

# RADIO TEST REPORT

## Test Report No. 14814707H-C-R1

|                     |                                                                 |
|---------------------|-----------------------------------------------------------------|
| Customer            | DENSO TEN Limited                                               |
| Description of EUT  | Car Navigation                                                  |
| Model Number of EUT | TN0022A                                                         |
| FCC ID              | BABTN0022A                                                      |
| Test Regulation     | FCC Part 15 Subpart E                                           |
| Test Result         | Complied                                                        |
| Issue Date          | September 25, 2023                                              |
| Remarks             | Radiated Spurious Emission test only<br>* For Permissive Change |

Representative Test Engineer

Sayaka Hara  
Engineer

Approved By

Ryota Yamanaka  
Engineer

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".

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- 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 from the customer for this report is identified in Section 1.
- For test report(s) referred in this report, the latest version (including any revisions) is always referred.

## **REVISION HISTORY**

### **Original Test Report No. 14814707H-C**

This report is a revised version of 14814707H-C. 14814707H-C is replaced with this report.

| Revision     | Test Report No. | Date               | Page Revised Contents                                                                                                                                                                                                                  |
|--------------|-----------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| - (Original) | 14814707H-C     | July 31, 2023      | -                                                                                                                                                                                                                                      |
| 1            | 14814707H-C-R1  | September 25, 2023 | P50<br>Correction of following items (from->to):<br>Semi Anechoic Chamber (No.3 -> No.4)<br>Temperature (22 deg. C -> 21 deg C)<br>Humidity (42 % RH -> 47 % RH)<br>Engineer (Sayaka Hara -> Keiya Ido)<br>Mode (5775 MHz -> 5745 MHz) |

## 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                                        |

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## **SECTION 1: Customer Information**

|                  |                                                          |
|------------------|----------------------------------------------------------|
| Company Name     | DENSO TEN Limited                                        |
| Address          | 2-28, Goshō-dori 1-Chome, Hyogo-ku, Kobe, 652-8510 Japan |
| Telephone Number | +81-78-682-2159                                          |
| Contact Person   | Kaoru Abe                                                |

The information provided from 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

\* The laboratory is exempted from liability of any test results affected from the above information in SECTION 2 and 4.

## **SECTION 2: Equipment Under Test (EUT)**

### **2.1 Identification of EUT**

|               |                                                                                           |
|---------------|-------------------------------------------------------------------------------------------|
| Description   | Car Navigation                                                                            |
| Model Number  | TN0022A                                                                                   |
| Serial Number | Refer to SECTION 4.2                                                                      |
| Condition     | Production prototype<br>(Not for Sale: This sample is equivalent to mass-produced items.) |
| Modification  | No Modification by the test lab                                                           |
| Receipt Date  | June 16, 2023                                                                             |
| Test Date     | June 25 to 28, 2023                                                                       |

## 2.2 Product Description

### General Specification

|                       |                         |
|-----------------------|-------------------------|
| Rating                | DC 12 V                 |
| Operating temperature | -30 deg. C to 65 deg. C |

### Radio Specification

#### **WLAN (IEEE802.11b/11g/11n-20)**

|                        |                      |
|------------------------|----------------------|
| Equipment Type         | Transceiver          |
| Frequency of Operation | 2412 MHz to 2462 MHz |
| Type of Modulation     | DSSS, OFDM           |
| Antenna Gain           | -1.25 dBi (Peak)     |

#### **Bluetooth (BR / EDR/ Low Energy)**

|                        |                                                       |
|------------------------|-------------------------------------------------------|
| Equipment Type         | Transceiver                                           |
| Frequency of Operation | 2402 MHz to 2480 MHz                                  |
| Type of Modulation     | BT: FHSS (GFSK, $\pi/4$ DQPSK, 8 DPSK)<br>BT LE: GFSK |
| Antenna Gain           | -1.74 dBi (Peak)                                      |

#### **WLAN (IEEE802.11a/11n-20/11ac-20/11n-40/11ac-40/11ac-80)**

|                        |                                                   |                                              |
|------------------------|---------------------------------------------------|----------------------------------------------|
| Equipment Type         | Transceiver                                       |                                              |
| Frequency of Operation | 20 MHz Band                                       | 5180 MHz to 5240 MHz<br>5745 MHz to 5825 MHz |
|                        | 40 MHz Band                                       | 5190 MHz to 5230 MHz<br>5755 MHz to 5795 MHz |
|                        | 80 MHz Band                                       | 5210 MHz<br>5775 MHz                         |
| Type of Modulation     | OFDM                                              |                                              |
| Antenna Gain           | 3.09 dBi (Peak) (ANT 1) / 2.08 dBi (Peak) (ANT 2) |                                              |

#### **AM (incl. HD\_AM)/FM (incl. RBDS/HD\_FM)/SDARS**

|                        |                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------|
| Equipment Type         | Receiver                                                                                                |
| Frequency of Operation | AM, HD_AM: 530 kHz to 1710 kHz<br>FM, RBDS/HD_FM: 87.75 MHz to 107.9 MHz<br>SDARS: 2320 MHz to 2345 MHz |
| Type of Modulation     | AM<br>FM<br>SDARS: QPSK(Sat)/COFDM(Terr)                                                                |
| Antenna Connector Type | HFC IV                                                                                                  |

## SECTION 3: Test specification, Procedures & Results

### 3.1 Test Specification

|                    |                                                                                                                                                                |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Specification | FCC Part 15 Subpart E<br>The latest version on the first day of the testing period                                                                             |
| Title              | FCC 47 CFR Part 15 Radio Frequency Device Subpart E<br>Unlicensed National Information Infrastructure Devices<br>Section 15.407 General technical requirements |

### 3.2 Procedures and Results

| Item                                                                                                                                                                                                    | Test Procedure                                                | Specification                                                 | Worst Margin                             | Results  | Remarks                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|------------------------------------------|----------|-------------------------------|
| Spurious Emission<br>Restricted Band Edge                                                                                                                                                               | <b>FCC:</b> ANSI C63.10-2013<br>KDB Publication Number 789033 | <b>FCC:</b> 15.407 (b), 15.205 and 15.209                     | 8.8 dB<br>11550.000 MHz,<br>AV, Vertical | Complied | Radiated<br>(> 30 MHz)<br>*1) |
|                                                                                                                                                                                                         | <b>ISED:</b> -                                                | <b>ISED:</b> RSS-247 6.2.1.2<br>6.2.2.2<br>6.2.3.2<br>6.2.4.2 |                                          |          |                               |
| Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.<br>* In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred. |                                                               |                                                               |                                          |          |                               |
| *1) Radiated test was selected over 30 MHz based on RSS-247 6.2 and KDB 789033 D02 G.3.b).                                                                                                              |                                                               |                                                               |                                          |          |                               |

#### FCC Part 15.31 (e)

This EUT provides the stable voltage constantly to RF Module regardless of input voltage.  
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

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   | 4.8                          |
|                      |                     | (Vertical)   | dB   | 5.0                          |
|                      | 200 MHz to 1000 MHz | (Horizontal) | dB   | 5.1                          |
|                      |                     | (Vertical)   | dB   | 6.2                          |
| 10 m                 | 30 MHz to 200 MHz   | (Horizontal) | dB   | 4.8                          |
|                      |                     | (Vertical)   | dB   | 4.8                          |
|                      | 200 MHz to 1000 MHz | (Horizontal) | dB   | 4.9                          |
|                      |                     | (Vertical)   | dB   | 5.0                          |
| 3 m                  | 1 GHz to 6 GHz      |              | dB   | 4.9                          |
|                      | 6 GHz to 18 GHz     |              | dB   | 5.2                          |
| 1 m                  | 10 GHz to 26.5 GHz  |              | dB   | 5.5                          |
|                      | 26.5 GHz to 40 GHz  |              | dB   | 5.4                          |
| 0.5 m                | 26.5 GHz to 40 GHz  |              | dB   | 5.4                          |
| 10 m                 | 1 GHz to 18 GHz     |              | dB   | 5.3                          |



### 3.5 Test Location

UL Japan, Inc. Ise EMC Lab.

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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)

| Mode                                                                                                                                                                                                                                                                                                                                        | Remarks*              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| IEEE 802.11a (11a)                                                                                                                                                                                                                                                                                                                          | 54 Mbps, PN9          |
| IEEE 802.11ac SISO 20 MHz BW (11ac-20)                                                                                                                                                                                                                                                                                                      | MCS 7 (Short GI), PN9 |
| IEEE 802.11ac SISO 40 MHz BW (11ac-40)                                                                                                                                                                                                                                                                                                      | MCS 7 (Short GI), PN9 |
| IEEE 802.11ac SISO 80 MHz BW (11ac-80)                                                                                                                                                                                                                                                                                                      | MCS 7 (Short GI), PN9 |
| *The worst antenna (Ant: 1) and condition was determined based on the test result of Maximum Conducted Output Power.                                                                                                                                                                                                                        |                       |
| *Power of the EUT was set by the software as follows;<br>Power 11a: 7.5 dBm<br>Setting: 11ac-20: 6.5 dBm (5.5 dBm for MCS 8 )<br>11ac-40: 5.5 dBm (3.5 dBm for MCS 8 and MCS 9 )<br>11ac-80: 4.5 dBm (2.5 dBm for MCS 8 and MCS 9 )<br>Software: QCA RCT Ver 3.0.144.0<br>(Date: October 9, 2017, Storage location: Driven by connected PC) |                       |
| *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.                                                                                                                        |                       |
| Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing - Managing Complex Regulatory Approvals - " of TCB Council Workshop October 2009.                                                                                                                                                         |                       |

\*The Details of Operation Mode(s)

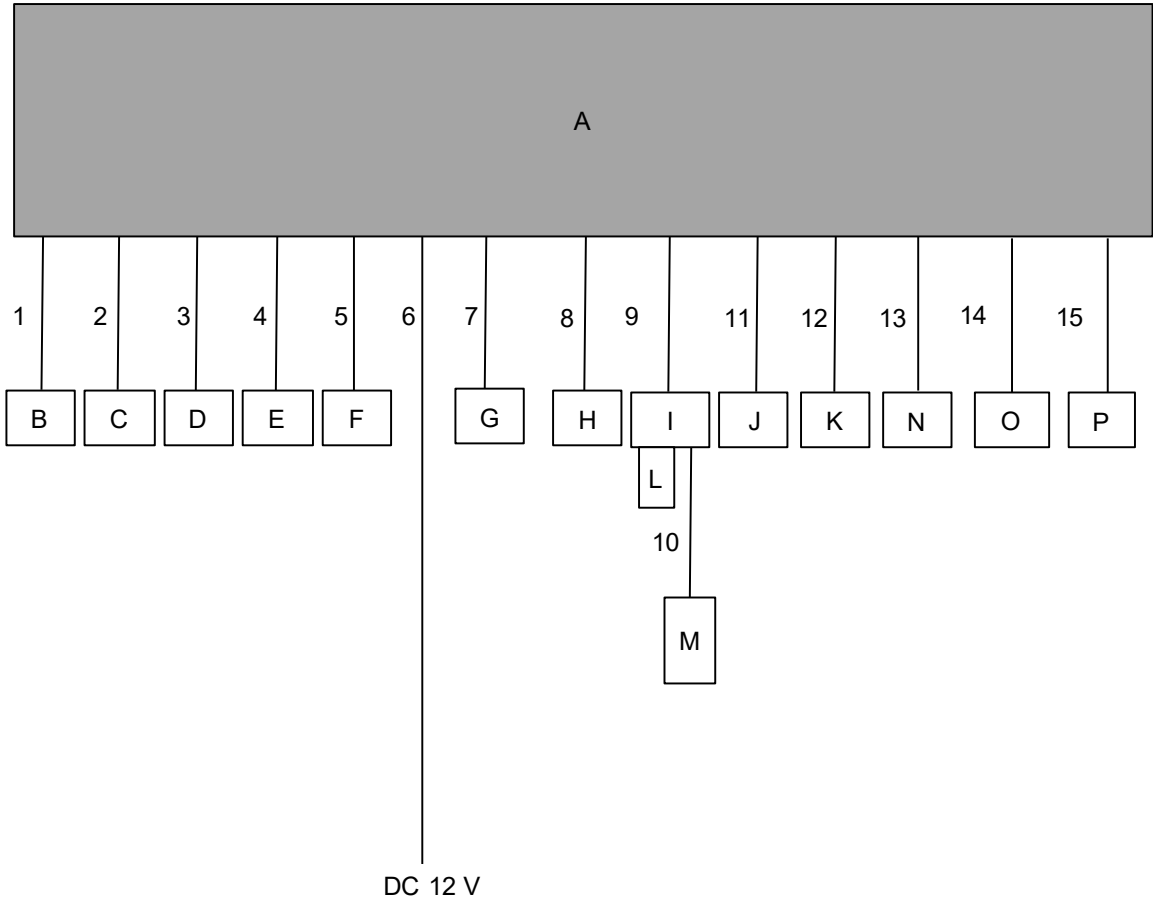
| Test Item                                | Operating Mode | Tested Antenna | Tested Frequency |             |                 |            |
|------------------------------------------|----------------|----------------|------------------|-------------|-----------------|------------|
|                                          |                |                | Lower Band       | Middle Band | Additional Band | Upper Band |
| Radiated Spurious Emission (Below 1 GHz) | Tx 11a *1)     | 1              | 5180 MHz         | -           | -               | -          |
| Radiated Spurious Emission (Above 1 GHz) | Tx 11a         | 1              | 5180 MHz         | -           | -               | 5745 MHz   |
|                                          | Tx 11ac-20     |                | 5220 MHz         | -           | -               | 5785 MHz   |
|                                          |                |                | 5240 MHz         | -           | -               | 5825 MHz   |
|                                          | Tx 11ac-40     | 1              | 5190 MHz         | -           | -               | 5755 MHz   |
|                                          |                |                | 5230 MHz         | -           | -               | 5795 MHz   |
|                                          |                |                | 5755 MHz         | -           | -               |            |
|                                          | Tx 11ac-80     | 1              | 5210 MHz         | -           | -               | 5775 MHz   |

\*1) The mode was tested as a representative, because it had the highest power at antenna terminal test.

### Simultaneous transmission

| Test Item                                                                                                                                           | Mode *1)                               | Tested Antenna                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|
| Radiated Spurious Emission                                                                                                                          | Tx 11a 5745 MHz + Tx BT DH5 Hopping On | 11a (Antenna 2) + Bluetooth (Antenna 2) |
| *1) The test was performed on the mode as a representative, because it had the highest power (Bluetooth DH5) of Bluetooth at antenna terminal test. |                                        |                                         |

4.2 Configuration and Peripherals



\* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.

#### Description of EUT and Support Equipment

| No. | Item                   | Model Number   | Serial Number   | Manufacturer        | Remarks |
|-----|------------------------|----------------|-----------------|---------------------|---------|
| A   | Car Navigation         | TN0022A        | MUC00025        | DENSO TEN Limited   | EUT     |
| B   | Switch                 | -              | -               | -                   | -       |
| C   | DCM                    | 19MC_DCM       | E-033720026/004 | DENSO Corporation   | -       |
| D   | Steering Switch        | PA6-GF30       | No.55           | TOYOTA              | -       |
| E   | Low noise Amp          | ZX60-242GLN-S+ | S 2036302044    | Mini-Circuits       | -       |
| F   | GPS Antenna            | 033722058/002  | 29020043        | DENSO TEN Limited   | -       |
| G   | FM/AM Connector (Main) | 86300-30C30    | PTA00490        | DENSO TEN Limited   | -       |
| H   | Digital BGM Camera     | 867B0-78080    | 07SD00016       | KYOCERA Corporation | -       |
| I   | USB/AUX socket         | -              | No.39           | -                   | -       |
| J   | Mic                    | SDA3510A       | 0DC040829       | -                   | -       |
| K   | Mic                    | SDA3510A       | 0DC040805       | -                   | -       |
| L   | USB Memory             | RYF3-K16GB     | P10416          | Buffalo Inc.        | -       |
| M   | iPod touch             | A1367          | CCQ50WDDCPC     | Apple               | -       |
| N   | Speaker Dummy          | -              | -               | -                   | -       |
| O   | Satellite Switch       | 86170-AK010    | -               | -                   | -       |
| P   | Jig                    | -              | -               | DENSO TEN Limited   | -       |

#### List of Cables Used

| No. | Name               | Length (m) | Shield     |            | Remarks |
|-----|--------------------|------------|------------|------------|---------|
|     |                    |            | Cable      | Connector  |         |
| 1   | Signal Cable       | 3.5        | Unshielded | Unshielded | -       |
| 2   | Signal Cable       | 2.4        | Unshielded | Unshielded | -       |
| 3   | Signal Cable       | 2.4        | Unshielded | Unshielded | -       |
| 4   | Signal Cable       | 0.9        | Unshielded | Unshielded | -       |
| 5   | GNSS Antenna Cable | 8.0        | Shielded   | Shielded   | -       |
| 6   | DC Cable           | 4.5        | Unshielded | Unshielded | -       |
| 7   | Signal Cable       | 2.6        | Unshielded | Unshielded | -       |
| 8   | Signal Cable       | 3.2        | Unshielded | Unshielded | -       |
| 9   | USB Cable          | 1.9        | Shielded   | Shielded   | -       |
| 10  | Audio Cable        | 1.0        | Shielded   | Shielded   | -       |
| 11  | Signal Cable       | 2.7        | Unshielded | Unshielded | -       |
| 12  | Signal Cable       | 2.7        | Unshielded | Unshielded | -       |
| 13  | Speaker Cable      | 5.2        | Shielded   | Shielded   | -       |
| 14  | Signal Cable       | 5.0        | Unshielded | Unshielded | -       |
| 15  | Signal Cable       | 0.1        | Unshielded | Unshielded | -       |

## **SECTION 5: Radiated Spurious Emission and Band Edge Compliance**

### **Test Procedure**

#### **< Below 1 GHz >**

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

#### **< 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. Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.

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

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

The test was made with the detector (RBW/VBW) in the following table.

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

#### **< Below 1 GHz >**

The result also satisfied with the general limits specified in section 15.209 (a).

#### **< Above 1 GHz >**

Inside of restricted bands (Section 15.205):

Apply to limit in the Section 15.209 (a).

Outside of the restricted bands:

Apply to limit 68.2 dBuV/m, 3 m (-27 dBm e.i.r.p.\* ) in the Section 15.407 (b) (1) (2) (3).

For W58 Bandedge

-27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge in the section 15.407(b)(4)(i).

Restricted band edge:

Apply to limit in the Section 15.209 (a).

Since this limit is severer than the limit of the inside of restricted bands.

\*Electric field strength to e.i.r.p. conversion:

$$E = \frac{1000000\sqrt{30P}}{3} \text{ (uV/m)} \quad : P \text{ is the e.i.r.p. (Watts)}$$

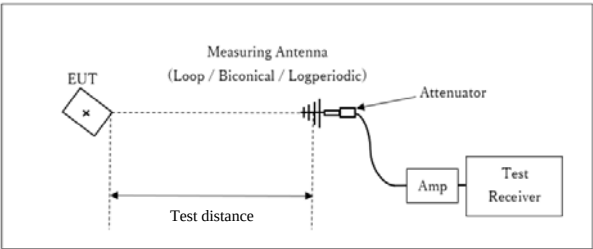
**Test Antennas are used as below;**

|              |                   |                  |             |
|--------------|-------------------|------------------|-------------|
| Frequency    | 30 MHz to 200 MHz | 200 MHz to 1 GHz | Above 1 GHz |
| Antenna Type | Biconical         | Logperiodic      | Horn        |

|                 |               |                          |                                                                                                                                                                                     |
|-----------------|---------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency       | Below 1 GHz   | Above 1 GHz              |                                                                                                                                                                                     |
| Instrument Used | Test Receiver | Spectrum Analyzer        |                                                                                                                                                                                     |
| Detector        | QP            | Peak                     | Average                                                                                                                                                                             |
| IF Bandwidth    | BW: 120 kHz   | RBW: 1 MHz<br>VBW: 3 MHz | Method AD<br>RBW: 1 MHz<br>VBW: 3 MHz<br>Detector: Power<br>Averaging (RMS)<br>Trace: $\geq 100$ traces<br>If duty cycle was less than 98%, a duty factor was added to the results. |

Figure 1: Test Setup

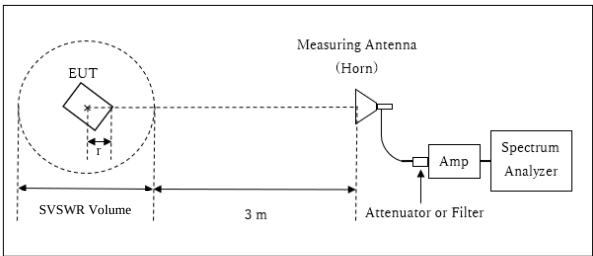
Below 1 GHz



x : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz

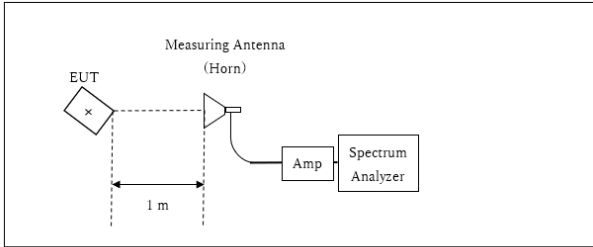


r : Radius of an outer periphery of EUT  
x : Center of turn table

Distance Factor:  $20 \times \log (3.8 \text{ m} / 3.0 \text{ m}) = 2.06 \text{ dB}$   
\* Test Distance:  $(3 + \text{SVSWR Volume} / 2) - r = 3.8 \text{ m}$

SVSWR Volume : 2.0 m  
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)  
 $r = 0.2 \text{ m}$

10 GHz to 40 GHz



x : Center of turn table

Distance Factor:  $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$   
\*Test Distance: 1 m

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

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

Measurement Range : 30 MHz to 40 GHz  
Test Data : APPENDIX  
Test Result : Pass

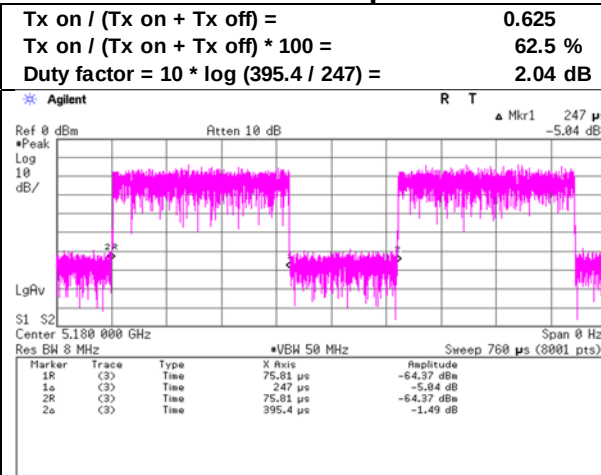
## APPENDIX 1: Test Data

### Burst rate confirmation

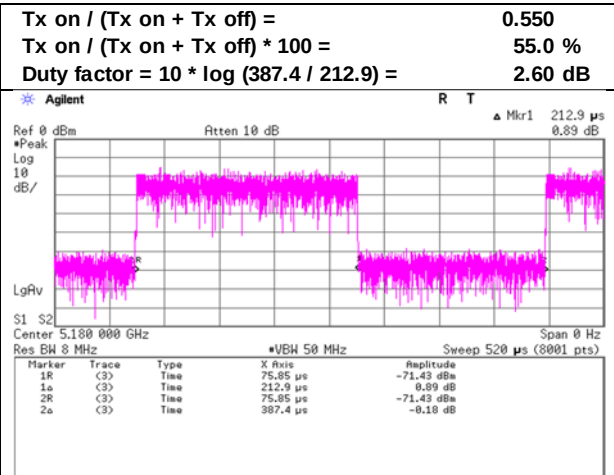
Test place  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab. No.4 Semi Anechoic Chamber  
June 25, 2023  
22 deg. C / 40 % RH  
Keiya Ido  
Tx

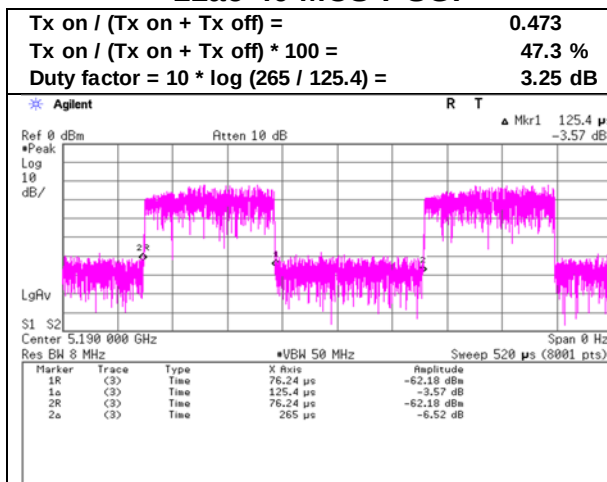
#### 11a 54 Mbps



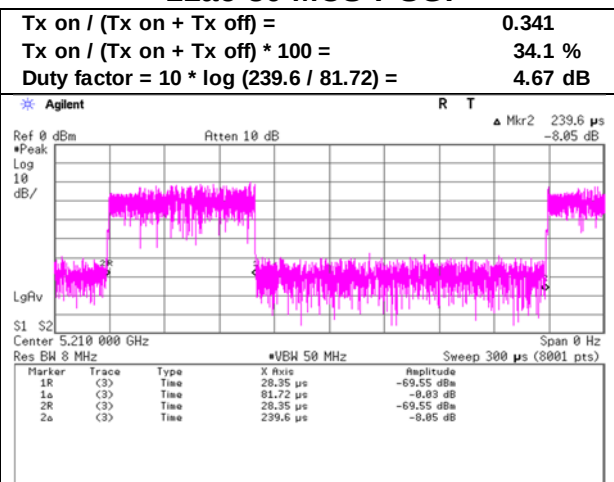
#### 11ac-20 MCS 7 SGI



#### 11ac-40 MCS 7 SGI



#### 11ac-80 MCS 7 SGI





## Radiated Spurious Emission

|                        |                                |                                   |                             |                            |
|------------------------|--------------------------------|-----------------------------------|-----------------------------|----------------------------|
| Test place             | Ise EMC Lab.                   |                                   |                             |                            |
| Semi Anechoic Chamber  | No.4                           | No.4                              | No.4                        | No.4                       |
| Date                   | June 25, 2023                  | June 27, 2023                     | June 27, 2023               | June 28, 2023              |
| Temperature / Humidity | 22 deg. C / 40 % RH            | 21 deg. C / 49 % RH               | 20 deg. C / 47 % RH         | 19 deg. C / 43 % RH        |
| Engineer               | Keiya Ido<br>(1 GHz to 10 GHz) | Sayaka Hara<br>(10 GHz to 18 GHz) | Keiya Ido<br>(Above 18 GHz) | Keiya Ido<br>(Below 1 GHz) |
| Mode                   | Tx 11a 5180 MHz                |                                   |                             |                            |

| Polarity<br>[Hori/Vert] | Frequency<br>[MHz] | Reading<br>(QP / PK)<br>[dBuV] | Reading<br>(AV)<br>[dBuV] | Ant.<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Duty<br>Factor<br>[dB] | Result<br>(QP / PK)<br>[dBuV/m] | Result<br>(AV)<br>[dBuV/m] | Limit<br>(QP / PK)<br>[dBuV/m] | Limit<br>(AV)<br>[dBuV/m] | Margin<br>(QP / PK)<br>[dB] | Margin<br>(AV)<br>[dB] | Remark      |
|-------------------------|--------------------|--------------------------------|---------------------------|--------------------------|--------------|--------------|------------------------|---------------------------------|----------------------------|--------------------------------|---------------------------|-----------------------------|------------------------|-------------|
| Hori.                   | 75.2               | 31.1                           | -                         | 6.5                      | 7.6          | 32.1         | -                      | 13.1                            | -                          | 40.0                           | -                         | 26.9                        | -                      |             |
| Hori.                   | 163.9              | 29.7                           | -                         | 15.5                     | 8.5          | 32.0         | -                      | 21.7                            | -                          | 43.5                           | -                         | 21.8                        | -                      |             |
| Hori.                   | 185.7              | 24.6                           | -                         | 16.3                     | 8.7          | 32.0         | -                      | 17.5                            | -                          | 43.5                           | -                         | 26.0                        | -                      |             |
| Hori.                   | 615.3              | 32.9                           | -                         | 19.5                     | 11.4         | 32.3         | -                      | 31.5                            | -                          | 46.0                           | -                         | 14.5                        | -                      |             |
| Hori.                   | 867.7              | 25.4                           | -                         | 21.9                     | 12.2         | 31.3         | -                      | 28.2                            | -                          | 46.0                           | -                         | 17.8                        | -                      |             |
| Hori.                   | 914.5              | 32.2                           | -                         | 22.1                     | 12.5         | 31.0         | -                      | 35.7                            | -                          | 46.0                           | -                         | 10.3                        | -                      |             |
| Hori.                   | 1580.0             | 52.9                           | 42.5                      | 25.2                     | 3.9          | 33.3         | -                      | 48.7                            | 38.3                       | 73.9                           | 53.9                      | 25.2                        | 15.6                   |             |
| Hori.                   | 5150.0             | 42.6                           | 32.9                      | 31.9                     | 5.6          | 31.1         | 2.0                    | 48.9                            | 41.2                       | 73.9                           | 53.9                      | 25.0                        | 12.7                   | *1)         |
| Hori.                   | 10000.0            | 47.2                           | -                         | 39.0                     | -3.3         | 32.7         | -                      | 50.2                            | -                          | 68.2                           | -                         | 18.0                        | -                      |             |
| Hori.                   | 10360.0            | 42.8                           | -                         | 39.5                     | -3.1         | 32.8         | -                      | 46.3                            | -                          | 68.2                           | -                         | 21.9                        | -                      | Floor noise |
| Hori.                   | 12500.0            | 46.7                           | 39.0                      | 38.8                     | -2.9         | 32.6         | -                      | 50.0                            | 42.4                       | 73.9                           | 53.9                      | 23.9                        | 11.5                   |             |
| Hori.                   | 15540.0            | 43.2                           | 34.1                      | 37.9                     | -2.2         | 32.3         | -                      | 46.6                            | 37.5                       | 73.9                           | 53.9                      | 27.3                        | 16.4                   | Floor noise |
| Vert.                   | 75.2               | 33.2                           | -                         | 6.5                      | 7.6          | 32.1         | -                      | 15.2                            | -                          | 40.0                           | -                         | 24.8                        | -                      |             |
| Vert.                   | 163.9              | 29.7                           | -                         | 15.5                     | 8.5          | 32.0         | -                      | 21.7                            | -                          | 43.5                           | -                         | 21.8                        | -                      |             |
| Vert.                   | 185.7              | 26.1                           | -                         | 16.3                     | 8.7          | 32.0         | -                      | 19.0                            | -                          | 43.5                           | -                         | 24.5                        | -                      |             |
| Vert.                   | 615.3              | 33.4                           | -                         | 19.5                     | 11.4         | 32.3         | -                      | 32.0                            | -                          | 46.0                           | -                         | 14.0                        | -                      |             |
| Vert.                   | 867.7              | 24.8                           | -                         | 21.9                     | 12.2         | 31.3         | -                      | 27.6                            | -                          | 46.0                           | -                         | 18.4                        | -                      |             |
| Vert.                   | 914.5              | 28.6                           | -                         | 22.1                     | 12.5         | 31.0         | -                      | 32.1                            | -                          | 46.0                           | -                         | 13.9                        | -                      |             |
| Vert.                   | 1580.0             | 54.8                           | 45.6                      | 25.2                     | 3.9          | 33.3         | -                      | 50.6                            | 41.4                       | 73.9                           | 53.9                      | 23.4                        | 12.6                   |             |
| Vert.                   | 5150.0             | 44.6                           | 35.0                      | 31.9                     | 5.6          | 31.1         | 2.0                    | 50.9                            | 43.4                       | 73.9                           | 53.9                      | 23.0                        | 10.5                   | *1)         |
| Vert.                   | 10000.0            | 47.4                           | -                         | 39.0                     | -3.3         | 32.7         | -                      | 50.4                            | -                          | 68.2                           | -                         | 17.8                        | -                      |             |
| Vert.                   | 10360.0            | 42.8                           | -                         | 39.5                     | -3.1         | 32.8         | -                      | 46.3                            | -                          | 68.2                           | -                         | 21.9                        | -                      | Floor noise |
| Vert.                   | 12500.0            | 46.7                           | 41.4                      | 38.8                     | -2.9         | 32.6         | -                      | 50.1                            | 44.7                       | 73.9                           | 53.9                      | 23.9                        | 9.2                    |             |
| Vert.                   | 15540.0            | 43.2                           | 34.1                      | 37.9                     | -2.2         | 32.3         | -                      | 46.6                            | 37.5                       | 73.9                           | 53.9                      | 27.3                        | 16.4                   | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

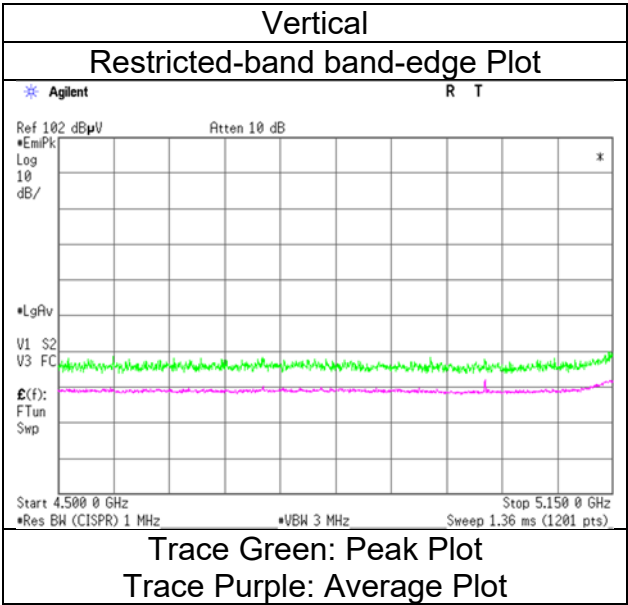
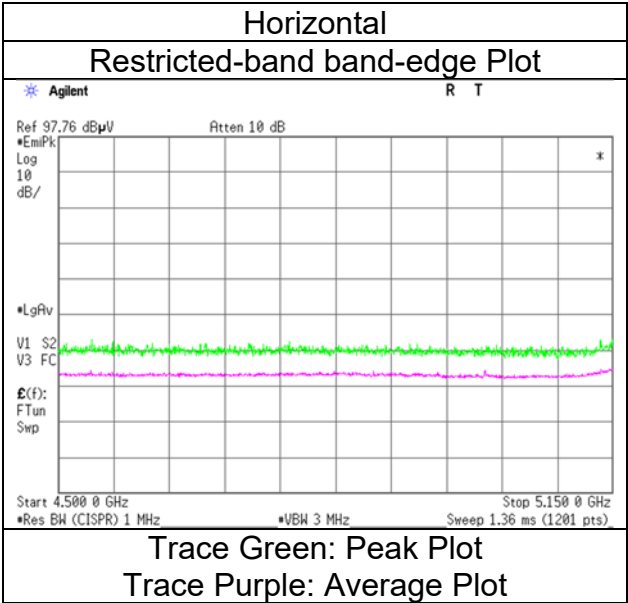
\*1) Not Out of Band emission(Leakage Power)

Distance factor:    1 GHz - 10 GHz    20log (3.8 m / 3.0 m) = 2.06 dB  
                              10 GHz - 40 GHz    20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
  
Mode

Ise EMC Lab.  
No.4  
June 25, 2023  
22 deg. C / 40 % RH  
Keiya Ido  
(1 GHz to 10 GHz)  
Tx 11a 5180 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 25, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 40 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Keiya Ido           | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11a 5220 MHz     |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 53.8                 | 42.6            | 25.2           | 3.9  | 33.3 | -              | 49.6                | 38.4           | 73.9               | 53.9          | 24.3                | 15.5           |             |
| Hori.       | 10000.0   | 47.1                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.1                | -              | 68.2               | -             | 18.1                | -              |             |
| Hori.       | 10440.0   | 42.7                 | -               | 39.6           | -3.1 | 32.9 | -              | 46.3                | -              | 68.2               | -             | 21.9                | -              | Floor noise |
| Hori.       | 12500.0   | 46.7                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 42.4           | 73.9               | 53.9          | 23.9                | 11.5           |             |
| Hori.       | 15660.0   | 42.6                 | 34.2            | 37.8           | -2.2 | 32.3 | -              | 45.9                | 37.5           | 73.9               | 53.9          | 28.0                | 16.4           | Floor noise |
| Vert.       | 1580.0    | 54.7                 | 45.5            | 25.2           | 3.9  | 33.3 | -              | 50.5                | 41.3           | 73.9               | 53.9          | 23.4                | 12.6           |             |
| Vert.       | 10000.0   | 47.5                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.5                | -              | 68.2               | -             | 17.7                | -              |             |
| Vert.       | 10440.0   | 42.7                 | -               | 39.6           | -3.1 | 32.9 | -              | 46.3                | -              | 68.2               | -             | 21.9                | -              | Floor noise |
| Vert.       | 12500.0   | 46.8                 | 41.4            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.7           | 73.9               | 53.9          | 23.8                | 9.2            |             |
| Vert.       | 15660.0   | 42.6                 | 34.2            | 37.8           | -2.2 | 32.3 | -              | 45.9                | 37.5           | 73.9               | 53.9          | 28.0                | 16.4           | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

Distance factor:      1 GHz - 10 GHz      20log (3.8 m / 3.0 m) = 2.06 dB  
                                  10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 25, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 40 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Keiya Ido           | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11a 5240 MHz     |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 53.6                 | 42.5            | 25.2           | 3.9  | 33.3 | -              | 49.4                | 38.3           | 73.9               | 53.9          | 24.5                | 15.6           |             |
| Hori.       | 5350.0    | 41.0                 | 31.0            | 31.6           | 5.7  | 31.2 | 2.0            | 47.0                | 39.1           | 73.9               | 53.9          | 26.9                | 14.8           | *1)         |
| Hori.       | 10000.0   | 47.1                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.1                | -              | 68.2               | -             | 18.1                | -              |             |
| Hori.       | 10480.0   | 42.7                 | -               | 39.6           | -3.1 | 32.9 | -              | 46.3                | -              | 68.2               | -             | 21.9                | -              | Floor noise |
| Hori.       | 12500.0   | 46.6                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 42.4           | 73.9               | 53.9          | 23.9                | 11.5           |             |
| Hori.       | 15720.0   | 42.8                 | 34.3            | 37.8           | -2.2 | 32.3 | -              | 46.0                | 37.5           | 73.9               | 53.9          | 27.9                | 16.4           | Floor noise |
| Vert.       | 1580.0    | 53.7                 | 42.5            | 25.2           | 3.9  | 33.3 | -              | 49.4                | 38.3           | 73.9               | 53.9          | 24.5                | 15.6           |             |
| Vert.       | 5350.0    | 40.8                 | 30.9            | 31.6           | 5.7  | 31.2 | 2.0            | 46.9                | 39.0           | 73.9               | 53.9          | 27.0                | 14.9           | *1)         |
| Vert.       | 10000.0   | 47.4                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.4                | -              | 68.2               | -             | 17.8                | -              |             |
| Vert.       | 10480.0   | 42.7                 | -               | 39.6           | -3.1 | 32.9 | -              | 46.3                | -              | 68.2               | -             | 21.9                | -              | Floor noise |
| Vert.       | 12500.0   | 46.8                 | 41.4            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.7           | 73.9               | 53.9          | 23.8                | 9.2            |             |
| Vert.       | 15720.0   | 42.8                 | 34.3            | 37.8           | -2.2 | 32.3 | -              | 46.0                | 37.5           | 73.9               | 53.9          | 27.9                | 16.4           | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

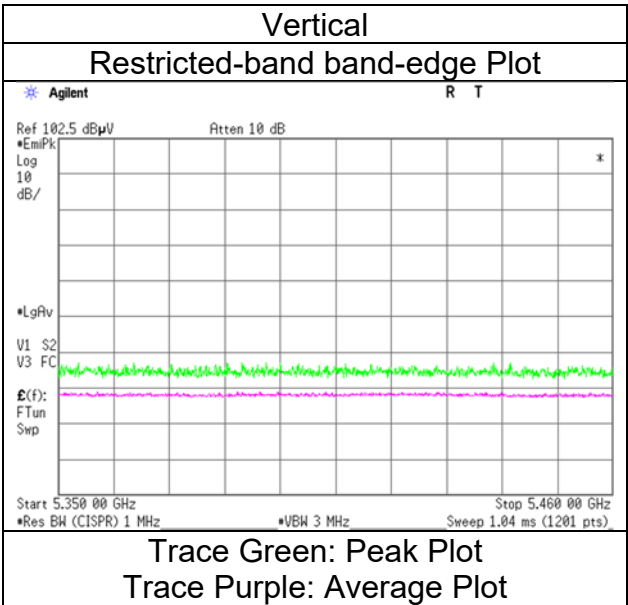
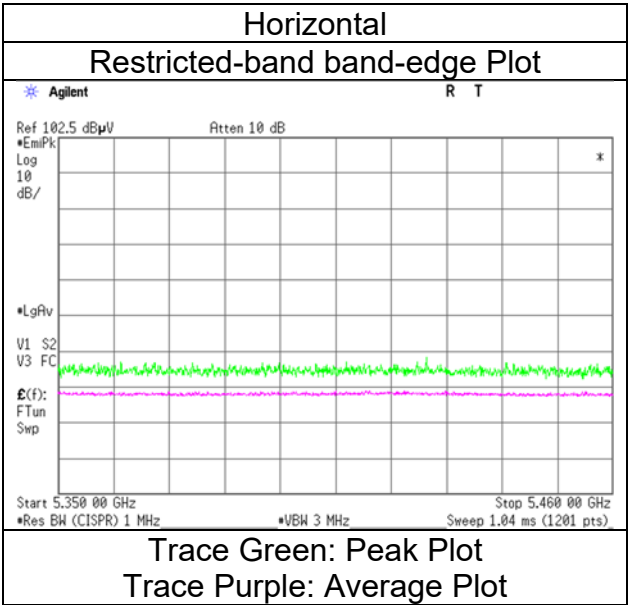
\*1) Not Out of Band emission(Leakage Power)

Distance factor:    1 GHz - 10 GHz    20log (3.8 m / 3.0 m) = 2.06 dB  
                              10 GHz - 40 GHz    20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.4  
June 25, 2023  
22 deg. C / 40 % RH  
Keiya Ido  
Tx 11a 5240 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 25, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 40 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Keiya Ido           | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11a 5745 MHz     |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 53.8                 | 42.6            | 25.2           | 3.9  | 33.3 | -              | 49.5                | 38.4           | 73.9               | 53.9          | 24.4                | 15.5           |             |
| Hori.       | 5650.0    | 41.4                 | -               | 31.8           | 5.8  | 31.3 | -              | 47.7                | -              | 68.2               | -             | 20.5                | -              |             |
| Hori.       | 5700.0    | 42.1                 | -               | 31.8           | 5.8  | 31.3 | -              | 48.5                | -              | 105.2              | -             | 56.7                | -              |             |
| Hori.       | 5720.0    | 43.1                 | -               | 31.9           | 5.8  | 31.3 | -              | 49.5                | -              | 110.8              | -             | 61.3                | -              |             |
| Hori.       | 5725.0    | 44.0                 | -               | 31.9           | 5.8  | 31.3 | -              | 50.4                | -              | 122.2              | -             | 71.8                | -              |             |
| Hori.       | 10000.0   | 47.1                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.1                | -              | 68.2               | -             | 18.1                | -              |             |
| Hori.       | 11490.0   | 44.3                 | 37.5            | 39.7           | -3.0 | 32.9 | 2.0            | 48.1                | 43.4           | 73.9               | 53.9          | 25.8                | 10.5           |             |
| Hori.       | 12500.0   | 46.6                 | 39.0            | 38.8           | -2.9 | 32.6 | -              | 49.9                | 42.3           | 73.9               | 53.9          | 24.0                | 11.6           |             |
| Hori.       | 17235.0   | 43.0                 | -               | 41.8           | -1.8 | 32.4 | -              | 50.5                | -              | 68.2               | -             | 17.7                | -              | Floor noise |
| Vert.       | 1580.0    | 54.3                 | 45.4            | 25.2           | 3.9  | 33.3 | -              | 50.1                | 41.2           | 73.9               | 53.9          | 23.8                | 12.7           |             |
| Vert.       | 5650.0    | 42.1                 | -               | 31.8           | 5.8  | 31.3 | -              | 48.3                | -              | 68.2               | -             | 19.9                | -              |             |
| Vert.       | 5700.0    | 43.5                 | -               | 31.8           | 5.8  | 31.3 | -              | 49.9                | -              | 105.2              | -             | 55.3                | -              |             |
| Vert.       | 5720.0    | 45.9                 | -               | 31.9           | 5.8  | 31.3 | -              | 52.3                | -              | 110.8              | -             | 58.5                | -              |             |
| Vert.       | 5725.0    | 46.1                 | -               | 31.9           | 5.8  | 31.3 | -              | 52.5                | -              | 122.2              | -             | 69.7                | -              |             |
| Vert.       | 10000.0   | 47.5                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.5                | -              | 68.2               | -             | 17.7                | -              |             |
| Vert.       | 11490.0   | 44.8                 | 37.8            | 39.7           | -3.0 | 32.9 | -              | 48.6                | 41.7           | 73.9               | 53.9          | 25.3                | 12.2           | Floor noise |
| Vert.       | 12500.0   | 46.8                 | 41.4            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.8           | 73.9               | 53.9          | 23.8                | 9.1            |             |
| Vert.       | 17235.0   | 43.0                 | -               | 41.8           | -1.8 | 32.4 | -              | 50.5                | -              | 68.2               | -             | 17.7                | -              | Floor noise |

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

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

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

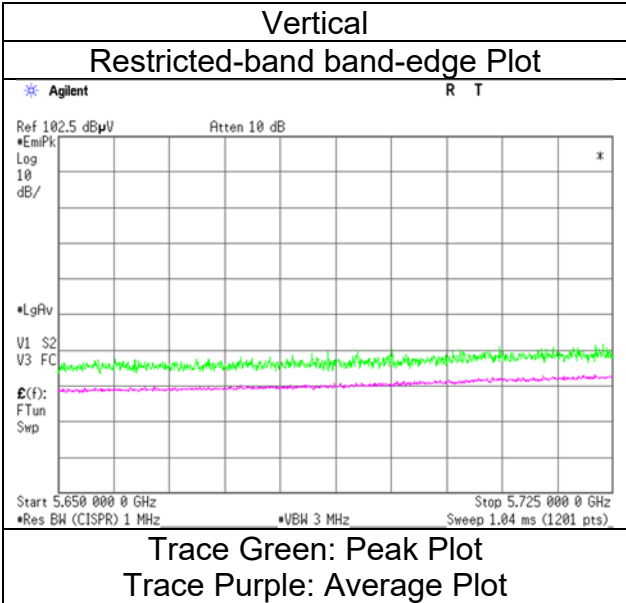
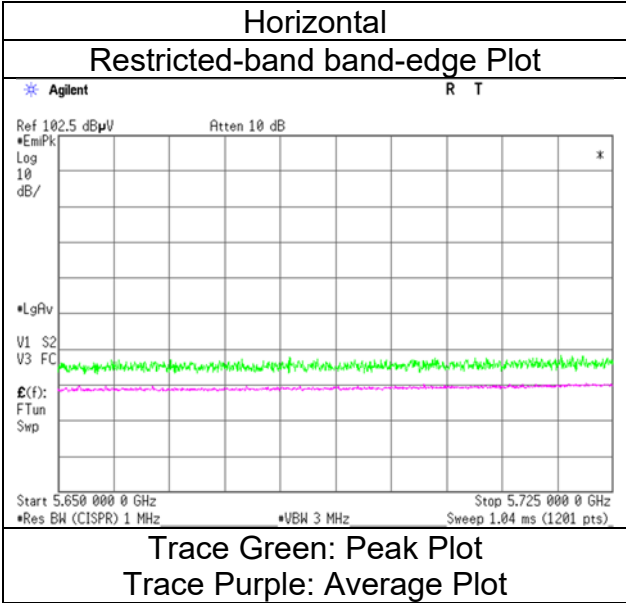
\*QP detector was used up to 1GHz.

Distance factor:      1 GHz - 10 GHz      20log (3.8 m / 3.0 m) = 2.06 dB  
                                  10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.4  
June 25, 2023  
22 deg. C / 40 % RH  
Keiya Ido  
Tx 11a 5745 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 25, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 40 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Keiya Ido           | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11a 5785 MHz     |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 53.0                 | 42.4            | 25.2           | 3.9  | 33.3 | -              | 48.8                | 38.2           | 73.9               | 53.9          | 25.1                | 15.7           |             |
| Hori.       | 10000.0   | 47.1                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.1                | -              | 68.2               | -             | 18.1                | -              |             |
| Hori.       | 11570.0   | 42.9                 | 35.5            | 39.5           | -3.0 | 32.9 | 2.0            | 46.6                | 41.2           | 73.9               | 53.9          | 27.4                | 12.7           |             |
| Hori.       | 12500.0   | 46.7                 | 38.9            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 42.2           | 73.9               | 53.9          | 23.9                | 11.7           |             |
| Hori.       | 17355.0   | 42.4                 | -               | 42.8           | -1.8 | 32.4 | -              | 51.1                | -              | 68.2               | -             | 17.1                | -              | Floor noise |
| Vert.       | 1580.0    | 54.8                 | 45.3            | 25.2           | 3.9  | 33.3 | -              | 50.6                | 41.1           | 73.9               | 53.9          | 23.3                | 12.8           |             |
| Vert.       | 10000.0   | 47.4                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.4                | -              | 68.2               | -             | 17.8                | -              |             |
| Vert.       | 11570.0   | 44.1                 | 37.2            | 39.5           | -3.0 | 32.9 | 2.0            | 47.8                | 42.9           | 73.9               | 53.9          | 26.2                | 11.0           |             |
| Vert.       | 12500.0   | 46.8                 | 41.5            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.8           | 73.9               | 53.9          | 23.8                | 9.1            |             |
| Vert.       | 17355.0   | 42.4                 | -               | 42.8           | -1.8 | 32.4 | -              | 51.1                | -              | 68.2               | -             | 17.1                | -              | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

Distance factor:      1 GHz - 10 GHz      20log (3.8 m / 3.0 m) = 2.06 dB  
                                  10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB



## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 25, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 40 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Keiya Ido           | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11a 5825 MHz     |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.5                 | 42.4            | 25.2           | 3.9  | 33.3 | -              | 48.3                | 38.2           | 73.9               | 53.9          | 25.6                | 15.7           |             |
| Hori.       | 5850.0    | 42.4                 | -               | 32.2           | 5.9  | 31.3 | -              | 49.1                | -              | 122.2              | -             | 73.1                | -              |             |
| Hori.       | 5855.0    | 42.1                 | -               | 32.2           | 5.9  | 31.3 | -              | 48.9                | -              | 110.8              | -             | 61.9                | -              |             |
| Hori.       | 5875.0    | 40.9                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.7                | -              | 105.2              | -             | 57.5                | -              |             |
| Hori.       | 5925.0    | 40.4                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.3                | -              | 68.2               | -             | 20.9                | -              |             |
| Hori.       | 10000.0   | 47.1                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.1                | -              | 68.2               | -             | 18.1                | -              |             |
| Hori.       | 11650.0   | 44.4                 | 36.4            | 39.2           | -3.0 | 32.9 | 2.0            | 47.7                | 41.7           | 73.9               | 53.9          | 26.2                | 12.2           |             |
| Hori.       | 12500.0   | 46.7                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 42.4           | 73.9               | 53.9          | 23.9                | 11.5           |             |
| Hori.       | 17475.0   | 44.1                 | -               | 43.7           | -1.7 | 32.4 | -              | 53.8                | -              | 68.2               | -             | 14.4                | -              | Floor noise |
| Vert.       | 1580.0    | 54.3                 | 45.4            | 25.2           | 3.9  | 33.3 | -              | 50.1                | 41.2           | 73.9               | 53.9          | 23.8                | 12.7           |             |
| Vert.       | 5850.0    | 44.8                 | -               | 32.2           | 5.9  | 31.3 | -              | 51.6                | -              | 122.2              | -             | 70.6                | -              |             |
| Vert.       | 5855.0    | 43.7                 | -               | 32.2           | 5.9  | 31.3 | -              | 50.5                | -              | 110.8              | -             | 60.3                | -              |             |
| Vert.       | 5875.0    | 41.8                 | -               | 32.3           | 5.9  | 31.4 | -              | 48.6                | -              | 105.2              | -             | 56.6                | -              |             |
| Vert.       | 5925.0    | 40.6                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.5                | -              | 68.2               | -             | 20.8                | -              |             |
| Vert.       | 10000.0   | 47.4                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.4                | -              | 68.2               | -             | 17.8                | -              |             |
| Vert.       | 11650.0   | 44.8                 | 38.3            | 39.2           | -3.0 | 32.9 | 2.0            | 48.1                | 43.6           | 73.9               | 53.9          | 25.8                | 10.3           |             |
| Vert.       | 12500.0   | 46.8                 | 41.4            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.7           | 73.9               | 53.9          | 23.8                | 9.2            |             |
| Vert.       | 17475.0   | 44.1                 | -               | 43.7           | -1.7 | 32.4 | -              | 53.8                | -              | 68.2               | -             | 14.4                | -              | Floor noise |

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

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

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

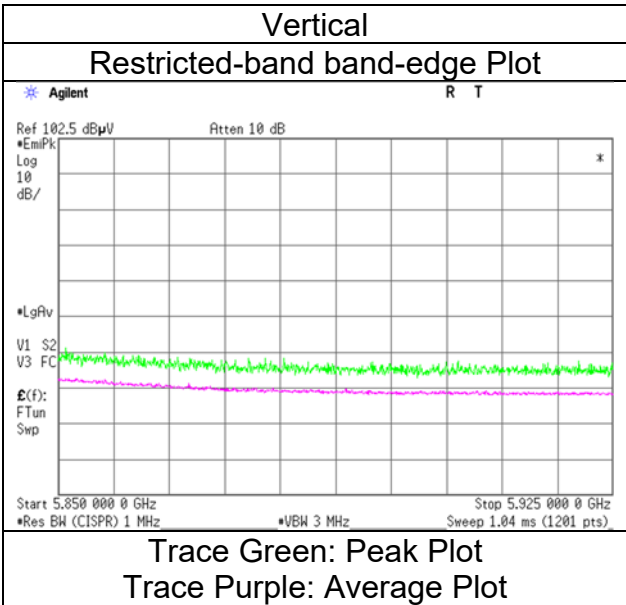
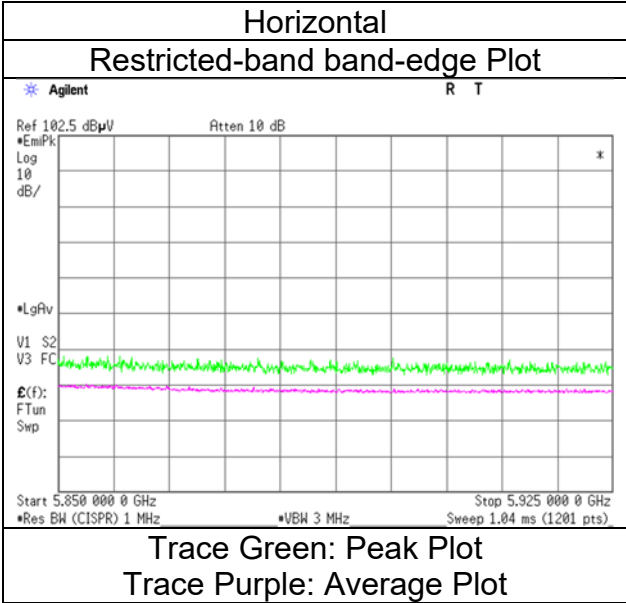
\*QP detector was used up to 1GHz.

Distance factor:      1 GHz - 10 GHz      20log (3.8 m / 3.0 m) = 2.06 dB  
                                  10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.4  
June 25, 2023  
22 deg. C / 40 % RH  
Keiya Ido  
Tx 11a 5825 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        | No.4                | No.4                |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-20 5180 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 53.2                 | 44.5            | 25.2           | 3.9  | 33.3 | -              | 49.0                | 40.2           | 73.9               | 53.9          | 24.9                | 13.7           |             |
| Hori.       | 5150.0    | 41.6                 | 33.2            | 31.9           | 5.6  | 31.1 | 2.6            | 47.9                | 42.1           | 73.9               | 53.9          | 26.0                | 11.8           | *1)         |
| Hori.       | 10000.0   | 47.2                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.3                | -              | 68.2               | -             | 18.0                | -              |             |
| Hori.       | 10360.0   | 42.6                 | -               | 39.5           | -3.1 | 32.8 | -              | 46.1                | -              | 68.2               | -             | 22.1                | -              | Floor noise |
| Hori.       | 12500.0   | 46.6                 | 39.0            | 38.8           | -2.9 | 32.6 | -              | 49.9                | 42.3           | 73.9               | 53.9          | 24.0                | 11.6           |             |
| Hori.       | 15540.0   | 42.4                 | 34.2            | 37.9           | -2.2 | 32.3 | -              | 45.8                | 37.6           | 73.9               | 53.9          | 28.1                | 16.3           | Floor noise |
| Vert.       | 1580.0    | 53.1                 | 45.4            | 25.2           | 3.9  | 33.3 | -              | 48.9                | 41.2           | 73.9               | 53.9          | 25.0                | 12.7           |             |
| Vert.       | 5150.0    | 44.4                 | 35.2            | 31.9           | 5.6  | 31.1 | 2.6            | 50.7                | 44.1           | 73.9               | 53.9          | 23.2                | 9.8            | *1)         |
| Vert.       | 10000.0   | 47.4                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.4                | -              | 68.2               | -             | 17.8                | -              |             |
| Vert.       | 10360.0   | 42.6                 | -               | 39.5           | -3.1 | 32.8 | -              | 46.1                | -              | 68.2               | -             | 22.1                | -              | Floor noise |
| Vert.       | 12500.0   | 46.7                 | 41.4            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 44.8           | 73.9               | 53.9          | 23.9                | 9.1            |             |
| Vert.       | 15540.0   | 42.4                 | 34.2            | 37.9           | -2.2 | 32.3 | -              | 45.8                | 37.6           | 73.9               | 53.9          | 28.1                | 16.3           | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

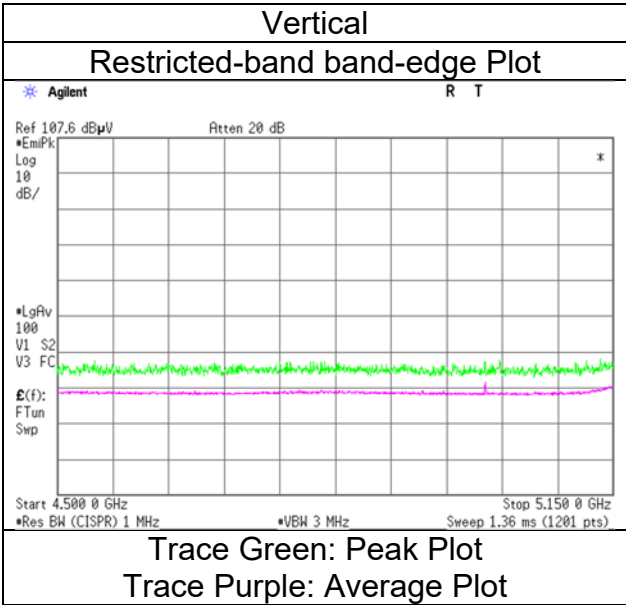
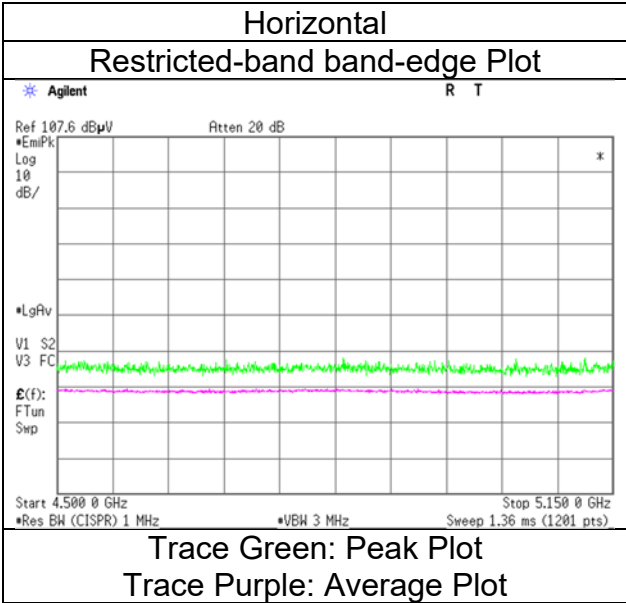
\*1) Not Out of Band emission(Leakage Power)

Distance factor:      1 GHz - 10 GHz       $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$   
                                  10 GHz - 40 GHz       $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
  
Mode

Ise EMC Lab.  
No.4  
June 26, 2023  
22 deg. C / 42 % RH  
Sayaka Hara  
(1 GHz to 10 GHz)  
Tx 11ac-20 5180 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiyo Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-20 5220 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.4                 | 42.5            | 25.2           | 3.9  | 33.3 | -              | 48.2                | 38.3           | 73.9               | 53.9          | 25.7                | 15.6           |             |
| Hori.       | 10000.0   | 47.2                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.2                | -              | 68.2               | -             | 18.0                | -              |             |
| Hori.       | 10440.0   | 42.3                 | -               | 39.6           | -3.1 | 32.9 | -              | 45.9                | -              | 68.2               | -             | 22.3                | -              | Floor noise |
| Hori.       | 12500.0   | 46.7                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 42.4           | 73.9               | 53.9          | 23.9                | 11.5           |             |
| Hori.       | 15660.0   | 43.1                 | 34.1            | 37.8           | -2.2 | 32.3 | -              | 46.4                | 37.4           | 73.9               | 53.9          | 27.5                | 16.5           | Floor noise |
| Vert.       | 1580.0    | 53.4                 | 45.5            | 25.2           | 3.9  | 33.3 | -              | 49.2                | 41.3           | 73.9               | 53.9          | 24.8                | 12.6           |             |
| Vert.       | 10000.0   | 47.3                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.3                | -              | 68.2               | -             | 17.9                | -              |             |
| Vert.       | 10440.0   | 42.3                 | -               | 39.6           | -3.1 | 32.9 | -              | 45.9                | -              | 68.2               | -             | 22.3                | -              | Floor noise |
| Vert.       | 12500.0   | 46.7                 | 41.5            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 44.8           | 73.9               | 53.9          | 23.9                | 9.1            |             |
| Vert.       | 15660.0   | 43.1                 | 34.1            | 37.8           | -2.2 | 32.3 | -              | 46.4                | 37.4           | 73.9               | 53.9          | 27.5                | 16.5           | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

Distance factor:    1 GHz - 10 GHz    20log (3.8 m / 3.0 m) = 2.06 dB  
                              10 GHz - 40 GHz    20log (1.0 m / 3.0 m) = -9.5 dB

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        | No.4                | No.4                |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-20 5240 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.2                 | 42.5            | 25.2           | 3.9  | 33.3 | -              | 48.0                | 38.3           | 73.9               | 53.9          | 25.9                | 15.6           |             |
| Hori.       | 5350.0    | 40.0                 | 31.7            | 31.6           | 5.7  | 31.2 | 2.6            | 46.0                | 40.3           | 73.9               | 53.9          | 27.9                | 13.6           | *1)         |
| Hori.       | 10000.0   | 47.2                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.3                | -              | 68.2               | -             | 18.0                | -              |             |
| Hori.       | 10480.0   | 42.4                 | -               | 39.6           | -3.1 | 32.9 | -              | 46.0                | -              | 68.2               | -             | 22.2                | -              | Floor noise |
| Hori.       | 12500.0   | 46.6                 | 39.0            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 42.3           | 73.9               | 53.9          | 24.0                | 11.6           |             |
| Hori.       | 15720.0   | 42.6                 | 34.5            | 37.8           | -2.2 | 32.3 | -              | 45.8                | 37.7           | 73.9               | 53.9          | 28.1                | 16.2           | Floor noise |
| Vert.       | 1580.0    | 53.5                 | 45.4            | 25.2           | 3.9  | 33.3 | -              | 49.3                | 41.2           | 73.9               | 53.9          | 24.7                | 12.7           |             |
| Vert.       | 5350.0    | 40.1                 | 31.9            | 31.6           | 5.7  | 31.2 | 2.6            | 46.2                | 40.6           | 73.9               | 53.9          | 27.7                | 13.3           | *1)         |
| Vert.       | 10000.0   | 47.3                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.3                | -              | 68.2               | -             | 17.9                | -              |             |
| Vert.       | 10480.0   | 42.4                 | -               | 39.6           | -3.1 | 32.9 | -              | 46.0                | -              | 68.2               | -             | 22.2                | -              | Floor noise |
| Vert.       | 12500.0   | 46.7                 | 41.4            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.8           | 73.9               | 53.9          | 23.8                | 9.2            |             |
| Vert.       | 15720.0   | 42.6                 | 34.5            | 37.8           | -2.2 | 32.3 | -              | 45.8                | 37.7           | 73.9               | 53.9          | 28.1                | 16.2           | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

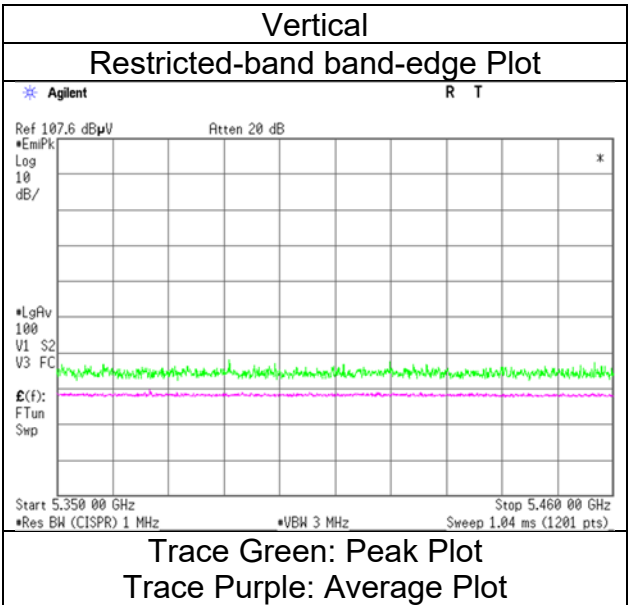
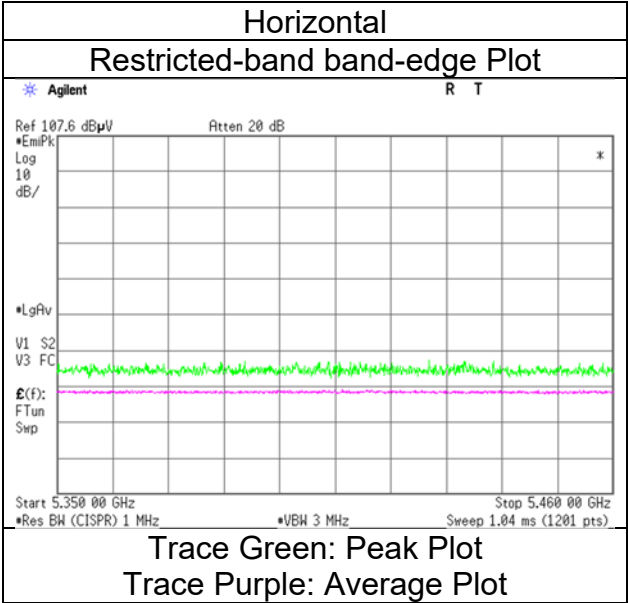
\*1) Not Out of Band emission(Leakage Power)

Distance factor:      1 GHz - 10 GHz       $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$   
                                  10 GHz - 40 GHz       $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.4  
June 26, 2023  
22 deg. C / 42 % RH  
Sayaka Hara  
Tx 11ac-20 5240 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        | No.4                | No.4                |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiyo Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-20 5745 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.2                 | 42.4            | 25.2           | 3.9  | 33.3 | -              | 48.0                | 38.2           | 73.9               | 53.9          | 25.9                | 15.7           |             |
| Hori.       | 5650.0    | 40.3                 | -               | 31.8           | 5.8  | 31.3 | -              | 46.6                | -              | 68.2               | -             | 21.6                | -              |             |
| Hori.       | 5700.0    | 40.1                 | -               | 31.8           | 5.8  | 31.3 | -              | 46.5                | -              | 105.2              | -             | 58.7                | -              |             |
| Hori.       | 5720.0    | 41.0                 | -               | 31.9           | 5.8  | 31.3 | -              | 47.4                | -              | 110.8              | -             | 63.4                | -              |             |
| Hori.       | 5725.0    | 41.7                 | -               | 31.9           | 5.8  | 31.3 | -              | 48.1                | -              | 122.2              | -             | 74.1                | -              |             |
| Hori.       | 10000.0   | 47.2                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.2                | -              | 68.2               | -             | 18.0                | -              |             |
| Hori.       | 11490.0   | 44.5                 | 37.0            | 39.7           | -3.0 | 32.9 | 2.6            | 48.3                | 43.4           | 73.9               | 53.9          | 25.6                | 10.5           |             |
| Hori.       | 12500.0   | 46.6                 | 39.0            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 42.4           | 73.9               | 53.9          | 23.9                | 11.5           |             |
| Hori.       | 17235.0   | 43.0                 | -               | 41.8           | -1.8 | 32.4 | -              | 50.5                | -              | 68.2               | -             | 17.7                | -              | Floor noise |
| Vert.       | 1580.0    | 53.3                 | 45.4            | 25.2           | 3.9  | 33.3 | -              | 49.1                | 41.2           | 73.9               | 53.9          | 24.8                | 12.7           |             |
| Vert.       | 5650.0    | 41.3                 | -               | 31.8           | 5.8  | 31.3 | -              | 47.5                | -              | 68.2               | -             | 20.7                | -              |             |
| Vert.       | 5700.0    | 40.7                 | -               | 31.8           | 5.8  | 31.3 | -              | 47.1                | -              | 105.2              | -             | 58.1                | -              |             |
| Vert.       | 5720.0    | 42.8                 | -               | 31.9           | 5.8  | 31.3 | -              | 49.2                | -              | 110.8              | -             | 61.6                | -              |             |
| Vert.       | 5725.0    | 44.3                 | -               | 31.9           | 5.8  | 31.3 | -              | 50.7                | -              | 122.2              | -             | 71.5                | -              |             |
| Vert.       | 10000.0   | 47.4                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.4                | -              | 68.2               | -             | 17.8                | -              |             |
| Vert.       | 11490.0   | 43.6                 | 37.5            | 39.7           | -3.0 | 32.9 | 2.6            | 47.4                | 44.0           | 73.9               | 53.9          | 26.5                | 9.9            |             |
| Vert.       | 12500.0   | 46.8                 | 41.3            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.7           | 73.9               | 53.9          | 23.8                | 9.2            |             |
| Vert.       | 17235.0   | 43.0                 | -               | 41.8           | -1.8 | 32.4 | -              | 50.5                | -              | 68.2               | -             | 17.7                | -              | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

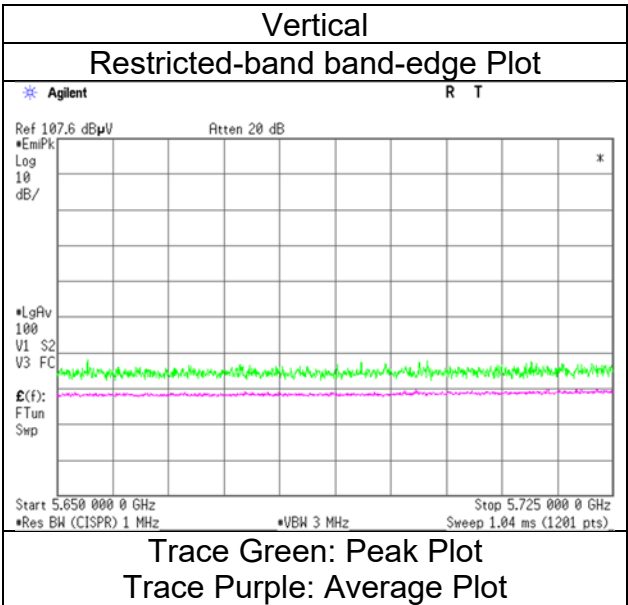
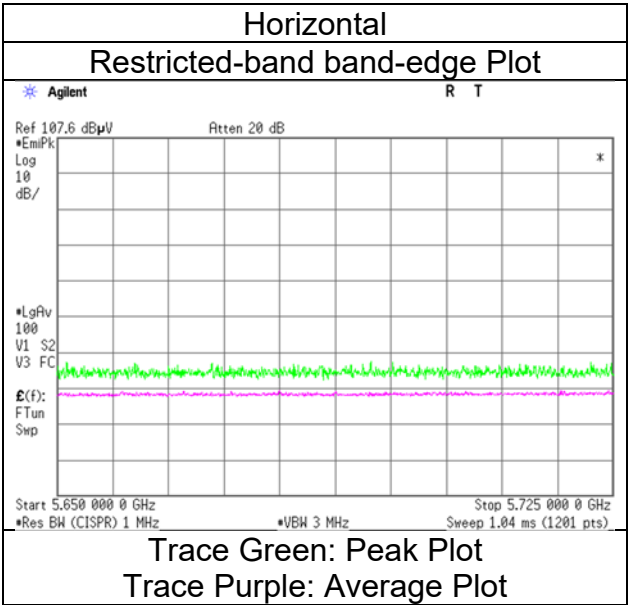
Distance factor:    1 GHz - 10 GHz    20log (3.8 m / 3.0 m) = 2.06 dB  
                              10 GHz - 40 GHz    20log (1.0 m / 3.0 m) = -9.5 dB



**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.4  
June 26, 2023  
22 deg. C / 42 % RH  
Sayaka Hara  
Tx 11ac-20 5745 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiyo Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-20 5785 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.7                 | 42.4            | 25.2           | 3.9  | 33.3 | -              | 48.4                | 38.2           | 73.9               | 53.9          | 25.5                | 15.7           |             |
| Hori.       | 10000.0   | 47.1                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.1                | -              | 68.2               | -             | 18.1                | -              |             |
| Hori.       | 11570.0   | 42.9                 | 35.4            | 39.5           | -3.0 | 32.9 | 2.6            | 46.6                | 41.6           | 73.9               | 53.9          | 27.4                | 12.3           |             |
| Hori.       | 12500.0   | 46.6                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 49.9                | 42.4           | 73.9               | 53.9          | 24.0                | 11.5           |             |
| Hori.       | 17355.0   | 42.5                 | -               | 42.8           | -1.8 | 32.4 | -              | 51.1                | -              | 68.2               | -             | 17.1                | -              | Floor noise |
| Vert.       | 1580.0    | 53.6                 | 45.4            | 25.2           | 3.9  | 33.3 | -              | 49.4                | 41.2           | 73.9               | 53.9          | 24.5                | 12.7           |             |
| Vert.       | 10000.0   | 47.4                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.4                | -              | 68.2               | -             | 17.8                | -              |             |
| Vert.       | 11570.0   | 43.3                 | 36.9            | 39.5           | -3.0 | 32.9 | 2.6            | 46.9                | 43.1           | 73.9               | 53.9          | 27.0                | 10.8           |             |
| Vert.       | 12500.0   | 46.7                 | 41.4            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.7           | 73.9               | 53.9          | 23.9                | 9.2            |             |
| Vert.       | 17355.0   | 42.5                 | -               | 42.8           | -1.8 | 32.4 | -              | 51.1                | -              | 68.2               | -             | 17.1                | -              | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

Distance factor:    1 GHz - 10 GHz    20log (3.8 m / 3.0 m) = 2.06 dB  
                              10 GHz - 40 GHz    20log (1.0 m / 3.0 m) = -9.5 dB

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-20 5825 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.4                 | 42.5            | 25.2           | 3.9  | 33.3 | -              | 48.2                | 38.3           | 73.9               | 53.9          | 25.7                | 15.7           |             |
| Hori.       | 5850.0    | 42.8                 | -               | 32.2           | 5.9  | 31.3 | -              | 49.6                | -              | 122.2              | -             | 72.6                | -              |             |
| Hori.       | 5855.0    | 42.3                 | -               | 32.2           | 5.9  | 31.3 | -              | 49.1                | -              | 110.8              | -             | 61.7                | -              |             |
| Hori.       | 5875.0    | 41.0                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.8                | -              | 105.2              | -             | 57.4                | -              |             |
| Hori.       | 5925.0    | 40.6                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.5                | -              | 68.2               | -             | 20.7                | -              |             |
| Hori.       | 10000.0   | 47.2                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.2                | -              | 68.2               | -             | 18.0                | -              |             |
| Hori.       | 11650.0   | 43.2                 | 35.7            | 39.2           | -3.0 | 32.9 | 2.6            | 46.5                | 41.6           | 73.9               | 53.9          | 27.4                | 12.3           |             |
| Hori.       | 12500.0   | 46.6                 | 39.0            | 38.8           | -2.9 | 32.6 | -              | 49.9                | 42.4           | 73.9               | 53.9          | 24.0                | 11.6           |             |
| Hori.       | 17475.0   | 42.9                 | -               | 43.7           | -1.7 | 32.4 | -              | 52.6                | -              | 68.2               | -             | 15.7                | -              | Floor noise |
| Vert.       | 1580.0    | 53.8                 | 45.4            | 25.2           | 3.9  | 33.3 | -              | 49.6                | 41.2           | 73.9               | 53.9          | 24.4                | 12.7           |             |
| Vert.       | 5850.0    | 44.3                 | -               | 32.2           | 5.9  | 31.3 | -              | 51.1                | -              | 122.2              | -             | 71.1                | -              |             |
| Vert.       | 5855.0    | 43.6                 | -               | 32.2           | 5.9  | 31.3 | -              | 50.4                | -              | 110.8              | -             | 60.4                | -              |             |
| Vert.       | 5875.0    | 41.5                 | -               | 32.3           | 5.9  | 31.4 | -              | 48.3                | -              | 105.2              | -             | 57.0                | -              |             |
| Vert.       | 5925.0    | 40.4                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.3                | -              | 68.2               | -             | 20.9                | -              |             |
| Vert.       | 10000.0   | 47.4                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.4                | -              | 68.2               | -             | 17.8                | -              |             |
| Vert.       | 11650.0   | 44.8                 | 37.9            | 39.2           | -3.0 | 32.9 | 2.6            | 48.2                | 43.8           | 73.9               | 53.9          | 25.7                | 10.1           |             |
| Vert.       | 12500.0   | 46.8                 | 41.3            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.6           | 73.9               | 53.9          | 23.8                | 9.3            |             |
| Vert.       | 17475.0   | 42.9                 | -               | 43.7           | -1.7 | 32.4 | -              | 52.6                | -              | 68.2               | -             | 15.7                | -              | Floor noise |

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

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

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

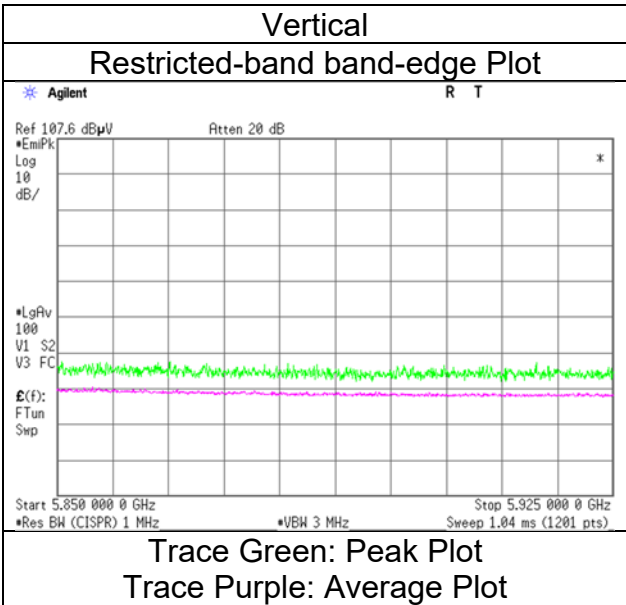
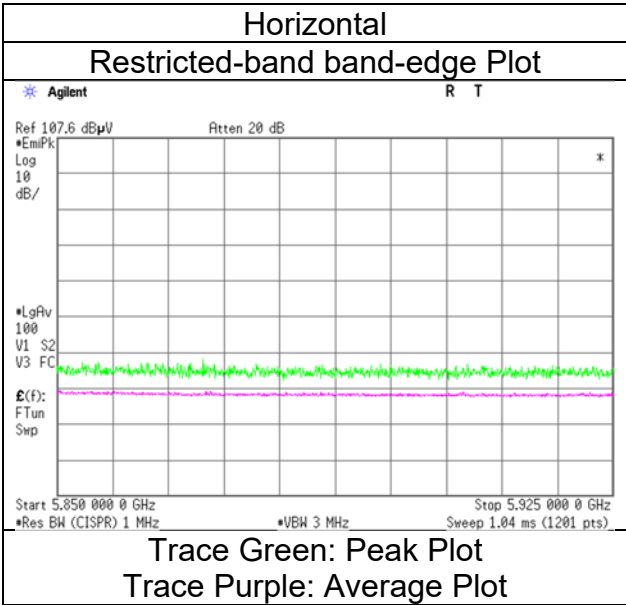
\*QP detector was used up to 1GHz.

Distance factor:    1 GHz - 10 GHz    20log (3.8 m / 3.0 m) = 2.06 dB  
                              10 GHz - 40 GHz    20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.4  
June 26, 2023  
22 deg. C / 42 % RH  
Sayaka Hara  
Tx 11ac-20 5825 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiyo Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-40 5190 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.5                 | 42.4            | 25.2           | 3.9  | 33.3 | -              | 48.3                | 38.2           | 73.9               | 53.9          | 25.6                | 15.7           |             |
| Hori.       | 5150.0    | 43.5                 | 32.5            | 31.9           | 5.6  | 31.1 | 3.3            | 49.9                | 42.1           | 73.9               | 53.9          | 24.1                | 11.8           | *1)         |
| Hori.       | 10000.0   | 47.1                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.1                | -              | 68.2               | -             | 18.1                | -              |             |
| Hori.       | 10380.0   | 41.8                 | -               | 39.5           | -3.1 | 32.8 | -              | 45.3                | -              | 68.2               | -             | 22.9                | -              | Floor noise |
| Hori.       | 12500.0   | 46.5                 | 39.2            | 38.8           | -2.9 | 32.6 | -              | 49.8                | 42.5           | 73.9               | 53.9          | 24.1                | 11.4           |             |
| Hori.       | 15570.0   | 42.4                 | 34.2            | 37.9           | -2.2 | 32.3 | -              | 45.7                | 37.6           | 73.9               | 53.9          | 28.2                | 16.3           | Floor noise |
| Vert.       | 1580.0    | 53.3                 | 45.6            | 25.2           | 3.9  | 33.3 | -              | 49.1                | 41.4           | 73.9               | 53.9          | 24.8                | 12.5           |             |
| Vert.       | 5150.0    | 51.8                 | 35.2            | 31.9           | 5.6  | 31.1 | 3.3            | 58.1                | 44.8           | 73.9               | 53.9          | 15.8                | 9.1            | *1)         |
| Vert.       | 10000.0   | 47.6                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.6                | -              | 68.2               | -             | 17.6                | -              |             |
| Vert.       | 10380.0   | 41.8                 | -               | 39.5           | -3.1 | 32.8 | -              | 45.3                | -              | 68.2               | -             | 22.9                | -              | Floor noise |
| Vert.       | 12500.0   | 46.8                 | 41.2            | 38.8           | -2.9 | 32.6 | -              | 50.2                | 44.5           | 73.9               | 53.9          | 23.8                | 9.4            |             |
| Vert.       | 15570.0   | 42.4                 | 34.2            | 37.9           | -2.2 | 32.3 | -              | 45.7                | 37.6           | 73.9               | 53.9          | 28.2                | 16.3           | Floor noise |

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

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

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

\*QP detector was used up to 1GHz.

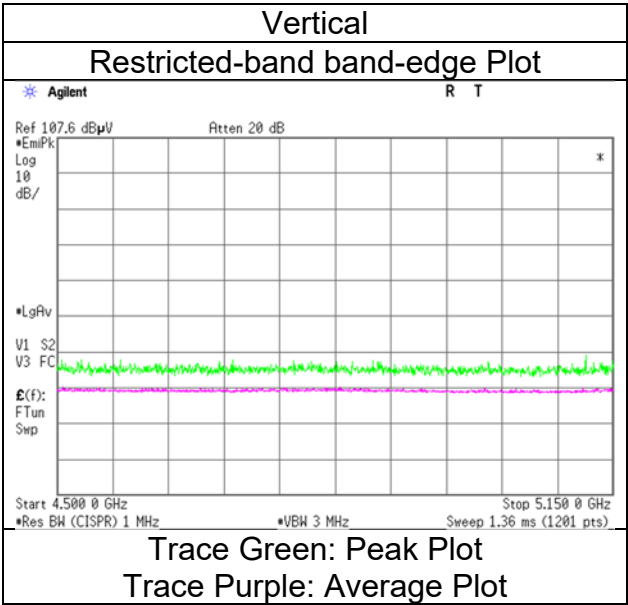
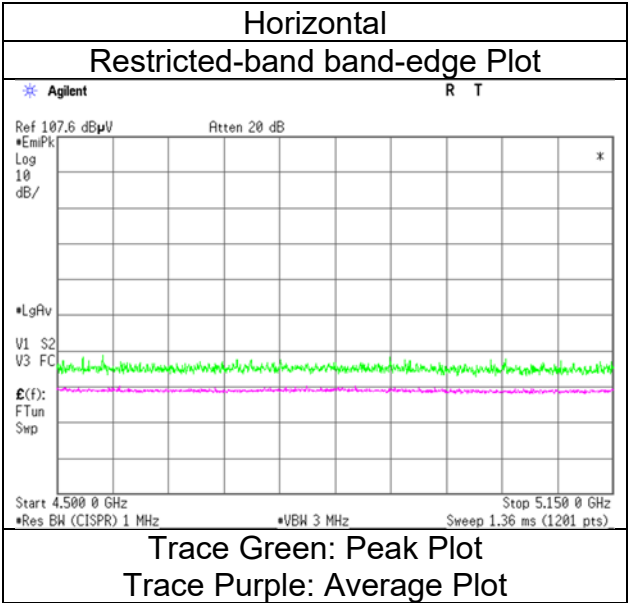
\*1) Not Out of Band emission(Leakage Power)

Distance factor:      1 GHz - 10 GHz      20log (3.8 m / 3.0 m) = 2.06 dB  
                                  10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
  
Mode

Ise EMC Lab.  
No.4  
June 26, 2023  
22 deg. C / 42 % RH  
Sayaka Hara  
(1 GHz to 10 GHz)  
Tx 11ac-40 5190 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiyo Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-40 5230 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.4                 | 42.4            | 25.2           | 3.9  | 33.3 | -              | 48.2                | 38.2           | 73.9               | 53.9          | 25.7                | 15.7           |             |
| Hori.       | 5350.0    | 40.5                 | 31.7            | 31.6           | 5.7  | 31.2 | 3.3            | 46.6                | 41.0           | 73.9               | 53.9          | 27.3                | 12.9           | *1)         |
| Hori.       | 10000.0   | 47.3                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.3                | -              | 68.2               | -             | 17.9                | -              |             |
| Hori.       | 10460.0   | 42.7                 | -               | 39.6           | -3.1 | 32.9 | -              | 46.3                | -              | 68.2               | -             | 21.9                | -              | Floor noise |
| Hori.       | 12500.0   | 46.8                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 42.5           | 73.9               | 53.9          | 23.8                | 11.4           |             |
| Hori.       | 15690.0   | 41.9                 | 34.1            | 37.8           | -2.2 | 32.3 | -              | 45.2                | 37.3           | 73.9               | 53.9          | 28.8                | 16.6           | Floor noise |
| Vert.       | 1580.0    | 53.6                 | 45.5            | 25.2           | 3.9  | 33.3 | -              | 49.4                | 41.3           | 73.9               | 53.9          | 24.5                | 12.6           |             |
| Vert.       | 5350.0    | 42.7                 | 31.6            | 31.6           | 5.7  | 31.2 | 3.3            | 48.8                | 40.9           | 73.9               | 53.9          | 25.2                | 13.0           | *1)         |
| Vert.       | 10000.0   | 47.2                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.2                | -              | 68.2               | -             | 18.0                | -              |             |
| Vert.       | 10460.0   | 42.7                 | -               | 39.6           | -3.1 | 32.9 | -              | 46.3                | -              | 68.2               | -             | 21.9                | -              | Floor noise |
| Vert.       | 12500.0   | 46.9                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 50.2                | 42.5           | 73.9               | 53.9          | 23.7                | 11.4           |             |
| Vert.       | 15690.0   | 41.9                 | 34.1            | 37.8           | -2.2 | 32.3 | -              | 45.2                | 37.3           | 73.9               | 53.9          | 28.8                | 16.6           | Floor noise |

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

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

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

\*QP detector was used up to 1GHz

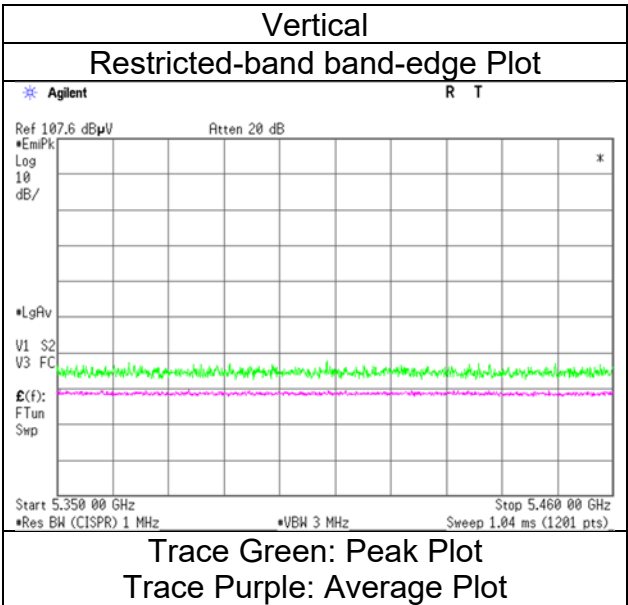
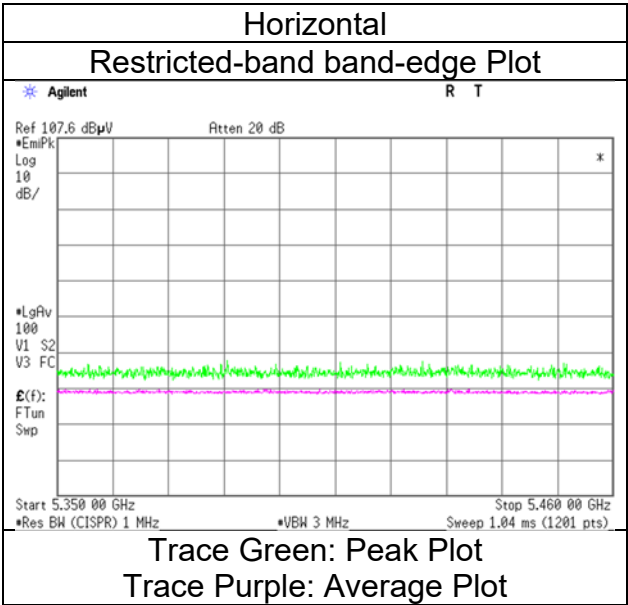
\*1) Not Out of Band emission(Leakage Power)

Distance factor:      1 GHz - 10 GHz      20log (3.8 m / 3.0 m) = 2.06 dB  
                                  10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.4  
June 26, 2023  
22 deg. C / 42 % RH  
Sayaka Hara  
Tx 11ac-20 5230 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.



## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiyo Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-40 5755 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.3                 | 42.4            | 25.2           | 3.9  | 33.3 | -              | 48.1                | 38.2           | 73.9               | 53.9          | 25.8                | 15.7           |             |
| Hori.       | 5650.0    | 41.2                 | -               | 31.8           | 5.8  | 31.3 | -              | 47.5                | -              | 68.2               | -             | 20.7                | -              |             |
| Hori.       | 5700.0    | 41.4                 | -               | 31.8           | 5.8  | 31.3 | -              | 47.8                | -              | 105.2              | -             | 57.4                | -              |             |
| Hori.       | 5720.0    | 45.6                 | -               | 31.9           | 5.8  | 31.3 | -              | 52.0                | -              | 110.8              | -             | 58.8                | -              |             |
| Hori.       | 5725.0    | 46.4                 | -               | 31.9           | 5.8  | 31.3 | -              | 52.9                | -              | 122.2              | -             | 69.3                | -              |             |
| Hori.       | 10000.0   | 47.4                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.4                | -              | 68.2               | -             | 17.8                | -              |             |
| Hori.       | 11510.0   | 43.6                 | 36.7            | 39.7           | -3.0 | 32.9 | 3.3            | 47.4                | 43.8           | 73.9               | 53.9          | 26.5                | 10.2           |             |
| Hori.       | 12500.0   | 46.4                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 49.7                | 42.4           | 73.9               | 53.9          | 24.2                | 11.5           |             |
| Hori.       | 17265.0   | 43.9                 | -               | 42.0           | -1.8 | 32.4 | -              | 51.7                | -              | 68.2               | -             | 16.5                | -              | Floor noise |
| Vert.       | 1580.0    | 53.2                 | 45.5            | 25.2           | 3.9  | 33.3 | -              | 49.0                | 41.3           | 73.9               | 53.9          | 24.9                | 12.6           |             |
| Vert.       | 5650.0    | 41.6                 | -               | 31.8           | 5.8  | 31.3 | -              | 47.9                | -              | 68.2               | -             | 20.3                | -              |             |
| Vert.       | 5700.0    | 42.7                 | -               | 31.8           | 5.8  | 31.3 | -              | 49.1                | -              | 105.2              | -             | 56.1                | -              |             |
| Vert.       | 5720.0    | 52.4                 | -               | 31.9           | 5.8  | 31.3 | -              | 58.8                | -              | 110.8              | -             | 52.0                | -              |             |
| Vert.       | 5725.0    | 53.5                 | -               | 31.9           | 5.8  | 31.3 | -              | 60.0                | -              | 122.2              | -             | 62.2                | -              |             |
| Vert.       | 10000.0   | 47.7                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.7                | -              | 68.2               | -             | 17.5                | -              |             |
| Vert.       | 11510.0   | 43.6                 | 36.8            | 39.7           | -3.0 | 32.9 | 3.3            | 47.4                | 43.9           | 73.9               | 53.9          | 26.5                | 10.0           |             |
| Vert.       | 12500.0   | 46.8                 | 41.3            | 38.8           | -2.9 | 32.6 | -              | 50.1                | 44.6           | 73.9               | 53.9          | 23.8                | 9.3            |             |
| Vert.       | 17265.0   | 43.9                 | -               | 42.0           | -1.8 | 32.4 | -              | 51.7                | -              | 68.2               | -             | 16.5                | -              | Floor noise |

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

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

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

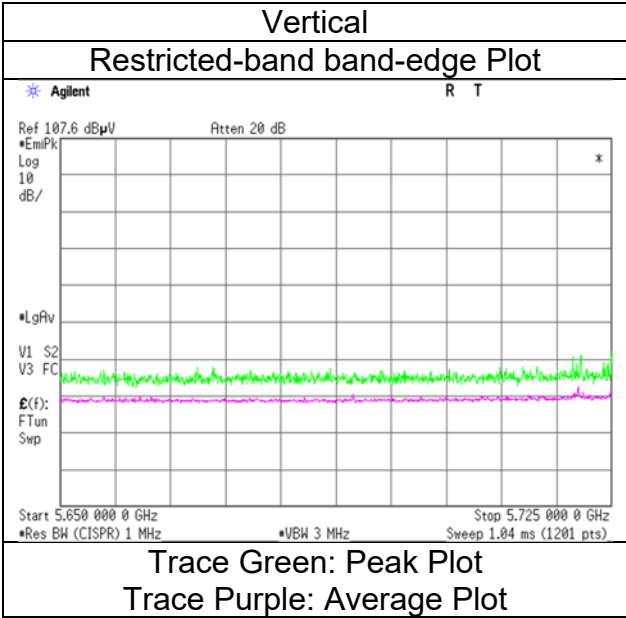
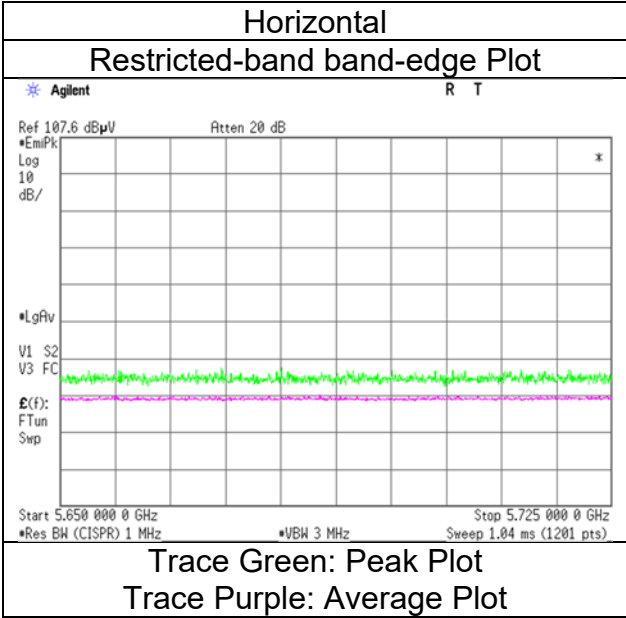
\*QP detector was used up to 1GHz.

Distance factor:    1 GHz - 10 GHz    20log (3.8 m / 3.0 m) = 2.06 dB  
                              10 GHz - 40 GHz    20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.4  
June 26, 2023  
22 deg. C / 42 % RH  
Sayaka Hara  
Tx 11ac-40 5755 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-40 5795 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.6                 | 42.5            | 25.2           | 3.9  | 33.3 | -              | 48.4                | 38.3           | 73.9               | 53.9          | 25.6                | 15.6           |             |
| Hori.       | 5850.0    | 42.0                 | -               | 32.2           | 5.9  | 31.3 | -              | 48.7                | -              | 122.2              | -             | 73.5                | -              |             |
| Hori.       | 5855.0    | 40.9                 | -               | 32.2           | 5.9  | 31.3 | -              | 47.7                | -              | 110.8              | -             | 63.1                | -              |             |
| Hori.       | 5875.0    | 40.2                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.0                | -              | 105.2              | -             | 58.3                | -              |             |
| Hori.       | 5925.0    | 39.9                 | -               | 32.3           | 5.9  | 31.4 | -              | 46.7                | -              | 68.2               | -             | 21.5                | -              |             |
| Hori.       | 10000.0   | 47.6                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.7                | -              | 68.2               | -             | 17.6                | -              |             |
| Hori.       | 11590.0   | 43.8                 | 35.2            | 39.4           | -3.0 | 32.9 | 3.3            | 47.4                | 42.0           | 73.9               | 53.9          | 26.5                | 11.9           |             |
| Hori.       | 12500.0   | 46.3                 | 39.0            | 38.8           | -2.9 | 32.6 | -              | 49.6                | 42.3           | 73.9               | 53.9          | 24.3                | 11.6           |             |
| Hori.       | 17385.0   | 42.8                 | -               | 43.0           | -1.8 | 32.4 | -              | 51.7                | -              | 68.2               | -             | 16.5                | -              | Floor noise |
| Vert.       | 1580.0    | 53.5                 | 45.4            | 25.2           | 3.9  | 33.3 | -              | 49.3                | 41.2           | 73.9               | 53.9          | 24.6                | 12.7           |             |
| Vert.       | 5850.0    | 42.6                 | -               | 32.2           | 5.9  | 31.3 | -              | 49.3                | -              | 122.2              | -             | 72.9                | -              |             |
| Vert.       | 5855.0    | 42.3                 | -               | 32.2           | 5.9  | 31.3 | -              | 49.1                | -              | 110.8              | -             | 61.7                | -              |             |
| Vert.       | 5875.0    | 40.9                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.7                | -              | 105.2              | -             | 57.5                | -              |             |
| Vert.       | 5925.0    | 40.5                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.4                | -              | 68.2               | -             | 20.8                | -              |             |
| Vert.       | 10000.0   | 47.5                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.5                | -              | 68.2               | -             | 17.7                | -              |             |
| Vert.       | 11590.0   | 44.5                 | 36.7            | 39.4           | -3.0 | 32.9 | 3.3            | 48.0                | 43.5           | 73.9               | 53.9          | 25.9                | 10.4           |             |
| Vert.       | 12500.0   | 46.7                 | 41.3            | 38.8           | -2.9 | 32.6 | -              | 50.0                | 44.6           | 73.9               | 53.9          | 23.9                | 9.3            |             |
| Vert.       | 17385.0   | 42.8                 | -               | 43.0           | -1.8 | 32.4 | -              | 51.7                | -              | 68.2               | -             | 16.5                | -              | Floor noise |

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

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

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

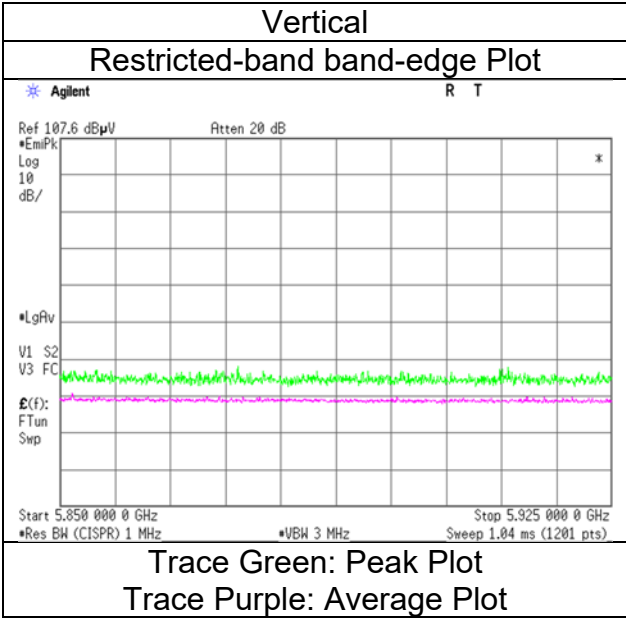
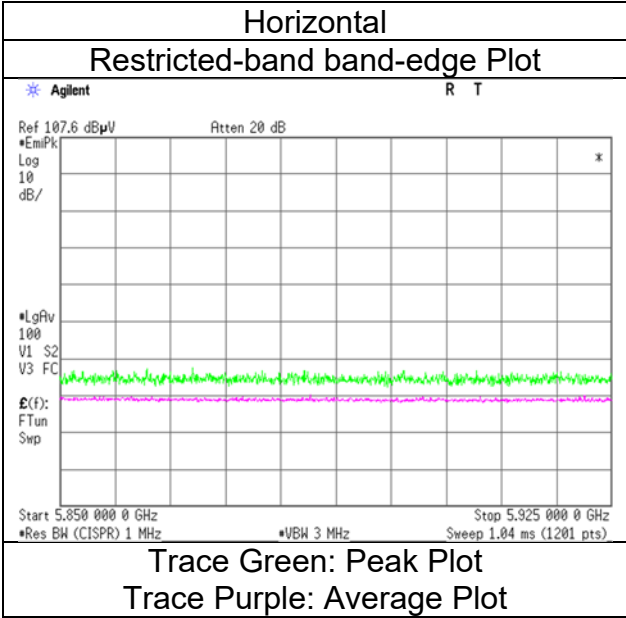
\*QP detector was used up to 1GHz.

Distance factor:      1 GHz - 10 GHz      20log (3.8 m / 3.0 m) = 2.06 dB  
                                  10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

Test place  
Semi Anechoic Chamber  
Date  
Temperature / Humidity  
Engineer  
Mode

Ise EMC Lab.  
No.4  
June 26, 2023  
22 deg. C / 42 % RH  
Sayaka Hara  
Tx 11ac-40 5795 MHz



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-80 5210 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.4                 | 42.4            | 25.2           | 3.9  | 33.3 | -              | 48.2                | 38.2           | 73.9               | 53.9          | 25.7                | 15.7           |             |
| Hori.       | 5150.0    | 43.1                 | 32.3            | 31.9           | 5.6  | 31.1 | 4.7            | 49.4                | 43.3           | 73.9               | 53.9          | 24.5                | 10.6           | *1)         |
| Hori.       | 5350.0    | 41.8                 | 31.7            | 31.6           | 5.7  | 31.2 | 4.7            | 47.9                | 42.4           | 73.9               | 53.9          | 26.0                | 11.5           | *1)         |
| Hori.       | 10000.0   | 47.5                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.5                | -              | 68.2               | -             | 17.7                | -              |             |
| Hori.       | 10420.0   | 42.3                 | -               | 39.6           | -3.1 | 32.9 | -              | 45.9                | -              | 68.2               | -             | 22.3                | -              | Floor noise |
| Hori.       | 12500.0   | 46.5                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 49.8                | 42.4           | 73.9               | 53.9          | 24.1                | 11.5           |             |
| Hori.       | 15630.0   | 42.9                 | 34.3            | 37.8           | -2.2 | 32.3 | -              | 46.2                | 37.6           | 73.9               | 53.9          | 27.7                | 16.3           | Floor noise |
| Vert.       | 1580.0    | 53.3                 | 45.4            | 25.2           | 3.9  | 33.3 | -              | 49.1                | 41.2           | 73.9               | 53.9          | 24.8                | 12.7           |             |
| Vert.       | 5150.0    | 47.9                 | 34.0            | 31.9           | 5.6  | 31.1 | 4.7            | 54.3                | 45.0           | 73.9               | 53.9          | 19.6                | 8.9            | *1)         |
| Vert.       | 5350.0    | 42.7                 | 31.9            | 31.6           | 5.7  | 31.2 | 4.7            | 48.7                | 42.6           | 73.9               | 53.9          | 25.2                | 11.3           | *1)         |
| Vert.       | 10000.0   | 47.3                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.3                | -              | 68.2               | -             | 17.9                | -              |             |
| Vert.       | 10420.0   | 42.3                 | -               | 39.6           | -3.1 | 32.9 | -              | 45.9                | -              | 68.2               | -             | 22.3                | -              | Floor noise |
| Vert.       | 12500.0   | 46.6                 | 41.3            | 38.8           | -2.9 | 32.6 | -              | 49.9                | 44.6           | 73.9               | 53.9          | 24.0                | 9.3            |             |
| Vert.       | 15630.0   | 42.9                 | 34.3            | 37.8           | -2.2 | 32.3 | -              | 46.2                | 37.6           | 73.9               | 53.9          | 27.7                | 16.3           | Floor noise |

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

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

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

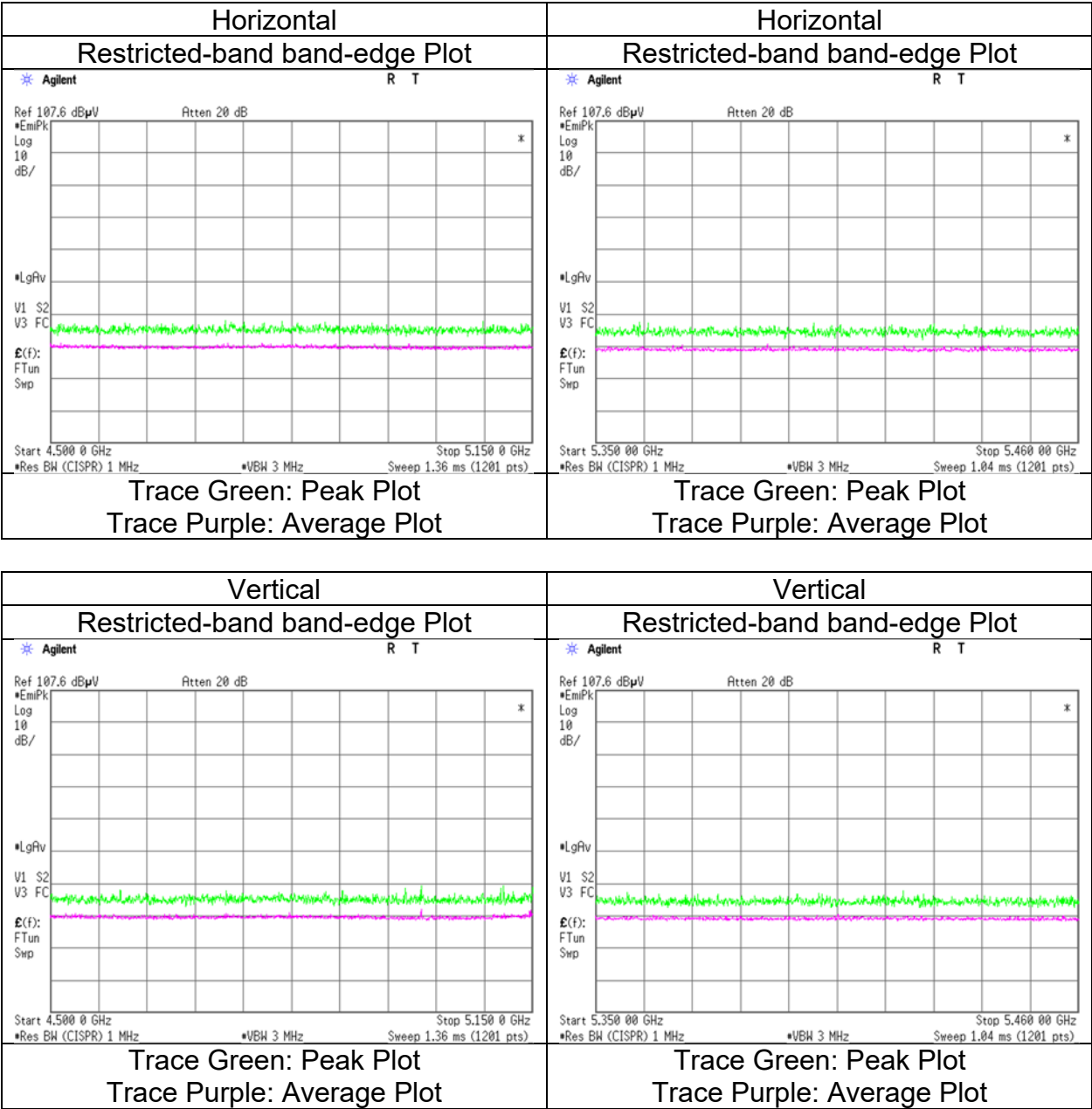
\*QP detector was used up to 1GHz.

\*1) Not Out of Band emission(Leakage Power)

Distance factor:      1 GHz - 10 GHz       $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$   
                                  10 GHz - 40 GHz       $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

**Radiated Spurious Emission**

|                        |                     |
|------------------------|---------------------|
| Test place             | Ise EMC Lab.        |
| Semi Anechoic Chamber  | No.4                |
| Date                   | June 26, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH |
| Engineer               | Sayaka Hara         |
|                        | (1 GHz to 10 GHz)   |
| Mode                   | Tx 11ac-80 5210 MHz |



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

## Radiated Spurious Emission

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.        |                     |                     |
| Semi Anechoic Chamber  | No.4                | No.4                | No.4                |
| Date                   | June 26, 2023       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Sayaka Hara         | Sayaka Hara         | Keiyo Ido           |
|                        | (1 GHz to 10 GHz)   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11ac-80 5775 MHz |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 1580.0    | 52.8                 | 42.4            | 25.2           | 3.9  | 33.3 | -              | 48.6                | 38.2           | 73.9               | 53.9          | 25.4                | 15.8           |             |
| Hori.       | 5650.0    | 41.9                 | -               | 31.8           | 5.8  | 31.3 | -              | 48.2                | -              | 68.2               | -             | 20.0                | -              |             |
| Hori.       | 5700.0    | 43.7                 | -               | 31.8           | 5.8  | 31.3 | -              | 50.1                | -              | 105.2              | -             | 55.1                | -              |             |
| Hori.       | 5720.0    | 46.6                 | -               | 31.9           | 5.8  | 31.3 | -              | 53.0                | -              | 110.8              | -             | 57.8                | -              |             |
| Hori.       | 5725.0    | 48.8                 | -               | 31.9           | 5.8  | 31.3 | -              | 55.3                | -              | 122.2              | -             | 66.9                | -              |             |
| Hori.       | 5850.0    | 40.8                 | -               | 32.2           | 5.9  | 31.3 | -              | 47.6                | -              | 122.2              | -             | 74.6                | -              |             |
| Hori.       | 5855.0    | 41.0                 | -               | 32.2           | 5.9  | 31.3 | -              | 47.8                | -              | 110.8              | -             | 63.1                | -              |             |
| Hori.       | 5875.0    | 40.3                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.1                | -              | 105.2              | -             | 58.1                | -              |             |
| Hori.       | 5925.0    | 40.5                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.4                | -              | 68.2               | -             | 20.8                | -              |             |
| Hori.       | 10000.0   | 47.2                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.2                | -              | 68.2               | -             | 18.0                | -              |             |
| Hori.       | 11550.0   | 42.7                 | 34.8            | 39.6           | -3.0 | 32.9 | 4.7            | 46.4                | 43.2           | 73.9               | 53.9          | 27.6                | 10.7           |             |
| Hori.       | 12500.0   | 46.5                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 49.8                | 42.4           | 73.9               | 53.9          | 24.1                | 11.5           |             |
| Hori.       | 17325.0   | 42.8                 | -               | 42.5           | -1.8 | 32.4 | -              | 51.1                | -              | 68.2               | -             | 17.1                | -              | Floor noise |
| Vert.       | 1580.0    | 53.4                 | 45.3            | 25.2           | 3.9  | 33.3 | -              | 49.2                | 41.1           | 73.9               | 53.9          | 24.7                | 12.8           |             |
| Vert.       | 5650.0    | 43.2                 | -               | 31.8           | 5.8  | 31.3 | -              | 49.5                | -              | 68.2               | -             | 18.7                | -              |             |
| Vert.       | 5700.0    | 47.6                 | -               | 31.8           | 5.8  | 31.3 | -              | 54.0                | -              | 105.2              | -             | 51.2                | -              |             |
| Vert.       | 5720.0    | 52.7                 | -               | 31.9           | 5.8  | 31.3 | -              | 59.1                | -              | 110.8              | -             | 51.7                | -              |             |
| Vert.       | 5725.0    | 54.1                 | -               | 31.9           | 5.8  | 31.3 | -              | 60.6                | -              | 122.2              | -             | 61.6                | -              |             |
| Vert.       | 5850.0    | 45.1                 | -               | 32.2           | 5.9  | 31.3 | -              | 51.9                | -              | 122.2              | -             | 70.3                | -              |             |
| Vert.       | 5855.0    | 43.3                 | -               | 32.2           | 5.9  | 31.3 | -              | 50.1                | -              | 110.8              | -             | 60.7                | -              |             |
| Vert.       | 5875.0    | 41.7                 | -               | 32.3           | 5.9  | 31.4 | -              | 48.5                | -              | 105.2              | -             | 56.7                | -              |             |
| Vert.       | 5925.0    | 41.4                 | -               | 32.3           | 5.9  | 31.4 | -              | 48.3                | -              | 68.2               | -             | 19.9                | -              |             |
| Vert.       | 10000.0   | 47.9                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.9                | -              | 68.2               | -             | 17.3                | -              |             |
| Vert.       | 11550.0   | 43.9                 | 36.8            | 39.6           | -3.0 | 32.9 | 4.7            | 47.6                | 45.1           | 73.9               | 53.9          | 26.3                | 8.8            |             |
| Vert.       | 12500.0   | 46.6                 | 41.5            | 38.8           | -2.9 | 32.6 | -              | 49.9                | 44.8           | 73.9               | 53.9          | 24.0                | 9.1            |             |
| Vert.       | 17325.0   | 42.8                 | -               | 42.5           | -1.8 | 32.4 | -              | 51.1                | -              | 68.2               | -             | 17.1                | -              | Floor noise |

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

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

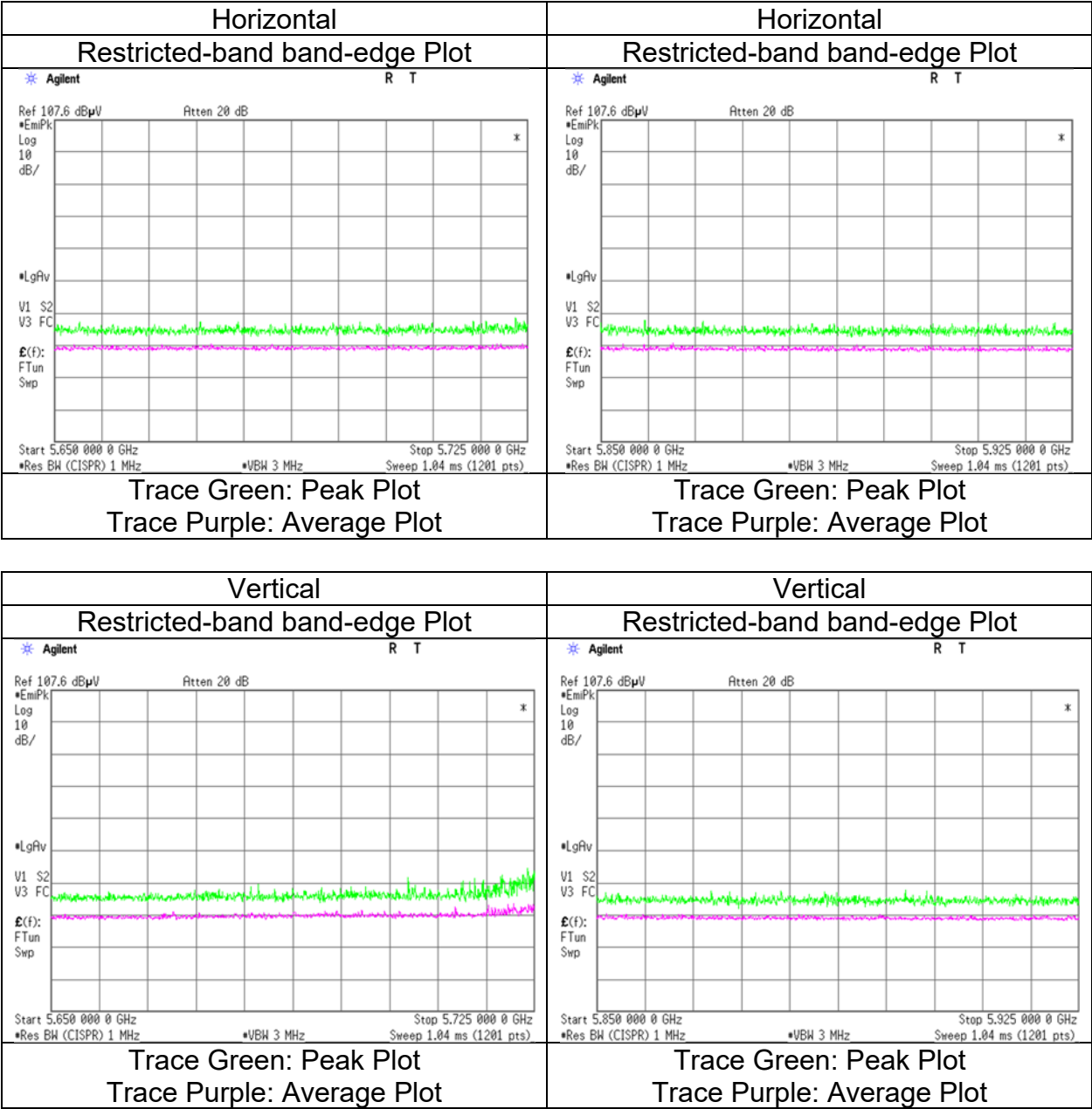
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

\*QP detector was used up to 1GHz.

Distance factor:      1 GHz - 10 GHz      20log (3.8 m / 3.0 m) = 2.06 dB  
                                  10 GHz - 40 GHz      20log (1.0 m / 3.0 m) = -9.5 dB

**Radiated Spurious Emission**

|                        |                     |
|------------------------|---------------------|
| Test place             | Ise EMC Lab.        |
| Semi Anechoic Chamber  | No.4                |
| Date                   | June 26, 2023       |
| Temperature / Humidity | 22 deg. C / 42 % RH |
| Engineer               | Sayaka Hara         |
| Mode                   | Tx 11ac-80 5775 MHz |



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.



## Radiated Spurious Emission

|                        |                                     |                     |                     |
|------------------------|-------------------------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.                        |                     |                     |
| Semi Anechoic Chamber  | No.4                                | No.4                | No.4                |
| Date                   | June 26, 2023                       | June 27, 2023       | June 27, 2023       |
| Temperature / Humidity | 21 deg. C / 47 % RH                 | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH |
| Engineer               | Keiya Ido                           | Sayaka Hara         | Keiya Ido           |
|                        | (1 GHz to 10 GHz)                   | (10 GHz to 18 GHz)  | (Above 18 GHz)      |
| Mode                   | Tx 11a 5745 MHz + BT DH5 Hopping on |                     |                     |

| Polarity    | Frequency | Reading<br>(QP / PK) | Reading<br>(AV) | Ant.<br>Factor | Loss | Gain | Duty<br>Factor | Result<br>(QP / PK) | Result<br>(AV) | Limit<br>(QP / PK) | Limit<br>(AV) | Margin<br>(QP / PK) | Margin<br>(AV) | Remark      |
|-------------|-----------|----------------------|-----------------|----------------|------|------|----------------|---------------------|----------------|--------------------|---------------|---------------------|----------------|-------------|
| [Hori/Vert] | [MHz]     | [dBuV]               | [dBuV]          | [dB/m]         | [dB] | [dB] | [dB]           | [dBuV/m]            | [dBuV/m]       | [dBuV/m]           | [dBuV/m]      | [dB]                | [dB]           |             |
| Hori.       | 75.2      | 31.1                 | -               | 6.5            | 7.6  | 32.1 | -              | 13.1                | -              | 40.0               | -             | 26.9                | -              |             |
| Hori.       | 163.9     | 29.6                 | -               | 15.5           | 8.5  | 32.0 | -              | 21.6                | -              | 43.5               | -             | 21.9                | -              |             |
| Hori.       | 185.7     | 24.6                 | -               | 16.3           | 8.7  | 32.0 | -              | 17.5                | -              | 43.5               | -             | 26.0                | -              |             |
| Hori.       | 615.3     | 32.9                 | -               | 19.5           | 11.4 | 32.3 | -              | 31.5                | -              | 46.0               | -             | 14.5                | -              |             |
| Hori.       | 867.7     | 25.3                 | -               | 21.9           | 12.2 | 31.3 | -              | 28.1                | -              | 46.0               | -             | 17.9                | -              |             |
| Hori.       | 914.5     | 32.2                 | -               | 22.1           | 12.5 | 31.0 | -              | 35.7                | -              | 46.0               | -             | 10.3                | -              |             |
| Hori.       | 1580.0    | 53.8                 | 43.2            | 25.2           | 3.9  | 33.3 | -              | 49.6                | 39.0           | 73.9               | 53.9          | 24.3                | 14.9           |             |
| Hori.       | 5650.0    | 42.3                 | -               | 31.8           | 5.8  | 31.3 | -              | 48.6                | -              | 68.2               | -             | 19.6                | -              |             |
| Hori.       | 5700.0    | 42.5                 | -               | 31.8           | 5.8  | 31.3 | -              | 48.8                | -              | 105.2              | -             | 56.4                | -              |             |
| Hori.       | 5720.0    | 43.9                 | -               | 31.9           | 5.8  | 31.3 | -              | 50.4                | -              | 110.8              | -             | 60.4                | -              |             |
| Hori.       | 5725.0    | 46.1                 | -               | 31.9           | 5.8  | 31.3 | -              | 52.5                | -              | 122.2              | -             | 69.7                | -              |             |
| Hori.       | 5850.0    | 40.1                 | -               | 32.2           | 5.9  | 31.3 | -              | 46.9                | -              | 122.2              | -             | 75.3                | -              |             |
| Hori.       | 5855.0    | 40.9                 | -               | 32.2           | 5.9  | 31.3 | -              | 47.6                | -              | 110.8              | -             | 63.2                | -              |             |
| Hori.       | 5875.0    | 40.7                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.5                | -              | 105.2              | -             | 57.7                | -              |             |
| Hori.       | 5925.0    | 40.3                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.2                | -              | 68.2               | -             | 21.0                | -              |             |
| Hori.       | 10000.0   | 47.2                 | -               | 39.0           | -3.3 | 32.7 | -              | 50.2                | -              | 68.2               | -             | 18.0                | -              |             |
| Hori.       | 11490.0   | 43.3                 | 34.9            | 39.7           | -3.0 | 32.9 | -              | 47.1                | 38.8           | 73.9               | 53.9          | 26.8                | 15.1           | Floor noise |
| Hori.       | 12500.0   | 46.5                 | 39.1            | 38.8           | -2.9 | 32.6 | -              | 49.8                | 42.4           | 73.9               | 53.9          | 24.1                | 11.5           |             |
| Hori.       | 17235.0   | 42.7                 | -               | 41.8           | -1.8 | 32.4 | -              | 50.2                | -              | 68.2               | -             | 18.0                | -              | Floor noise |
| Vert.       | 75.2      | 33.1                 | -               | 6.5            | 7.6  | 32.1 | -              | 15.1                | -              | 40.0               | -             | 24.9                | -              |             |
| Vert.       | 163.9     | 29.7                 | -               | 15.5           | 8.5  | 32.0 | -              | 21.7                | -              | 43.5               | -             | 21.8                | -              |             |
| Vert.       | 185.7     | 25.9                 | -               | 16.3           | 8.7  | 32.0 | -              | 18.8                | -              | 43.5               | -             | 24.7                | -              |             |
| Vert.       | 615.3     | 33.3                 | -               | 19.5           | 11.4 | 32.3 | -              | 31.9                | -              | 46.0               | -             | 14.1                | -              |             |
| Vert.       | 867.7     | 24.8                 | -               | 21.9           | 12.2 | 31.3 | -              | 27.6                | -              | 46.0               | -             | 18.4                | -              |             |
| Vert.       | 914.5     | 28.5                 | -               | 22.1           | 12.5 | 31.0 | -              | 32.0                | -              | 46.0               | -             | 14.0                | -              |             |
| Vert.       | 1580.0    | 56.4                 | 45.3            | 25.2           | 3.9  | 33.3 | -              | 52.2                | 41.1           | 73.9               | 53.9          | 21.7                | 12.8           |             |
| Vert.       | 5650.0    | 43.5                 | -               | 31.8           | 5.8  | 31.3 | -              | 49.8                | -              | 68.2               | -             | 18.4                | -              |             |
| Vert.       | 5700.0    | 42.5                 | -               | 31.8           | 5.8  | 31.3 | -              | 48.8                | -              | 105.2              | -             | 56.4                | -              |             |
| Vert.       | 5720.0    | 48.4                 | -               | 31.9           | 5.8  | 31.3 | -              | 54.8                | -              | 110.8              | -             | 56.0                | -              |             |
| Vert.       | 5725.0    | 49.4                 | -               | 31.9           | 5.8  | 31.3 | -              | 55.9                | -              | 122.2              | -             | 66.3                | -              |             |
| Vert.       | 5850.0    | 40.9                 | -               | 32.2           | 5.9  | 31.3 | -              | 47.7                | -              | 122.2              | -             | 74.5                | -              |             |
| Vert.       | 5855.0    | 40.4                 | -               | 32.2           | 5.9  | 31.3 | -              | 47.1                | -              | 110.8              | -             | 63.7                | -              |             |
| Vert.       | 5875.0    | 40.3                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.1                | -              | 105.2              | -             | 58.1                | -              |             |
| Vert.       | 5925.0    | 40.2                 | -               | 32.3           | 5.9  | 31.4 | -              | 47.1                | -              | 68.2               | -             | 21.1                | -              |             |
| Vert.       | 10000.0   | 47.9                 | -               | 39.0           | -3.3 | 32.7 | -              | 51.0                | -              | 68.2               | -             | 17.3                | -              |             |
| Vert.       | 11490.0   | 43.3                 | 36.5            | 39.7           | -3.0 | 32.9 | 2.0            | 47.2                | 42.4           | 73.9               | 53.9          | 26.7                | 11.5           |             |
| Vert.       | 12500.0   | 44.3                 | 38.3            | 38.8           | -2.9 | 32.6 | -              | 47.6                | 41.6           | 73.9               | 53.9          | 26.3                | 12.3           |             |
| Vert.       | 17235.0   | 42.7                 | -               | 41.8           | -1.8 | 32.4 | -              | 50.2                | -              | 68.2               | -             | 18.0                | -              | Floor noise |

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

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

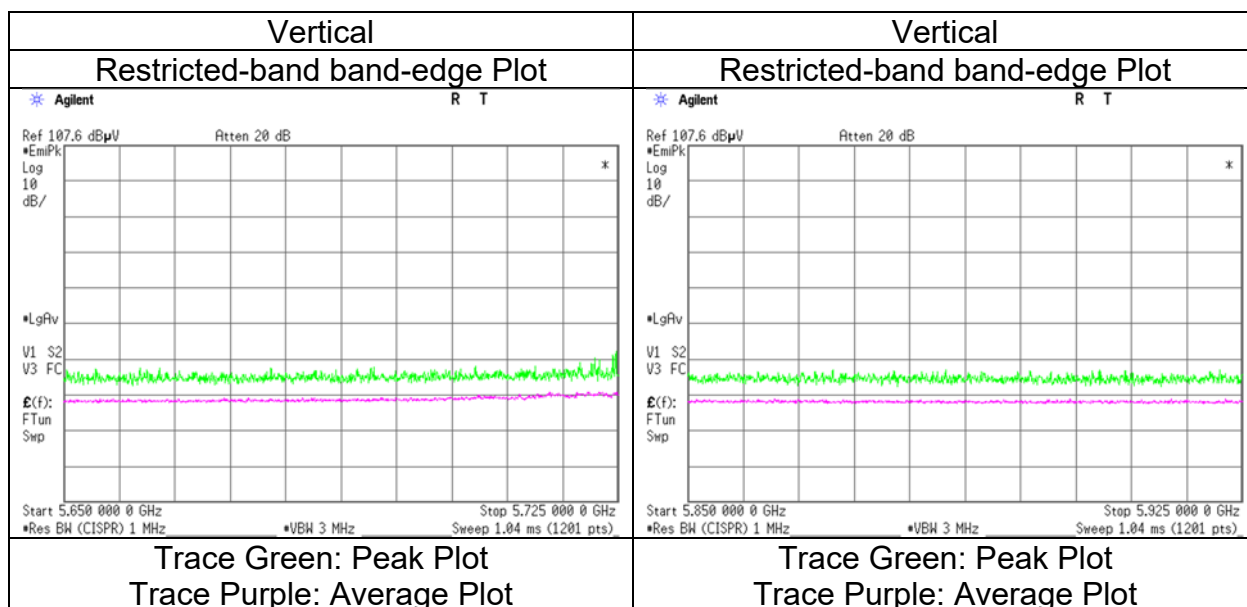
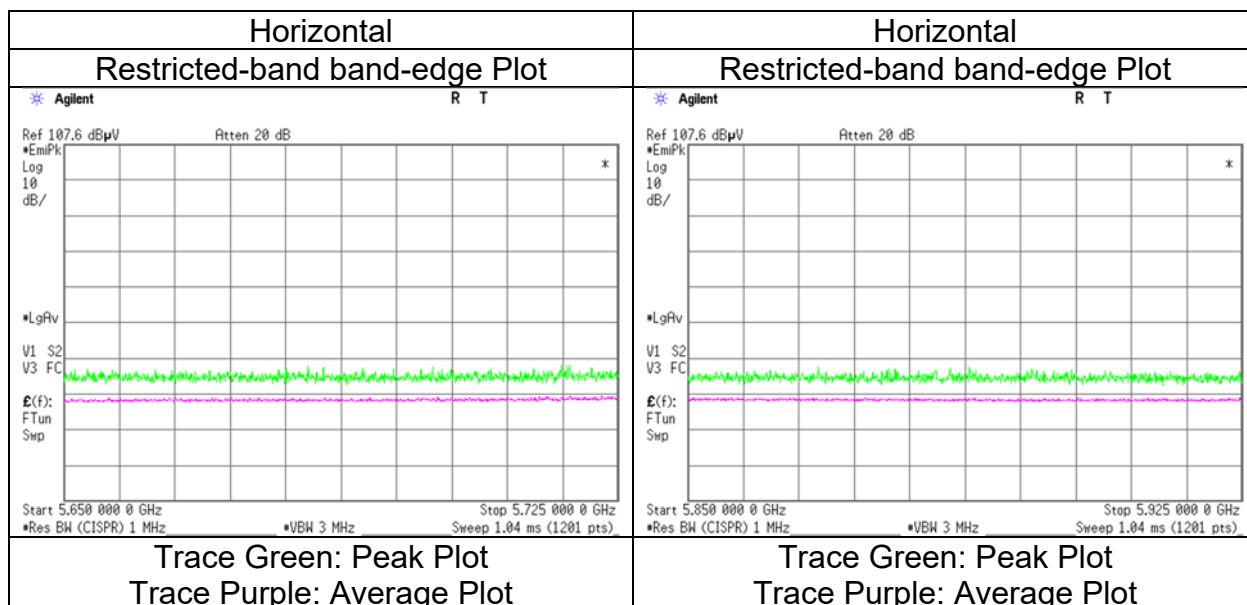
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

\*QP detector was used up to 1GHz

Distance factor:    1 GHz - 10 GHz    20log (3.8 m / 3.0 m) = 2.06 dB  
                              10 GHz - 40 GHz    20log (1.0 m / 3.0 m) = -9.5 dB

## Radiated Spurious Emission

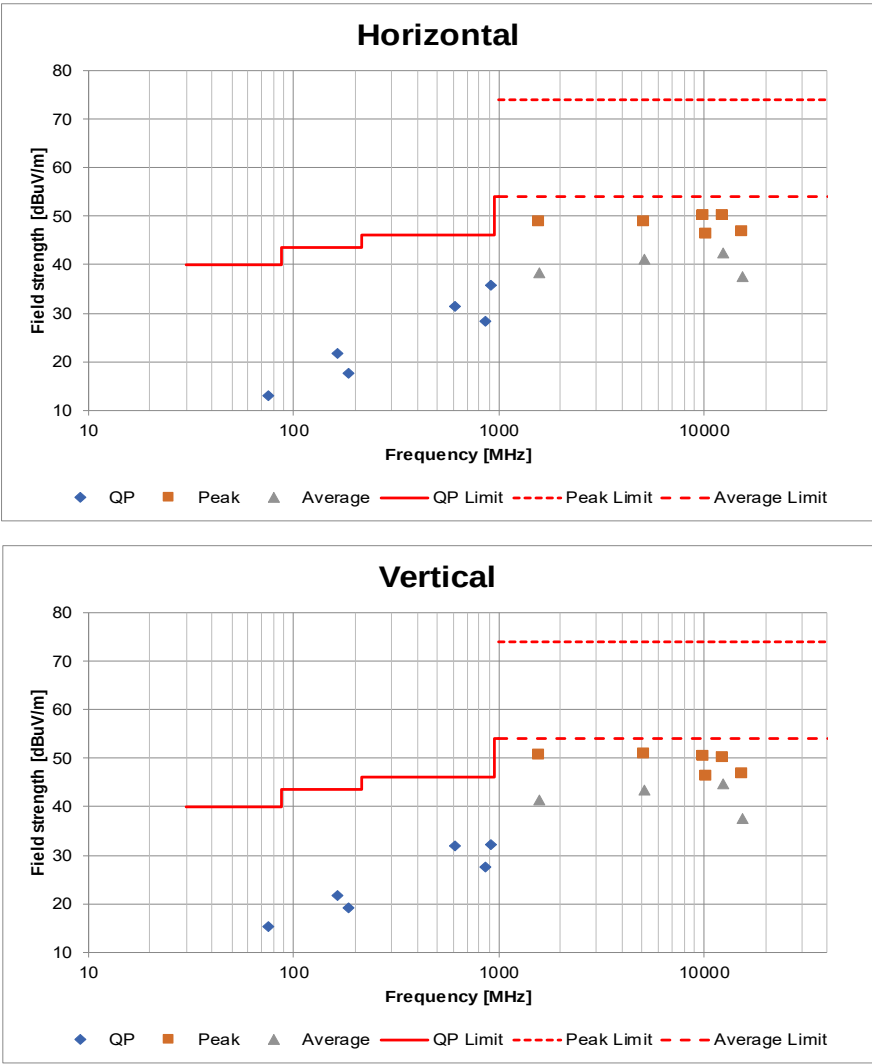
|                        |                                     |
|------------------------|-------------------------------------|
| Test place             | Ise EMC Lab.                        |
| Semi Anechoic Chamber  | No.4                                |
| Date                   | June 26, 2023                       |
| Temperature / Humidity | 21 deg. C / 47 % RH                 |
| Engineer               | Keiya Ido                           |
| Mode                   | Tx 11a 5745 MHz + BT DH5 Hopping on |



\* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.  
Final result of restricted band edge was shown in tabular data.

**Radiated Spurious Emission**  
**(Plot data, Worst case mode for Maximum Conducted Output Power)**

|                        |                                      |                     |                     |                     |
|------------------------|--------------------------------------|---------------------|---------------------|---------------------|
| Test place             | Ise EMC Lab.                         | No.4                | No.4                | No.4                |
| Semi Anechoic Chamber  | No.4                                 | No.4                | No.4                | No.4                |
| Date                   | June 25, 2023                        | June 27, 2023       | June 27, 2023       | June 28, 2023       |
| Temperature / Humidity | 22 deg. C / 40 % RH                  | 21 deg. C / 49 % RH | 20 deg. C / 47 % RH | 19 deg. C / 43 % RH |
| Engineer               | Keiya Ido                            | Sayaka Hara         | Keiya Ido           | Keiya Ido           |
| Mode                   | (1 GHz to 10 GHz)<br>Tx 11a 5180 MHz | (10 GHz to 18 GHz)  | (Above 18 GHz)      | (Below 1 GHz)       |



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

## APPENDIX 2: Test Instruments

### Test Equipment

| Test Item | Local ID      | LIMS ID | Description                       | Manufacturer                    | Model                                     | Serial                  | Last Calibration Date | Cal Int |
|-----------|---------------|---------|-----------------------------------|---------------------------------|-------------------------------------------|-------------------------|-----------------------|---------|
| RE        | COTS-MEMI-02  | 178648  | EMI measurement program           | TSJ (Techno Science Japan)      | TEPTO-DV                                  | -                       | -                     | -       |
| RE        | MAEC-04       | 142011  | AC4_Semi Anechoic Chamber(NSA)    | TDK                             | Semi Anechoic Chamber 3m                  | DA-10005                | 05/22/2022            | 24      |
| RE        | MAEC-04-SVSWR | 142017  | AC4_Semi Anechoic Chamber(SVSWR)  | TDK                             | Semi Anechoic Chamber 3m                  | DA-10005                | 04/14/2023            | 24      |
| RE        | MAT-34        | 141331  | Attenuator(6dB)                   | TME                             | UFA-01                                    | -                       | 02/01/2023            | 12      |
| RE        | MBA-08        | 141427  | Biconical Antenna                 | Schwarzbeck Mess-Elektronik OHG | VHA9103B+BBA9106                          | 08031                   | 07/30/2022            | 12      |
| RE        | MCC-178       | 141227  | Microwave Cable                   | Junkosha                        | MMX221-00500DMSDMS                        | 1502S305                | 03/03/2023            | 12      |
| RE        | MCC-224       | 160324  | Coaxial Cable                     | Huber+Suhner                    | SUCOFLEX 102A                             | MY009/2A                | 10/19/2022            | 12      |
| RE        | MCC-265       | 234602  | Microwave Cable                   | Huber+Suhner                    | SF126E/11PC35/11PC35/1000M,5000M          | 537063/126E/537074/126E | 03/16/2023            | -       |
| RE        | MCC-50        | 141397  | Coaxial Cable                     | UL Japan                        | -                                         | -                       | 11/18/2022            | 12      |
| RE        | MHA-17        | 141506  | Horn Antenna 15-40GHz             | Schwarzbeck Mess-Elektronik OHG | BBHA9170                                  | BBHA9170307             | 07/22/2022            | 12      |
| RE        | MHA-20        | 141507  | Horn Antenna 1-18GHz              | Schwarzbeck Mess-Elektronik OHG | BBHA9120D                                 | 258                     | 11/14/2022            | 12      |
| RE        | MHA-21        | 141508  | Horn Antenna 1-18GHz              | Schwarzbeck Mess-Elektronik OHG | BBHA9120D                                 | 557                     | 05/17/2023            | 12      |
| RE        | MHA-29        | 141517  | Horn Antenna 26.5-40GHz           | ETS-Lindgren                    | 3160-10                                   | 152399                  | 11/14/2022            | 12      |
| RE        | MHF-23        | 141294  | High Pass Filter 7-20GHz          | TOKIMEC                         | TF37NCCC                                  | 603                     | 02/01/2023            | 12      |
| RE        | MJM-29        | 142230  | Measure, Tape, Steel              | KOMELON                         | KMC-36                                    | -                       | -                     | -       |
| RE        | MLA-23        | 141267  | Logperiodic Antenna (200-1000MHz) | Schwarzbeck Mess-Elektronik OHG | VUSLP9111B                                | 9111B-192               | 09/21/2022            | 12      |
| RE        | MMM-10        | 141545  | DIGITAL HITESTER                  | HIOKI E.E. CORPORATION          | 3805                                      | 51201148                | 01/18/2023            | 12      |
| RE        | MOS-15        | 141562  | Thermo-Hygrometer                 | CUSTOM. Inc                     | CTH-201                                   | 0010                    | 01/13/2023            | 12      |
| RE        | MPA-12        | 141581  | MicroWave System Amplifier        | Keysight Technologies Inc       | 83017A                                    | 00650                   | 10/05/2022            | 12      |
| RE        | MPA-14        | 141583  | Pre Amplifier                     | SONOMA INSTRUMENT               | 310                                       | 260833                  | 04/05/2023            | 12      |
| RE        | MPA-22        | 141588  | Pre Amplifier                     | L3 Narda-MITEQ                  | AMF-6F-2600400-33-8P/AMF-4F-2600400-33-8P | 1871355/1871328         | 01/24/2023            | 12      |
| RE        | MSA-10        | 141899  | Spectrum Analyzer                 | Keysight Technologies Inc       | E4448A                                    | MY46180655              | 02/20/2023            | 12      |
| RE        | MSA-16        | 141903  | Spectrum Analyzer                 | Keysight Technologies Inc       | E4440A                                    | MY46186390              | 01/16/2023            | 12      |
| RE        | MTR-08        | 141949  | Test Receiver                     | Rohde & Schwarz                 | ESCI                                      | 100767                  | 05/17/2023            | 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