

# RADIO TEST REPORT

## Test Report No. 15627086H-R2

|                     |                       |
|---------------------|-----------------------|
| Customer            | Tokai Rika Co Ltd     |
| Description of EUT  | RKE Transmitter       |
| Model Number of EUT | B4A2F2R               |
| FCC ID              | MOZB4A2F2R            |
| Test Regulation     | FCC Part 15 Subpart C |
| Test Result         | Complied              |
| Issue Date          | March 24, 2025        |
| Remarks             | -                     |

**Representative test engineer**Shousei Hamaguchi  
Engineer**Approved by**Akihiko Maeda  
Leader

CERTIFICATE 5107.02

- ☐ 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

## **ANNOUNCEMENT**

- This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
- The results in this report apply only to the sample tested. (Laboratory was not involved in sampling.)
- This sample tested is in compliance with the limits of the above regulation.
- The test results in this test report are traceable to the national or international standards.
- This test report must not be used by the customer to claim product certification, approval, or endorsement by the A2LA accreditation body.
- This test report covers Radio technical requirements.  
It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
- The all test items in this test report are conducted by UL Japan, Inc. Ise EMC Lab.
- The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan, Inc. has been accredited.
- 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 test report(s) referred in this report, the latest version (including any revisions) is always referred.

## **REVISION HISTORY**

### **Original Test Report No. 15627086H**

This report is a revised version of 15627086H-R1. 15627086H-R1 is replaced with this report.

| Revision     | Test Report No. | Date             | Page Revised Contents                                                                                                                                                          |
|--------------|-----------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| - (Original) | 15627086H       | January 28, 2025 | -                                                                                                                                                                              |
| 1            | 15627086H-R1    | March 13, 2025   | Addition of the variant models in Clause 2.2.                                                                                                                                  |
| 1            | 15627086H-R1    | March 13, 2025   | Correction of Mode for Plot data.                                                                                                                                              |
| 2            | 15627086H-R2    | March 24, 2025   | Addition and revision of the following information due to additional measurements:<br>- Clause 2.2 Test Date<br>- APPENDIX 1 Test Data (Page18)<br>- APPENDIX 2 Test Equipment |
| 2            | 15627086H-R2    | March 24, 2025   | Addition of the following sentence in Clause 4.1;<br>“*Transmitting duty was 100 % on Transmitting mode tests.”                                                                |
| 2            | 15627086H-R2    | March 24, 2025   | Correction of the Test Location in Test data (Page 13, 14, and 19);                                                                                                            |

## Reference: Abbreviations (Including words undescribed in this report)

|                |                                                                 |         |                                                     |
|----------------|-----------------------------------------------------------------|---------|-----------------------------------------------------|
| A2LA           | The American Association for Laboratory Accreditation           | ICES    | Interference-Causing Equipment Standard             |
| AC             | Alternating Current                                             | IEC     | International Electrotechnical Commission           |
| AFH            | Adaptive Frequency Hopping                                      | IEEE    | Institute of Electrical and Electronics Engineers   |
| AM             | Amplitude Modulation                                            | IF      | Intermediate Frequency                              |
| Amp, AMP       | Amplifier                                                       | ILAC    | International Laboratory Accreditation Conference   |
| ANSI           | American National Standards Institute                           | ISED    | Innovation, Science and Economic Development Canada |
| Ant, ANT       | Antenna                                                         | ISO     | International Organization for Standardization      |
| AP             | Access Point                                                    | JAB     | Japan Accreditation Board                           |
| ASK            | Amplitude Shift Keying                                          | LAN     | Local Area Network                                  |
| Atten., ATT    | Attenuator                                                      | LIMS    | Laboratory Information Management System            |
| AV             | Average                                                         | MCS     | Modulation and Coding Scheme                        |
| BPSK           | Binary Phase-Shift Keying                                       | MRA     | Mutual Recognition Arrangement                      |
| BR             | Bluetooth Basic Rate                                            | N/A     | Not Applicable                                      |
| BT             | Bluetooth                                                       | NIST    | National Institute of Standards and Technology      |
| BT LE          | Bluetooth Low Energy                                            | NS      | No signal detect.                                   |
| BW             | BandWidth                                                       | NSA     | Normalized Site Attenuation                         |
| Cal Int        | Calibration Interval                                            | NVLAP   | National Voluntary Laboratory Accreditation Program |
| CCK            | Complementary Code Keying                                       | OBW     | Occupied Band Width                                 |
| Ch., CH        | Channel                                                         | OFDM    | Orthogonal Frequency Division Multiplexing          |
| 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                                               | PRBS    | Pseudo-Random Bit Sequence                          |
| DSSS           | Direct Sequence Spread Spectrum                                 | PSD     | Power Spectral Density                              |
| EDR            | Enhanced Data Rate                                              | QAM     | Quadrature Amplitude Modulation                     |
| EIRP, e.i.r.p. | Equivalent Isotropically Radiated Power                         | QP      | Quasi-Peak                                          |
| EMC            | ElectroMagnetic Compatibility                                   | QPSK    | Quadri-Phase Shift Keying                           |
| EMI            | ElectroMagnetic Interference                                    | RBW     | Resolution Band Width                               |
| EN             | European Norm                                                   | RDS     | Radio Data System                                   |
| ERP, e.r.p.    | Effective Radiated Power                                        | RE      | Radio Equipment                                     |
| EU             | European Union                                                  | RF      | Radio Frequency                                     |
| EUT            | Equipment Under Test                                            | RMS     | Root Mean Square                                    |
| Fac.           | Factor                                                          | RSS     | Radio Standards Specifications                      |
| FCC            | Federal Communications Commission                               | Rx      | Receiving                                           |
| FHSS           | Frequency Hopping Spread Spectrum                               | SA, S/A | Spectrum Analyzer                                   |
| FM             | Frequency Modulation                                            | SG      | Signal Generator                                    |
| Freq.          | Frequency                                                       | SVSWR   | Site-Voltage Standing Wave Ratio                    |
| FSK            | Frequency Shift Keying                                          | TR      | Test Receiver                                       |
| GFSK           | Gaussian Frequency-Shift Keying                                 | Tx      | Transmitting                                        |
| GNSS           | Global Navigation Satellite System                              | VBW     | Video BandWidth                                     |
| GPS            | Global Positioning System                                       | Vert.   | Vertical                                            |
| Hori.          | Horizontal                                                      | WLAN    | Wireless LAN                                        |

---

| <b>CONTENTS</b>                                                      | <b>PAGE</b> |
|----------------------------------------------------------------------|-------------|
| <b>SECTION 1: Customer Information .....</b>                         | <b>5</b>    |
| <b>SECTION 2: Equipment Under Test (EUT).....</b>                    | <b>5</b>    |
| <b>SECTION 3: Test Specification, Procedures &amp; Results .....</b> | <b>6</b>    |
| <b>SECTION 4: Operation of EUT during testing .....</b>              | <b>9</b>    |
| <b>SECTION 5: Radiated Spurious Emission.....</b>                    | <b>10</b>   |
| <b>SECTION 6: Automatically deactivate .....</b>                     | <b>12</b>   |
| <b>SECTION 7: -20 dB Bandwidth and 99% emission bandwidth .....</b>  | <b>12</b>   |
| <b>APPENDIX 1: Test Data .....</b>                                   | <b>13</b>   |
| Automatically deactivate .....                                       | 13          |
| Radiated Emission (Fundamental and Spurious Emission).....           | 15          |
| -20 dB Bandwidth / 99% emission bandwidth.....                       | 19          |
| <b>APPENDIX 2: Test Instruments .....</b>                            | <b>20</b>   |
| <b>APPENDIX 3: Photographs of Test Setup .....</b>                   | <b>21</b>   |
| Radiated Spurious Emission.....                                      | 21          |
| Worst Case Position .....                                            | 23          |

## **SECTION 1: Customer Information**

|                  |                                                           |
|------------------|-----------------------------------------------------------|
| Company Name     | Tokai Rika Co Ltd                                         |
| Address          | 3-260 Toyota, Oguchi-cho, Niwa-gun, Aichi 480-0195, Japan |
| Telephone Number | +81-70-2244-4738                                          |
| Contact Person   | Tetsuhiro Okuoka                                          |

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   | RKE Transmitter                                                                            |
| Model Number  | B4A2F2R                                                                                    |
| Serial Number | Refer to SECTION 4.2                                                                       |
| Condition     | Engineering prototype<br>(Not for Sale: This sample is equivalent to mass-produced items.) |
| Modification  | No Modification by the test lab                                                            |
| Receipt Date  | December 23, 2024 and January 14, 2025                                                     |
| Test Date     | December 25, 2024 to March 24, 2025                                                        |

### **2.2 Product Description**

#### **General Specification**

|                       |                                        |
|-----------------------|----------------------------------------|
| Rating                | DC 3.0 V (battery (DC 2.5 V to 3.2 V)) |
| Operating temperature | -20 deg. C to +60 deg. C               |

#### **Radio Specification**

|                        |                                                            |
|------------------------|------------------------------------------------------------|
| Equipment Type         | Transmitter                                                |
| Frequency of Operation | Channel 1(CH 1): 433.58 MHz<br>Channel 2(CH 2): 434.42 MHz |
| Type of Modulation     | FSK                                                        |

\*Tested model has variation models: Variation 1 (4 switches), Variation 2 (2 switches) and Variation 3 (3 switches).

The differences of these variations are appearance and the number of switches.

Therefore the test was performed with original model (Variation 1) as representative.

## SECTION 3: Test Specification, Procedures & Results

### 3.1 Test Specification

|                    |                                                                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Specification | FCC Part 15 Subpart C<br>The latest version on the first day of the testing period                                                                         |
| Title              | FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators<br>Section 15.231 Periodic operation in the band 40.66-40.70 MHz and above 70 MHz. |

### 3.2 Procedures and Results

| Item                                            | Test Procedure                                                                           | Specification                                                                                                 | Worst margin                             | Results  | Remarks  |
|-------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------|----------|----------|
| Conducted emission                              | <b>FCC:</b> ANSI C63.10:2013<br>6 Standard test methods<br><br><b>ISED:</b> RSS-Gen 8.8  | <b>FCC:</b> Section 15.207<br><br><b>ISED:</b> RSS-Gen 8.8                                                    | N/A                                      | N/A      | *1)      |
| Automatically deactivate                        | <b>FCC:</b> ANSI C63.10:2013<br>6 Standard test methods<br><br><b>ISED:</b> -            | <b>FCC:</b> Section 15.231(a)(1)<br><br><b>ISED:</b> RSS-210 A1.2                                             | N/A                                      | Complied | Radiated |
| Electric Field Strength of Fundamental Emission | <b>FCC:</b> ANSI C63.10:2013<br>6 Standard test methods<br><br><b>ISED:</b> RSS-Gen 6.12 | <b>FCC:</b> Section 15.231(b)<br><br><b>ISED:</b> RSS-210 A1.3                                                | 4.9 dB<br>434.420 MHz<br>Vertical, AV    | Complied | Radiated |
| Electric Field Strength of Spurious Emission    | <b>FCC:</b> ANSI C63.10:2013<br>6 Standard test methods<br><br><b>ISED:</b> RSS-Gen 6.13 | <b>FCC:</b> Section 15.205<br>Section 15.209<br>Section 15.231(b)<br><b>ISED:</b> RSS-210 A1.3<br>RSS-Gen 8.9 | 3.2 dB<br>3909.780 MHz<br>Horizontal, AV | Complied | Radiated |
| -20 dB Bandwidth                                | <b>FCC:</b> ANSI C63.10:2013<br>6 Standard test methods<br><br><b>ISED:</b> -            | <b>FCC:</b> Section 15.231(c)<br><br><b>ISED:</b> Reference data                                              | N/A                                      | Complied | Radiated |

Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.

\*1) The test is not applicable since the EUT does not have AC Mains.

#### **FCC Part 15.31 (e)**

The test was performed with the New Battery during the tests.  
Therefore, this EUT complies with the requirement.

#### **FCC Part 15.203 Antenna requirement**

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT.

Therefore, the equipment complies with the antenna requirement of Section 15.203.

### 3.3 Addition to Standard

| Item                   | Test Procedure                              | Specification  | Worst margin | Results | Remarks  |
|------------------------|---------------------------------------------|----------------|--------------|---------|----------|
| 99% emission bandwidth | ANSI C63.10:2013<br>6 Standard test methods | Reference data | N/A          | -       | Radiated |

Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.

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

### 3.4 Uncertainty

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

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

#### **Radiated emission**

| Measurement distance | Frequency range     |            | Unit | Calculated Uncertainty (+/-) |
|----------------------|---------------------|------------|------|------------------------------|
| 3 m                  | 9 kHz to 30 MHz     |            | dB   | 3.3                          |
| 10 m                 |                     |            | dB   | 3.1                          |
| 3 m                  | 30 MHz to 200 MHz   | Horizontal | dB   | 5.0                          |
|                      |                     | Vertical   | dB   | 5.0                          |
|                      | 200 MHz to 1000 MHz | Horizontal | dB   | 5.2                          |
|                      |                     | Vertical   | dB   | 6.2                          |
| 10 m                 | 30 MHz to 200 MHz   | Horizontal | dB   | 5.5                          |
|                      |                     | Vertical   | dB   | 5.4                          |
|                      | 200 MHz to 1000 MHz | Horizontal | dB   | 5.5                          |
|                      |                     | Vertical   | dB   | 5.5                          |
| 3 m                  | 1 GHz to 6 GHz      |            | dB   | 5.1                          |
|                      | 6 GHz to 18 GHz     |            | dB   | 5.4                          |
| 1 m                  | 10 GHz to 18 GHz    |            | dB   | 5.4                          |
|                      | 18 GHz to 26.5 GHz  |            | dB   | 5.3                          |
|                      | 26.5 GHz to 40 GHz  |            | dB   | 4.8                          |
| 0.5 m                | 26.5 GHz to 40 GHz  |            | dB   | 5.0                          |

#### **Automatically deactivate, -20 dB Bandwidth and 99% Occupied Bandwidth**

| Item                                    | Unit | Calculated Uncertainty (+/-) |
|-----------------------------------------|------|------------------------------|
| Bandwidth (OBW)                         | %    | 0.96                         |
| Time readout (time span upto 100 msec)  | %    | 0.11                         |
| Time readout (time span upto 1000 msec) | %    | 0.11                         |
| Time readout (time span upto 60 sec)    | %    | 0.02                         |

### 3.5 Test Location

UL Japan, Inc. Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 Japan

Telephone: +81-596-24-8999

\*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919

ISED Lab Company Number: 2973C / CAB identifier: JP0002

| Test site                  | Width x Depth x Height (m) | Size of reference ground plane (m) / horizontal conducting plane | Other rooms            | Maximum measurement distance |
|----------------------------|----------------------------|------------------------------------------------------------------|------------------------|------------------------------|
| No.1 semi-anechoic chamber | 19.2 x 11.2 x 7.7          | 7.0 x 6.0                                                        | No.1 Power source room | 10 m                         |
| No.2 semi-anechoic chamber | 7.5 x 5.8 x 5.2            | 4.0 x 4.0                                                        | -                      | 3 m                          |
| No.3 semi-anechoic chamber | 12.0 x 8.5 x 5.9           | 6.8 x 5.75                                                       | No.3 Preparation room  | 3 m                          |
| No.3 shielded room         | 4.0 x 6.0 x 2.7            | N/A                                                              | -                      | -                            |
| No.4 semi-anechoic chamber | 12.0 x 8.5 x 5.9           | 6.8 x 5.75                                                       | No.4 Preparation room  | 3 m                          |
| No.4 shielded room         | 4.0 x 6.0 x 2.7            | N/A                                                              | -                      | -                            |
| No.5 semi-anechoic chamber | 6.0 x 6.0 x 3.9            | 6.0 x 6.0                                                        | -                      | -                            |
| No.5 measurement room      | 6.4 x 6.4 x 3.0            | 6.4 x 6.4                                                        | -                      | -                            |
| No.6 shielded room         | 4.0 x 4.5 x 2.7            | 4.0 x 4.5                                                        | -                      | -                            |
| No.6 measurement room      | 4.75 x 5.4 x 3.0           | 4.75 x 4.15                                                      | -                      | -                            |
| No.7 shielded room         | 4.7 x 7.5 x 2.7            | 4.7 x 7.5                                                        | -                      | -                            |
| No.8 measurement room      | 3.1 x 5.0 x 2.7            | 3.1 x 5.0                                                        | -                      | -                            |
| No.9 measurement room      | 8.8 x 4.6 x 2.8            | 2.4 x 2.4                                                        | -                      | -                            |
| No.10 shielded room        | 3.8 x 2.8 x 2.8            | 3.8 x 2.8                                                        | -                      | -                            |
| No.11 measurement room     | 4.0 x 3.4 x 2.5            | N/A                                                              | -                      | -                            |
| No.12 measurement room     | 2.6 x 3.4 x 2.5            | N/A                                                              | -                      | -                            |
| Large Chamber              | 16.9 x 22.1 x 10.17        | 16.9 x 22.1                                                      | -                      | 10 m                         |
| Small Chamber              | 5.3 x 6.69 x 3.59          | 5.3 x 6.69                                                       | -                      | -                            |

### 3.6 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

## SECTION 4: Operation of EUT during testing

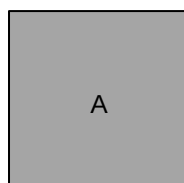
### 4.1 Operating Mode(s)

| Test mode                                                                                                                                                                                                            | Remarks                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| 1) Transmitting mode (Tx 433.58 MHz) *1)                                                                                                                                                                             | Used for other than Automatically deactivate test |
| 2) Transmitting mode (Tx 434.42 MHz) *1)                                                                                                                                                                             | Used for other than Automatically deactivate test |
| 3) Normal use mode (Tx 433.58 MHz)                                                                                                                                                                                   | Used for Automatically deactivate test only       |
| 4) Normal use mode (Tx 434.42 MHz)                                                                                                                                                                                   | Used for Automatically deactivate test only       |
| *The system was configured in typical fashion (as a user would normally use it) for testing.                                                                                                                         |                                                   |
| *Transmitting duty was 100 % on Transmitting mode tests.                                                                                                                                                             |                                                   |
| *Power of the EUT was set by the software as follows;<br>Software: Transmitter Version: 120<br>(Date: 2024.08.20, Storage location: EUT memory)                                                                      |                                                   |
| *This setting of software is the worst case.<br>Any conditions under the normal use do not exceed the condition of setting.<br>In addition, end users cannot change the settings of the output power of the product. |                                                   |
| Justification: The system was configured in typical fashion (as a user would normally use it) for testing.                                                                                                           |                                                   |

\*1) The software of this mode is the same as one of normal product, except that EUT continues to transmit (For Normal use mode, EUT stops to transmit in a given time, even if transceiver button is being pressed.).

This EUT has two modes which mechanical key is folded in or not. The worst case was confirmed on the mechanical key folded-in and folded-out, as a result, the test on mechanical key folded-in was the worst case. Therefore, the test on mechanical key folded-in was performed only.

### 4.2 Configuration and Peripherals



\* Setup was taken into consideration and test data was taken under worse case conditions.

#### Description of EUT

| No. | Item            | Model number | Serial Number        | Manufacturer      | Remark |
|-----|-----------------|--------------|----------------------|-------------------|--------|
| A   | RKE Transmitter | B4A2F2R      | No.2 *1)<br>No.3 *2) | Tokai Rika Co Ltd | EUT    |

\*1) Used for other tests except for Automatically deactivate test

\*2) Used for Automatically deactivate test only

## **SECTION 5: Radiated Spurious Emission**

### **Test Procedure**

[For below 30 MHz]

The noise level was checked by moving a search-coil (Loop Antenna) close to the EUT.

[For 30 MHz to 1 GHz]

EUT was placed on a urethane 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 a urethane 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.

The measuring antenna height was varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.

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 measurements were performed for both vertical and horizontal antenna polarization.

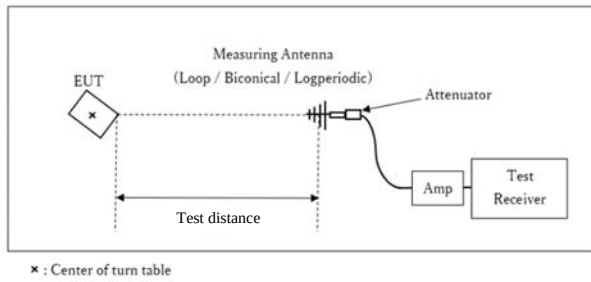
The radiated emission measurements were made with the following detector function of the test receiver / spectrum analyzer.

### **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         | Logperiodic      | Horn        |

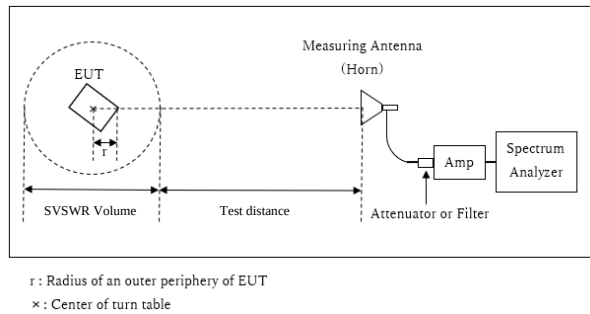
|               |                                                  |                        |                         |                        |                                |                                                                   |
|---------------|--------------------------------------------------|------------------------|-------------------------|------------------------|--------------------------------|-------------------------------------------------------------------|
| 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           | Above 1 GHz                                                       |
| Detector Type | Peak                                             | Peak                   | Peak                    | Peak                   | Peak and Peak with Duty factor | Peak and Peak with Duty factor and AV                             |
| IF Bandwidth  | 200 Hz                                           | 200 Hz                 | 9.1 kHz                 | 9.1 kHz                | 120 kHz                        | PK: S/A: RBW: 1 MHz, VBW: 3 MHz<br>AV: S/A: RBW 1 MHz, VBW: 10 Hz |

[Test Setup]  
Below 1 GHz



Test Distance: 3 m

1 GHz to 4.5 GHz



Distance Factor:  $20 \times \log (3.75 \text{ m}^* / 3.0 \text{ m}) = 1.94 \text{ dB}$   
\*(Test Distance + SVSWR Volume / 2) - r = 3.75 m

Test Distance: 3 m  
SVSWR Volume: 1.5 m  
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)  
r: 0.0 m

(The test was performed with  $r = 0.0 \text{ m}$  since EUT is small and it was the rather conservative condition.)

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

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

Measurement range : 9 kHz to 4.5 GHz  
Test data : APPENDIX  
Test result : Pass

---

## **SECTION 6: Automatically deactivate**

### **Test Procedure**

The measurement was performed with Electric field strength using a spectrum analyzer.

Test data : APPENDIX  
Test result : Pass

## **SECTION 7: -20 dB Bandwidth and 99% emission bandwidth**

### **Test Procedure**

The test was measured with a spectrum analyzer using a test fixture.

| Test                                                 | Span                                    | RBW             | VBW                | Sweep | Detector | Trace        | Instrument used   |
|------------------------------------------------------|-----------------------------------------|-----------------|--------------------|-------|----------|--------------|-------------------|
| -20 dB Bandwidth / 99% emission bandwidth            | Enough width to display emission skirts | 1 to 5 % of OBW | Three times of RBW | Auto  | Peak *1) | Max Hold *1) | Spectrum Analyzer |
| *1) Peak hold was applied as Worst-case measurement. |                                         |                 |                    |       |          |              |                   |

Test data : APPENDIX  
Test result : Pass

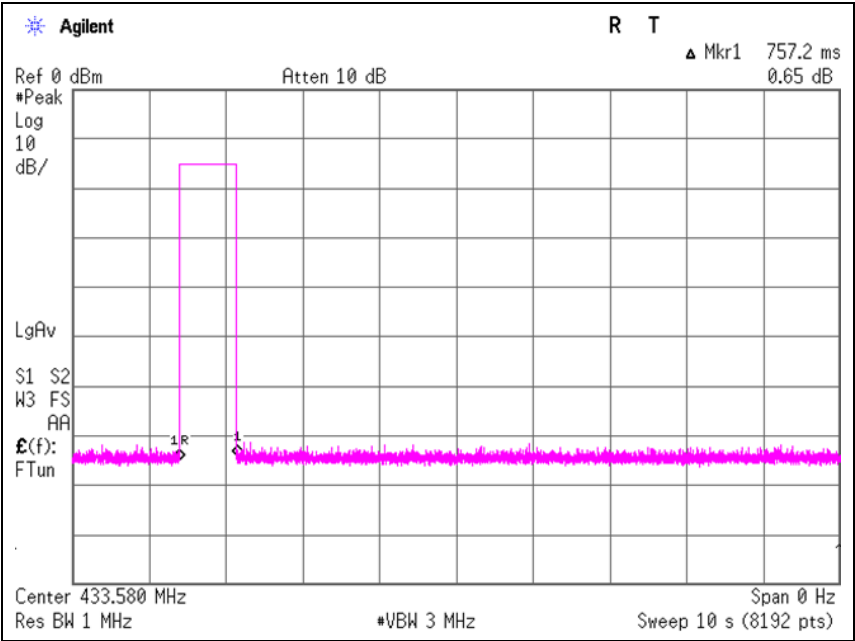
APPENDIX 1: Test Data

Automatically deactivate

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.2  
January 15, 2025  
24 deg. C / 33 % RH  
Shousei Hamaguchi  
Mode 3

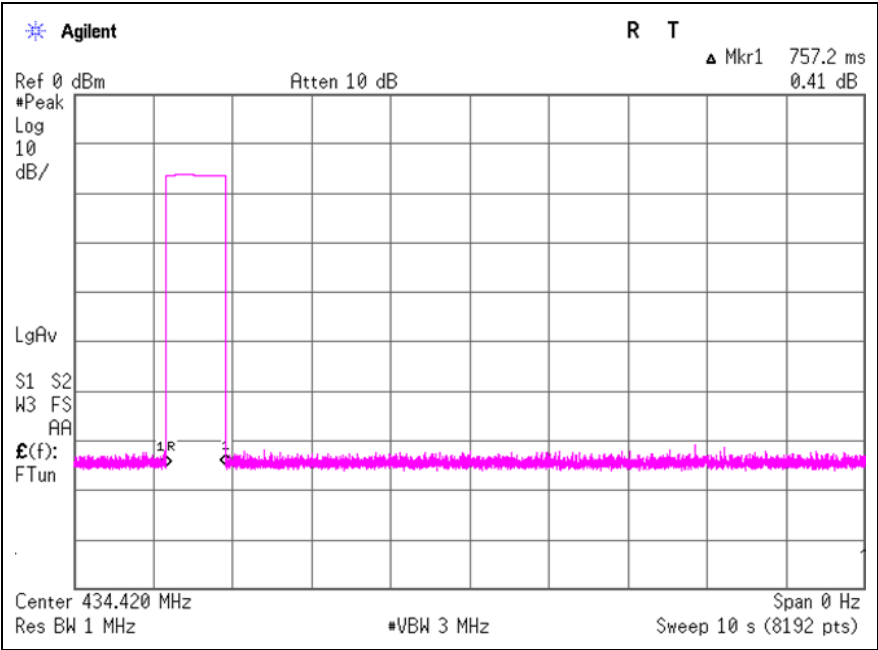
| Time of Transmitting [s] | Limit [s] | Result |
|--------------------------|-----------|--------|
| 0.7572                   | 5.00      | Pass   |



**Automatically deactivate**

|                        |                     |
|------------------------|---------------------|
| Test place             | Ise EMC Lab.        |
| Semi Anechoic Chamber  | No.2                |
| Date                   | January 15, 2025    |
| Temperature / Humidity | 24 deg. C / 33 % RH |
| Engineer               | Shousei Hamaguchi   |
| Mode                   | Mode 4              |

| Time of Transmitting [s] | Limit [s] | Result |
|--------------------------|-----------|--------|
| 0.7572                   | 5.00      | Pass   |



## Radiated Emission (Fundamental and Spurious Emission)

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        | No.2                | No.2                |
| Semi Anechoic Chamber  | No.2                | December 25, 2024   | December 26, 2024   |
| Date                   | December 25, 2024   | December 26, 2024   | December 27, 2024   |
| Temperature / Humidity | 21 deg. C / 55 % RH | 20 deg. C / 53 % RH | 19 deg. C / 47 % RH |
| Engineer               | Kiyoshiro Okazaki   | Kiyoshiro Okazaki   | Ken Fujita          |
| Mode                   | Mode 1              |                     |                     |

| Polarity<br>[Hori/Vert] | Frequency<br>[MHz] | Reading<br>[dBuV]AV | Reading<br>[dBuV]PK | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Duty<br>Factor<br>[dB] | Result<br>(PK)<br>[dBuV/m] | Result<br>(PK with Duty<br>Factor or AV)<br>[dBuV/m] | Limit<br>(PK)<br>[dBuV/m] | Limit<br>(AV)<br>[dBuV/m] | Margin<br>(PK)<br>[dB] | Margin<br>(AV)<br>[dB] | Inside or<br>Outside of<br>Restricted<br>Bands | Remarks     |
|-------------------------|--------------------|---------------------|---------------------|-------------------------|--------------|--------------|------------------------|----------------------------|------------------------------------------------------|---------------------------|---------------------------|------------------------|------------------------|------------------------------------------------|-------------|
| Hori.                   | 433.580            | -                   | 76.2                | 16.3                    | 9.7          | 28.7         | 0.0                    | 73.5                       | 73.5                                                 | 100.8                     | 80.8                      | 27.3                   | 7.3                    | Carrier                                        | *1)         |
| Hori.                   | 867.160            | -                   | 32.4                | 21.9                    | 11.3         | 28.9         | 0.0                    | 36.7                       | 36.7                                                 | 80.8                      | 60.8                      | 44.1                   | 24.1                   | Outside                                        | *1)         |
| Hori.                   | 1300.740           | -                   | 47.7                | 26.0                    | 5.1          | 34.1         | 0.0                    | 44.7                       | 44.7                                                 | 73.9                      | 53.9                      | 29.2                   | 9.2                    | Inside                                         | *1)         |
| Hori.                   | 1734.320           | -                   | 47.9                | 25.0                    | 4.6          | 33.6         | 0.0                    | 43.9                       | 43.9                                                 | 80.8                      | 60.8                      | 36.9                   | 16.9                   | Outside                                        | *1)         |
| Hori.                   | 2167.900           | -                   | 49.0                | 28.0                    | 4.7          | 33.2         | 0.0                    | 48.5                       | 48.5                                                 | 80.8                      | 60.8                      | 32.3                   | 12.3                   | Outside                                        | *1)         |
| Hori.                   | 2601.480           | -                   | 46.0                | 27.5                    | 4.9          | 33.2         | -                      | 45.2                       | 45.2                                                 | 80.8                      | 60.8                      | 35.6                   | 15.6                   | Outside                                        | Floor noise |
| Hori.                   | 3035.060           | -                   | 46.3                | 28.4                    | 5.1          | 33.3         | -                      | 46.5                       | 46.5                                                 | 80.8                      | 60.8                      | 34.3                   | 14.3                   | Outside                                        | Floor noise |
| Hori.                   | 3468.640           | -                   | 46.6                | 28.6                    | 5.6          | 33.1         | 0.0                    | 47.7                       | 47.7                                                 | 80.8                      | 60.8                      | 33.1                   | 13.1                   | Outside                                        | *1)         |
| Hori.                   | 3902.220           | 47.2                | 54.0                | 29.7                    | 6.1          | 32.9         | -                      | 56.9                       | 50.1                                                 | 73.9                      | 53.9                      | 17.0                   | 3.8                    | Inside                                         |             |
| Hori.                   | 4335.800           | -                   | 44.7                | 30.5                    | 6.8          | 32.8         | -                      | 49.2                       | 49.2                                                 | 73.9                      | 53.9                      | 24.7                   | 4.7                    | Inside                                         | Floor noise |
| Vert.                   | 433.580            | -                   | 78.2                | 16.3                    | 9.7          | 28.7         | 0.0                    | 75.5                       | 75.5                                                 | 100.8                     | 80.8                      | 25.3                   | 5.3                    | Carrier                                        | *1)         |
| Vert.                   | 867.160            | -                   | 35.2                | 21.9                    | 11.3         | 28.9         | 0.0                    | 39.5                       | 39.5                                                 | 80.8                      | 60.8                      | 41.3                   | 21.3                   | Outside                                        | *1)         |
| Vert.                   | 1300.740           | -                   | 46.5                | 26.0                    | 5.1          | 34.1         | -                      | 43.5                       | 43.5                                                 | 73.9                      | 53.9                      | 30.4                   | 10.4                   | Inside                                         | Floor noise |
| Vert.                   | 1734.320           | -                   | 46.4                | 25.0                    | 4.6          | 33.6         | -                      | 42.4                       | 42.4                                                 | 80.8                      | 60.8                      | 38.4                   | 18.4                   | Outside                                        | Floor noise |
| Vert.                   | 2167.900           | -                   | 45.9                | 28.0                    | 4.7          | 33.2         | -                      | 45.4                       | 45.4                                                 | 80.8                      | 60.8                      | 35.4                   | 15.4                   | Outside                                        | Floor noise |
| Vert.                   | 2601.480           | -                   | 45.5                | 27.5                    | 4.9          | 33.2         | -                      | 44.7                       | 44.7                                                 | 80.8                      | 60.8                      | 36.1                   | 16.1                   | Outside                                        | Floor noise |
| Vert.                   | 3035.060           | -                   | 45.5                | 28.4                    | 5.1          | 33.3         | -                      | 45.7                       | 45.7                                                 | 80.8                      | 60.8                      | 35.1                   | 15.1                   | Outside                                        | Floor noise |
| Vert.                   | 3468.640           | -                   | 46.6                | 28.6                    | 5.6          | 33.1         | 0.0                    | 47.7                       | 47.7                                                 | 80.8                      | 60.8                      | 33.1                   | 13.1                   | Outside                                        | *1)         |
| Vert.                   | 3902.220           | 47.6                | 53.9                | 29.7                    | 6.1          | 32.9         | -                      | 56.8                       | 50.5                                                 | 73.9                      | 53.9                      | 17.1                   | 3.4                    | Inside                                         |             |
| Vert.                   | 4335.800           | -                   | 44.2                | 30.5                    | 6.8          | 32.8         | -                      | 48.7                       | 48.7                                                 | 73.9                      | 53.9                      | 25.2                   | 5.2                    | Inside                                         | Floor noise |

Sample calculation:

Result of PK = Reading + Ant Factor + Loss {Cable + Attenuator + Filter (above 1 GHz) + Distance factor (above 1 GHz)} - Gain (Amplifier)

Result of PK with Duty factor (PK / W) = Reading + Ant Factor + Loss {Cable + Attenuator + Filter (above 1 GHz) + Distance factor (above 1 GHz)} - Gain (Amplifier) + Duty factor

Result of AV= Reading + Ant Factor + Loss {Cable + Attenuator+ Filter +Distance factor (above 1 GHz)} - Gain (Amplifier)

For above 1 GHz: Distance Factor:  $20 \times \log(3.75 \text{ m}/3.0 \text{ m}) = 1.94 \text{ dB}$

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

\*1) Since the peak emission result satisfied the average limit, duty factor was omitted.

If Gain 0.0 dB shown in the above table, pre-amplifier was not used to avoid the influence of carrier power. The pre-amplifier used for carrier frequency measurement was not saturated.

## Radiated Emission (Fundamental and Spurious Emission)

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        | No.2                | No.2                |
| Semi Anechoic Chamber  | No.2                | December 25, 2024   | December 26, 2024   |
| Date                   | December 25, 2024   | December 26, 2024   | December 27, 2024   |
| Temperature / Humidity | 21 deg. C / 55 % RH | 20 deg. C / 53 % RH | 19 deg. C / 47 % RH |
| Engineer               | Kiyoshiro Okazaki   | Kiyoshiro Okazaki   | Ken Fujita          |
| Mode                   | Mode 2              |                     |                     |

| Polarity<br>[Hori/Vert] | Frequency<br>[MHz] | Reading<br>[dBuV/AV] | Reading<br>[dBuV/PK] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Duty<br>Factor<br>[dB] | Result<br>(PK)<br>[dBuV/m] | Result<br>(PK with Duty<br>Factor or AV)<br>[dBuV/m] | Limit<br>(PK)<br>[dBuV/m] | Limit<br>(AV)<br>[dBuV/m] | Margin<br>(PK)<br>[dB] | Margin<br>(AV)<br>[dB] | Inside or<br>Outside of<br>Restricted<br>Bands | Remarks     |
|-------------------------|--------------------|----------------------|----------------------|-------------------------|--------------|--------------|------------------------|----------------------------|------------------------------------------------------|---------------------------|---------------------------|------------------------|------------------------|------------------------------------------------|-------------|
| Hori.                   | 434.420            | -                    | 76.4                 | 16.3                    | 9.7          | 28.7         | 0.0                    | 73.7                       | 73.7                                                 | 100.8                     | 80.8                      | 27.1                   | 7.1                    | Carrier                                        | *1)         |
| Hori.                   | 868.840            | -                    | 34.8                 | 21.9                    | 11.3         | 28.9         | 0.0                    | 39.1                       | 39.1                                                 | 80.8                      | 60.8                      | 41.7                   | 21.7                   | Outside                                        | *1)         |
| Hori.                   | 1303.260           | -                    | 48.5                 | 26.0                    | 5.0          | 34.1         | 0.0                    | 45.4                       | 45.4                                                 | 73.9                      | 53.9                      | 28.5                   | 8.5                    | Inside                                         | *1)         |
| Hori.                   | 1737.680           | -                    | 47.6                 | 25.0                    | 4.6          | 33.6         | 0.0                    | 43.6                       | 43.6                                                 | 80.8                      | 60.8                      | 37.2                   | 17.2                   | Outside                                        | *1)         |
| Hori.                   | 2172.100           | -                    | 49.4                 | 28.1                    | 4.7          | 33.2         | 0.0                    | 49.0                       | 49.0                                                 | 80.8                      | 60.8                      | 31.8                   | 11.8                   | Outside                                        | *1)         |
| Hori.                   | 2606.520           | -                    | 45.0                 | 27.5                    | 4.9          | 33.2         | -                      | 44.2                       | 44.2                                                 | 80.8                      | 60.8                      | 36.6                   | 16.6                   | Outside                                        | Floor noise |
| Hori.                   | 3040.940           | -                    | 45.9                 | 28.5                    | 5.1          | 33.3         | -                      | 46.2                       | 46.2                                                 | 80.8                      | 60.8                      | 34.6                   | 14.6                   | Outside                                        | Floor noise |
| Hori.                   | 3475.360           | -                    | 47.4                 | 28.6                    | 5.6          | 33.1         | 0.0                    | 48.5                       | 48.5                                                 | 80.8                      | 60.8                      | 32.3                   | 12.3                   | Outside                                        | *1)         |
| Hori.                   | 3909.780           | 47.8                 | 53.3                 | 29.7                    | 6.1          | 32.9         | -                      | 56.2                       | 50.7                                                 | 73.9                      | 53.9                      | 17.7                   | 3.2                    | Inside                                         |             |
| Hori.                   | 4344.200           | -                    | 44.9                 | 30.5                    | 6.8          | 32.8         | -                      | 49.4                       | 49.4                                                 | 73.9                      | 53.9                      | 24.5                   | 4.5                    | Inside                                         | Floor noise |
| Vert.                   | 434.420            | -                    | 78.6                 | 16.3                    | 9.7          | 28.7         | 0.0                    | 75.9                       | 75.9                                                 | 100.8                     | 80.8                      | 24.9                   | 4.9                    | Carrier                                        | *1)         |
| Vert.                   | 868.840            | -                    | 34.9                 | 21.9                    | 11.3         | 28.9         | 0.0                    | 39.2                       | 39.2                                                 | 80.8                      | 60.8                      | 41.6                   | 21.6                   | Outside                                        | *1)         |
| Vert.                   | 1303.260           | -                    | 46.2                 | 26.0                    | 5.0          | 34.1         | -                      | 43.1                       | 43.1                                                 | 73.9                      | 53.9                      | 30.8                   | 10.8                   | Inside                                         | Floor noise |
| Vert.                   | 1737.680           | -                    | 46.5                 | 25.0                    | 4.6          | 33.6         | -                      | 42.5                       | 42.5                                                 | 80.8                      | 60.8                      | 38.3                   | 18.3                   | Outside                                        | Floor noise |
| Vert.                   | 2172.100           | -                    | 46.6                 | 28.1                    | 4.7          | 33.2         | 0.0                    | 46.2                       | 46.2                                                 | 80.8                      | 60.8                      | 34.6                   | 14.6                   | Outside                                        | *1)         |
| Vert.                   | 2606.520           | -                    | 45.3                 | 27.5                    | 4.9          | 33.2         | -                      | 44.5                       | 44.5                                                 | 80.8                      | 60.8                      | 36.3                   | 16.3                   | Outside                                        | Floor noise |
| Vert.                   | 3040.940           | -                    | 46.3                 | 28.5                    | 5.1          | 33.3         | -                      | 46.6                       | 46.6                                                 | 80.8                      | 60.8                      | 34.2                   | 14.2                   | Outside                                        | Floor noise |
| Vert.                   | 3475.360           | -                    | 47.4                 | 28.6                    | 5.6          | 33.1         | 0.0                    | 48.5                       | 48.5                                                 | 80.8                      | 60.8                      | 32.3                   | 12.3                   | Outside                                        | *1)         |
| Vert.                   | 3909.780           | 46.7                 | 53.1                 | 29.7                    | 6.1          | 32.9         | -                      | 56.0                       | 49.6                                                 | 73.9                      | 53.9                      | 17.9                   | 4.3                    | Inside                                         |             |
| Vert.                   | 4344.200           | -                    | 44.7                 | 30.5                    | 6.8          | 32.8         | -                      | 49.2                       | 49.2                                                 | 73.9                      | 53.9                      | 24.7                   | 4.7                    | Inside                                         | Floor noise |

Sample calculation:

Result of PK = Reading + Ant Factor + Loss {Cable + Attenuator + Filter (above 1 GHz) + Distance factor (above 1 GHz)} - Gain (Amplifier)

Result of PK with Duty factor (PK / W) = Reading + Ant Factor + Loss {Cable + Attenuator + Filter (above 1 GHz) + Distance factor (above 1 GHz)} - Gain (Amplifier) + Duty factor

Result of AV = Reading + Ant Factor + Loss {Cable + Attenuator + Filter + Distance factor (above 1 GHz)} - Gain (Amplifier)

For above 1 GHz: Distance Factor:  $20 \times \log(3.75 \text{ m}/3.0 \text{ m}) = 1.94 \text{ dB}$

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

\*1) Since the peak emission result satisfied the average limit, duty factor was omitted.

If Gain 0.0 dB shown in the above table, pre-amplifier was not used to avoid the influence of carrier power. The pre-amplifier used for carrier frequency measurement was not saturated.

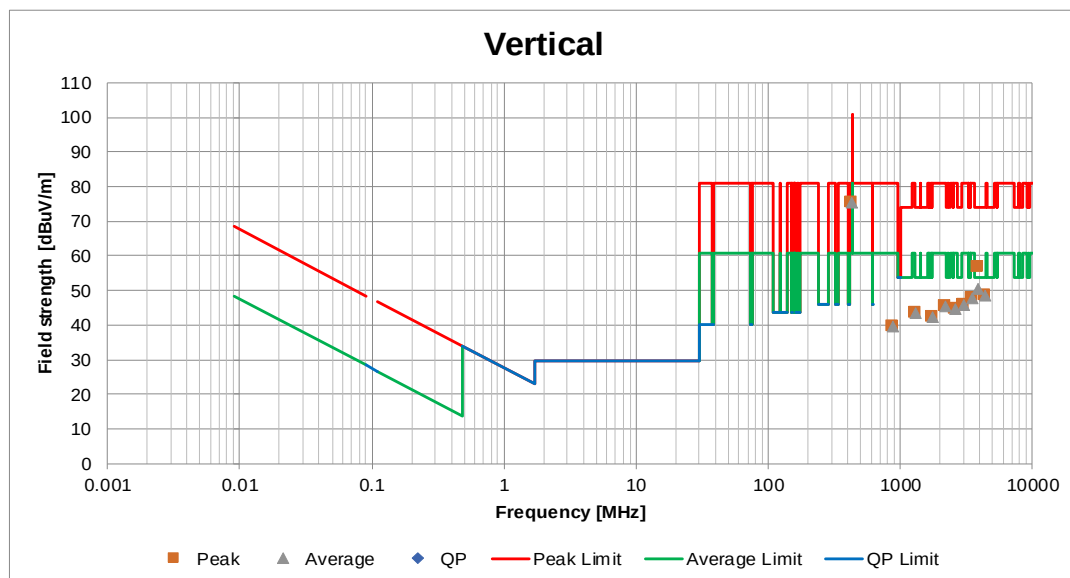
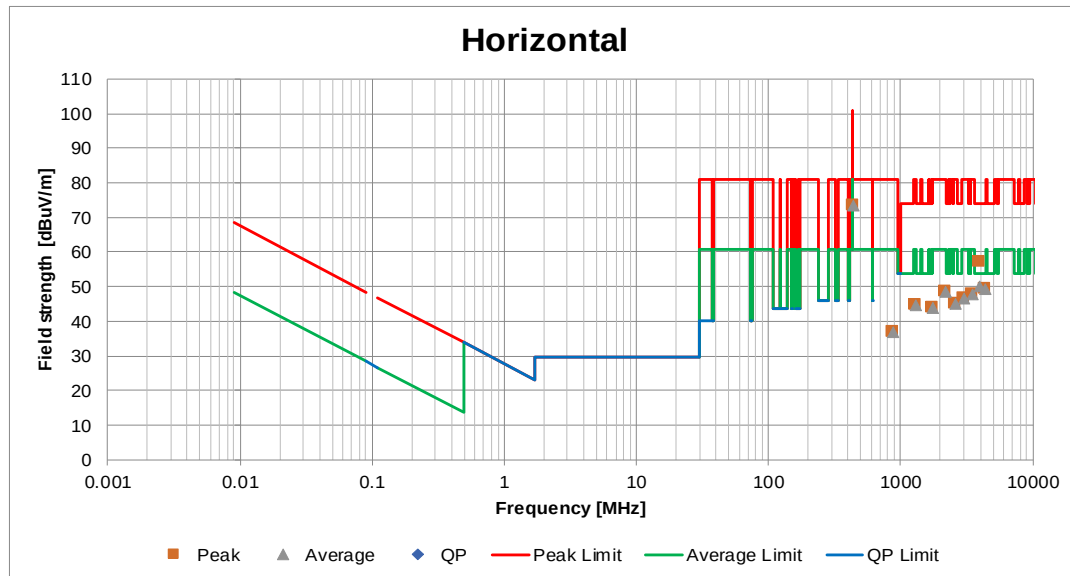
## **Radiated Spurious Emission** **(Plot data, Worst case for Spurious Emission)**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.2  
December 25, 2024  
21 deg. C / 55 % RH  
Kiyoshiro Okazaki  
Mode 2

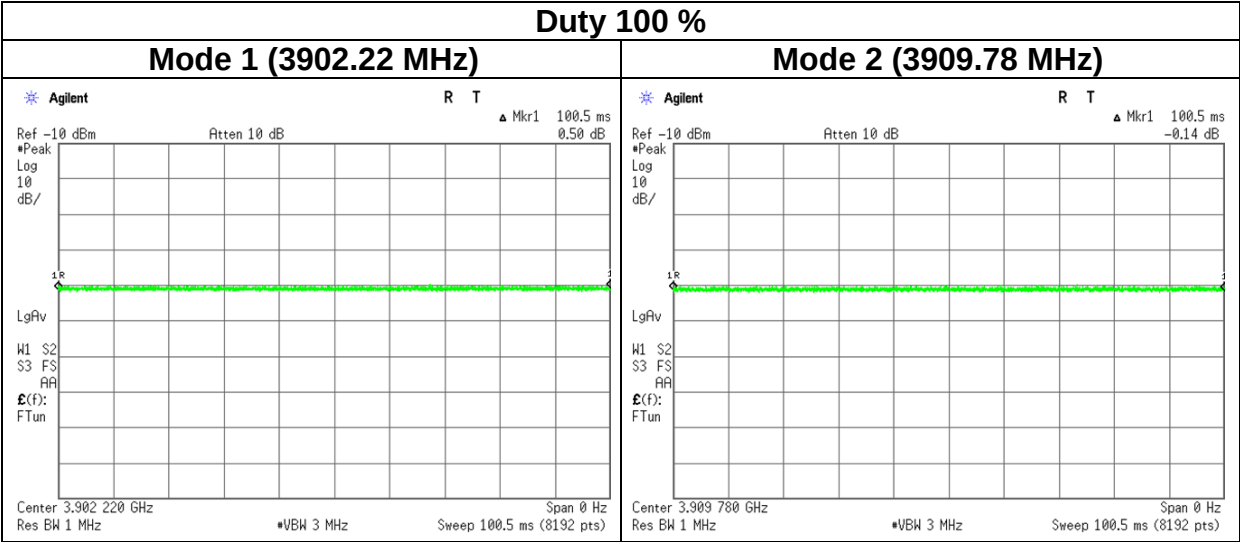
No.2  
December 26, 2024  
20 deg. C / 53 % RH  
Kiyoshiro Okazaki

No.2  
December 27, 2024  
19 deg. C / 47 % RH  
Ken Fujita



9th harmonics duty consideration

|                        |                                       |
|------------------------|---------------------------------------|
| Test place             | Ise EMC Lab.                          |
| Semi Anechoic Chamber  | No.2                                  |
| Date                   | March 24, 2025                        |
| Temperature / Humidity | 22 deg. C / 35 % RH                   |
| Engineer               | Shousei Hamaguchi                     |
| Mode                   | Mode 1, 2 (9 <sup>th</sup> harmonics) |



## -20 dB Bandwidth / 99% emission bandwidth

Test place                      Ise EMC Lab.  
Semi Anechoic Chamber      No.2  
Date                              January 15, 2025  
Temperature / Humidity        24 deg. C / 33 % RH  
Engineer                        Shousei Hamaguchi  
Mode                              Tx

Bandwidth Limit : Fundamental Frequency       $433.58 \text{ MHz} \times 0.25 \% = 1083.950 \text{ kHz}$

\* The above limit was calculated from more stringent nominal frequency.

\* Method of KDB 926416 for systems employing non sweeping frequencies was referred.

### 433.58 MHz

| -20 dB Bandwidth<br>[kHz] |
|---------------------------|
| 65.388                    |

### 434.42 MHz

| -20 dB Bandwidth<br>[kHz] |
|---------------------------|
| 65.460                    |

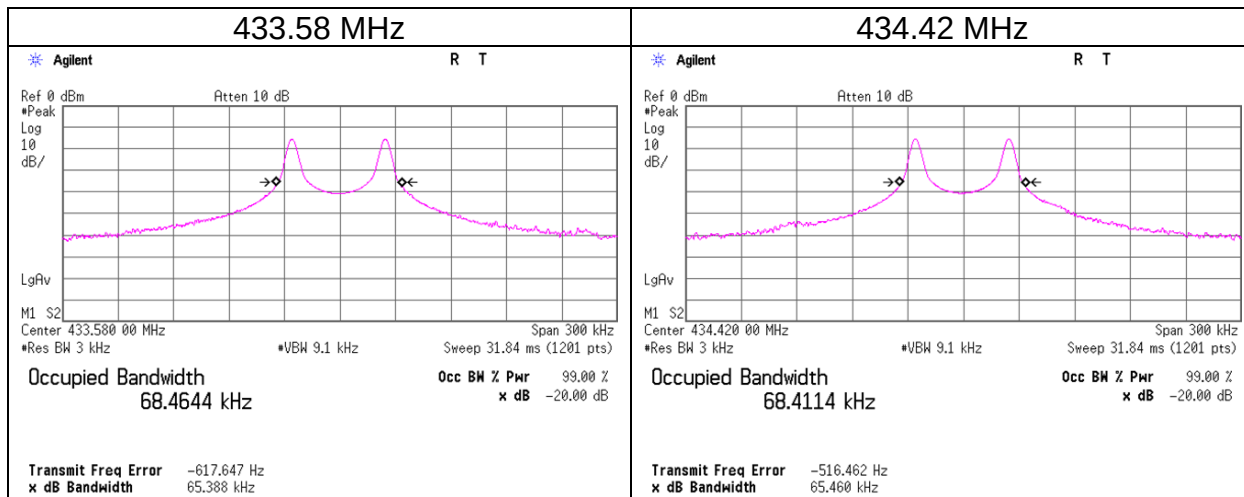
| -20 dB Bandwidth<br>[kHz] | Bandwidth Limit<br>[kHz] | Result |
|---------------------------|--------------------------|--------|
| 130.848                   | 1083.950                 | Pass   |

Bandwidth Limit : Fundamental Frequency       $433.58 \text{ MHz} \times 0.25 \% = 1083.950 \text{ kHz}$

| 99% emission bandwidth<br>[kHz] | Bandwidth Limit<br>[kHz] | Result |
|---------------------------------|--------------------------|--------|
| 68.4644                         | 1083.950                 | Pass   |

Bandwidth Limit : Fundamental Frequency       $434.42 \text{ MHz} \times 0.25 \% = 1086.050 \text{ kHz}$

| 99% emission bandwidth<br>[kHz] | Bandwidth Limit<br>[kHz] | Result |
|---------------------------------|--------------------------|--------|
| 68.4114                         | 1086.050                 | Pass   |



## APPENDIX 2: Test Instruments

### Test Equipment

| Test Item | LIMS ID | Description                       | Manufacturer                    | Model                              | Serial                    | Last Calibration Date | Cal Int |
|-----------|---------|-----------------------------------|---------------------------------|------------------------------------|---------------------------|-----------------------|---------|
| RE        | 141265  | Logperiodic Antenna (200-1000MHz) | Schwarzbeck Mess-Elektronik OHG | VUSLP9111B                         | 9111B-190                 | 07/10/2024            | 12      |
| RE        | 141317  | Coaxial Cable                     | UL-ISE                          | -                                  | -                         | 09/11/2024            | 12      |
| RE        | 141331  | Attenuator(6dB)                   | TME                             | UFA-01                             | -                         | 02/19/2025            | 12      |
| RE        | 141403  | High Pass Filter 1.22-4.60GHz     | Mini-Circuits                   | VHF-1200                           | 10435                     | 07/04/2024            | 12      |
| RE        | 141427  | Biconical Antenna                 | Schwarzbeck Mess-Elektronik OHG | VHA9103B+BBA9106                   | 08031                     | 07/30/2024            | 12      |
| RE        | 141512  | Horn Antenna 1-18GHz              | Schwarzbeck Mess-Elektronik OHG | BBHA9120D                          | 254                       | 10/17/2024            | 12      |
| RE        | 141542  | Digital Tester                    | Fluke Corporation               | FLUKE 26-3                         | 78030611                  | 08/06/2024            | 12      |
| RE        | 141594  | Pre Amplifier                     | Keysight Technologies Inc       | 8447D                              | 2944A10150                | 02/19/2025            | 12      |
| RE        | 141900  | Spectrum Analyzer                 | Keysight Technologies Inc       | E4440A                             | MY46185823                | 11/13/2024            | 12      |
| RE        | 141902  | Spectrum Analyzer                 | Keysight Technologies Inc       | E4440A                             | MY46187105                | 05/30/2024            | 12      |
| RE        | 141950  | EMI Test Receiver                 | Rohde & Schwarz                 | ESU26                              | 100412                    | 11/28/2024            | 12      |
| RE        | 142004  | AC2_Semi Anechoic Chamber(NSA)    | TDK                             | Semi Anechoic Chamber 3m           | DA-06902                  | 12/12/2023            | 24      |
| RE        | 142006  | AC2_Semi Anechoic Chamber(SVSWR)  | TDK                             | Semi Anechoic Chamber 3m           | DA-06902                  | 04/17/2023            | 24      |
| RE        | 142228  | Measure, Tape, Steel              | KOMELON                         | KMC-36                             | -                         | -                     | -       |
| RE        | 178648  | EMI measurement program           | TSJ (Techno Science Japan)      | TEPTO-DV                           | -                         | -                     | -       |
| RE        | 202511  | Loop Antenna                      | UL-ISE                          | -                                  | -                         | -                     | -       |
| RE        | 244707  | Thermo-Hygrometer                 | HIOKI E.E. CORPORATION          | LR5001                             | 231202102                 | 01/19/2025            | 12      |
| RE        | 244712  | Thermo-Hygrometer                 | HIOKI E.E. CORPORATION          | LR5001                             | 231202106                 | 01/19/2025            | 12      |
| RE        | 252663  | Microwave Cable                   | Huber+Suhner                    | SF126E/11PC35/11PC35/1000MM,5000MM | 616276/126E / 616275/126E | 09/10/2024            | 12      |
| RE        | 253739  | Pre Amplifier                     | Keysight Technologies Inc       | 8449B                              | 3008A01919                | 10/23/2024            | 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:

RE: Radiated Emission