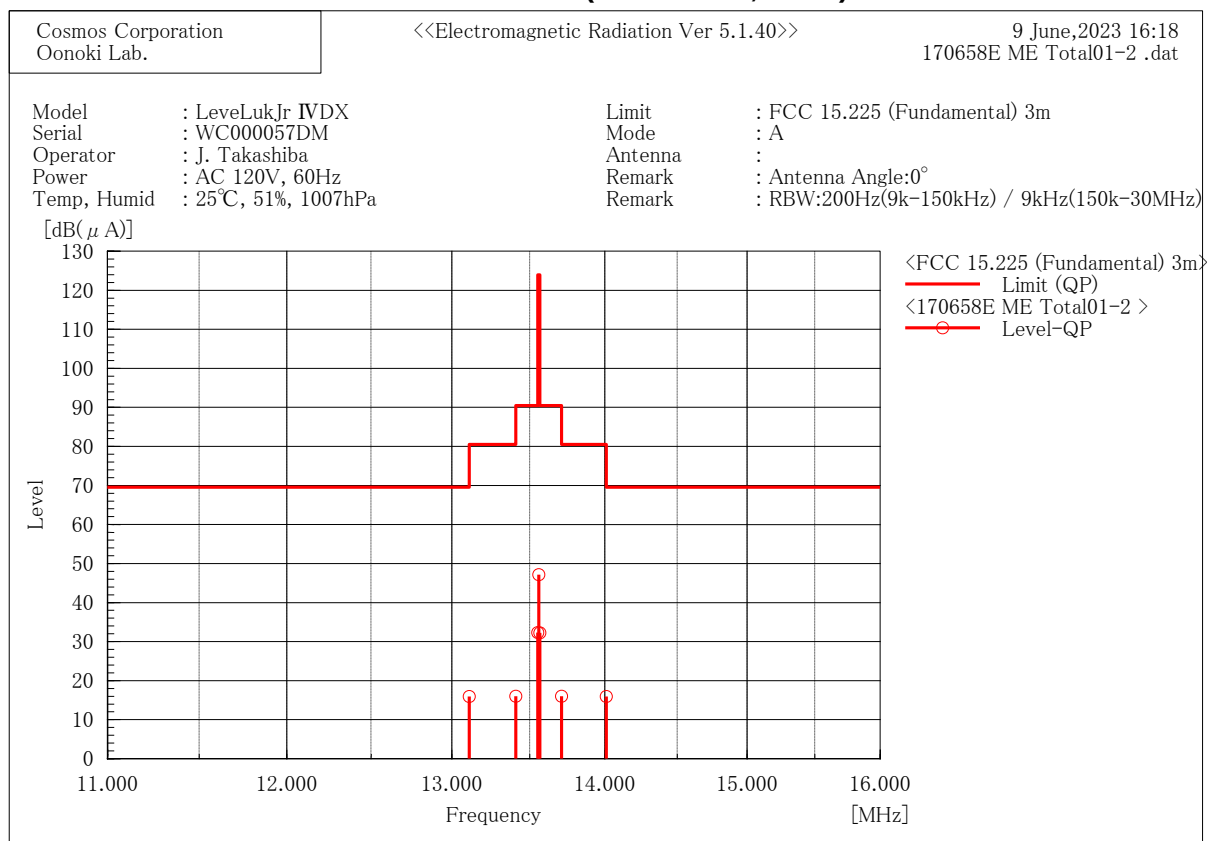
Result = Reading + c.f
= 4.1 + 11.8
= 15.9

Margin = Limit – Result
= 69.5 – 15.9
= 53.6

Note:

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

Worst Test Data (Antenna: 0°, 120 V)

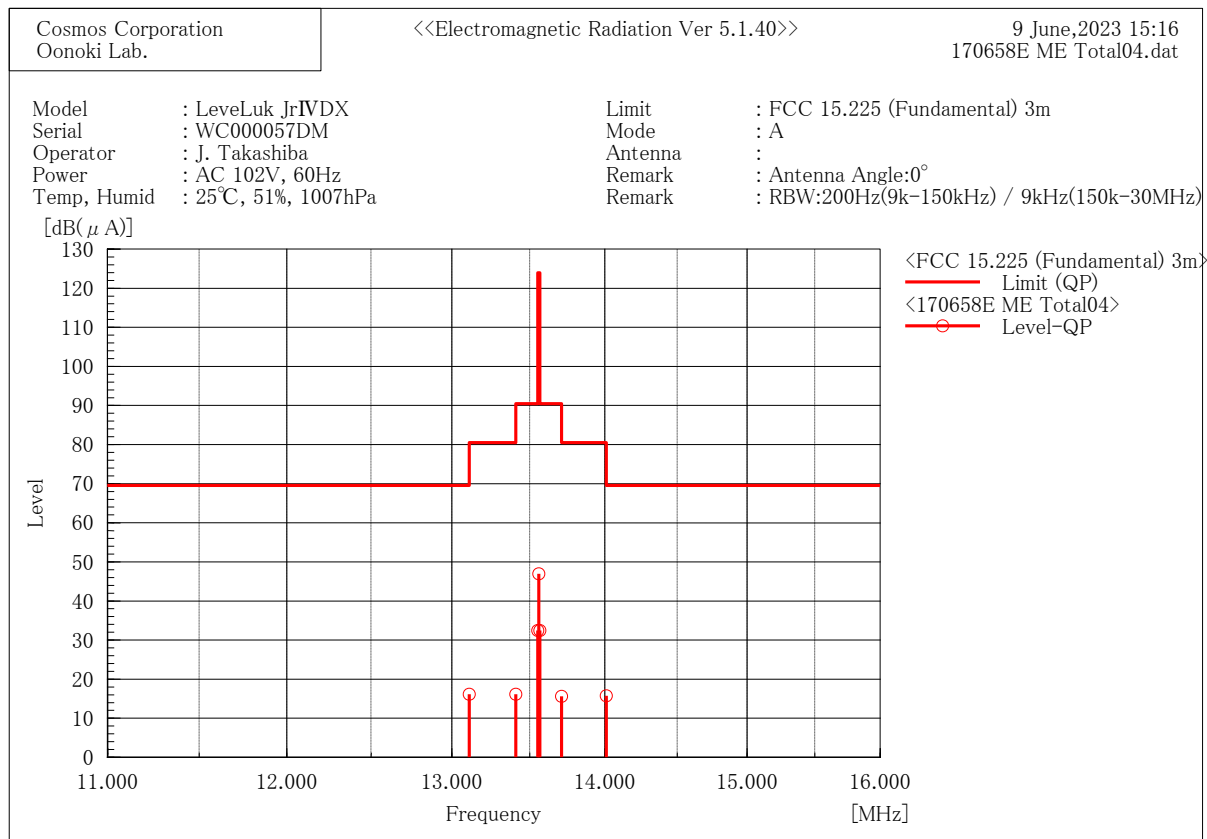


Final Result

No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/Ω)]	Result [dB(μA)]	Limit [dB(μA)]	Margin [dB]	Remark
1	13.110	4.1	11.8	15.9	69.5	53.6	
2	13.410	4.1	11.9	16.0	80.5	64.5	
3	13.553	20.4	11.9	32.3	90.4	58.1	
4	13.560	35.2	11.9	47.1	123.9	76.8	
5	13.567	20.3	11.9	32.2	90.4	58.2	
6	13.710	4.2	11.8	16.0	80.5	64.5	
7	14.010	4.1	11.8	15.9	69.5	53.6	

5.4.3 Test Detail (Continued)

Worst Test Data (Antenna: 0°, 102 V)

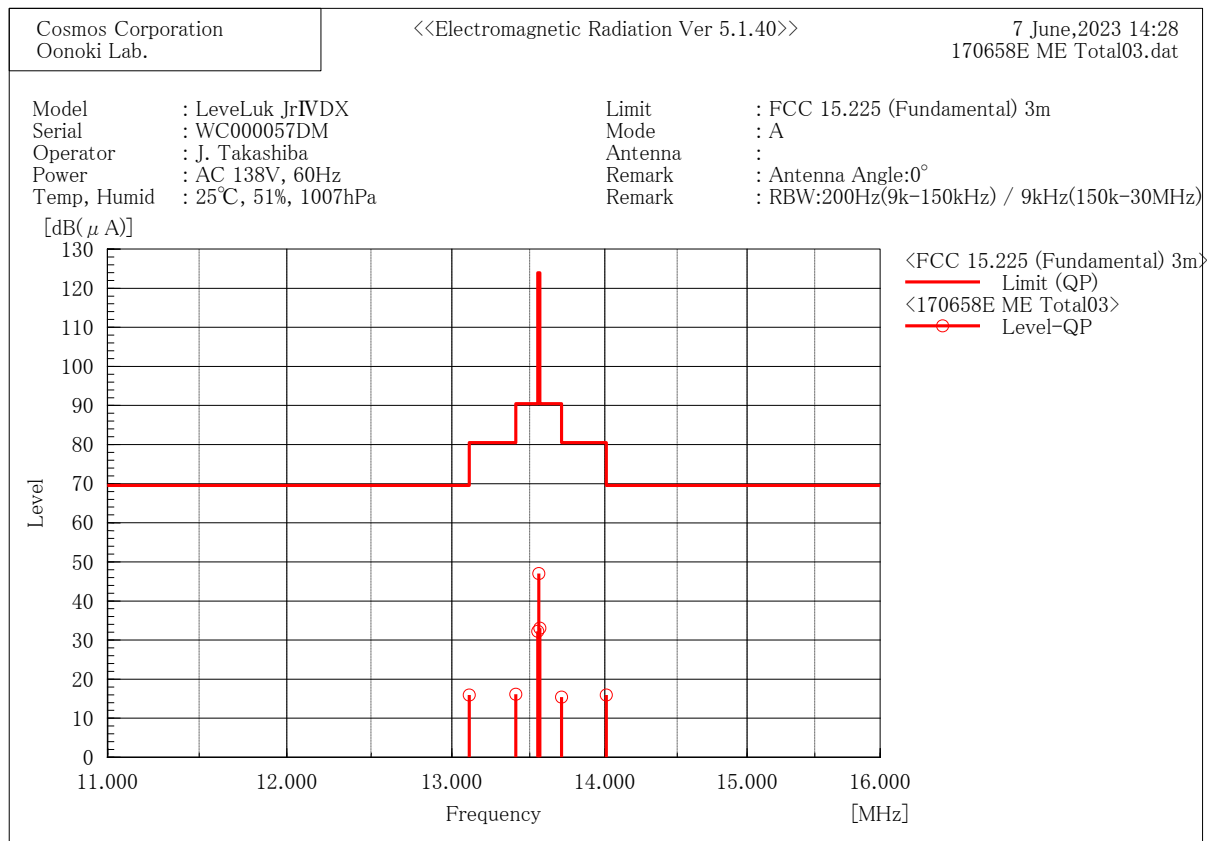


Final Result

No.	Frequency	Reading	c. f	Result	Limit	Margin	Remark
	[MHz]	[dB(μV)]	[dB(1/Ω)]	[dB(μA)]	[dB(μA)]	[dB]	
1	13.110	4.3	11.8	16.1	69.5	53.4	
2	13.410	4.2	11.9	16.1	80.5	64.4	
3	13.553	20.5	11.9	32.4	90.4	58.0	
4	13.560	35.0	11.9	46.9	123.9	77.0	
5	13.567	20.5	11.9	32.4	90.4	58.0	
6	13.710	3.8	11.8	15.6	80.5	64.9	
7	14.010	3.9	11.8	15.7	69.5	53.8	

5.4.3 Test Detail (Continued)

Worst Test Data (Antenna:0°, 138 V)



Final Result

No.	Frequency	Reading	c. f	Result	Limit	Margin	Remark
	[MHz]	[dB(μV)]	[dB(1/Ω)]	[dB(μA)]	[dB(μA)]	[dB]	
1	13.560	35.1	11.9	47.0	123.9	76.9	
2	13.553	20.3	11.9	32.2	90.4	58.2	
3	13.567	21.1	11.9	33.0	90.4	57.4	
4	13.410	4.2	11.9	16.1	80.5	64.4	
5	13.710	3.6	11.8	15.4	80.5	65.1	
6	13.110	4.1	11.8	15.9	69.5	53.6	
7	14.010	4.1	11.8	15.9	69.5	53.6	

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

5.5.1 Setting Remarks

The test was performed in accordance with ANSI C63.10-2013, Clause 6.8.
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	: ± 1.37 Hz
Test operator	: Junya Takashiba
Date of testing	: 2023-06-27
Room temperature	: Refer to Test Data

Sample Calculation

Deviation [Hz] = Measured Frequency – Center Frequency
= 135599256 – 135600000
= 74.40

Deviation [ppm] = $| \text{Deviation [Hz]} | \div \text{Center Frequency} \times 1000000$
= $| 74.40 | \div 13560000 \times 1000000$
 $\div 5.49$

Margin = Limit – Deviation [ppm]
= 100 – 5.49
= 94.51

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	13559927.7	-72.3	5.3	100	94.7
	2 min	13559928.9	-71.1	5.2	100	94.8
	5 min	13559929.1	-70.9	5.2	100	94.8
	10 min	13559929.3	-70.7	5.2	100	94.8
40	Startup	13559931.1	-68.9	5.1	100	94.9
	2 min	13559928.7	-71.3	5.3	100	94.7
	5 min	13559928.7	-71.3	5.3	100	94.7
	10 min	13559927.7	-72.3	5.3	100	94.7
30	Startup	13559945.5	-54.5	4.0	100	96.0
	2 min	13559945.5	-54.5	4.0	100	96.0
	5 min	13559945.5	-54.5	4.0	100	96.0
	10 min	13559944.1	-55.9	4.1	100	95.9
20	Startup	13559924.8	-75.2	5.5	100	94.5
	2 min	13559924.7	-75.3	5.6	100	94.4
	5 min	13559924.6	-75.4	5.6	100	94.4
	10 min	13559924.6	-75.4	5.6	100	94.4
10	Startup	13559935.1	-64.9	4.8	100	95.2
	2 min	13559934.1	-65.9	4.9	100	95.1
	5 min	13559933.1	-66.9	4.9	100	95.1
	10 min	13559932.2	-67.8	5.0	100	95.0
0	Startup	13559941.0	-59.0	4.4	100	95.6
	2 min	13559942.0	-58.0	4.3	100	95.7
	5 min	13559942.7	-57.3	4.2	100	95.8
	10 min	13559941.6	-58.4	4.3	100	95.7
-10	Startup	13559919.0	-81.0	6.0	100	94.0
	2 min	13559918.3	-81.7	6.0	100	94.0
	5 min	13559919.6	-80.4	5.9	100	94.1
	10 min	13559920.4	-79.6	5.9	100	94.1
-20	Startup	13559901.2	-98.8	7.3	100	92.7
	2 min	13559900.1	-99.9	7.4	100	92.6
	5 min	13559894.5	-105.5	7.8	100	92.2
	10 min	13559882.5	-117.5	8.7	100	91.3

5.5.3 Test Detail (Continued)

Test Data

Temp [°C]	Supply Voltage [V]	Measured Frequency [Hz]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]	Margin [ppm]
20	102	13559924.0	-76.0	6.0	100	94.4
	120	13559925.0	-75.0	6.0	100	94.4
	138	13559925.0	-75.0	6.0	100	94.4

Test Data (Relative)

Temp [°C]	Supply Voltage [V]	Measured Frequency [Hz]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]	Margin [ppm]
50	120	13559929.3	4.7	0.3	100	99.7
20	120	13559924.6	reference value			
-20	120	13559882.5	-42.1	3.1	100	96.9
20	102	13559924.2	-0.4	0.0	100	100.0
	138	13559924.7	0.1	0.0	100	100.0

5.6 Occupied Bandwidth (RSS-Gen Annex A)

5.6.1 Setting Remarks

The test was performed in accordance with ANSI C63.10, Clause 6.9.
 Occupied Bandwidth is measured by using 99% Bandwidth measurement function.
 The spectrum analyzer is set as following:

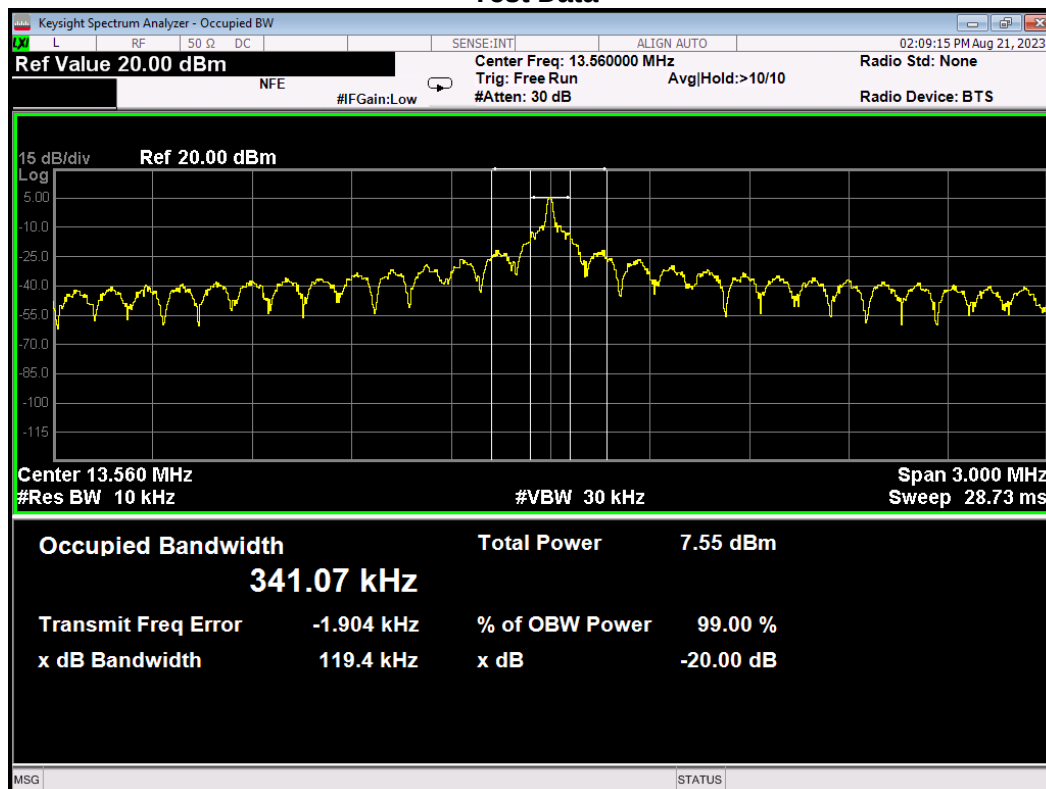
·Resolution Bandwidth	: 1% to 5% of the OBW (not less than 1 kHz)
·Video Bandwidth	: Approx. 3 × RBW or greater
·Detector Mode	: Peak
·Trace Mode	: Max Hold

5.6.2 Test Detail

Result: Passed

Uncertainty of measurement result	: ±1.02 %
Test operator	: Junya Takashiba
Date of testing	: 2023-08-21
Room temperature	: 20 °C
Relative humidity	: 54 %

Test Data



6. List of Test and Measurement Instruments

AC Power Line Conducted Emission

Instruments	Manufacturer	Model	Serial No.	Calibrated Date/Until	Cosmos ID
EMI Test Receiver	ROHDE& SCHWARZ	ESCI	100876	2023-01-30 2024-01-29	ME00101S
Artificial Mains Network	KYORITSU	KNW-242F	8-2038-1	2023-03-31 2024-03-30	ME00196S
Software	TOYO Corporation	EP5/CE (ver5.4.40)	---	--- ---	OE00271
Barometer	Sato Keiryoki Mfg.	7610-20	87812	2020-11-24 2023-11-23	OE00315
RF System Path	---	OSEMICES1	---	2023-02-23 2024-02-22	OE00437
Electronic Thermometer Hygrometer	A&D	AD-5682	0311 / 1012020	2022-10-10 2023-10-09	OE00524

6. List of Test and Measurement Instruments (Continued)

Transmitter Spurious Emissions (Radiated) (Below 1 GHz)

Field Strength of Fundamental Emission

Instruments	Manufacturer	Model	Serial No.	Calibrated Date/Until	Cosmos ID
EMI Test Receiver	ROHDE& SCHWARZ	ESCI	100876	2023-01-30 2024-01-29	ME00101S
Electronic Thermometer Hygrometer	EMPEX INSTRUMENTS	TD-8316	(ME00836S)	2022-10-10 2023-10-09	ME00836S
Active Loop Antenna	EMCO	6502	1048	2022-09-30 2023-09-29	ME00989S
Anechoic Chamber 3m	JSE	COAC3M-01	---	--- ---	OE00029S
Barometer	Sato Keiryoki Mfg.	7610-20	87812	2020-11-24 2023-11-23	OE00315
RF System Path	---	OCEMICEME S1	---	2023-02-23 2024-02-22	OE00397
software	TOYO Corporation	EP5/ME (ver 5.1.40)	---	--- ---	OE00420

6. List of Test and Measurement Instruments (Continued)

Transmitter Spurious Emission (Radiated) (Above 30 MHz)

Instruments	Manufacturer	Model	Serial No.	Calibrated Date/Until	Cosmos ID
Biconical Antenna	SCHWARZBECK	VHBB9124/BB A9106	9124-465	2022-10-20 2023-10-19	ME00070S
Log-periodic Antenna	SCHWARZBECK	VUSLP9111	VUSLP 9111-329	2022-10-19 2023-10-18	ME00091S
EMI Test Receiver	ROHDE& SCHWARZ	ESCI	100876	2023-01-30 2024-01-29	ME00101S
Electronic Thermometer Hygrometer	EMPEX INSTRUMENTS	TD-8316	(ME00836S)	2022-10-10 2023-10-09	ME00836S
Anechoic Chamber 3m	JSE	COAC3M-01	---	--- ---	OE00029S
Pre-amplifier	HEWLETT PACKARD	8447D	2944A07891	2023-05-10 2024-05-09	OE00096S
Software	TOYO Corporation	EP5/RE (ver5.7.1)	---	--- ---	OE00275
Barometer	Sato Keiryoki Mfg.	7610-20	87812	2020-11-24 2023-11-23	OE00315
RF System Path	---	OCEMIREMS1	---	2023-02-23 2024-02-22	OE00393
Normalized Site Attenuation	---	COAC3M-01	---	2023-03-10 2024-03-09	OE00552

Frequency Stability

Instruments	Manufacturer	Model	Serial No.	Calibrated Date/Until	Cosmos ID
EMI Test Receiver	ROHDE& SCHWARZ	ESCI	100876	2023-01-30 2024-01-29	ME00101S
Barometer	Sato Keiryoki Mfg.	7610-20	87812	2020-11-24 2023-11-23	OE00315
Thermostatic Chamber	Espec Corp.	PU-2KP	14010409	2023-05-23 2024-05-22	OE00405S
Electronic Thermometer Hygrometer	A&D	AD-5682	0311 / 1012020	2022-10-10 2023-10-09	OE00524

6. List of Test and Measurement Instruments (Continued)

20 dB Bandwidth / Occupied Bandwidth

Instruments	Manufacturer	Model	Serial No.	Calibrated Date/Until	Cosmos ID
Electronic Thermometer Hygrometer	EMPEX INSTRUMENTS	TD-8316	(ME00836S)	2022-10-10 2023-10-09	ME00836S
Barometer	Sato Keiryoki Mfg.	7610-20	87812	2020-11-24 2023-11-23	OE00315
EMI Test Receiver	Agilent Technologies	N9038A	MY54130015	2023-02-27 2024-02-26	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	2023-09-01	Initial Issue	-	-
01	2023-09-15	Correction of Standard Issue	1	Junya Takashiba
		Correction of the product name and model name of the EUT	1, 3, 4, 6, 11, 12, 16, 17, 21, 22, 23	
		Correction of the hardware version and software version	3	

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