# RADIO TEST REPORT

## Test Report No. : 14007298H-C-R1

| | | |
|---|---|---|
| **Applicant** | : | **Honda Motor Co., Ltd.** |
| **Type of EUT** | : | **4.0G LET** |
| **Model Number of EUT** | : | **E4000-01** |
| **FCC ID** | : | **N43E400001** |
| **Test regulation** | : | **FCC Part 15 Subpart E: 2021**<br>**(Except for DFS test)**<br>***For Permissive Change** |
| **Test Result** | : | **Complied (Refer to SECTION 3.2)**<br>***Radiated Spurious Emission tests only** |

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by the A2LA accreditation body.
6. This test report covers Radio technical requirements.
   It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. The all test items in this test report are conducted by UL Japan, Inc. Ise EMC Lab.
8. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan, Inc. has been accredited.
9. The information provided from the customer for this report is identified in Section 1.
10. This report is a revised version of 14007298H-C. 14007298H-C is replaced with this report.

**Date of test:** September 10 to 28, 2021

**Representative test engineer:**
Nachi Konegawa
Engineer

**Approved by:**
Satofumi Matsuyama
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".

**UL Japan, Inc.**
**Ise EMC Lab.**
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

# REVISION HISTORY

## Original Test Report No.: 14007298H-C

| Revision | Test report No. | Date | Page Revised Contents |
|---|---|---|---|
| - (Original) | 14007298H-B | January 28, 2022 | - |
| 1 | 14007298H-C-R1 | February 25, 2022 | Correction of Type of EUT and Model Number of EUT<br>Type of EUT: Embedded wireless module → 4.0G LET<br>Model Number of EUT: SX-SDPAC → E4000-01 |
| 1 | 14007298H-C-R1 | February 25, 2022 | Correction of Rating of Section 2.2.<br>DC 5 V → DC 3.3 V |
| 1 | 14007298H-C -R1 | February 25, 2022 | Addition of below frequency band in the table for Section 2.2.<br>20Mband<br>5500 MHz to 5580 MHz → 5500 MHz to 5700 MHz<br>5660 MHz to 5700 MHz<br>40Mband<br>2422 MHz - 2452 MHz<br>5510 MHz, 5550 MHz → 5510 MHz to 5670 MHz<br>5670 MHz<br>80Mband<br>5530 MHz → 5530 MHz to 5610 MHz |
| 1 | 14007298H-C-R1 | February 25, 2022 | Addition of explanatory note *2) in Section 2.2.<br>*2) Tests were not performed following channels, because this antenna is not used these channels.<br>- WLAN 11n40 (2.4GHz band)<br>- 20 MHz Bandwidth (5600 MHz - 5640 MHz)<br>- 40 MHz Bandwidth (5590 MHz - 5630 MHz)<br>- 80 MHz Bandwidth (5610 MHz MHz) |
| 1 | 14007298H-C-R1 | February 25, 2022 | Correction of FCC Part 15.31 (e) of Section 3.2.<br>The stable voltage was provided to the EUT during the tests.<br>Therefore, this EUT complies with the requirement.<br>→<br>The RF Module has its own regulator.<br>The RF Module is constantly provided voltage through the regulator regardless of input voltage. Therefore, this EUT complies with the requirement. |
| 1 | 14007298H-C-R1 | February 25, 2022 | Correction of power supply voltage of Section 4.2.<br>DC 14 V → DC 12 V |
| 1 | 14007298H-C-R1 | February 25, 2022 | Addition of below explanatory note in Section 4.2.<br>RF Module and Host device have the same product name: 4.0G LET and model number: E4000-01.<br>The EUT of this test report is RF Module.<br>In order to distinguish between RF Module and Host device, this test report shows as follows.<br>RF Module: 4.0G LET<br>Host device: 4.0G LET (Host)<br>4.0G LET only works with 4.0G LET (Host).<br>Therefore, the tests were performed on the RF module built into the Host device.<br>The RF Module is constantly provided with regulated voltage of DC 3.3 V from Host device. |

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

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

**CONTENTS** **PAGE**

# SECTION 1: Customer information

| | | |
|---|---|---|
| Company Name | : | Honda Motor Co., Ltd. |
| Address | : | No.6-1, Hagadai, Haga-Machi, Haga-Gun, Tochigi-ken 321-3395 Japan |
| Telephone Number | : | +81-28-687-0707 |
| Contact Person | : | Kazumori Sakai |

The information provided from the customer is as follows;
- Applicant, Type 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
- 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

| | | |
|---|---|---|
| Type of EUT | : | 4.0G LET |
| Model Number of EUT | : | E4000-01 |
| Serial No. | : | Refer to SECTION 4.2 |
| Receipt Date | : | September 9, 2021 |
| Condition | : | Engineering prototype<br>(Not for Sale: This sample is equivalent to mass-produced items.) |
| Modification | : | No Modification by the test lab. |

## 2.2 Product Description

Model Number of EUT: E4000-01 (referred to as the EUT in this report) is a 4.0G LET.

**Product Specification**

Rating : DC 3.3 V

**Specification of Wireless LAN (IEEE802.11b/g/a/n-20/n-40/11ac-20/11ac-40/11ac-80)**

| | IEEE802.11b | IEEE802.11g/n (20 M band) | IEEE802.11a/n/ac (20 M band) *1) | IEEE802.11n/ac (40 M band) *1) | IEEE802.11ac (80 M band) *1) |
|---|---|---|---|---|---|
| Frequency of operation | 2412 MHz - 2462 MHz | 2412 MHz - 2462 MHz | 5180 MHz - 5240 MHz<br>5260 MHz - 5320 MHz<br>5500 MHz - 5700 MHz<br>5745 MHz - 5825 MHz | 2422 MHz - 2452 MHz<br>5190 MHz - 5230 MHz<br>5270 MHz - 5310 MHz<br>5510 MHz - 5670 MHz | 5210 MHz<br>5290 MHz<br>5530 MHz - 5610 MHz<br>5775 MHz |
| Type of modulation | DSSS (CCK, DQPSK, DBPSK) | OFDM-CCK (64QAM, 16QAM, QPSK, BPSK) | 11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK)<br>11ac: OFDM (64QAM, 16QAM, QPSK, BPSK, 256QAM) | | |
| Channel spacing | 5 MHz | | 20 MHz | 40 MHz | 80 MHz |
| Antenna type | PCB antenna *2) | | | | |
| Antenna Gain | 2.4 GHz: 3.5 dBi<br>5 GHz: 3.5 dBi | | | | |

**Bluetooth**

| | Bluetooth |
|---|---|
| Frequency of operation | 2402 MHz - 2480 MHz |
| Type of modulation | BT: FHSS (GFSK, π/4DQPSK, 8DPSK)<br>LE: GFSK |
| Channel spacing | BT: 1 MHz<br>LE: 2 MHz |
| Antenna type | PCB antenna |
| Antenna Gain | 3.5 dBi |

*1) This test report applies to WLAN (5 GHz band) part.
*2) Tests were not performed following channels, because this antenna is not used these channels.
- WLAN 11n40 (2.4GHz band)
- 20 MHz Bandwidth (5600 MHz - 5640 MHz)
- 40 MHz Bandwidth (5590 MHz - 5630 MHz)
- 80 MHz Bandwidth (5610 MHz MHz)

# SECTION 3: Test specification, procedures & results

## 3.1 Test Specification

Test Specification : FCC Part 15 Subpart E
FCC Part 15 final revised on May 3, 2021 and effective July 2, 2021

Title : FCC 47 CFR Part 15 Radio Frequency Device Subpart E
Unlicensed National Information Infrastructure Devices
Section 15.407 General technical requirements

## 3.2 Procedures and results

| Item | Test Procedure | Specification | Worst margin | Results | Remarks |
|---|---|---|---|---|---|
| Spurious Emission Restricted Band Edge | **FCC:** ANSI C63.10-2013 KDB Publication Number 789033 | **FCC:** 15.407 (b), 15.205 and 15.209 | 1.2 dB<br>5150.0 MHz,<br>AV, Horizontal | Complied#<br>a) | Radiated<br>(> 30 MHz)<br>*1) |
| | **ISED:** - | **ISED:** 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 No. 13-EM-W0420 and 13-EM-W0422.<br>*1) Radiated test was selected over 30 MHz based on FCC 15.407 (b) and KDB 789033 D02 G.3.b).<br><br>a) Refer to APPENDIX 1 (data of Radiated Spurious Emission) | | | | | |
| Symbols:<br>Complied: The data of this test item has enough margin, more than the measurement uncertainty.<br>Complied#: The data of this test item meets the limits unless the measurement uncertainty is taken into consideration. | | | | | |

* In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred.

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

**FCC Part 15.203 Antenna requirement**
The antenna is not removable from 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

There is no applicable rule of uncertainty in this applied standard. Therefore, the following results are derived depending on whether or not laboratory uncertainty is applied.

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

Ise EMC Lab.

**Radiated emission**

| Measurement distance | Frequency range | | Uncertainty (+/-) |
|---|---|---|---|
| 3 m | 9 kHz to 30 MHz | | 3.3 dB |
| 10 m | | | 3.2 dB |
| | | | |
| 3 m | 30 MHz to 200 MHz | (Horizontal) | 4.8 dB |
| | | (Vertical) | 5.0 dB |
| | 200 MHz to 1000 MHz | (Horizontal) | 5.2 dB |
| | | (Vertical) | 6.3 dB |
| 10 m | 30 MHz to 200 MHz | (Horizontal) | 4.8 dB |
| | | (Vertical) | 4.8 dB |
| | 200 MHz to 1000 MHz | (Horizontal) | 5.0 dB |
| | | (Vertical) | 5.0 dB |
| | | | |
| 3 m | 1 GHz to 6 GHz | | 4.9 dB |
| | 6 GHz to 18 GHz | | 5.2 dB |
| 1 m | 10 GHz to 26.5 GHz | | 5.5 dB |
| | 26.5 GHz to 40 GHz | | 5.5 dB |
| 0.5 m | 26.5 GHz to 40 GHz | | 5.5 dB |
| 10 m | 1 GHz to 18 GHz | | 5.2 dB |

**Antenna Terminal test**

| Test Item | Uncertainty (+/-) |
|---|---|
| 26 dB Emission Bandwidth / 6 dB Emission Bandwidth / | 0.96 % |
| Maximum Conducted Output Power / Average Output Power | 1.4 dB |
| Burst Rate | 0.10 % |
| Maximum Power Spectral Density | 2.6 dB |
| Spurious Emission (Conducted) | 2.6 dB |

## 3.5 Test Location

UL Japan, Inc. Ise EMC Lab.
*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919
ISED Lab Company Number: 2973C / CAB identifier: JP0002
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone: +81 596 24 8999, Facsimile: +81 596 24 8124

| 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 | - | - |

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0 m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

## 3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

# SECTION 4: Operation of EUT during testing

## 4.1 Operating Mode(s)

Test 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.

| Mode | Remarks* |
|---|---|
| IEEE 802.11a (11a) | 54 Mbps, PN9 |
| IEEE 802.11n 20MHz BW (11n-20) | MCS 6, PN9 |
| IEEE 802.11n 40MHz BW (11n-40) | MCS 6, PN9 |
| IEEE 802.11ac 80MHz BW (11ac-80) | MCS 7, PN9 |
| *The worst 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 settings: Refer to the following table<br>Software: Qualcomm Radio Control Tool Vert.4.0.00104.0 (WLAN)<br>(Date: 2021.8.18, Storage location: Driven by connected PC)<br><br>*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. | |

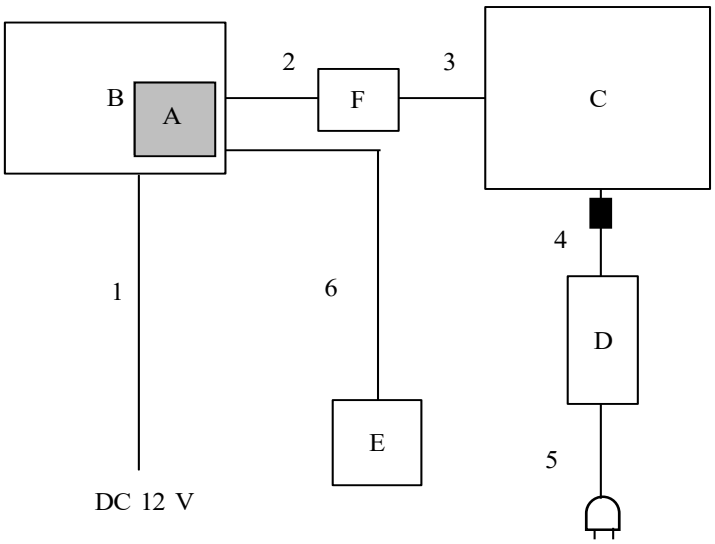
Power settings;

| | Ch | Frequency | Power Setting [dBm] |
|---|---|---|---|
| 11a | 36 | 5180 MHz | 12 |
| | 52 | 5260 MHz | 11 |
| | 64 | 5320 MHz | 12 |
| | 100 | 5500 MHz | 12 |
| | 116 | 5580 MHz | 11 |
| | 140 | 5700 MHz | 11 |
| | 149 | 5745 MHz | 11 |
| | 157 | 5785 MHz | 12 |
| | 165 | 5825 MHz | 12 |
| 11n-20 | 36 | 5180 MHz | 12 |
| | 52 | 5260 MHz | 11 |
| | 64 | 5320 MHz | 12 |
| | 100 | 5500 MHz | 12 |
| | 116 | 5580 MHz | 11 |
| | 140 | 5700 MHz | 11 |
| | 149 | 5745 MHz | 11 |
| | 157 | 5785 MHz | 12 |
| | 165 | 5825 MHz | 12 |
| 11n-40 | 38 | 5190 MHz | 11 |
| | 54 | 5270 MHz | 11 |
| | 62 | 5310 MHz | 10 |
| | 102 | 5510 MHz | 12 |
| | 110 | 5550 MHz | 11 |
| | 134 | 5670 MHz | 12 |
| | 151 | 5755 MHz | 12 |
| | 159 | 5795 MHz | 12 |
| 11ac-80 | 42 | 5210 MHz | 10 |
| | 58 | 5290 MHz | 9 |
| | 106 | 5530 MHz | 10 |
| | 155 | 5775 MHz | 10 |

*The details of Operation mode(s)

| Test Item | Operating Mode | Tested Frequency | | | |
|---|---|---|---|---|---|
| | | Lower Band | Middle Band | Additional Band | Upper Band |
| Radiated Spurious Emission (Below 1 GHz) | 11n-40 Tx *1) | - | - | - | 5795 MHz |
| Radiated Spurious Emission (Above 1 GHz) | 11a Tx<br>11n-20 Tx *2) | 5180 MHz | 5260 MHz<br>5320 MHz | 5500 MHz<br>5580 MHz<br>5700 MHz | 5745 MHz<br>5785 MHz<br>5825 MHz |
| | 11n-40 Tx *2) | 5190 MHz | 5270 MHz<br>5310 MHz | 5510 MHz<br>5550 MHz<br>5670 MHz | 5755 MHz<br>5795 MHz |
| | 11ac-80 Tx | 5210 MHz | 5290 MHz | 5530 MHz | 5775 MHz |
| *1) The mode was tested as a representative, because it had the highest power at antenna terminal test.<br>*2) Since each of 20 MHz BW (11n-20 /11ac-20) and 40 MHz BW (11n-40 /11ac-40) have the same modulation method and no differences in transmitting specification, the test was performed on the representative mode that is worst mode of test report for module installed in EUT. | | | | | |

## 4.2 Configuration and peripherals




■ : Standard Ferrite Core

* 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 | 4.0G LET | E4000-01 | 001 | Honda Motor Co., Ltd. | EUT |
| B | 4.0G LET(Host) | E4000-01 | 13116 | Honda Motor Co., Ltd. | - |
| C | Laptop PC | CF-MX4 | 5FKSA17992 | PANASONIC | - |
| D | AC Adapter | CF-AA62J2C | 62J2CM2152251438SB | Panasonic | - |
| E | Mouse | BSMOU27SM | A10517 | Buffalo Inc. | - |
| F | USB 3.0 to Gigabit Ethernet Adapter | USB31000S | 210513005254 | StarTech.coom | - |

**List of cables used**

| No. | Name | Length (m) | Shield | | Remarks |
|---|---|---|---|---|---|
| | | | Cable | Connector | |
| 1 | DC Cable | 3.3 | Unshielded | Unshielded | - |
| 2 | USB Cable | 0.1 | Shielded | Shielded | - |
| 3 | LAN Cable | 3.0 | Unshielded | Unshielded | - |
| 4 | DC Cable | 1.6 | Unshielded | Unshielded | - |
| 5 | AC Cable | 0.8 | Unshielded | Unshielded | - |
| 6 | USB Cable | 1.5 | Shielded | Shielded | - |

<Note>
RF Module and Host device have the same product name: 4.0G LET and model number: E4000-01.
The EUT of this test report is RF Module.
In order to distinguish between RF Module and Host device, this test report shows as follows.
RF Module: 4.0G LET
Host device: 4.0G LET (Host)
4.0G LET only works with 4.0G LET (Host).
Therefore, the tests were performed on the RF module built into the Host device.
The RF Module is constantly provided with regulated voltage of DC 3.3 V from Host device.

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

**Test Procedure**

< Below 1GHz >
EUT was placed on a urethane platform of nominal size, 0.5 m by 1.0 m, raised 0.8 m above the conducting ground plane.
The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

< Above 1GHz >
EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane.
The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane.

The 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.
Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.
The measurements were performed for both vertical and horizontal antenna polarization 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 1GHz >

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

< Above 1GHz >

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:

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

**Test Antennas are used as below;**

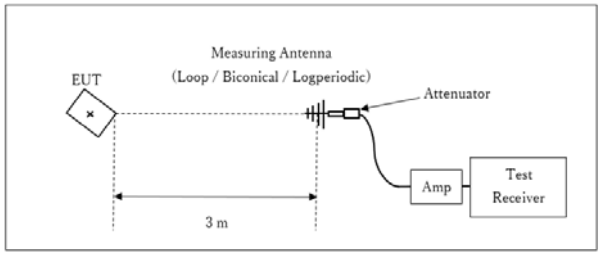
| Frequency | 30 MHz to 200 MHz | 200 MHz to 1 GHz | Above 1 GHz |
|---|---|---|---|
| Antenna Type | Biconical | Logperiodic | Horn |

| 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 *1)<br>RBW: 1 MHz<br>VBW: 3 MHz<br>Detector: Power Averaging (RMS)<br>Trace: ≥ 100 traces<br>If duty cycle was less than 98%, a duty factor was added to the results. |

*1) The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E".

**Figure 2: Test Setup**

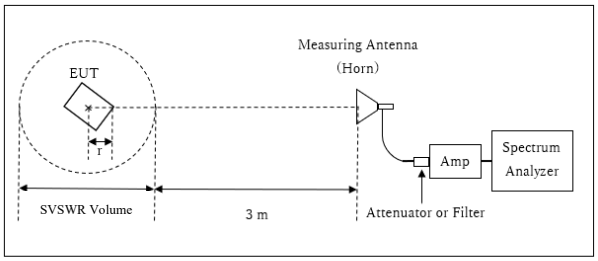
Below 1 GHz




× : Center of turn table

Test Distance: 3 m

1 GHz - 10 GHz

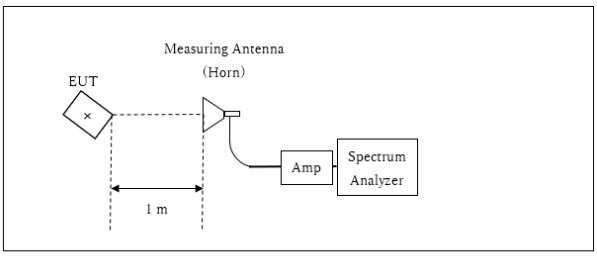



r : Radius of an outer periphery of EUT
× : Center of turn table

Distance Factor: 20 x log (3.9 m / 3.0 m) = 2.28 dB
* Test Distance: (3 + SVSWR Volume /2) - r = 3.9 m

SVSWR Volume : 2.0 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
r = 0.1 m

10 GHz - 40 GHz




× : Center of turn table

Distance Factor: 20 x log (1.0 m / 3.0 m) = -9.5 dB
*Test Distance: 1 m

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

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

**Measurement range : 30 MHz - 40 GHz**
**Test data : APPENDIX**
**Test result : Pass**

# APPENDIX 1: Test data

## Burst rate confirmation

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. No.4 Measurement Room |
| Date | September 10, 2021 |
| Temperature / Humidity | 21 deg. C / 47 % RH |
| Engineer | Akihiko Maeda |
| Mode | Tx |

**11a 5180 MHz**

| Mode | Rate Mbps | Reading Burst power [dBm] | Remarks |
|---|---|---|---|
| 11a | 6 | -0.63 | |
| | 9 | -0.64 | |
| | 12 | -0.53 | |
| | 18 | -0.55 | |
| | 24 | -0.03 | |
| | 36 | 0.03 | |
| | 48 | 0.05 | |
| | 54 | 0.15 | * |

* Worst rate

**11n-40 5190 MHz**

| Mode | MCS Number | Reading Burst power [dBm] | Remarks |
|---|---|---|---|
| 11n-40 | 0 | -0.95 | |
| | 1 | -0.92 | |
| | 2 | -0.95 | |
| | 3 | -0.85 | |
| | 4 | -0.84 | |
| | 5 | -0.83 | |
| | 6 | -0.79 | * |
| | 7 | -1.70 | |

* Worst rate

**11n-20 5180 MHz**

| Mode | MCS Number | Reading Burst power [dBm] | Remarks |
|---|---|---|---|
| 11n-20 | 0 | -0.80 | |
| | 1 | -0.83 | |
| | 2 | -0.70 | |
| | 3 | -0.03 | |
| | 4 | 0.08 | |
| | 5 | -0.02 | |
| | 6 | 0.14 | * |
| | 7 | -0.85 | |

* Worst rate

**11ac-80 5210 MHz**

| Mode | MCS Number | Reading Burst power [dBm] | Remarks |
|---|---|---|---|
| 11ac-80 | 0 | -2.11 | |
| | 1 | -2.16 | |
| | 2 | -2.04 | |
| | 3 | -1.83 | |
| | 4 | -1.81 | |
| | 5 | -1.76 | |
| | 6 | -1.79 | |
| | 7 | -1.71 | * |
| | 8 | -2.73 | |

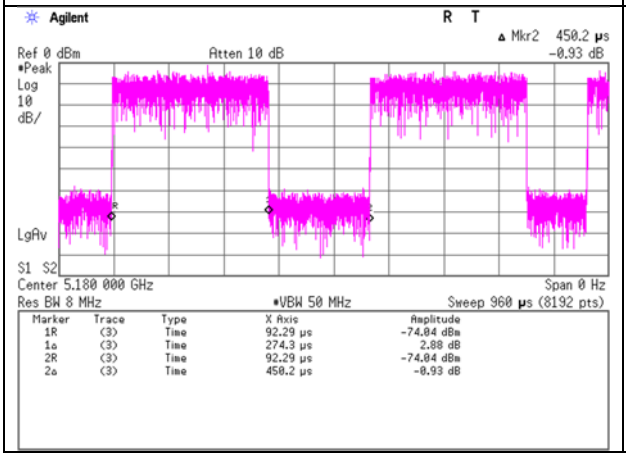
* Worst rate

# Burst rate confirmation

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. No.4 Semi Anechoic Chamber |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Nunata |
| Mode | Tx |

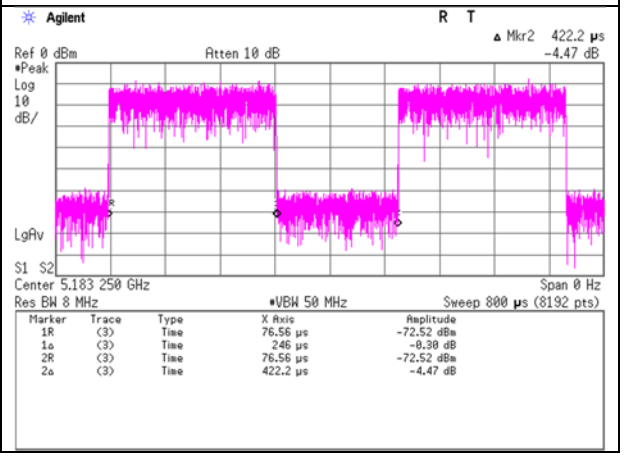
## 11a 54 Mbps

| | |
|---|---|
| Tx on / (Tx on + Tx off) = | 0.609 |
| Tx on / (Tx on + Tx off) * 100 = | 60.9 % |
| Duty factor = 10 * log (450.2 / 274.3) = | 2.15 dB |



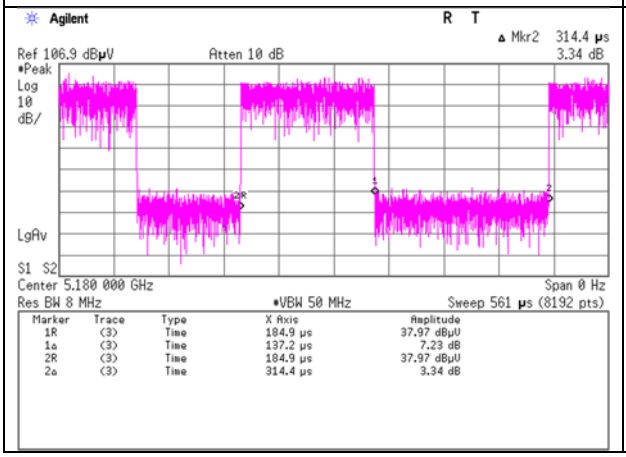

## 11n-20 MCS 6

| | |
|---|---|
| Tx on / (Tx on + Tx off) = | 0.583 |
| Tx on / (Tx on + Tx off) * 100 = | 58.3 % |
| Duty factor = 10 * log (422.2 / 246) = | 2.35 dB |



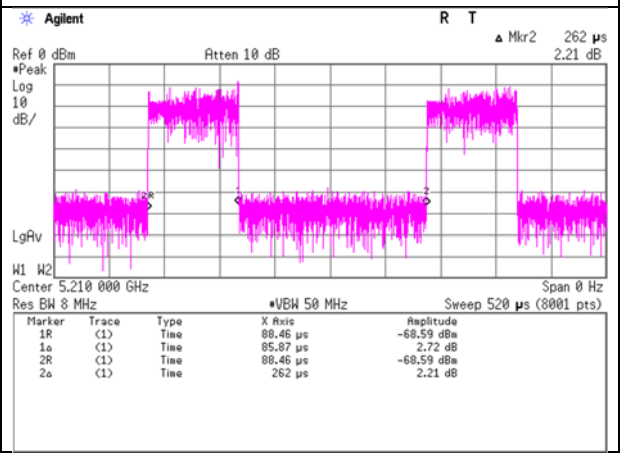

## 11n-40 MCS 6

| | |
|---|---|
| Tx on / (Tx on + Tx off) = | 0.436 |
| Tx on / (Tx on + Tx off) * 100 = | 43.6 % |
| Duty factor = 10 * log (314.4 / 137.2) = | 3.60 dB |




## 11ac-80 MCS 7

| | |
|---|---|
| Tx on / (Tx on + Tx off) = | 0.328 |
| Tx on / (Tx on + Tx off) * 100 = | 32.8 % |
| Duty factor = 10 * log (262 / 85.87) = | 4.84 dB |



# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 14, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 23 deg. C / 65 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Nachi Konegawa | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 18 GHz) | (18 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11a 5180 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5150.0 | 49.0 | 35.6 | 32.2 | 5.8 | 31.2 | - | 55.8 | 42.4 | 73.9 | 53.9 | 18.1 | 11.5 | |
| Hori. | 10360.0 | 42.3 | - | 39.7 | -1.9 | 32.9 | - | 47.2 | - | 68.2 | - | 21.0 | - | Floor noise |
| Hori. | 15540.0 | 43.3 | 35.0 | 38.0 | -0.7 | 32.5 | - | 48.1 | 39.8 | 73.9 | 53.9 | 25.8 | 14.1 | Floor noise |
| Hori. | 20720.0 | 44.1 | 36.4 | 37.9 | -1.8 | 33.0 | - | 47.2 | 39.5 | 73.9 | 53.9 | 26.7 | 14.4 | Floor noise |
| Hori. | 25900.0 | 47.2 | - | 39.4 | -0.6 | 32.4 | - | 53.5 | - | 68.2 | - | 14.7 | - | Floor noise |
| Vert. | 5150.0 | 49.5 | 34.4 | 32.2 | 5.8 | 31.2 | - | 56.3 | 41.2 | 73.9 | 53.9 | 17.6 | 12.7 | |
| Vert. | 10360.0 | 43.0 | - | 39.7 | -1.9 | 32.9 | - | 47.8 | - | 68.2 | - | 20.4 | - | Floor noise |
| Vert. | 15540.0 | 44.0 | 35.2 | 38.0 | -0.7 | 32.5 | - | 48.8 | 40.0 | 73.9 | 53.9 | 25.1 | 13.9 | Floor noise |
| Vert. | 20720.0 | 44.1 | 36.4 | 37.9 | -1.8 | 33.0 | - | 47.2 | 39.5 | 73.9 | 53.9 | 26.7 | 14.4 | Floor noise |
| Vert. | 25900.0 | 47.2 | - | 39.4 | -0.6 | 32.4 | - | 53.5 | - | 68.2 | - | 14.7 | - | Floor noise |

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

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

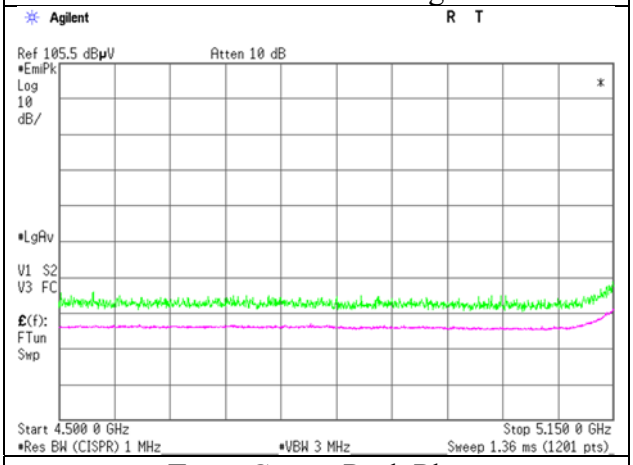
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| | (1 GHz - 10 GHz) |
| Mode | Tx 11a 5180 MHz |

Horizontal

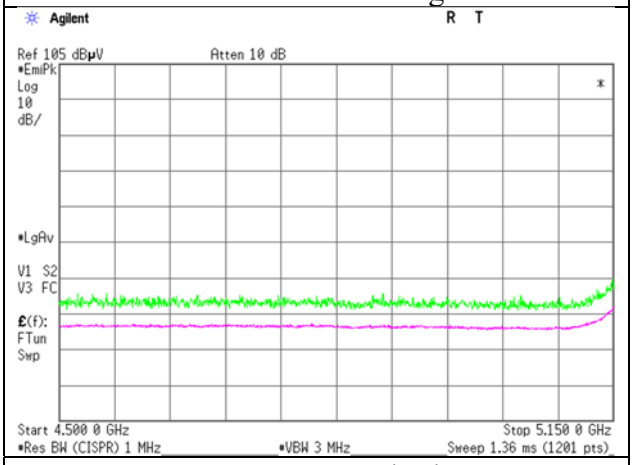
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 14, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 23 deg. C / 65 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Nachi Konegawa | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 18 GHz) | (18 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11a 5260 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 10520.0 | 42.1 | - | 39.7 | -1.8 | 33.0 | - | 47.0 | - | 68.2 | - | 21.2 | - | Floor noise |
| Hori. | 15780.0 | 43.3 | 35.1 | 37.8 | -0.7 | 32.5 | - | 47.9 | 39.6 | 73.9 | 53.9 | 26.0 | 14.3 | Floor noise |
| Hori. | 21040.0 | 43.7 | 35.8 | 38.0 | -1.8 | 33.1 | - | 46.8 | 38.9 | 73.9 | 53.9 | 27.1 | 15.0 | Floor noise |
| Hori. | 26300.0 | 47.0 | - | 39.3 | -0.7 | 32.3 | - | 53.3 | - | 68.2 | - | 14.9 | - | Floor noise |
| Vert. | 10520.0 | 42.6 | - | 39.7 | -1.8 | 33.0 | - | 47.5 | - | 68.2 | - | 20.8 | - | Floor noise |
| Vert. | 15780.0 | 43.7 | 35.2 | 37.8 | -0.7 | 32.5 | - | 48.3 | 39.8 | 73.9 | 53.9 | 25.6 | 14.1 | Floor noise |
| Vert. | 21040.0 | 43.7 | 35.8 | 38.0 | -1.8 | 33.1 | - | 46.8 | 38.9 | 73.9 | 53.9 | 27.1 | 15.0 | Floor noise |
| Vert. | 26300.0 | 47.0 | - | 39.3 | -0.7 | 32.3 | - | 53.3 | - | 68.2 | - | 14.9 | - | Floor noise |

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

*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.

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 14, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 23 deg. C / 65 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Nachi Konegawa | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 18 GHz) | (18 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11a 5320 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5350.0 | 48.6 | 37.4 | 31.8 | 5.9 | 31.2 | - | 55.1 | 43.8 | 73.9 | 53.9 | 18.8 | 10.1 | |
| Hori. | 10640.0 | 42.2 | 33.7 | 39.7 | -1.8 | 33.0 | - | 47.1 | 38.6 | 73.9 | 53.9 | 26.8 | 15.3 | Floor noise |
| Hori. | 15960.0 | 43.6 | 35.3 | 37.9 | -0.7 | 32.6 | - | 48.3 | 40.0 | 73.9 | 53.9 | 25.6 | 13.9 | Floor noise |
| Hori. | 21280.0 | 43.5 | 36.4 | 38.1 | -1.7 | 33.1 | - | 46.7 | 39.7 | 73.9 | 53.9 | 27.2 | 14.2 | Floor noise |
| Vert. | 5350.0 | 49.6 | 37.9 | 31.8 | 5.9 | 31.2 | - | 56.0 | 44.4 | 73.9 | 53.9 | 17.9 | 9.5 | |
| Vert. | 10640.0 | 42.5 | 33.8 | 39.7 | -1.8 | 33.0 | - | 47.3 | 38.7 | 73.9 | 53.9 | 26.6 | 15.3 | Floor noise |
| Vert. | 15960.0 | 43.7 | 35.6 | 37.9 | -0.7 | 32.6 | - | 48.4 | 40.3 | 73.9 | 53.9 | 25.5 | 13.6 | Floor noise |
| Vert. | 21280.0 | 43.5 | 36.4 | 38.1 | -1.7 | 33.1 | - | 46.7 | 39.7 | 73.9 | 53.9 | 27.2 | 14.2 | Floor noise |

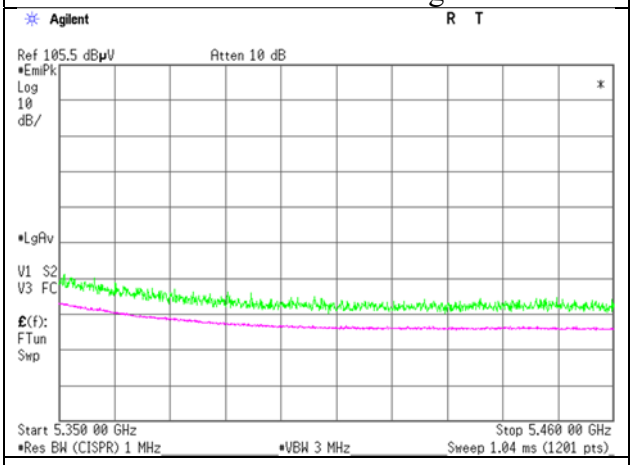
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

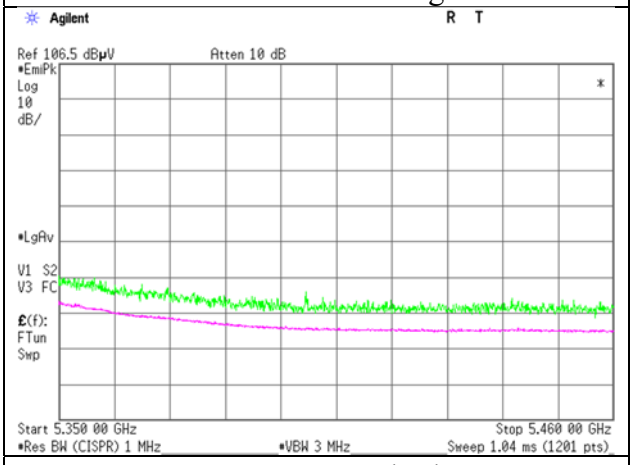
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11a 5320 MHz |

| Horizontal |
|---|
| Restricted-band band-edge Plot |
|  |
| Trace Green: Peak Plot<br>Trace Purple: Average Plot |



| Vertical |
|---|
| Restricted-band band-edge Plot |
|  |
| Trace Green: Peak Plot<br>Trace Purple: Average Plot |



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

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 14, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 23 deg. C / 65 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Nachi Konegawa | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 18 GHz) | (18 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11a 5500 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5460.0 | 44.3 | 35.1 | 32.0 | 5.9 | 31.3 | - | 51.0 | 41.8 | 73.9 | 53.9 | 22.9 | 12.1 | |
| Hori. | 5470.0 | 48.0 | - | 32.1 | 5.9 | 31.3 | - | 54.7 | - | 68.2 | - | 13.5 | - | |
| Hori. | 11000.0 | 42.8 | 34.2 | 39.9 | -1.6 | 33.2 | - | 47.9 | 39.3 | 73.9 | 53.9 | 26.0 | 14.6 | Floor noise |
| Hori. | 16500.0 | 43.3 | - | 39.5 | -0.6 | 32.6 | - | 49.5 | - | 68.2 | - | 18.7 | - | Floor noise |
| Hori. | 22000.0 | 45.3 | - | 38.1 | -1.6 | 33.1 | - | 48.7 | - | 68.2 | - | 19.5 | - | Floor noise |
| Vert. | 5460.0 | 45.3 | 35.6 | 32.0 | 5.9 | 31.3 | - | 52.0 | 42.3 | 73.9 | 53.9 | 21.9 | 11.6 | |
| Vert. | 5470.0 | 48.6 | - | 32.1 | 5.9 | 31.3 | - | 55.3 | - | 68.2 | - | 12.9 | - | |
| Vert. | 11000.0 | 43.2 | 34.2 | 39.9 | -1.6 | 33.2 | - | 48.3 | 39.3 | 73.9 | 53.9 | 25.7 | 14.6 | Floor noise |
| Vert. | 16500.0 | 43.4 | - | 39.5 | -0.6 | 32.6 | - | 49.6 | - | 68.2 | - | 18.6 | - | Floor noise |
| Vert. | 22000.0 | 45.3 | - | 38.1 | -1.6 | 33.1 | - | 48.7 | - | 68.2 | - | 19.5 | - | Floor noise |

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

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

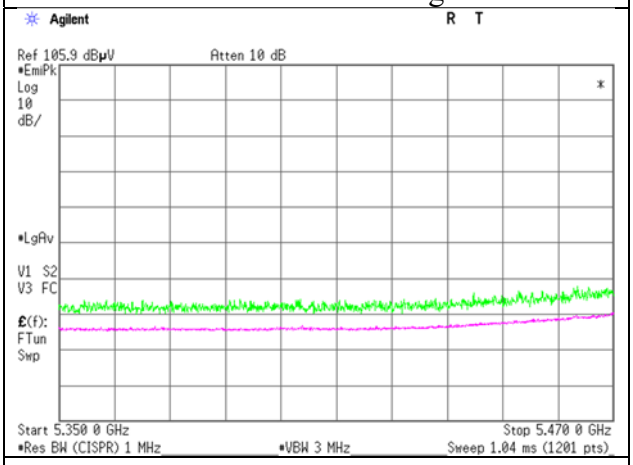
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11a 5500 MHz |

Horizontal

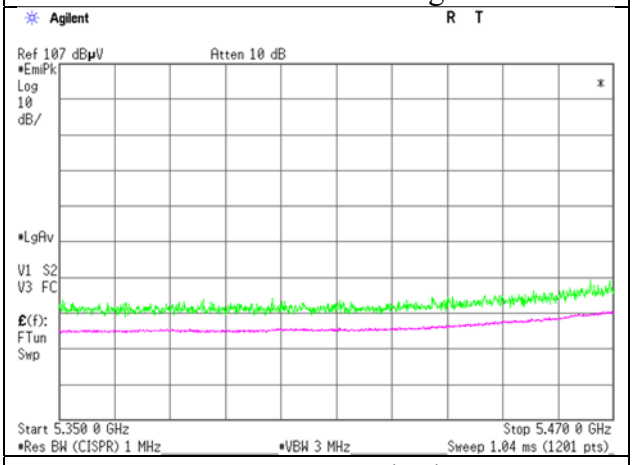
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 14, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 23 deg. C / 65 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Nachi Konegawa | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 18 GHz) | (18 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11a 5580 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 11160.0 | 42.7 | 34.8 | 39.7 | -1.7 | 33.1 | - | 47.5 | 39.7 | 73.9 | 53.9 | 26.4 | 14.2 | Floor noise |
| Hori. | 16740.0 | 43.1 | - | 40.2 | -0.6 | 32.6 | - | 50.1 | - | 73.9 | - | 23.8 | - | Floor noise |
| Hori. | 22320.0 | 45.6 | 37.4 | 38.2 | -1.5 | 33.2 | - | 49.1 | 40.8 | 73.9 | 53.9 | 24.9 | 13.1 | Floor noise |
| Vert. | 11160.0 | 42.8 | 34.8 | 39.7 | -1.7 | 33.1 | - | 47.7 | 39.7 | 73.9 | 53.9 | 26.2 | 14.2 | Floor noise |
| Vert. | 16740.0 | 43.3 | - | 40.2 | -0.6 | 32.6 | - | 50.3 | - | 73.9 | - | 23.7 | - | Floor noise |
| Vert. | 22320.0 | 45.6 | 37.4 | 38.2 | -1.5 | 33.2 | - | 49.1 | 40.8 | 73.9 | 53.9 | 24.9 | 13.1 | Floor noise |

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

*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.

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 14, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 23 deg. C / 65 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Nachi Konegawa | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 18 GHz) | (18 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11a 5700 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5725.0 | 48.4 | - | 32.4 | 6.1 | 31.3 | - | 55.6 | - | 68.2 | - | 12.6 | - | |
| Hori. | 11400.0 | 42.4 | 34.5 | 39.9 | -1.7 | 33.1 | - | 47.6 | 39.6 | 73.9 | 53.9 | 26.3 | 14.3 | Floor noise |
| Hori. | 17100.0 | 43.9 | - | 41.0 | -0.6 | 32.6 | - | 51.7 | - | 73.9 | - | 22.2 | - | Floor noise |
| Hori. | 22800.0 | 44.8 | 37.0 | 38.3 | -1.5 | 33.3 | - | 48.4 | 40.5 | 73.9 | 53.9 | 25.5 | 13.4 | Floor noise |
| Vert. | 5725.0 | 48.2 | - | 32.4 | 6.1 | 31.3 | - | 55.4 | - | 68.2 | - | 12.9 | - | |
| Vert. | 11400.0 | 42.7 | 34.6 | 39.9 | -1.7 | 33.1 | - | 47.9 | 39.8 | 73.9 | 53.9 | 26.0 | 14.1 | Floor noise |
| Vert. | 17100.0 | 44.0 | - | 41.0 | -0.6 | 32.6 | - | 51.9 | - | 73.9 | - | 22.1 | - | Floor noise |
| Vert. | 22800.0 | 44.8 | 37.0 | 38.3 | -1.5 | 33.3 | - | 48.4 | 40.5 | 73.9 | 53.9 | 25.5 | 13.4 | Floor noise |

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

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

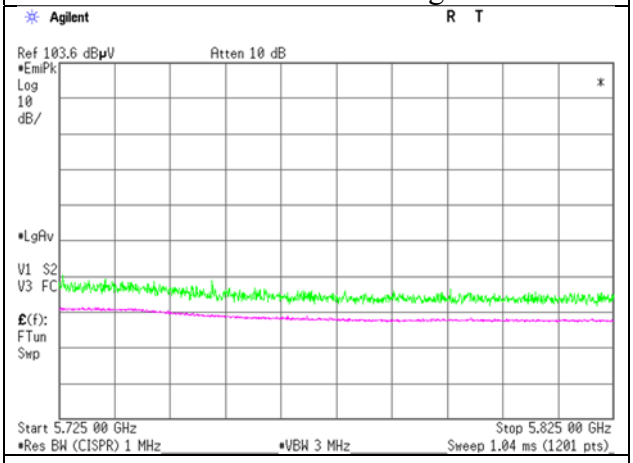
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11a 5700 MHz |

Horizontal

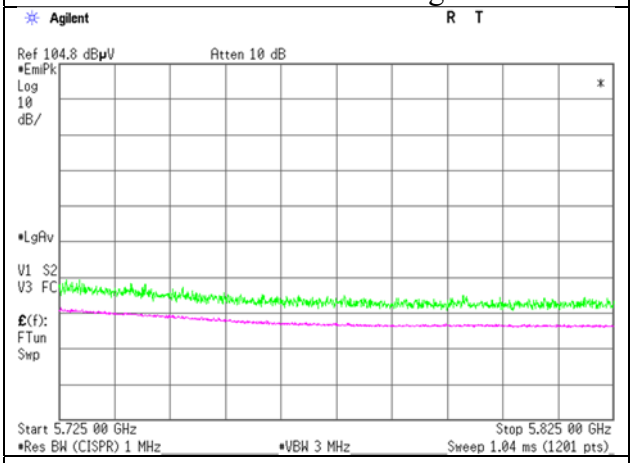
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 14, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 23 deg. C / 65 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Nachi Konegawa | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 18 GHz) | (18 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11a 5745 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5650.0 | 40.3 | - | 32.3 | 6.0 | 31.3 | - | 47.3 | - | 68.2 | - | 20.9 | - | |
| Hori. | 5700.0 | 43.2 | - | 32.4 | 6.0 | 31.3 | - | 50.2 | - | 105.2 | - | 55.0 | - | |
| Hori. | 5720.0 | 49.0 | - | 32.4 | 6.1 | 31.3 | - | 56.2 | - | 110.8 | - | 54.6 | - | |
| Hori. | 5725.0 | 53.9 | - | 32.4 | 6.1 | 31.3 | - | 61.0 | - | 122.2 | - | 61.2 | - | |
| Hori. | 11490.0 | 42.2 | 34.2 | 39.9 | -1.7 | 33.1 | - | 47.4 | 39.4 | 73.9 | 53.9 | 26.5 | 14.6 | Floor noise |
| Hori. | 17235.0 | 44.0 | - | 41.8 | -0.5 | 32.6 | - | 52.7 | - | 73.9 | - | 21.2 | - | Floor noise |
| Hori. | 22980.0 | 43.7 | 36.3 | 38.4 | -1.5 | 33.3 | - | 47.3 | 39.9 | 73.9 | 53.9 | 26.6 | 14.0 | Floor noise |
| Vert. | 5650.0 | 41.0 | - | 32.3 | 6.0 | 31.3 | - | 48.0 | - | 68.2 | - | 20.2 | - | |
| Vert. | 5700.0 | 44.2 | - | 32.4 | 6.0 | 31.3 | - | 51.3 | - | 105.2 | - | 53.9 | - | |
| Vert. | 5720.0 | 50.2 | - | 32.4 | 6.1 | 31.3 | - | 57.4 | - | 110.8 | - | 53.5 | - | |
| Vert. | 5725.0 | 54.8 | - | 32.4 | 6.1 | 31.3 | - | 62.0 | - | 122.2 | - | 60.2 | - | |
| Vert. | 11490.0 | 42.3 | 34.4 | 39.9 | -1.7 | 33.1 | - | 47.4 | 39.6 | 73.9 | 53.9 | 26.5 | 14.3 | Floor noise |
| Vert. | 17235.0 | 44.6 | - | 41.8 | -0.5 | 32.6 | - | 53.3 | - | 73.9 | - | 20.6 | - | Floor noise |
| Vert. | 22980.0 | 43.7 | 36.3 | 38.4 | -1.5 | 33.3 | - | 47.3 | 39.9 | 73.9 | 53.9 | 26.6 | 14.0 | Floor noise |

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

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

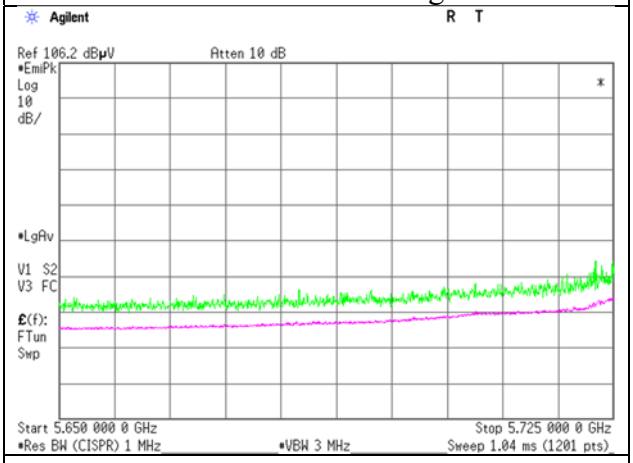
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11a 5745 MHz |

Horizontal

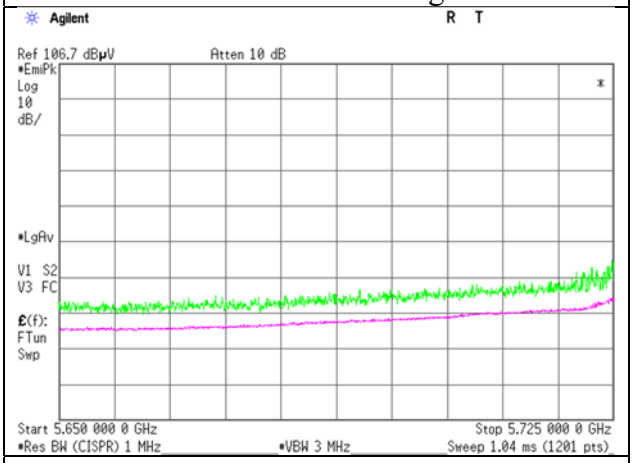
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 14, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 23 deg. C / 65 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Nachi Konegawa | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 18 GHz) | (18 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11a 5785 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 11570.0 | 41.5 | 33.5 | 39.7 | -1.7 | 33.0 | - | 46.5 | 38.5 | 73.9 | 53.9 | 27.4 | 15.5 | Floor noise |
| Hori. | 17355.0 | 44.1 | - | 42.8 | -0.5 | 32.6 | - | 53.8 | - | 73.9 | - | 20.1 | - | Floor noise |
| Hori. | 23140.0 | 44.7 | - | 38.5 | -1.4 | 33.3 | - | 48.4 | - | 68.2 | - | 19.8 | - | Floor noise |
| Vert. | 11570.0 | 42.1 | 33.7 | 39.7 | -1.7 | 33.0 | - | 47.1 | 38.7 | 73.9 | 53.9 | 26.8 | 15.2 | Floor noise |
| Vert. | 17355.0 | 44.3 | - | 42.8 | -0.5 | 32.6 | - | 54.0 | - | 73.9 | - | 19.9 | - | Floor noise |
| Vert. | 23140.0 | 44.7 | - | 38.5 | -1.4 | 33.3 | - | 48.4 | - | 68.2 | - | 19.8 | - | Floor noise |

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

*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.

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 14, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 23 deg. C / 65 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Nachi Konegawa | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 18 GHz) | (18 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11a 5825 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5850.0 | 53.1 | - | 32.7 | 6.1 | 31.4 | - | 60.6 | - | 122.2 | - | 61.6 | - | |
| Hori. | 5855.0 | 51.3 | - | 32.7 | 6.1 | 31.4 | - | 58.8 | - | 110.8 | - | 52.0 | - | |
| Hori. | 5875.0 | 42.2 | - | 32.7 | 6.1 | 31.4 | - | 49.7 | - | 105.2 | - | 55.5 | - | |
| Hori. | 5925.0 | 40.7 | - | 32.7 | 6.1 | 31.4 | - | 48.2 | - | 68.2 | - | 20.0 | - | |
| Hori. | 11650.0 | 42.1 | 34.0 | 39.4 | -1.7 | 33.0 | - | 46.8 | 38.7 | 73.9 | 53.9 | 27.1 | 15.2 | Floor noise |
| Hori. | 17475.0 | 43.4 | - | 43.8 | -0.5 | 32.6 | - | 54.1 | - | 73.9 | - | 19.8 | - | Floor noise |
| Hori. | 23300.0 | 44.5 | - | 38.6 | -1.4 | 33.4 | - | 48.3 | - | 68.2 | - | 19.9 | - | Floor noise |
| Vert. | 5850.0 | 54.9 | - | 32.7 | 6.1 | 31.4 | - | 62.4 | - | 122.2 | - | 59.8 | - | |
| Vert. | 5855.0 | 52.1 | - | 32.7 | 6.1 | 31.4 | - | 59.6 | - | 110.8 | - | 51.2 | - | |
| Vert. | 5875.0 | 42.7 | - | 32.7 | 6.1 | 31.4 | - | 50.1 | - | 105.2 | - | 55.1 | - | |
| Vert. | 5925.0 | 41.0 | - | 32.7 | 6.1 | 31.4 | - | 48.5 | - | 68.2 | - | 19.7 | - | |
| Vert. | 11650.0 | 42.1 | 34.0 | 39.4 | -1.7 | 33.0 | - | 46.8 | 38.7 | 73.9 | 53.9 | 27.1 | 15.2 | Floor noise |
| Vert. | 17475.0 | 43.7 | - | 43.8 | -0.5 | 32.6 | - | 54.4 | - | 73.9 | - | 19.5 | - | Floor noise |
| Vert. | 23300.0 | 44.5 | - | 38.6 | -1.4 | 33.4 | - | 48.3 | - | 68.2 | - | 19.9 | - | Floor noise |

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

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

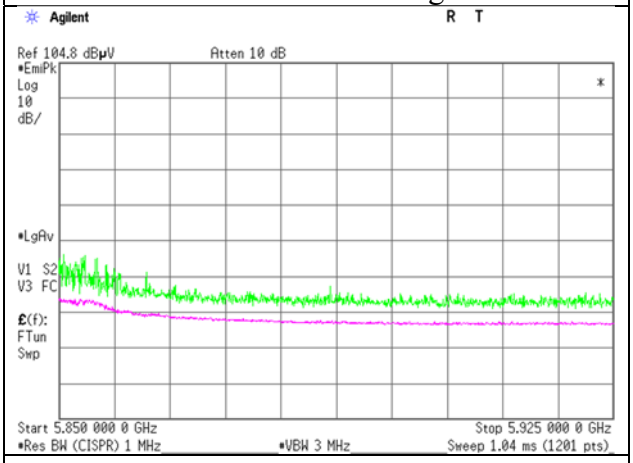
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11a 5825 MHz |

Horizontal

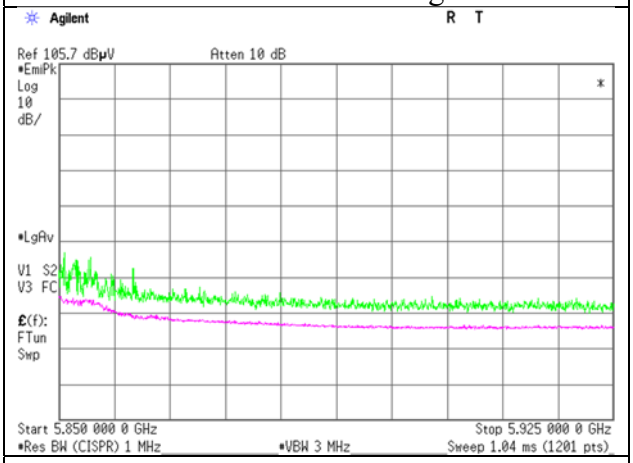
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-20 5180 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5150.0 | 50.2 | 39.8 | 32.2 | 5.8 | 31.2 | - | 57.0 | 46.7 | 73.9 | 53.9 | 16.9 | 7.2 | |
| Hori. | 10360.0 | 41.3 | - | 39.7 | -1.9 | 32.9 | - | 46.2 | - | 68.2 | - | 22.0 | - | Floor noise |
| Hori. | 15540.0 | 42.8 | 35.1 | 38.0 | -0.7 | 32.5 | - | 47.6 | 39.9 | 73.9 | 53.9 | 26.3 | 14.0 | Floor noise |
| Hori. | 20720.0 | 44.1 | 36.4 | 37.9 | -1.8 | 33.0 | - | 47.2 | 39.5 | 73.9 | 53.9 | 26.7 | 14.4 | Floor noise |
| Hori. | 25900.0 | 47.4 | - | 39.4 | -0.6 | 32.4 | - | 53.7 | - | 68.2 | - | 14.5 | - | Floor noise |
| Vert. | 5150.0 | 48.3 | 36.5 | 32.2 | 5.8 | 31.2 | - | 55.2 | 43.3 | 73.9 | 53.9 | 18.7 | 10.6 | |
| Vert. | 10360.0 | 41.3 | - | 39.7 | -1.9 | 32.9 | - | 46.2 | - | 68.2 | - | 22.0 | - | Floor noise |
| Vert. | 15540.0 | 42.8 | 35.1 | 38.0 | -0.7 | 32.5 | - | 47.6 | 39.9 | 73.9 | 53.9 | 26.3 | 14.0 | Floor noise |
| Vert. | 20720.0 | 44.1 | 36.4 | 37.9 | -1.8 | 33.0 | - | 47.2 | 39.5 | 73.9 | 53.9 | 26.7 | 14.4 | Floor noise |
| Vert. | 25900.0 | 47.4 | - | 39.4 | -0.6 | 32.4 | - | 53.7 | - | 68.2 | - | 14.5 | - | Floor noise |

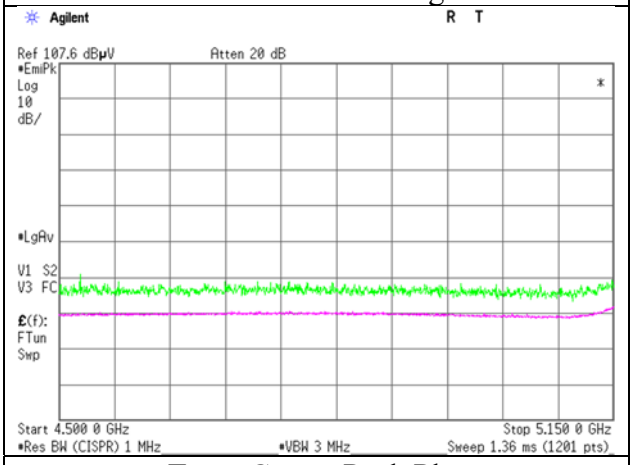
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

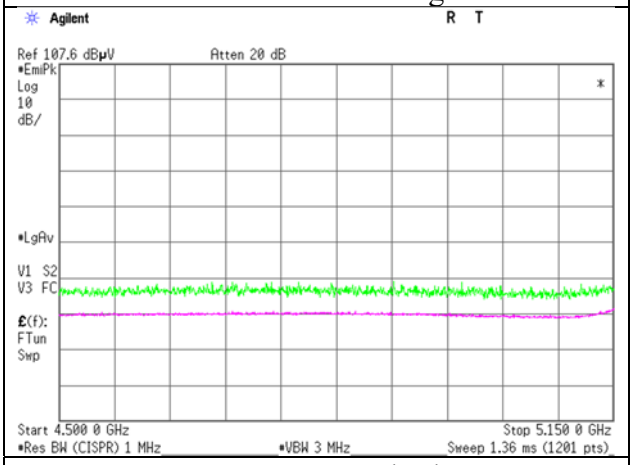
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| | (1 GHz - 10 GHz) |
| Mode | Tx 11n-20 5180 MHz |

| Horizontal |
|---|
| Restricted-band band-edge Plot |
|  |
| Trace Green: Peak Plot<br>Trace Purple: Average Plot |



| Vertical |
|---|
| Restricted-band band-edge Plot |
|  |
| Trace Green: Peak Plot<br>Trace Purple: Average Plot |



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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-20 5260 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 10520.0 | 41.0 | - | 39.7 | -1.8 | 33.0 | - | 45.9 | - | 68.2 | - | 22.3 | - | Floor noise |
| Hori. | 15780.0 | 42.4 | 35.1 | 37.8 | -0.7 | 32.5 | - | 47.0 | 39.7 | 73.9 | 53.9 | 26.9 | 14.2 | Floor noise |
| Hori. | 21040.0 | 43.7 | 35.7 | 38.0 | -1.8 | 33.1 | - | 46.9 | 38.8 | 73.9 | 53.9 | 27.0 | 15.1 | Floor noise |
| Hori. | 26300.0 | 46.6 | - | 39.3 | -0.7 | 32.3 | - | 52.9 | - | 68.2 | - | 15.3 | - | Floor noise |
| Vert. | 10520.0 | 41.0 | - | 39.7 | -1.8 | 33.0 | - | 45.9 | - | 68.2 | - | 22.3 | - | Floor noise |
| Vert. | 15780.0 | 42.4 | 35.1 | 37.8 | -0.7 | 32.5 | - | 47.0 | 39.7 | 73.9 | 53.9 | 26.9 | 14.2 | Floor noise |
| Vert. | 21040.0 | 43.7 | 35.7 | 38.0 | -1.8 | 33.1 | - | 46.9 | 38.8 | 73.9 | 53.9 | 27.0 | 15.1 | Floor noise |
| Vert. | 26300.0 | 46.6 | - | 39.3 | -0.7 | 32.3 | - | 52.9 | - | 68.2 | - | 15.3 | - | Floor noise |

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

*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.

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-20 5320 MHz | | |

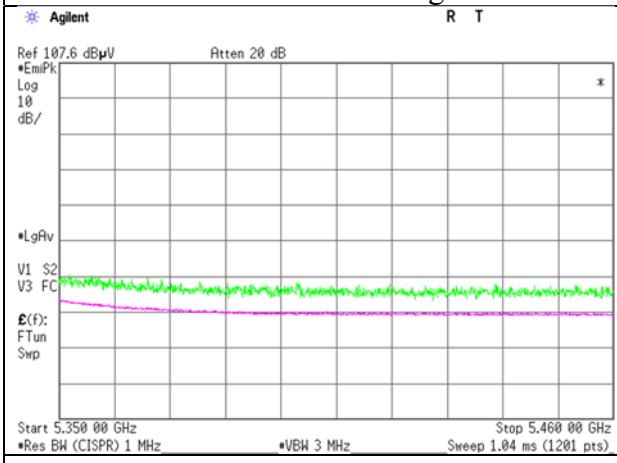
| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5350.0 | 50.2 | 38.8 | 31.8 | 5.9 | 31.2 | - | 56.6 | 45.3 | 73.9 | 53.9 | 17.3 | 8.6 | |
| Hori. | 10640.0 | 41.2 | 35.3 | 39.7 | -1.8 | 33.0 | - | 46.0 | 40.2 | 73.9 | 53.9 | 27.9 | 13.7 | Floor noise |
| Hori. | 15960.0 | 42.7 | 35.4 | 37.9 | -0.7 | 32.6 | - | 47.4 | 40.1 | 73.9 | 53.9 | 26.5 | 13.8 | Floor noise |
| Hori. | 21280.0 | 43.6 | 36.5 | 38.1 | -1.7 | 33.1 | - | 46.9 | 39.8 | 73.9 | 53.9 | 27.0 | 14.1 | Floor noise |
| Vert. | 5350.0 | 49.1 | 38.2 | 31.8 | 5.9 | 31.2 | - | 55.5 | 44.7 | 73.9 | 53.9 | 18.4 | 9.2 | |
| Vert. | 10640.0 | 41.2 | 35.3 | 39.7 | -1.8 | 33.0 | - | 46.0 | 40.2 | 73.9 | 53.9 | 27.9 | 13.7 | Floor noise |
| Vert. | 15960.0 | 42.7 | 35.4 | 37.9 | -0.7 | 32.6 | - | 47.4 | 40.1 | 73.9 | 53.9 | 26.5 | 13.8 | Floor noise |
| Vert. | 21280.0 | 43.6 | 36.5 | 38.1 | -1.7 | 33.1 | - | 46.9 | 39.8 | 73.9 | 53.9 | 27.0 | 14.1 | Floor noise |

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11n-20 5320 MHz |

Horizontal

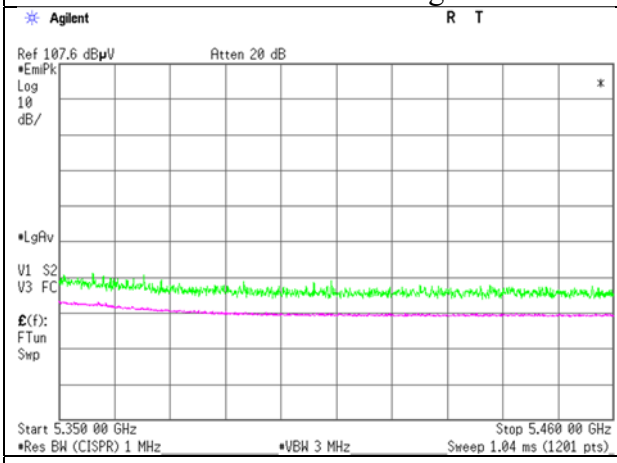
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-20 5500 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5460.0 | 43.7 | 36.5 | 32.0 | 5.9 | 31.3 | - | 50.4 | 43.2 | 73.9 | 53.9 | 23.5 | 10.8 | |
| Hori. | 5470.0 | 48.5 | 38.0 | 32.1 | 5.9 | 31.3 | - | 55.2 | 44.7 | 68.2 | - | 13.0 | - | |
| Hori. | 11000.0 | 41.6 | 34.4 | 39.9 | -1.6 | 33.2 | - | 46.7 | 39.5 | 73.9 | 53.9 | 27.2 | 14.5 | Floor noise |
| Hori. | 16500.0 | 43.1 | - | 39.5 | -0.6 | 32.6 | - | 49.3 | - | 68.2 | - | 18.9 | - | Floor noise |
| Hori. | 22000.0 | 45.6 | - | 38.1 | -1.6 | 33.1 | - | 49.0 | - | 68.2 | - | 19.2 | - | Floor noise |
| Vert. | 5460.0 | 44.3 | 36.0 | 32.0 | 5.9 | 31.3 | - | 51.0 | 42.7 | 73.9 | 53.9 | 22.9 | 11.2 | |
| Vert. | 5470.0 | 50.2 | 38.4 | 32.1 | 5.9 | 31.3 | - | 56.9 | 45.1 | 68.2 | - | 11.3 | - | |
| Vert. | 11000.0 | 41.6 | 34.4 | 39.9 | -1.6 | 33.2 | - | 46.7 | 39.5 | 73.9 | 53.9 | 27.2 | 14.5 | Floor noise |
| Vert. | 16500.0 | 43.1 | - | 39.5 | -0.6 | 32.6 | - | 49.3 | - | 68.2 | - | 18.9 | - | Floor noise |
| Vert. | 22000.0 | 45.6 | - | 38.1 | -1.6 | 33.1 | - | 49.0 | - | 68.2 | - | 19.2 | - | Floor noise |

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

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

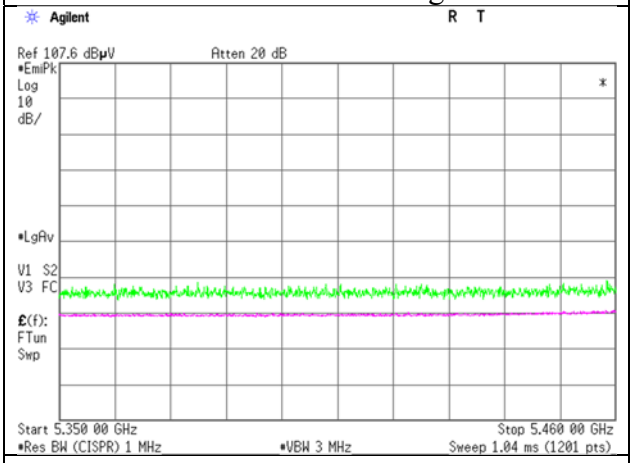
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11n-20 5500 MHz |

Horizontal

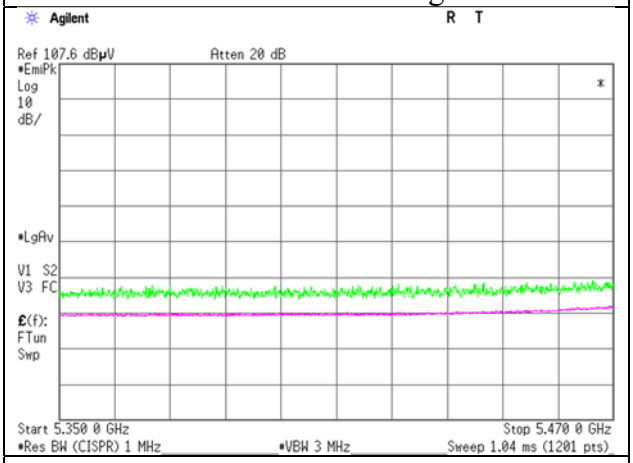
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-20 5580 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 11160.0 | 41.9 | 34.7 | 39.7 | -1.7 | 33.1 | - | 46.8 | 39.6 | 73.9 | 53.9 | 27.1 | 14.3 | Floor noise |
| Hori. | 16740.0 | 42.8 | 34.9 | 40.2 | -0.6 | 32.6 | - | 49.8 | 41.8 | 73.9 | 53.9 | 24.1 | 12.1 | Floor noise |
| Hori. | 22320.0 | 45.6 | 37.8 | 38.2 | -1.5 | 33.2 | - | 49.1 | 41.3 | 73.9 | 53.9 | 24.8 | 12.6 | Floor noise |
| Vert. | 11160.0 | 41.9 | 34.7 | 39.7 | -1.7 | 33.1 | - | 46.8 | 39.6 | 73.9 | 53.9 | 27.1 | 14.3 | Floor noise |
| Vert. | 16740.0 | 42.8 | 34.9 | 40.2 | -0.6 | 32.6 | - | 49.8 | 41.8 | 73.9 | 53.9 | 24.1 | 12.1 | Floor noise |
| Vert. | 22320.0 | 45.6 | 37.8 | 38.2 | -1.5 | 33.2 | - | 49.1 | 41.3 | 73.9 | 53.9 | 24.8 | 12.6 | Floor noise |

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

*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.

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-20 5700 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5725.0 | 46.7 | - | 32.4 | 6.1 | 31.3 | - | 53.9 | - | 68.2 | - | 14.3 | - | |
| Hori. | 11400.0 | 42.1 | 34.3 | 39.9 | -1.7 | 33.1 | - | 47.3 | 39.5 | 73.9 | 53.9 | 26.6 | 14.4 | Floor noise |
| Hori. | 17100.0 | 42.7 | - | 41.0 | -0.6 | 32.6 | - | 50.6 | - | 68.2 | - | 17.7 | - | Floor noise |
| Hori. | 22800.0 | 44.9 | 36.3 | 38.3 | -1.5 | 33.3 | - | 48.5 | 39.8 | 73.9 | 53.9 | 25.5 | 14.1 | Floor noise |
| Vert. | 5725.0 | 49.1 | - | 32.4 | 6.1 | 31.3 | - | 56.2 | - | 68.2 | - | 12.0 | - | |
| Vert. | 11400.0 | 42.1 | 34.3 | 39.9 | -1.7 | 33.1 | - | 47.3 | 39.5 | 73.9 | 53.9 | 26.6 | 14.4 | Floor noise |
| Vert. | 17100.0 | 42.7 | - | 41.0 | -0.6 | 32.6 | - | 50.6 | - | 68.2 | - | 17.7 | - | Floor noise |
| Vert. | 22800.0 | 44.9 | 36.3 | 38.3 | -1.5 | 33.3 | - | 48.5 | 39.8 | 73.9 | 53.9 | 25.5 | 14.1 | Floor noise |

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

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

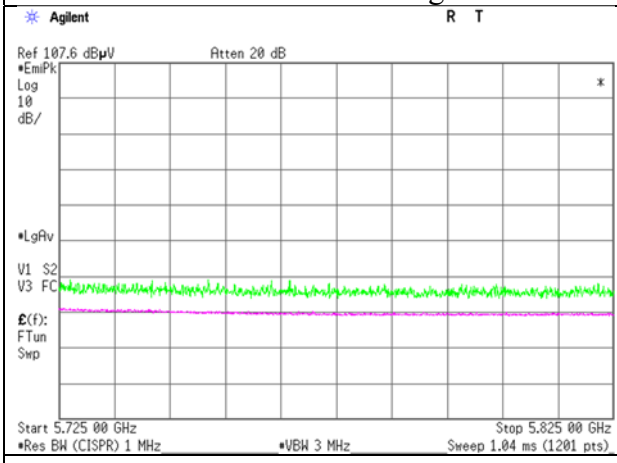
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11n-20 5700 MHz |

Horizontal

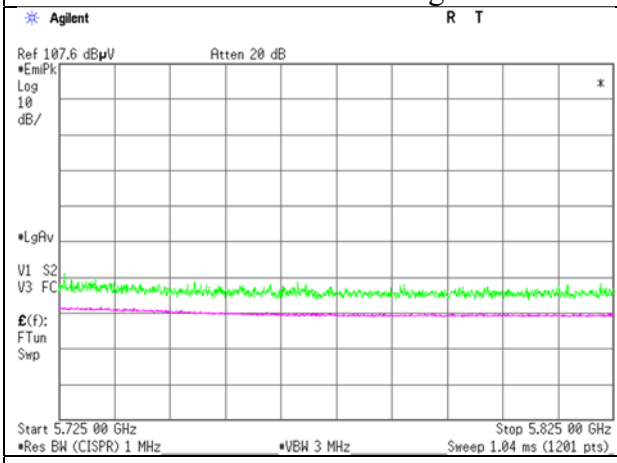
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-20 5745 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5650.0 | 40.8 | - | 32.3 | 6.0 | 31.3 | - | 47.8 | - | 68.2 | - | 20.4 | - | |
| Hori. | 5700.0 | 43.0 | - | 32.4 | 6.0 | 31.3 | - | 50.1 | - | 105.2 | - | 55.1 | - | |
| Hori. | 5720.0 | 48.2 | - | 32.4 | 6.1 | 31.3 | - | 55.4 | - | 110.8 | - | 55.5 | - | |
| Hori. | 5725.0 | 48.4 | - | 32.4 | 6.1 | 31.3 | - | 55.6 | - | 122.2 | - | 66.7 | - | |
| Hori. | 11490.0 | 42.1 | 34.3 | 39.9 | -1.7 | 33.1 | - | 47.3 | 39.5 | 73.9 | 53.9 | 26.6 | 14.4 | Floor noise |
| Hori. | 17235.0 | 43.6 | - | 41.8 | -0.5 | 32.6 | - | 52.3 | - | 68.2 | - | 15.9 | - | Floor noise |
| Hori. | 22980.0 | 43.1 | 36.4 | 38.4 | -1.5 | 33.3 | - | 46.7 | 40.0 | 73.9 | 53.9 | 27.2 | 13.9 | Floor noise |
| Vert. | 5650.0 | 41.8 | - | 32.3 | 6.0 | 31.3 | - | 48.8 | - | 68.2 | - | 19.4 | - | |
| Vert. | 5700.0 | 43.8 | - | 32.4 | 6.0 | 31.3 | - | 50.9 | - | 105.2 | - | 54.3 | - | |
| Vert. | 5720.0 | 47.9 | - | 32.4 | 6.1 | 31.3 | - | 55.0 | - | 110.8 | - | 55.8 | - | |
| Vert. | 5725.0 | 48.5 | - | 32.4 | 6.1 | 31.3 | - | 55.7 | - | 122.2 | - | 66.5 | - | Floor noise |
| Vert. | 11490.0 | 42.1 | 34.3 | 39.9 | -1.7 | 33.1 | - | 47.3 | 39.5 | 73.9 | 53.9 | 26.6 | 14.4 | Floor noise |
| Vert. | 17235.0 | 43.6 | - | 41.8 | -0.5 | 32.6 | - | 52.3 | - | 68.2 | - | 15.9 | - | Floor noise |
| Vert. | 22980.0 | 43.1 | 36.4 | 38.4 | -1.5 | 33.3 | - | 46.7 | 40.0 | 73.9 | 53.9 | 27.2 | 13.9 | Floor noise |

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

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

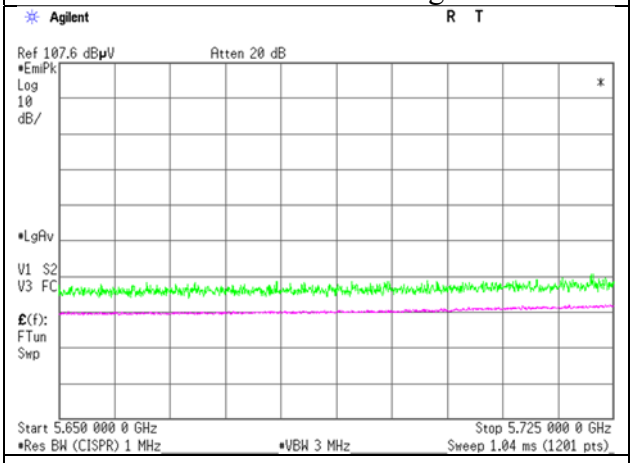
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11n-20 5745 MHz |

Horizontal

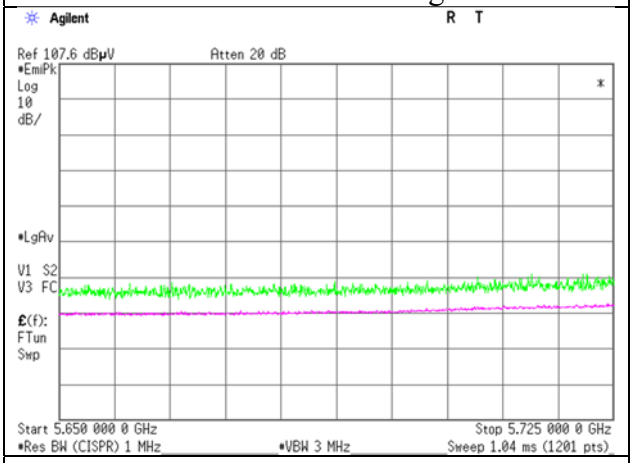
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-20 5785 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 11570.0 | 42.3 | 35.0 | 39.7 | -1.7 | 33.0 | - | 47.3 | 40.0 | 73.9 | 53.9 | 26.6 | 13.9 | Floor noise |
| Hori. | 17355.0 | 43.7 | - | 42.8 | -0.5 | 32.6 | - | 53.4 | - | 68.2 | - | 14.8 | - | Floor noise |
| Hori. | 23140.0 | 44.5 | - | 38.5 | -1.4 | 33.3 | - | 48.2 | - | 68.2 | - | 20.0 | - | Floor noise |
| Vert. | 11570.0 | 42.3 | 35.0 | 39.7 | -1.7 | 33.0 | - | 47.3 | 40.0 | 73.9 | 53.9 | 26.6 | 13.9 | Floor noise |
| Vert. | 17355.0 | 43.7 | - | 42.8 | -0.5 | 32.6 | - | 53.4 | - | 68.2 | - | 14.8 | - | Floor noise |
| Vert. | 23140.0 | 44.5 | - | 38.5 | -1.4 | 33.3 | - | 48.2 | - | 68.2 | - | 20.0 | - | Floor noise |

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

*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.

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Hiroki Numata | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-20 5825 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5850.0 | 52.5 | - | 32.7 | 6.1 | 31.4 | - | 59.9 | - | 122.2 | - | 62.3 | - | |
| Hori. | 5855.0 | 49.1 | - | 32.7 | 6.1 | 31.4 | - | 56.5 | - | 110.8 | - | 54.3 | - | |
| Hori. | 5875.0 | 42.5 | - | 32.7 | 6.1 | 31.4 | - | 49.9 | - | 105.2 | - | 55.3 | - | |
| Hori. | 5925.0 | 41.1 | - | 32.7 | 6.1 | 31.4 | - | 48.6 | - | 68.2 | - | 19.6 | - | |
| Hori. | 11650.0 | 42.5 | 35.1 | 39.4 | -1.7 | 33.0 | - | 47.2 | 39.8 | 73.9 | 53.9 | 26.7 | 14.1 | Floor noise |
| Hori. | 17475.0 | 43.8 | - | 43.8 | -0.5 | 32.6 | - | 54.4 | - | 68.2 | - | 13.8 | - | Floor noise |
| Hori. | 23300.0 | 44.7 | - | 38.6 | -1.4 | 33.4 | - | 48.5 | - | 68.2 | - | 19.7 | - | Floor noise |
| Vert. | 5850.0 | 54.4 | - | 32.7 | 6.1 | 31.4 | - | 61.8 | - | 122.2 | - | 60.4 | - | |
| Vert. | 5855.0 | 50.1 | - | 32.7 | 6.1 | 31.4 | - | 57.5 | - | 110.8 | - | 53.3 | - | |
| Vert. | 5875.0 | 41.7 | - | 32.7 | 6.1 | 31.4 | - | 49.2 | - | 105.2 | - | 56.0 | - | |
| Vert. | 5925.0 | 40.9 | - | 32.7 | 6.1 | 31.4 | - | 48.4 | - | 68.2 | - | 19.9 | - | |
| Vert. | 11650.0 | 42.5 | 35.1 | 39.4 | -1.7 | 33.0 | - | 47.2 | 39.8 | 73.9 | 53.9 | 26.7 | 14.1 | Floor noise |
| Vert. | 17475.0 | 43.8 | - | 43.8 | -0.5 | 32.6 | - | 54.4 | - | 68.2 | - | 13.8 | - | Floor noise |
| Vert. | 23300.0 | 44.7 | - | 38.6 | -1.4 | 33.4 | - | 48.5 | - | 68.2 | - | 19.7 | - | Floor noise |

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

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

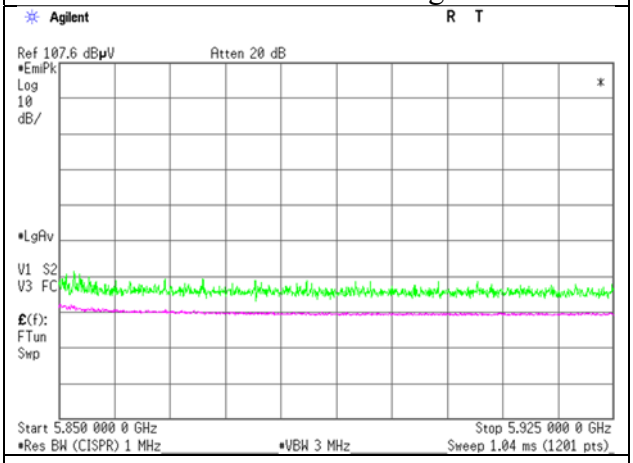
*QP detector was used up to 1GHz.

## Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12, 2021 |
| Temperature / Humidity | 23 deg. C / 57 % RH |
| Engineer | Hiroki Numata |
| Mode | Tx 11n-20 5825 MHz |

Horizontal

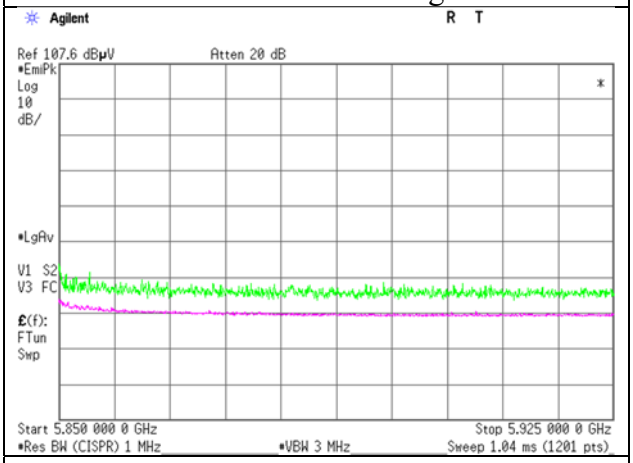
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12_N, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Kiyoshiro Okazaki (1 GHz - 10 GHz) | Kiyoshiro Okazaki (10 GHz - 26.5 GHz) | Nachi Konegawa (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-40 5190 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5150.0 | 55.8 | 45.8 | 32.2 | 5.8 | 31.2 | - | 62.7 | 52.7 | 73.9 | 53.9 | 11.2 | 1.2 | |
| Hori. | 10380.0 | 41.8 | - | 39.7 | -1.9 | 32.9 | - | 46.6 | - | 68.2 | - | 21.6 | - | Floor noise |
| Hori. | 15570.0 | 42.8 | 35.1 | 38.0 | -0.7 | 32.5 | - | 47.6 | 39.9 | 73.9 | 53.9 | 26.3 | 14.0 | Floor noise |
| Hori. | 20760.0 | 44.1 | 36.8 | 37.9 | -1.8 | 33.0 | - | 47.2 | 39.9 | 73.9 | 53.9 | 26.7 | 14.1 | Floor noise |
| Hori. | 25950.0 | 47.8 | - | 39.4 | -0.6 | 32.4 | - | 54.2 | - | 68.2 | - | 14.0 | - | Floor noise |
| Vert. | 5150.0 | 58.2 | 43.8 | 32.2 | 5.8 | 31.2 | - | 65.0 | 50.6 | 73.9 | 53.9 | 8.9 | 3.3 | |
| Vert. | 10380.0 | 41.8 | - | 39.7 | -1.9 | 32.9 | - | 46.6 | - | 68.2 | - | 21.6 | - | Floor noise |
| Vert. | 15570.0 | 42.8 | 35.1 | 38.0 | -0.7 | 32.5 | - | 47.6 | 39.9 | 73.9 | 53.9 | 26.3 | 14.0 | Floor noise |
| Vert. | 20760.0 | 44.1 | 36.8 | 37.9 | -1.8 | 33.0 | - | 47.2 | 39.9 | 73.9 | 53.9 | 26.7 | 14.1 | Floor noise |
| Vert. | 25950.0 | 47.8 | - | 39.4 | -0.6 | 32.4 | - | 54.2 | - | 68.2 | - | 14.0 | - | Floor noise |

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

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

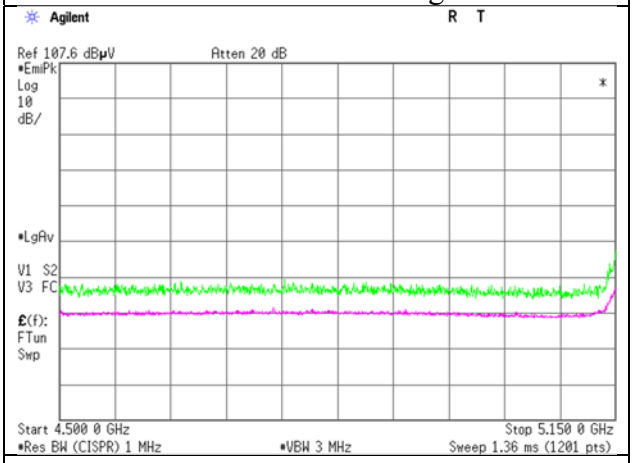
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12_N, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH |
| Engineer | Kiyoshiro Okazaki |
| Mode | Tx 11n-40 5190 MHz |

Horizontal

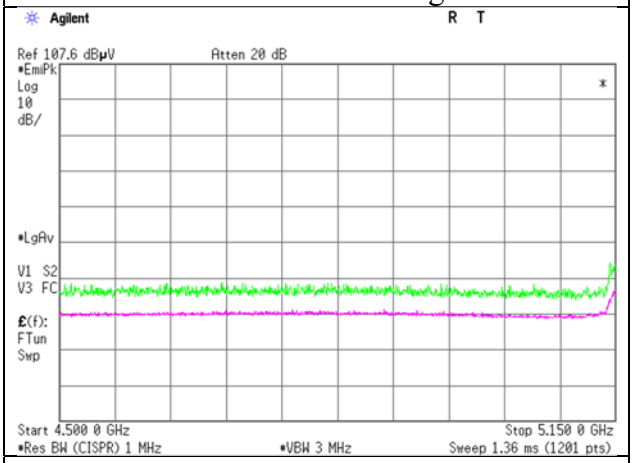
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12_N, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Kiyoshiro Okazaki | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-40 5270 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 10540.0 | 42.1 | - | 39.7 | -1.8 | 33.0 | - | 47.0 | - | 68.2 | - | 21.2 | - | Floor noise |
| Hori. | 15810.0 | 42.8 | 35.1 | 37.8 | -0.7 | 32.5 | - | 47.3 | 39.6 | 73.9 | 53.9 | 26.6 | 14.3 | Floor noise |
| Hori. | 21080.0 | 43.5 | 35.8 | 38.0 | -1.7 | 33.1 | - | 46.7 | 39.0 | 73.9 | 53.9 | 27.2 | 14.9 | Floor noise |
| Hori. | 26350.0 | 46.9 | - | 39.4 | -0.7 | 32.3 | - | 53.2 | - | 68.2 | - | 15.0 | - | Floor noise |
| Vert. | 10540.0 | 42.1 | - | 39.7 | -1.8 | 33.0 | - | 47.0 | - | 68.2 | - | 21.2 | - | Floor noise |
| Vert. | 15810.0 | 42.8 | 35.1 | 37.8 | -0.7 | 32.5 | - | 47.3 | 39.6 | 73.9 | 53.9 | 26.6 | 14.3 | Floor noise |
| Vert. | 21080.0 | 43.5 | 35.8 | 38.0 | -1.7 | 33.1 | - | 46.7 | 39.0 | 73.9 | 53.9 | 27.2 | 14.9 | Floor noise |
| Vert. | 26350.0 | 46.9 | - | 39.4 | -0.7 | 32.3 | - | 53.2 | - | 68.2 | - | 15.0 | - | Floor noise |

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

*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.

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12_N, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Kiyoshiro Okazaki | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-40 5310 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5350.0 | 52.6 | 43.8 | 31.8 | 5.9 | 31.2 | - | 59.0 | 50.3 | 73.9 | 53.9 | 14.9 | 3.6 | |
| Hori. | 10620.0 | 41.2 | 35.4 | 39.7 | -1.8 | 33.0 | - | 46.1 | 40.3 | 73.9 | 53.9 | 27.9 | 13.6 | Floor noise |
| Hori. | 15930.0 | 42.7 | 35.4 | 37.9 | -0.7 | 32.6 | - | 47.4 | 40.1 | 73.9 | 53.9 | 26.5 | 13.9 | Floor noise |
| Hori. | 21240.0 | 43.6 | 35.8 | 38.1 | -1.7 | 33.1 | - | 46.9 | 39.1 | 73.9 | 53.9 | 27.1 | 14.9 | Floor noise |
| Vert. | 5350.0 | 53.5 | 42.3 | 31.8 | 5.9 | 31.2 | - | 60.0 | 48.7 | 73.9 | 53.9 | 13.9 | 5.2 | |
| Vert. | 10620.0 | 41.2 | 35.4 | 39.7 | -1.8 | 33.0 | - | 46.1 | 40.3 | 73.9 | 53.9 | 27.9 | 13.6 | Floor noise |
| Vert. | 15930.0 | 42.7 | 35.4 | 37.9 | -0.7 | 32.6 | - | 47.4 | 40.1 | 73.9 | 53.9 | 26.5 | 13.9 | Floor noise |
| Vert. | 21240.0 | 43.6 | 35.8 | 38.1 | -1.7 | 33.1 | - | 46.9 | 39.1 | 73.9 | 53.9 | 27.1 | 14.9 | Floor noise |

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

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

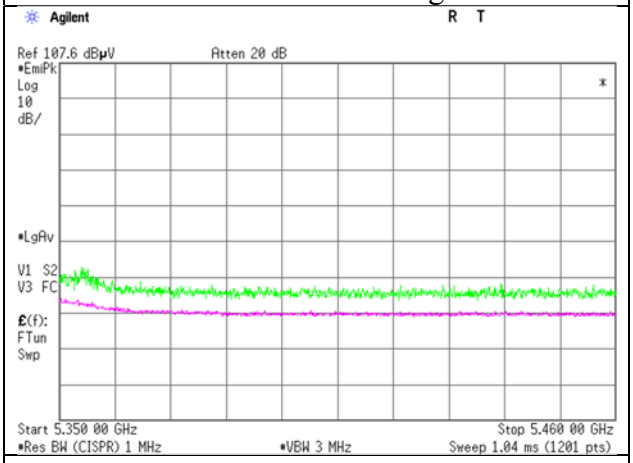
*QP detector was used up to 1GHz.

## Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12_N, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH |
| Engineer | Kiyoshiro Okazaki |
| Mode | Tx 11n-40 5310 MHz |

Horizontal

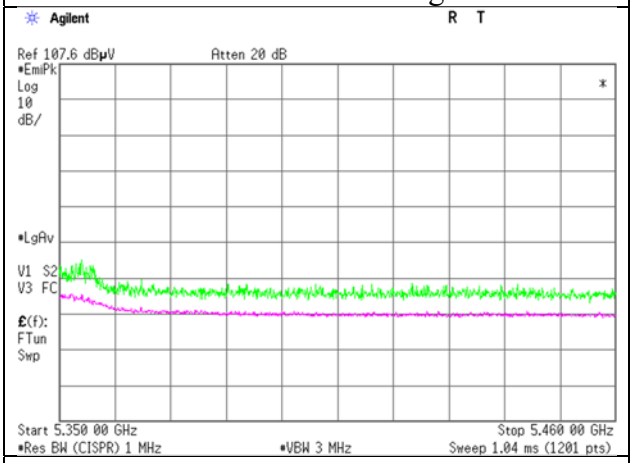
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12_N, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Kiyoshiro Okazaki | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-40 5510 MHz | | |

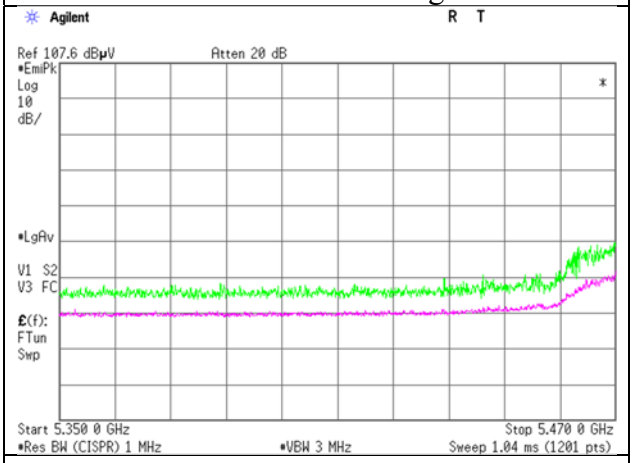
| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5460.0 | 54.3 | 45.3 | 32.0 | 5.9 | 31.3 | - | 61.0 | 52.0 | 73.9 | 53.9 | 12.9 | 1.9 | |
| Hori. | 5470.0 | 59.3 | - | 32.1 | 5.9 | 31.3 | - | 66.0 | - | 68.2 | - | 2.2 | - | |
| Hori. | 11020.0 | 41.6 | 34.3 | 39.9 | -1.6 | 33.2 | - | 46.7 | 39.3 | 73.9 | 53.9 | 27.2 | 14.6 | Floor noise |
| Hori. | 16530.0 | 43.2 | - | 39.6 | -0.6 | 32.6 | - | 49.5 | - | 68.2 | - | 18.7 | - | Floor noise |
| Hori. | 22040.0 | 43.4 | 35.9 | 38.1 | -1.6 | 33.1 | - | 46.9 | 39.3 | 73.9 | 53.9 | 27.0 | 14.6 | Floor noise |
| Vert. | 5460.0 | 55.0 | 43.3 | 32.0 | 5.9 | 31.3 | - | 61.7 | 50.0 | 73.9 | 53.9 | 12.2 | 3.9 | |
| Vert. | 5470.0 | 59.6 | - | 32.1 | 5.9 | 31.3 | - | 66.3 | - | 68.2 | - | 1.9 | - | |
| Vert. | 11020.0 | 41.6 | 34.3 | 39.9 | -1.6 | 33.2 | - | 46.7 | 39.3 | 73.9 | 53.9 | 27.2 | 14.6 | Floor noise |
| Vert. | 16530.0 | 43.2 | - | 39.6 | -0.6 | 32.6 | - | 49.5 | - | 68.2 | - | 18.7 | - | Floor noise |
| Vert. | 22040.0 | 43.4 | 35.9 | 38.1 | -1.6 | 33.1 | - | 46.9 | 39.3 | 73.9 | 53.9 | 27.0 | 14.6 | Floor noise |

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12_N, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH |
| Engineer | Kiyoshiro Okazaki |
| Mode | Tx 11n-40 5510 MHz |

Horizontal

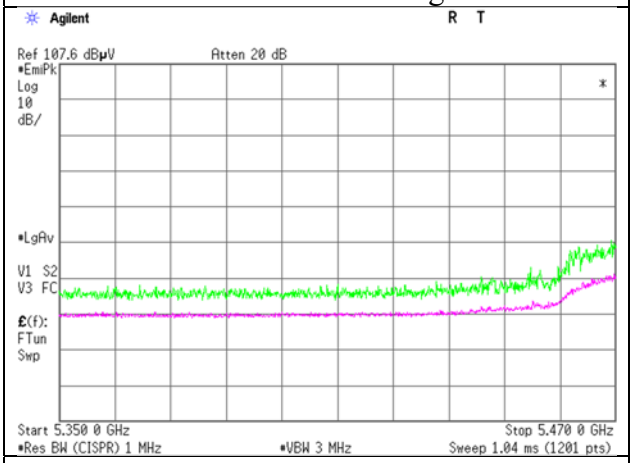
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12_N, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Kiyoshiro Okazaki | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-40 5550 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 11100.0 | 42.0 | 34.5 | 39.7 | -1.6 | 33.2 | - | 46.9 | 39.4 | 73.9 | 53.9 | 27.0 | 14.5 | Floor noise |
| Hori. | 16650.0 | 42.9 | - | 39.9 | -0.6 | 32.6 | - | 49.6 | - | 68.2 | - | 18.6 | - | Floor noise |
| Hori. | 22200.0 | 43.5 | 36.0 | 38.1 | -1.5 | 33.2 | - | 47.0 | 39.5 | 73.9 | 53.9 | 26.9 | 14.4 | Floor noise |
| Vert. | 11100.0 | 42.0 | 34.5 | 39.7 | -1.6 | 33.2 | - | 46.9 | 39.4 | 73.9 | 53.9 | 27.0 | 14.5 | Floor noise |
| Vert. | 16650.0 | 42.9 | - | 39.9 | -0.6 | 32.6 | - | 49.6 | - | 68.2 | - | 18.6 | - | Floor noise |
| Vert. | 22200.0 | 43.5 | 36.0 | 38.1 | -1.5 | 33.2 | - | 47.0 | 39.5 | 73.9 | 53.9 | 26.9 | 14.4 | Floor noise |

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

*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.

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12_N, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Kiyoshiro Okazaki | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-40 5670 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5725.0 | 47.3 | - | 32.4 | 6.1 | 31.3 | - | 54.5 | - | 68.2 | - | 13.7 | - | |
| Hori. | 11340.0 | 41.9 | 34.6 | 39.9 | -1.7 | 33.1 | - | 47.0 | 39.8 | 73.9 | 53.9 | 26.9 | 14.2 | Floor noise |
| Hori. | 17010.0 | 42.9 | - | 40.7 | -0.6 | 32.6 | - | 50.5 | - | 68.2 | - | 17.7 | - | Floor noise |
| Hori. | 22680.0 | 43.4 | 36.1 | 38.2 | -1.5 | 33.2 | - | 46.9 | 39.6 | 73.9 | 53.9 | 27.0 | 14.3 | Floor noise |
| Vert. | 5725.0 | 48.4 | - | 32.4 | 6.1 | 31.3 | - | 55.6 | - | 68.2 | - | 12.7 | - | |
| Vert. | 11340.0 | 41.9 | 34.6 | 39.9 | -1.7 | 33.1 | - | 47.0 | 39.8 | 73.9 | 53.9 | 26.9 | 14.2 | Floor noise |
| Vert. | 17010.0 | 42.9 | - | 40.7 | -0.6 | 32.6 | - | 50.5 | - | 68.2 | - | 17.7 | - | Floor noise |
| Vert. | 22680.0 | 43.4 | 36.1 | 38.2 | -1.5 | 33.2 | - | 46.9 | 39.6 | 73.9 | 53.9 | 27.0 | 14.3 | Floor noise |

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

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

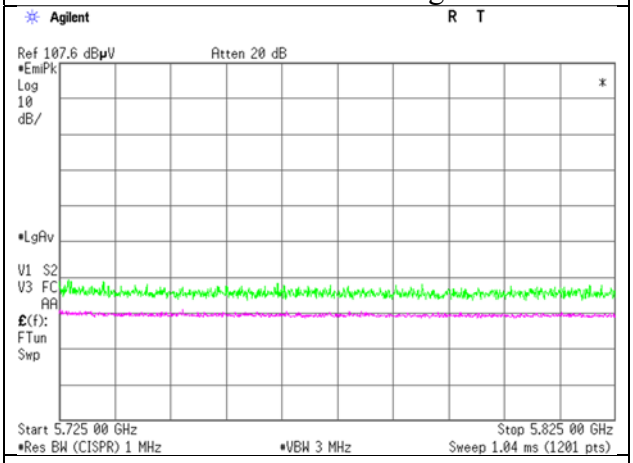
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12_N, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH |
| Engineer | Kiyoshiro Okazaki |
| Mode | Tx 11n-40 5670 MHz |

Horizontal

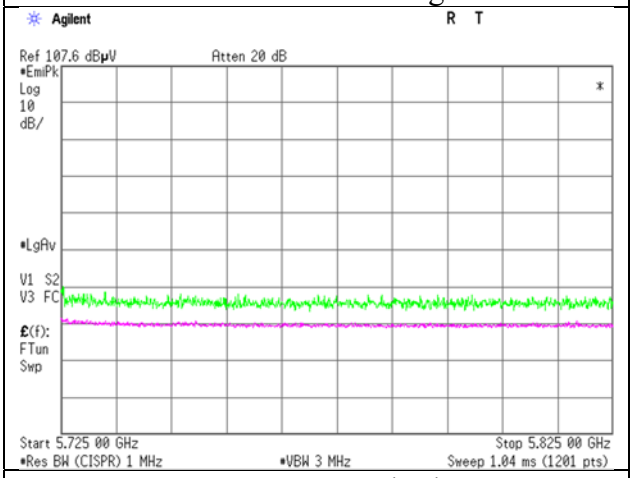
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 12_N, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Kiyoshiro Okazaki | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11n-40 5755 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5650.0 | 42.1 | - | 32.3 | 6.0 | 31.3 | - | 49.0 | - | 68.2 | - | 19.2 | - | |
| Hori. | 5700.0 | 44.4 | - | 32.4 | 6.0 | 31.3 | - | 51.5 | - | 105.2 | - | 53.7 | - | |
| Hori. | 5720.0 | 55.3 | - | 32.4 | 6.1 | 31.3 | - | 62.5 | - | 110.8 | - | 48.4 | - | |
| Hori. | 5725.0 | 55.9 | - | 32.4 | 6.1 | 31.3 | - | 63.0 | - | 122.2 | - | 59.2 | - | |
| Hori. | 11510.0 | 42.3 | 34.7 | 39.9 | -1.7 | 33.0 | - | 47.5 | 39.9 | 73.9 | 53.9 | 26.5 | 14.0 | Floor noise |
| Hori. | 17265.0 | 42.7 | - | 42.1 | -0.5 | 32.6 | - | 51.7 | - | 68.2 | - | 16.6 | - | Floor noise |
| Hori. | 23020.0 | 43.2 | 36.3 | 38.4 | -1.5 | 33.3 | - | 46.9 | 39.9 | 73.9 | 53.9 | 27.1 | 14.0 | Floor noise |
| Vert. | 5650.0 | 40.1 | - | 32.3 | 6.0 | 31.3 | - | 47.1 | - | 68.2 | - | 21.1 | - | |
| Vert. | 5700.0 | 45.0 | - | 32.4 | 6.0 | 31.3 | - | 52.1 | - | 105.2 | - | 53.1 | - | |
| Vert. | 5720.0 | 56.5 | - | 32.4 | 6.1 | 31.3 | - | 63.6 | - | 110.8 | - | 47.2 | - | |
| Vert. | 5725.0 | 57.5 | - | 32.4 | 6.1 | 31.3 | - | 64.7 | - | 122.2 | - | 57.5 | - | |
| Vert. | 11510.0 | 42.3 | 34.7 | 39.9 | -1.7 | 33.0 | - | 47.5 | 39.9 | 73.9 | 53.9 | 26.5 | 14.0 | Floor noise |
| Vert. | 17265.0 | 42.7 | - | 42.1 | -0.5 | 32.6 | - | 51.7 | - | 68.2 | - | 16.6 | - | Floor noise |
| Vert. | 23020.0 | 43.2 | 36.3 | 38.4 | -1.5 | 33.3 | - | 46.9 | 39.9 | 73.9 | 53.9 | 27.1 | 14.0 | Floor noise |

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

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

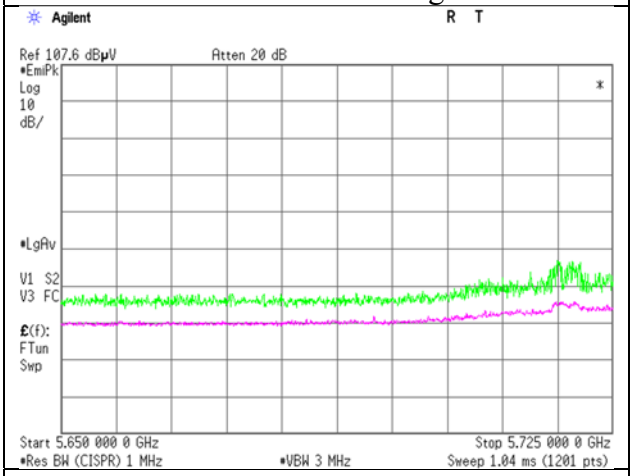
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12_N, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH |
| Engineer | Kiyoshiro Okazaki |
| Mode | Tx 11n-40 5755 MHz |

Horizontal

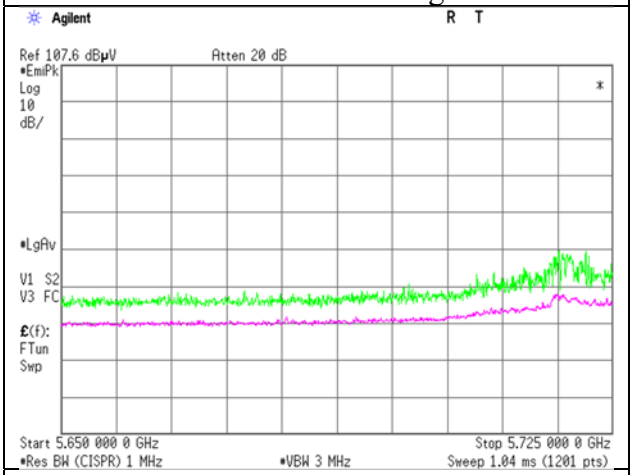
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.3 |
| Date | September 12_N, 2021 | September 15, 2021 | September 16, 2021 | September 28, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH | 23 deg. C / 61 % RH |
| Engineer | Kiyoshiro Okazaki | Kiyoshiro Okazaki | Nachi Konegawa | Hiroki Numata |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) | (Below 1 GHz) |
| Mode | Tx 11n-40 5795 MHz | | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 61.5 | 38.6 | - | 7.5 | 7.8 | 32.3 | - | 21.6 | - | 40.0 | - | 18.4 | - | |
| Hori. | 250.0 | 50.7 | - | 12.1 | 9.8 | 32.1 | - | 40.4 | - | 46.0 | - | 5.6 | - | |
| Hori. | 350.0 | 49.2 | - | 15.3 | 10.5 | 32.1 | - | 43.0 | - | 46.0 | - | 3.1 | - | |
| Hori. | 450.0 | 43.4 | - | 16.7 | 11.2 | 32.1 | - | 39.2 | - | 46.0 | - | 6.8 | - | |
| Hori. | 550.0 | 43.5 | - | 18.0 | 11.8 | 32.1 | - | 41.2 | - | 46.0 | - | 4.8 | - | |
| Hori. | 750.0 | 41.9 | - | 20.4 | 12.9 | 31.8 | - | 43.4 | - | 46.0 | - | 2.6 | - | |
| Hori. | 5850.0 | 47.3 | - | 32.7 | 6.1 | 31.4 | - | 54.8 | - | 122.2 | - | 67.5 | - | |
| Hori. | 5855.0 | 44.4 | - | 32.7 | 6.1 | 31.4 | - | 51.9 | - | 110.8 | - | 59.0 | - | |
| Hori. | 5875.0 | 42.4 | - | 32.7 | 6.1 | 31.4 | - | 49.9 | - | 105.2 | - | 55.3 | - | |
| Hori. | 5925.0 | 40.6 | - | 32.7 | 6.1 | 31.4 | - | 48.1 | - | 68.2 | - | 20.1 | - | |
| Hori. | 11590.0 | 42.2 | 34.7 | 39.6 | -1.7 | 33.0 | - | 47.1 | 39.6 | 73.9 | 53.9 | 26.8 | 14.3 | Floor noise |
| Hori. | 17385.0 | 43.5 | - | 43.1 | -0.5 | 32.6 | - | 53.5 | - | 68.2 | - | 14.7 | - | Floor noise |
| Hori. | 23180.0 | 43.2 | - | 38.5 | -1.4 | 33.3 | - | 46.9 | - | 68.2 | - | 21.3 | - | Floor noise |
| Vert. | 61.5 | 51.8 | - | 7.5 | 7.8 | 32.3 | - | 34.8 | - | 40.0 | - | 5.3 | - | |
| Vert. | 250.0 | 53.5 | - | 12.1 | 9.8 | 32.1 | - | 43.2 | - | 46.0 | - | 2.8 | - | |
| Vert. | 350.0 | 44.9 | - | 15.3 | 10.5 | 32.1 | - | 38.6 | - | 46.0 | - | 7.4 | - | |
| Vert. | 450.0 | 41.5 | - | 16.7 | 11.2 | 32.1 | - | 37.3 | - | 46.0 | - | 8.7 | - | |
| Vert. | 550.0 | 40.5 | - | 18.0 | 11.8 | 32.1 | - | 38.2 | - | 46.0 | - | 7.8 | - | |
| Vert. | 750.0 | 42.5 | - | 20.4 | 12.9 | 31.8 | - | 44.0 | - | 46.0 | - | 2.0 | - | |
| Vert. | 5850.0 | 46.3 | - | 32.7 | 6.1 | 31.4 | - | 53.7 | - | 122.2 | - | 68.5 | - | |
| Vert. | 5855.0 | 45.4 | - | 32.7 | 6.1 | 31.4 | - | 52.9 | - | 110.8 | - | 57.9 | - | |
| Vert. | 5875.0 | 43.3 | - | 32.7 | 6.1 | 31.4 | - | 50.8 | - | 105.2 | - | 54.4 | - | |
| Vert. | 5925.0 | 40.6 | - | 32.7 | 6.1 | 31.4 | - | 48.1 | - | 68.2 | - | 20.1 | - | |
| Vert. | 11590.0 | 42.2 | 34.7 | 39.6 | -1.7 | 33.0 | - | 47.1 | 39.6 | 73.9 | 53.9 | 26.8 | 14.3 | Floor noise |
| Vert. | 17385.0 | 43.5 | - | 43.1 | -0.5 | 32.6 | - | 53.5 | - | 68.2 | - | 14.7 | - | Floor noise |
| Vert. | 23180.0 | 43.2 | - | 38.5 | -1.4 | 33.3 | - | 46.9 | - | 68.2 | - | 21.3 | - | Floor noise |

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

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

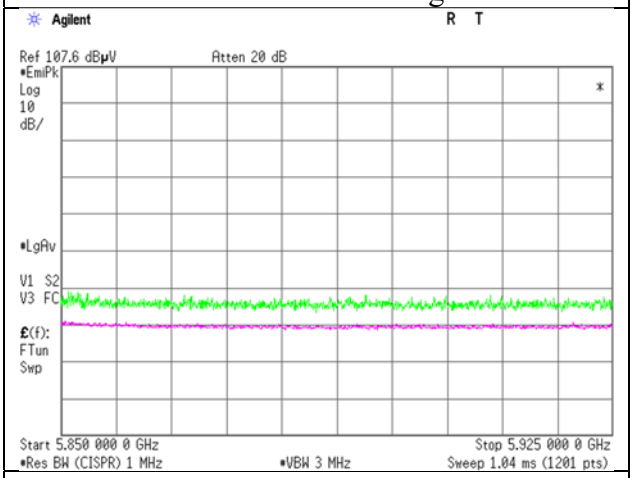
*QP detector was used up to 1GHz.

## Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 12_N, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH |
| Engineer | Kiyoshiro Okazaki |
| Mode | Tx 11n-40 5795 MHz |

Horizontal

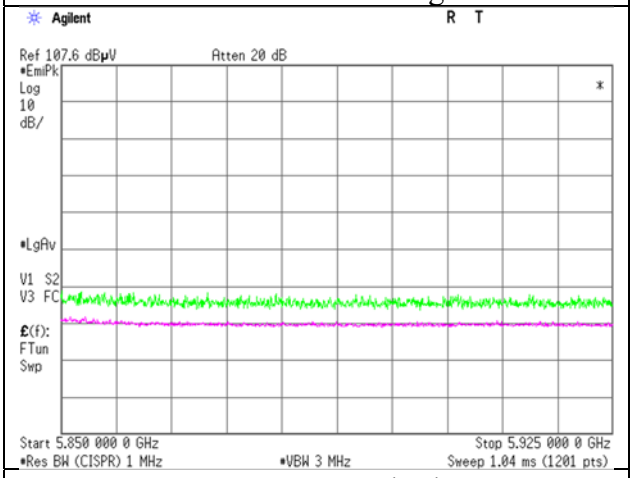
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 13, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 22 deg. C / 70 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Akihiko Maeda | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11ac-80 5210 MHz | | |

| Polarity | Frequency | Reading (QP / PK) | Reading (AV) | Ant. Factor | Loss | Gain | Duty Factor | Result (QP / PK) | Result (AV) | Limit (QP / PK) | Limit (AV) | Margin (QP / PK) | Margin (AV) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [Hori/Vert] | [MHz] | [dBuV] | [dBuV] | [dB/m] | [dB] | [dB] | [dB] | [dBuV/m] | [dBuV/m] | [dBuV/m] | [dBuV/m] | [dB] | [dB] | |
| Hori. | 5150.0 | 54.7 | 42.9 | 32.2 | 5.8 | 31.2 | - | 61.6 | 49.8 | 73.9 | 53.9 | 12.3 | 4.1 | |
| Hori. | 10420.0 | 41.7 | - | 39.7 | -1.9 | 33.0 | - | 46.6 | - | 68.2 | - | 21.6 | - | Floor noise |
| Hori. | 15630.0 | 42.2 | 35.1 | 37.9 | -0.7 | 32.5 | - | 46.8 | 39.7 | 73.9 | 53.9 | 27.1 | 14.2 | Floor noise |
| Hori. | 20840.0 | 43.1 | 35.1 | 37.9 | -1.8 | 33.0 | - | 46.2 | 38.2 | 73.9 | 53.9 | 27.7 | 15.7 | Floor noise |
| Hori. | 26050.0 | 44.8 | - | 39.4 | -0.6 | 32.4 | - | 51.2 | - | 68.2 | - | 17.0 | - | Floor noise |
| Vert. | 5150.0 | 55.2 | 43.8 | 32.2 | 5.8 | 31.2 | - | 62.1 | 50.7 | 73.9 | 53.9 | 11.8 | 3.2 | |
| Vert. | 10420.0 | 41.7 | - | 39.7 | -1.9 | 33.0 | - | 46.6 | - | 68.2 | - | 21.6 | - | Floor noise |
| Vert. | 15630.0 | 42.2 | 35.1 | 37.9 | -0.7 | 32.5 | - | 46.8 | 39.7 | 73.9 | 53.9 | 27.1 | 14.2 | Floor noise |
| Vert. | 20840.0 | 43.1 | 35.1 | 37.9 | -1.8 | 33.0 | - | 46.2 | 38.2 | 73.9 | 53.9 | 27.7 | 15.7 | Floor noise |
| Vert. | 26050.0 | 44.8 | - | 39.4 | -0.6 | 32.4 | - | 51.2 | - | 68.2 | - | 17.0 | - | Floor noise |

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

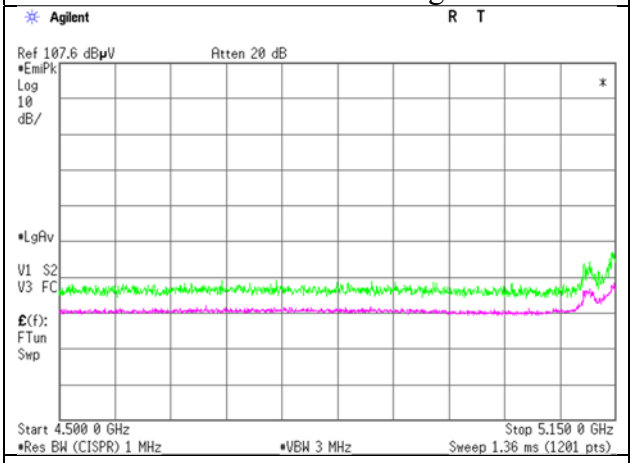
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 13, 2021 |
| Temperature / Humidity | 22 deg. C / 70 % RH |
| Engineer | Akihiko Maeda |
| Mode | Tx 11ac-80 5210 MHz |

Horizontal

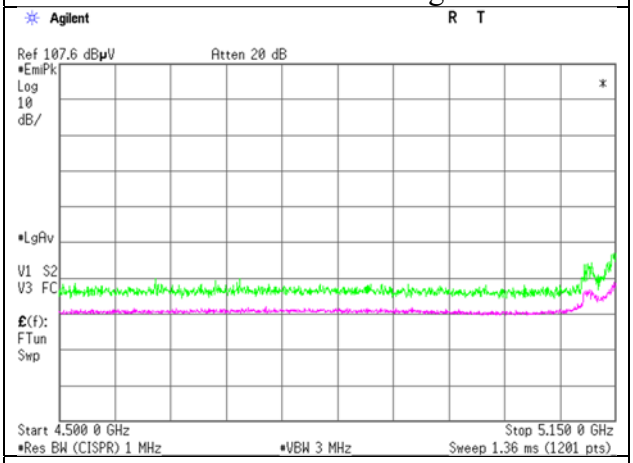
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 13, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 22 deg. C / 70 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Akihiko Maeda | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11ac-80 5290 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5350.0 | 51.9 | 38.2 | 31.8 | 5.9 | 31.2 | - | 58.4 | 44.7 | 73.9 | 53.9 | 15.5 | 9.2 | |
| Hori. | 10580.0 | 41.6 | - | 39.7 | -1.8 | 33.0 | - | 46.5 | - | 68.2 | - | 21.7 | - | Floor noise |
| Hori. | 15870.0 | 42.4 | 35.4 | 37.8 | -0.7 | 32.5 | - | 47.0 | 40.0 | 73.9 | 53.9 | 26.9 | 13.9 | Floor noise |
| Hori. | 21160.0 | 43.4 | 35.4 | 38.0 | -1.7 | 33.1 | - | 46.6 | 38.6 | 73.9 | 53.9 | 27.3 | 15.3 | Floor noise |
| Hori. | 26450.0 | 44.3 | - | 39.4 | -0.7 | 32.3 | - | 50.7 | - | 68.2 | - | 17.5 | - | Floor noise |
| Vert. | 5350.0 | 51.5 | 38.1 | 31.8 | 5.9 | 31.2 | - | 58.0 | 44.6 | 73.9 | 53.9 | 15.9 | 9.3 | |
| Vert. | 10580.0 | 41.6 | - | 39.7 | -1.8 | 33.0 | - | 46.5 | - | 68.2 | - | 21.7 | - | Floor noise |
| Vert. | 15870.0 | 42.4 | 35.4 | 37.8 | -0.7 | 32.5 | - | 47.0 | 40.0 | 73.9 | 53.9 | 26.9 | 13.9 | Floor noise |
| Vert. | 21160.0 | 43.4 | 35.4 | 38.0 | -1.7 | 33.1 | - | 46.6 | 38.6 | 73.9 | 53.9 | 27.3 | 15.3 | Floor noise |
| Vert. | 26450.0 | 44.3 | - | 39.4 | -0.7 | 32.3 | - | 50.7 | - | 68.2 | - | 17.5 | - | Floor noise |

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

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

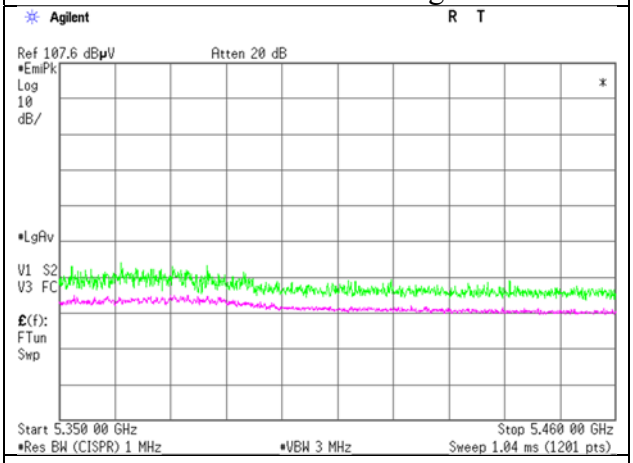
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 13, 2021 |
| Temperature / Humidity | 22 deg. C / 70 % RH |
| Engineer | Akihiko Maeda |
| Mode | Tx 11ac-80 5290 MHz |

Horizontal

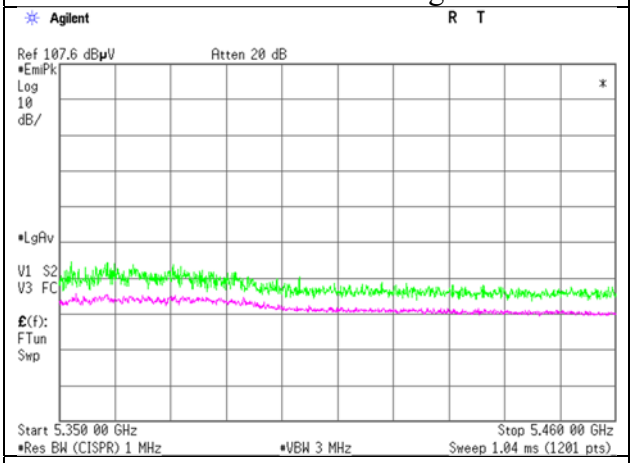
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 13, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 22 deg. C / 70 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Akihiko Maeda | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11ac-80 5530 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5460.0 | 54.6 | 40.8 | 32.0 | 5.9 | 31.3 | - | 61.3 | 47.5 | 73.9 | 53.9 | 12.6 | 6.4 | |
| Hori. | 5470.0 | 54.7 | - | 32.1 | 5.9 | 31.3 | - | 61.4 | - | 68.2 | - | 6.8 | - | |
| Hori. | 11060.0 | 42.4 | 34.2 | 39.8 | -1.6 | 33.2 | - | 47.4 | 39.2 | 73.9 | 53.9 | 26.5 | 14.7 | Floor noise |
| Hori. | 16590.0 | 43.5 | 35.3 | 39.7 | -0.6 | 32.6 | - | 50.0 | 41.8 | 73.9 | 53.9 | 23.9 | 12.1 | Floor noise |
| Hori. | 22120.0 | 43.3 | 35.4 | 38.1 | -1.5 | 33.1 | - | 46.7 | 38.9 | 73.9 | 53.9 | 27.2 | 15.1 | Floor noise |
| Vert. | 5460.0 | 54.2 | 40.2 | 32.0 | 5.9 | 31.3 | - | 60.9 | 46.9 | 73.9 | 53.9 | 13.0 | 7.0 | |
| Vert. | 5470.0 | 55.4 | - | 32.1 | 5.9 | 31.3 | - | 62.1 | - | 68.2 | - | 6.1 | - | |
| Vert. | 11060.0 | 42.4 | 34.2 | 39.8 | -1.6 | 33.2 | - | 47.4 | 39.2 | 73.9 | 53.9 | 26.5 | 14.7 | Floor noise |
| Vert. | 16590.0 | 43.5 | 35.3 | 39.7 | -0.6 | 32.6 | - | 50.0 | 41.8 | 73.9 | 53.9 | 23.9 | 12.1 | Floor noise |
| Vert. | 22120.0 | 43.3 | 35.4 | 38.1 | -1.5 | 33.1 | - | 46.7 | 38.9 | 73.9 | 53.9 | 27.2 | 15.1 | Floor noise |

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

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

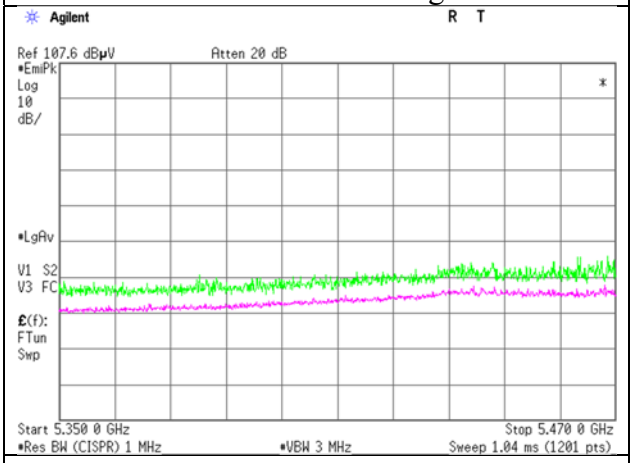
*QP detector was used up to 1GHz.

# Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 13, 2021 |
| Temperature / Humidity | 22 deg. C / 70 % RH |
| Engineer | Akihiko Maeda |
| Mode | Tx 11ac-80 5530 MHz |

Horizontal

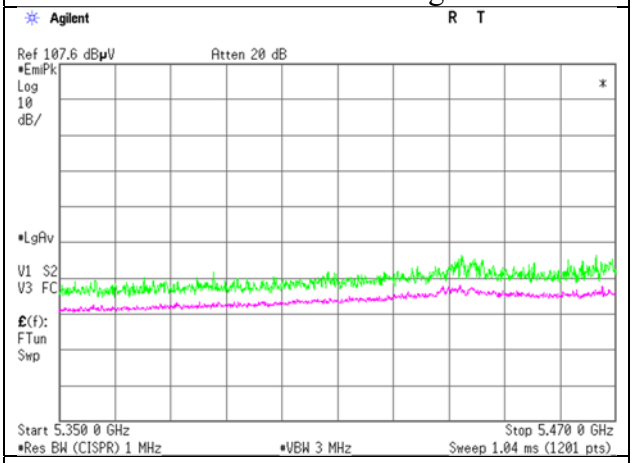
Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

Vertical

Restricted-band band-edge Plot




Trace Green: Peak Plot
Trace Purple: Average Plot

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

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 14007298H | | |
| Test place | Ise EMC Lab. | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 |
| Date | September 13, 2021 | September 15, 2021 | September 16, 2021 |
| Temperature / Humidity | 22 deg. C / 70 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH |
| Engineer | Akihiko Maeda | Kiyoshiro Okazaki | Nachi Konegawa |
| | (1 GHz - 10 GHz) | (10 GHz - 26.5 GHz) | (26.5 GHz - 40 GHz) |
| Mode | Tx 11ac-80 5775 MHz | | |

| Polarity [Hori/Vert] | Frequency [MHz] | Reading (QP / PK) [dBuV] | Reading (AV) [dBuV] | Ant. Factor [dB/m] | Loss [dB] | Gain [dB] | Duty Factor [dB] | Result (QP / PK) [dBuV/m] | Result (AV) [dBuV/m] | Limit (QP / PK) [dBuV/m] | Limit (AV) [dBuV/m] | Margin (QP / PK) [dB] | Margin (AV) [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5650.0 | 46.1 | - | 32.3 | 6.0 | 31.3 | - | 53.1 | - | 68.2 | - | 15.1 | - | |
| Hori. | 5700.0 | 53.1 | - | 32.4 | 6.0 | 31.3 | - | 60.2 | - | 105.2 | - | 45.0 | - | |
| Hori. | 5720.0 | 58.5 | - | 32.4 | 6.1 | 31.3 | - | 65.7 | - | 110.8 | - | 45.2 | - | |
| Hori. | 5725.0 | 62.7 | - | 32.4 | 6.1 | 31.3 | - | 69.9 | - | 122.2 | - | 52.3 | - | |
| Hori. | 5850.0 | 54.5 | - | 32.7 | 6.1 | 31.4 | - | 61.9 | - | 122.2 | - | 60.3 | - | |
| Hori. | 5855.0 | 54.3 | - | 32.7 | 6.1 | 31.4 | - | 61.8 | - | 110.8 | - | 49.1 | - | |
| Hori. | 5875.0 | 49.5 | - | 32.7 | 6.1 | 31.4 | - | 57.0 | - | 105.2 | - | 48.2 | - | |
| Hori. | 5925.0 | 43.8 | - | 32.7 | 6.1 | 31.4 | - | 51.3 | - | 68.2 | - | 16.9 | - | |
| Hori. | 11550.0 | 42.1 | 35.1 | 39.8 | -1.7 | 33.0 | - | 47.2 | 40.1 | 73.9 | 53.9 | 26.7 | 13.8 | Floor noise |
| Hori. | 17325.0 | 43.4 | - | 42.6 | -0.5 | 32.6 | - | 52.9 | - | 68.2 | - | 15.3 | - | Floor noise |
| Hori. | 23100.0 | 43.4 | 35.8 | 38.4 | -1.5 | 33.3 | - | 47.1 | 39.5 | 73.9 | 53.9 | 26.8 | 14.5 | Floor noise |
| Vert. | 5650.0 | 47.5 | - | 32.3 | 6.0 | 31.3 | - | 54.5 | - | 68.2 | - | 13.7 | - | |
| Vert. | 5700.0 | 53.0 | - | 32.4 | 6.0 | 31.3 | - | 60.1 | - | 105.2 | - | 45.1 | - | |
| Vert. | 5720.0 | 58.1 | - | 32.4 | 6.1 | 31.3 | - | 65.3 | - | 110.8 | - | 45.6 | - | |
| Vert. | 5725.0 | 62.9 | - | 32.4 | 6.1 | 31.3 | - | 70.1 | - | 122.2 | - | 52.1 | - | |
| Vert. | 5850.0 | 53.9 | - | 32.7 | 6.1 | 31.4 | - | 61.3 | - | 122.2 | - | 60.9 | - | |
| Vert. | 5855.0 | 53.9 | - | 32.7 | 6.1 | 31.4 | - | 61.4 | - | 110.8 | - | 49.5 | - | |
| Vert. | 5875.0 | 49.3 | - | 32.7 | 6.1 | 31.4 | - | 56.8 | - | 105.2 | - | 48.4 | - | |
| Vert. | 5925.0 | 42.6 | - | 32.7 | 6.1 | 31.4 | - | 50.1 | - | 68.2 | - | 18.1 | - | |
| Vert. | 11550.0 | 42.1 | 35.1 | 39.8 | -1.7 | 33.0 | - | 47.2 | 40.1 | 73.9 | 53.9 | 26.7 | 13.8 | Floor noise |
| Vert. | 17325.0 | 43.4 | - | 42.6 | -0.5 | 32.6 | - | 52.9 | - | 68.2 | - | 15.3 | - | Floor noise |
| Vert. | 23100.0 | 43.4 | 35.8 | 38.4 | -1.5 | 33.3 | - | 47.1 | 39.5 | 73.9 | 53.9 | 26.8 | 14.5 | Floor noise |

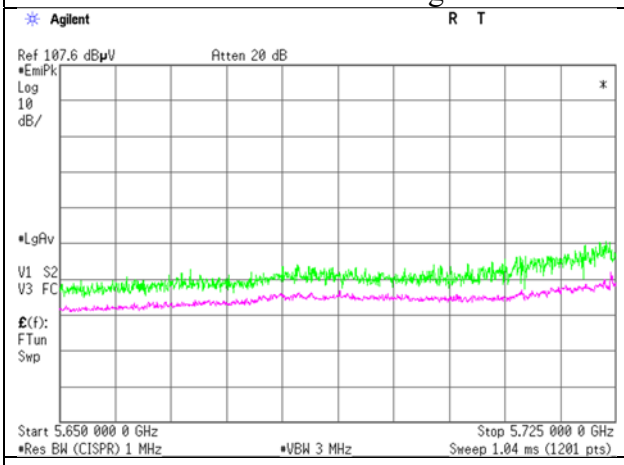
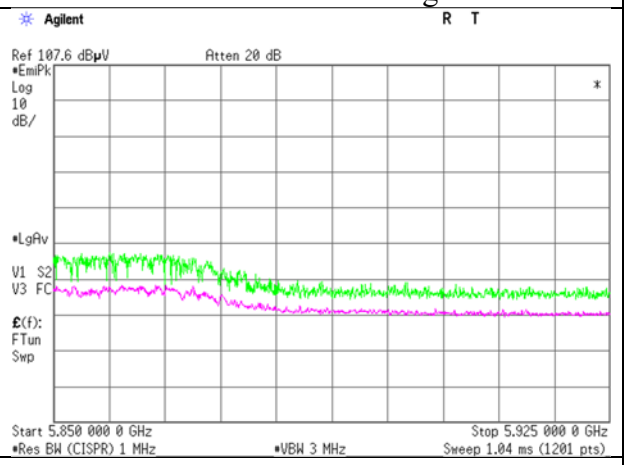
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

*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.

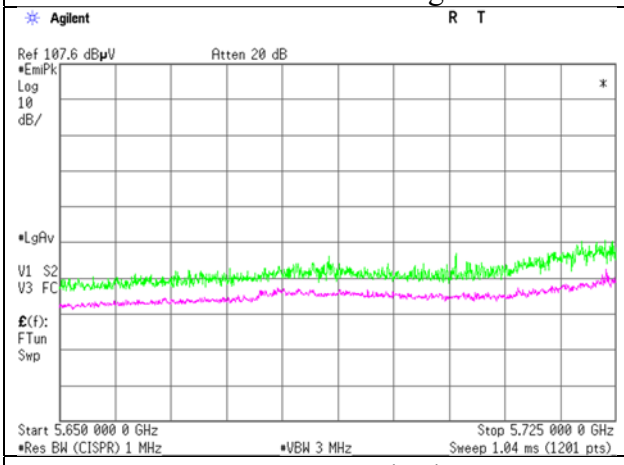
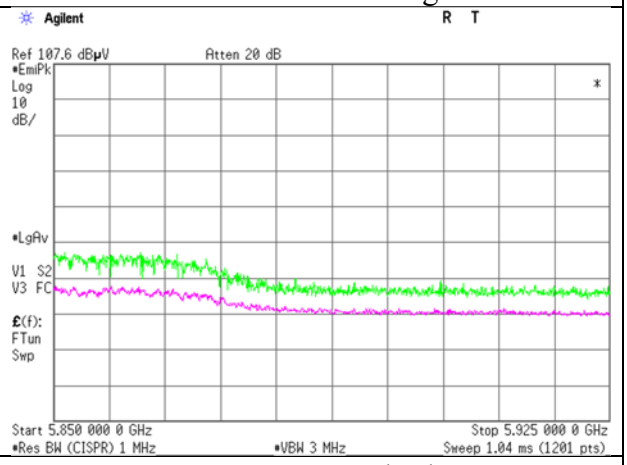
## Radiated Spurious Emission

| | |
|---|---|
| Report No. | 14007298H |
| Test place | Ise EMC Lab. |
| Semi Anechoic Chamber | No.4 |
| Date | September 13, 2021 |
| Temperature / Humidity | 22 deg. C / 70 % RH |
| Engineer | Akihiko Maeda |
| Mode | Tx 11ac-80 5775 MHz |

| Horizontal | Horizontal |
|---|---|
| Restricted-band band-edge Plot | Restricted-band band-edge Plot |
|  |  |
| Trace Green: Peak Plot<br>Trace Purple: Average Plot | Trace Green: Peak Plot<br>Trace Purple: Average Plot |





| Vertical | Vertical |
|---|---|
| Restricted-band band-edge Plot | Restricted-band band-edge Plot |
|  |  |
| Trace Green: Peak Plot<br>Trace Purple: Average Plot | Trace Green: Peak Plot<br>Trace Purple: Average Plot |

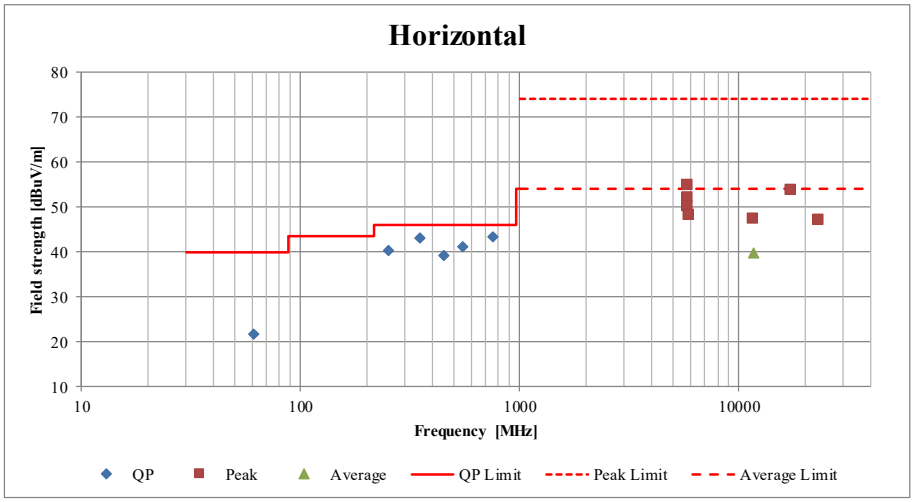


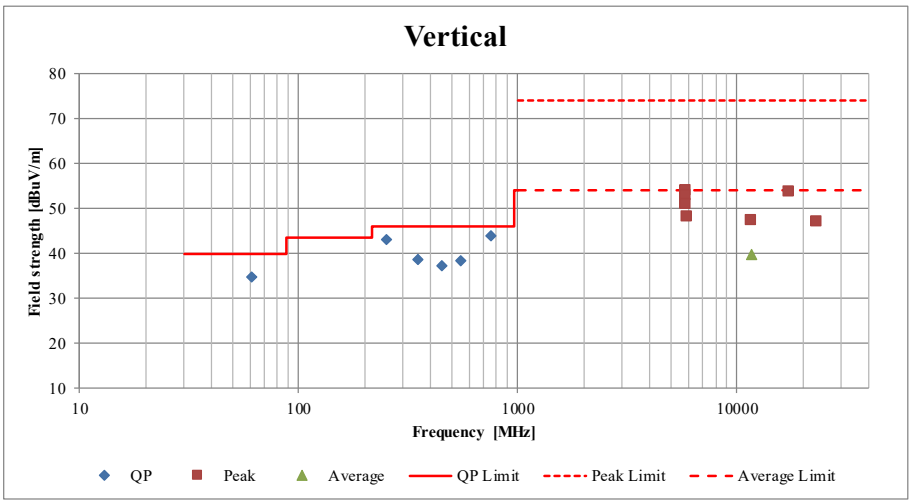


* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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

| | | | | |
|---|---|---|---|---|
| Report No. | 14007298H | | | |
| Test place | Ise EMC Lab. | | | |
| Semi Anechoic Chamber | No.4 | No.4 | No.4 | No.3 |
| Date | September 12_N, 2021 | September 15, 2021 | September 16, 2021 | September 28, 2021 |
| Temperature / Humidity | 23 deg. C / 54 % RH | 22 deg. C / 67 % RH | 22 deg. C / 69 % RH | 23 deg. C / 61 % RH |
| Engineer | Kiyoshiro Okazaki (1 GHz - 10 GHz) | Kiyoshiro Okazaki (10 GHz - 26.5 GHz) | Nachi Konegawa (26.5 GHz - 40 GHz) | Hiroki Numata (Below 1 GHz) |
| Mode | Tx 11n-40 5795 MHz | | | |




*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 | MOS-15 | 141562 | Thermo-Hygrometer | CUSTOM. Inc | CTH-201 | 0010 | 01/15/2021 | 12 |
| RE | MMM-10 | 141545 | DIGITAL HiTESTER | HIOKI E.E. CORPORATION | 3805 | 51201148 | 01/07/2021 | 12 |
| RE | MJM-29 | 142230 | Measure | KOMELON | KMC-36 | - | - | - |
| RE | COTS-MEMI-02 | 178648 | EMI measurement program | TSJ (Techno Science Japan) | TEPTO-DV | - | - | - |
| RE | MAEC-04-SVSWR | 142017 | AC4_Semi Anechoic Chamber(SVSWR) | TDK | Semi Anechoic Chamber 3m | DA-10005 | 04/12/2021 | 24 |
| RE | MSA-03 | 141884 | Spectrum Analyzer | Keysight Technologies Inc | E4448A | MY44020357 | 03/10/2021 | 12 |
| RE | MHA-21 | 141508 | Horn Antenna 1-18GHz | Schwarzbeck Mess-Elektronik OHG | BBHA9120D | 557 | 05/10/2021 | 12 |
| RE | MPA-12 | 141581 | MicroWave System Amplifier | Keysight Technologies Inc | 83017A | 00650 | 10/07/2021 | 12 |
| RE | MCC-257 | 208936 | Microwave Cable | Huber+Suhner | SF126E/11PC35/11PC35/ 1000M,5000M | 537061/126E / 537076/126E | 07/18/2021 | 12 |
| RE | MHF-23 | 141294 | High Pass Filter 7-20GHz | TOKIMEC | TF37NCCC | 603 | 02/18/2021 | 12 |
| RE | MCC-92 | 141398 | Microwave Cable 1G-40GHz | Suhner | SUCOFLEX102 | 30813/2 | 05/11/2021 | 12 |
| RE | MHA-17 | 141506 | Horn Antenna 15-40GHz | Schwarzbeck Mess-Elektronik OHG | BBHA9170 | BBHA9170307 | 07/20/2021 | 12 |
| RE | MHA-29 | 141517 | Horn Antenna 26.5-40GHz | ETS-Lindgren | 3160-10 | 152399 | 08/27/2021 | 12 |
| RE | MCC-224 | 160324 | Coaxial Cable | Huber+Suhner | SUCOFLEX 102A | MY009/2A | 11/19/2021 | 12 |
| RE | MPA-22 | 141588 | Pre Amplifier | MITEQ, Inc | AMF-6F-2600400-33-8P / AMF-4F-2600400-33-8P | 1871355 /1871328 | 09/30/2021 | 12 |
| RE | MAEC-04 | 142011 | AC4_Semi Anechoic Chamber(NSA) | TDK | Semi Anechoic Chamber 3m | DA-10005 | 05/25/2020 | 24 |
| RE | MTR-08 | 141949 | Test Receiver | Rohde & Schwarz | ESCI | 100767 | 08/05/2021 | 12 |
| RE | MLA-22 | 141266 | Logperiodic Antenna(200-1000MHz) | Schwarzbeck Mess-Elektronik OHG | VUSLP9111B | 9111B-191 | 08/21/2021 | 12 |
| RE | MAT-07 | 141203 | Attenuator(6dB) | Weinschel Corp | 2 | BK7970 | 11/09/2021 | 12 |
| RE | MBA-03 | 141424 | Biconical Antenna | Schwarzbeck Mess-Elektronik OHG | VHA9103+BBA9106 | 1915 | 08/21/2021 | 12 |
| RE | MSA-04 | 141885 | Spectrum Analyzer | Keysight Technologies Inc | E4448A | US44300523 | 11/10/2021 | 12 |
| RE | MCC-51 | 141323 | Coaxial cable | UL Japan | - | - | 07/19/2021 | 12 |
| RE | MPA-13 | 141582 | Pre Amplifier | SONOMA INSTRUMENT | 310 | 260834 | 02/18/2021 | 12 |
| RE | MAEC-03 | 142008 | AC3_Semi Anechoic Chamber(NSA) | TDK | Semi Anechoic Chamber 3m | DA-10005 | 05/22/2020 | 24 |
| RE | MOS-13 | 141554 | Thermo-Hygrometer | CUSTOM. Inc | CTH-201 | 1301 | 01/15/2021 | 12 |
| RE | MMM-08 | 141532 | DIGITAL HiTESTER | HIOKI E.E. CORPORATION | 3805 | 51201197 | 01/07/2021 | 12 |
| AT | MOS-15 | 141562 | Thermo-Hygrometer | CUSTOM. Inc | CTH-201 | 0010 | 01/15/2021 | 12 |
| AT | MMM-10 | 141545 | DIGITAL HiTESTER | HIOKI E.E. CORPORATION | 3805 | 51201148 | 01/07/2021 | 12 |
| AT | MPM-16 | 141812 | Power Meter | Keysight Technologies Inc | 8990B | MY51000271 | 08/11/2021 | 12 |
| AT | MPSE-23 | 141835 | Power sensor | Keysight Technologies Inc | N1923A | MY54070004 | 08/11/2021 | 12 |
| AT | MAT-90 | 141223 | Attenuator | Weinschel Associates | WA56-10 | 56100306 | 05/14/2021 | 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**
**AT: Antenna Terminal Conducted test (Rate check only)**