



ISED EMI TEST REPORT

IC : 451H-2651R3SIPA
Equipment : CC2651R3SIPA SimpleLink™ Multiprotocol
2.4-GHz Wireless System-in-Package Module
with Integrated Antenna & 352-KB Memory
Brand Name : Texas Instruments
HVIN : CC2651R3SIPAT0MOUR
PMN : CC2651R3SIPA SimpleLink™ Multiprotocol
2.4-GHz Wireless System-in-Package Module
with Integrated Antenna & 352-KB Memory
Applicant : Texas Instruments Incorporated
12500 TI BLVD., Dallas, Texas, 75243
Manufacturer : Texas Instruments Incorporated
12500 TI BLVD., Dallas, Texas, 75243
Standard : ISED ICES-003 Issue 7 Class B

The product was received on Apr. 26, 2022 and testing was performed from May 05, 2022 to Jun. 07, 2022. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4a-2017 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items | Result (PASS/FAIL) | Remark |
|---------------|---------------------|-----------------------|--------------------|--|
| 3.1 | ICES003 Section 6.1 | AC Conducted Emission | Pass | 4.49 dB under the limit at 0.152 MHz |
| 3.2 | ICES003 Section 6.2 | Radiated Emission | Pass | 9.61 dB under the limit at 85.620 MHz for Quasi-Peak |

Declaration of Conformity:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to this report "Uncertainty of Evaluation".

Comments and Explanations:

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Danny Lee

Report Producer: Ming Chen

1. General Description

1.1. Product Feature of Equipment Under Test

Bluetooth LE (125 kbps, 500 kbps, 1Mbps, 2Mbps) and Zigbee (OQPSK DSSS1:8, 250 kbps)

| Antenna Information | | | | |
|---------------------|--------------------|---------------------------------------|---------------------|--------------|
| | Brand | Antenna Type | Model | 2.4 GHz Gain |
| 1 | Texas Instruments | Inverted F - PCB | Custom Antenna | 3.3 dBi |
| 2 | | CC2651R3SIPA integrated antenna – PCB | Custom Antenna | 1.5 dBi |
| 3 | Ethertronics | Dipole | 1000423 | -0.6dBi |
| 4 | LSR | Rubber Whip / Dipole | 001-0012 | 2dBi |
| 5 | | | 080-0013 | 2dBi |
| 6 | | | 080-0014 | 2dBi |
| 7 | | PIFA | 001-0016 | 2.5dBi |
| 8 | 001-0021 | | 2.5dBi | |
| 9 | Laird | PCB | CAF94504 | 2dBi |
| 10 | | | CAF9405 | 2dBi |
| 11 | Pulse | Ceramic Chip | W3006 | 3.2dBi |
| 12 | ACX | Multilayer Chip | AT3216-BR2R7HAA | 0.5dBi |
| 13 | | | AT312-T2R4PAA | 1.5dBi |
| 14 | TDK | Multilayer Ceramic Chip Antenna | ANT016008LCD2442MA1 | 1.6dBi |
| 15 | | | ANT016008LCD2442MA2 | 2.5dBi |
| 16 | Mitsubishi | Chip Antenna | AM03DP-ST01 | 1.6dBi |
| 17 | Material | Antenna Unit | UB18CP-100ST01 | -1.0dBi |
| 18 | Taiyo Yuden | Chip Antenna / Helical Monopole | AF216M245001 | 1.5dBi |
| 19 | | Chip Antenna /Monopole Type | AH212M245001 | 1.3dBi |
| 20 | | | AH316M245001 | 1.9dBi |
| 21 | Antenna Technology | Dipole | AA2402SPU | 2.0dBi |
| 22 | | | AA2402RSPU | 2.0dBi |
| 23 | | | AA2402A-UFLLP | 2.0dBi |
| 24 | | | AA2402AU-UFLLP | 2.0dBi |

| Antenna Information | | | | |
|---------------------|-----------------|----------------------|---------------------|--------------|
| | Brand | Antenna Type | Model | 2.4 GHz Gain |
| 25 | Staf | Mono-pole | 1019-016 | 2.14dBi |
| 26 | | | 1019-017 | 2.14dBi |
| 27 | | | 1019-018 | 2.14dBi |
| 28 | | | 1019-019 | 2.14dBi |
| 29 | Map Electronics | Rubber Whip | MEIWX-2411SAXX-2400 | 2.0dBi |
| 30 | | | MEIWX-2411RSXX-2400 | 2.0dBi |
| 31 | | | MEIWX-282XSAXX-2400 | 2.0dBi |
| 32 | | | MEIWX-282XRSXX-2400 | 2.0dBi |
| 33 | | | MEIWF-HP01RS2X-2400 | 2.0dBi |
| 34 | Yageo | Chip | ANT3216A063R2400A | 1.69dBi |
| 35 | Mag Layers | Chip | LTA-3216-2G4S3-A1 | 1dBi |
| 36 | Scientific | | LTA-3216-2G4S3-A3 | 2dBi |
| 37 | Advantech | Rubber Whip / Dipole | AN2450-5706RS | 2.38dBi |
| 38 | | | R-AN2400-5701RS | 3.3dBi |

Remark:

1. The EUT uses the PCB antenna from Texas Instruments (Antenna #2)
2. The EUT's information above is declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.2. Modification of EUT

No modifications made to the EUT during the testing.



1.3. Test Location

| | |
|---------------------------|---|
| Test Site | Sporton International Inc. EMC & Wireless Communications Laboratory |
| Test Site Location | No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978 |
| Test Site No. | Sporton Site No. CO05-HY, 03CH06-HY |

ISED CABID: TW1190

ISED Company Number: 4086B

1.4. Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ ANSI C63.4a-2017
- ♦ ISED ICES-003 Issue 7 Class B
- ♦ ISED RSS-Gen Issue 5

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The test results for FCC compliance, indicating that these results are deemed satisfactory evidence of compliance with Industry Canada Interference-Causing Equipment Standard ICES-003.

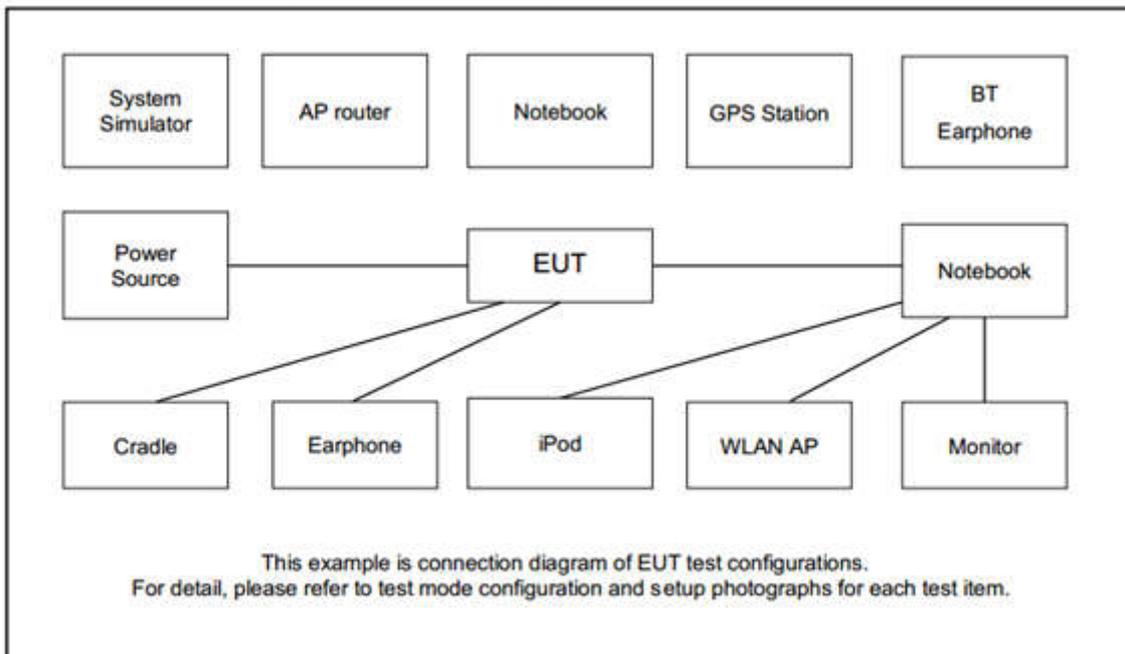
2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT is tested along with the peripherals, operating under possible configurations in compliant with normal operation. The maximum emissions can be identified by a pre-scan carried out in different orientations of placement pursuant to ANSI C63.4-2017. Frequency range covered: Conduction Emission (150 kHz to 30 MHz), Radiation Emission (30 MHz to the 5th harmonics of the highest fundamental frequency or to 40 GHz, whichever is lower).

| Test Items | Functions Enabled |
|--|--|
| AC Conducted Emission | Mode 1: Bluetooth - LE RX + USB Cable (Charging from Notebook) Mode 2: Zigbee RX + USB Cable (Charging from Notebook) |
| Radiated Emissions | Mode 1: Bluetooth - LE RX + USB Cable (Charging from Notebook) Mode 2: Zigbee RX + USB Cable (Charging from Notebook) |
| Remark: | |
| 1. The worst case of AC is mode 1; only the test data of this mode was reported. | |
| 2. The worst case of RE is mode 1; only the test data of this mode was reported. | |

2.2. Connection Diagram of Test System





2.3. Support Unit used in test configuration and system

| Item | Equipment | Brand Name | Model Name | FCC ID | Data Cable | Power Cord |
|------|-----------|------------|---------------|-------------|----------------|--|
| 1. | WLAN AP | ASUS | RT-AC66U | MSQ-RTAC66U | N/A | Unshielded, 1.8m |
| 2. | Notebook | DELL | Latitude 3400 | FCC DoC | N/A | AC I/P : Unshielded, 1.2m DC O/P : Shielded, 1.8m |
| 3. | iPod | Apple | A1285 | FCC DoC | Shielded, 1.0m | N/A |

2.4. EUT Operation Test Setup

The RF utility, "SmartRF Studio 7" was installed in the notebook in order to make the EUT provide functions for continuous receiving signals from Bluetooth - LE, and Zigbee.

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1. Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

<Class B>

| Frequency of emission (MHz) | Conducted limit (dBuV) | |
|-----------------------------|------------------------|-----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreases with the logarithm of the frequency.

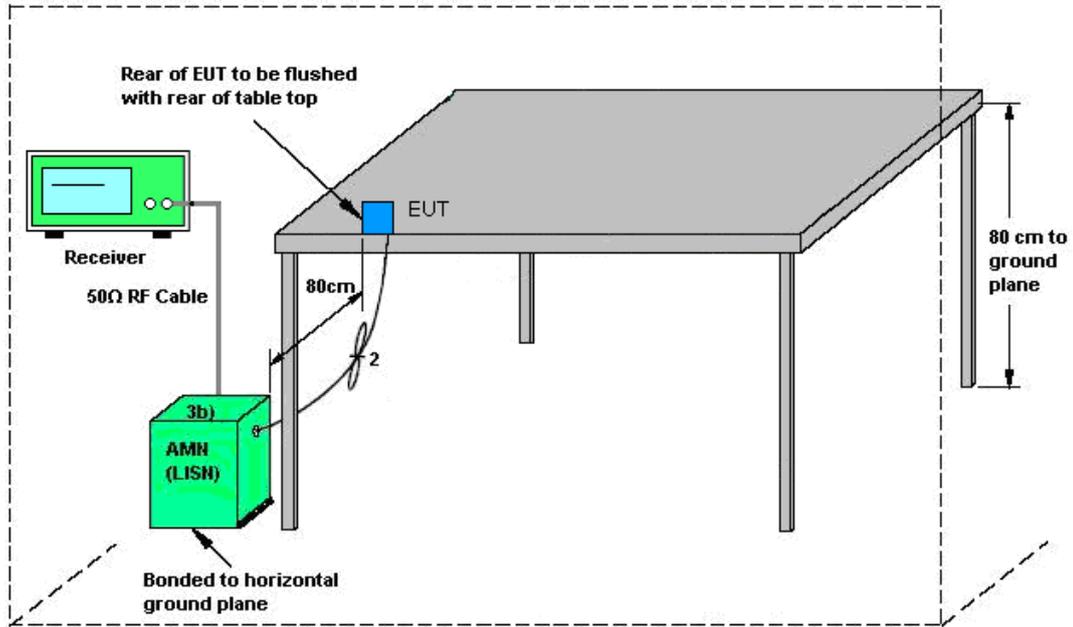
3.1.2. Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.3. Test Procedure

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN shall be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (If Bandwidth = 9 kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.1.4. Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.1.5. Test Result of AC Conducted Emission

Please refer to Appendix A.

3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

<Class B>

| Frequency range (MHz) | Class A (3m) Quasi-peak (dB μ V/m) | Class A (10m) Quasi-peak (dB μ V/m) | Class B (3m) Quasi-peak (dB μ V/m) | Class B (10m) Quasi-peak (dB μ V/m) |
|-----------------------|--|---|--|---|
| 30-88 | 50.0 | 40.0 | 40.0 | 30.0 |
| 88-216 | 54.0 | 43.5 | 43.5 | 33.1 |
| 216-230 | 56.9 | 46.4 | 46.0 | 35.6 |
| 230-960 | 57.0 | 47.0 | 47.0 | 37.0 |
| 960-1000 | 60.0 | 49.5 | 54.0 | 43.5 |

Note: The more stringent limit applies at transition frequencies.

| Frequency range (GHz) | Class A (3m) Average (dB μ V/m) | Class A (3m) Peak (dB μ V/m) | Class B (3m) Average (dB μ V/m) | Class B (3m) Peak (dB μ V/m) |
|-----------------------|-------------------------------------|----------------------------------|-------------------------------------|----------------------------------|
| 1 – F _M | 60 | 80 | 54 | 74 |

Note: The highest measurement frequency (F_M).

3.2.2. Measuring Instruments

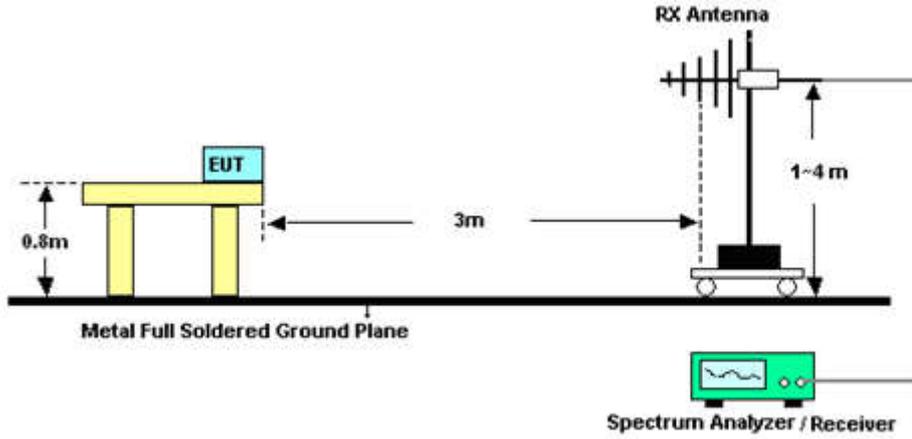
Please refer to the measuring equipment list in this test report.

**3.2.3. Test Procedures**

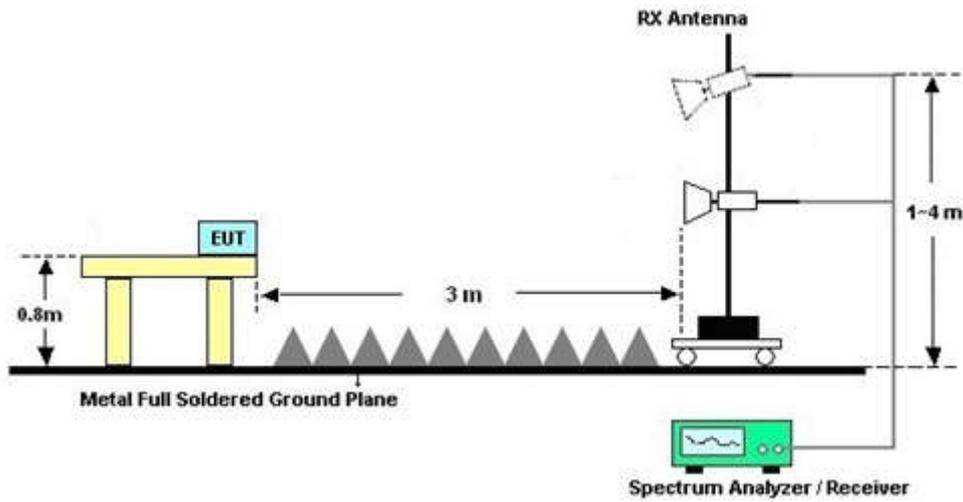
1. The EUT is placed on a turntable with 0.8 meter above ground.
2. The EUT is set 3 meters from the interference receiving antenna, which is mounted on the top of a variable height antenna tower.
3. The table is rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120 kHz/VBW=300 kHz for frequency below 1 GHz; RBW=1 MHz VBW=3 MHz (Peak), RBW=1 MHz/VBW=10 Hz (Average) for frequency above 1 GHz).
7. If the emission level of the EUT in peak mode is 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.2.4. Test Setup of Radiated Emission

For Radiated Emissions from 30 MHz to 1 GHz



For Radiated Emissions above 1 GHz



3.2.5. Test Result of Radiated Emission

Please refer to Appendix B.



4. List of Measuring Equipment

| Instrument | Brand Name | Model No. | Serial No. | Characteristics | Calibration Date | Test Date | Due Date | Remark |
|-------------------|-----------------|-----------------------|-----------------|-----------------|------------------|-------------------------------|---------------|-----------------------|
| AC Power Source | ChainTek | APC-1000W | N/A | N/A | N/A | Jun. 07, 2022 | N/A | Conduction (CO05-HY) |
| EMI Test Receiver | Rohde & Schwarz | ESR3 | 102388 | 9kHz~3.6GHz | Dec. 01, 2021 | Jun. 07, 2022 | Nov. 30, 2022 | Conduction (CO05-HY) |
| LISN | Rohde & Schwarz | ENV216 | 100080 | 9kHz~30MHz | Dec. 03, 2021 | Jun. 07, 2022 | Dec. 02, 2022 | Conduction (CO05-HY) |
| LISN | Rohde & Schwarz | ENV216 | 100081 | 9kHz~30MHz | Nov. 16, 2021 | Jun. 07, 2022 | Nov. 15, 2022 | Conduction (CO05-HY) |
| Software | Rohde & Schwarz | EMC32 | N/A | N/A | N/A | Jun. 07, 2022 | N/A | Conduction (CO05-HY) |
| Pulse Limiter | SCHWARZBECK | VTSD 9561-F N | 00691 | N/A | Jul. 28, 2021 | Jun. 07, 2022 | Jul. 27, 2022 | Conduction (CO05-HY) |
| LISN Cable | MVE | RG-400 | 260260 | N/A | Dec. 30, 2021 | Jun. 07, 2022 | Dec. 29, 2022 | Conduction (CO05-HY) |
| Amplifier | SONOMA | 310N | 186713 | 9kHz~1GHz | Apr. 28, 2022 | May 05, 2022~ May 06, 2022 | Apr. 27, 2023 | Radiation (03CH06-HY) |
| Bilog Antenna | Schaffner | CBL 6111C & N-6-06 | 2725 & AT-N0601 | 30MHz~1GHz | Nov. 11, 2021 | May 05, 2022~ May 06, 2022 | Nov. 10, 2022 | Radiation (03CH06-HY) |
| EMI Test Receiver | Rohde & Schwarz | ESU26 | 100390 | 20Hz~26.5GHz | May 22, 2021 | May 05, 2022~ May 06, 2022 | May 21, 2022 | Radiation (03CH06-HY) |
| Horn Antenna | SCHWARZBECK | BBHA 9120 D | 9120D-1156 | 1GHz~18GHz | Sep. 27, 2021 | May 05, 2022~ May 06, 2022 | Sep. 26, 2022 | Radiation (03CH06-HY) |
| Preamplifier | Jet-Power | JPA00101800-30-10P | 1601180001 | 1GHz~18GHz | Jul. 19, 2021 | May 05, 2022~ May 06, 2022 | Jul. 18, 2022 | Radiation (03CH06-HY) |
| RF Cable | HUBER + SUHNER | SF102_7000m | 532299/2 | 30MHz to 40GHz | Jul. 05, 2021 | May 05, 2022~ May 06, 2022 | Jul. 04, 2022 | Radiation (03CH06-HY) |
| RF Cable | HUBER + SUHNER | SF102_3000m | 532422/2 | 30MHz to 40GHz | Jul. 05, 2021 | May 05, 2022~ May 06, 2022 | Jul. 04, 2022 | Radiation (03CH06-HY) |
| RF Cable | HUBER + SUHNER | SF102_2000m | 532421/2 | 30MHz to 40GHz | Jul. 05, 2021 | May 05, 2022~ May 06, 2022 | Jul. 04, 2022 | Radiation (03CH06-HY) |
| RF Cable | HUBER + SUHNER | SF104 | 802433/4 | 30Mhz to 18Ghz | Aug. 19, 2021 | May 05, 2022~ May 06, 2022 | Aug. 18, 2022 | Radiation (03CH06-HY) |
| Antenna Mast | MF | MF-7802 | MF780208212 | 1m~4m | N/A | May 05, 2022~ May 06, 2022 | N/A | Radiation (03CH06-HY) |
| Turn Table | INN-CO | DS2000 | 420/650/00 | 0-360 degree | N/A | May 05, 2022~ May 06, 2022 | N/A | Radiation (03CH06-HY) |
| Software | Audix | E3 6.2009-8-24(k5) | N/A | N/A | N/A | May 05, 2022~ May 06, 2022 | N/A | Radiation (03CH06-HY) |



5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

| | |
|---|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 3.1 dB |
|---|--------|

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

| | |
|---|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 5.2 dB |
|---|--------|

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

| | |
|---|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 5.4 dB |
|---|--------|



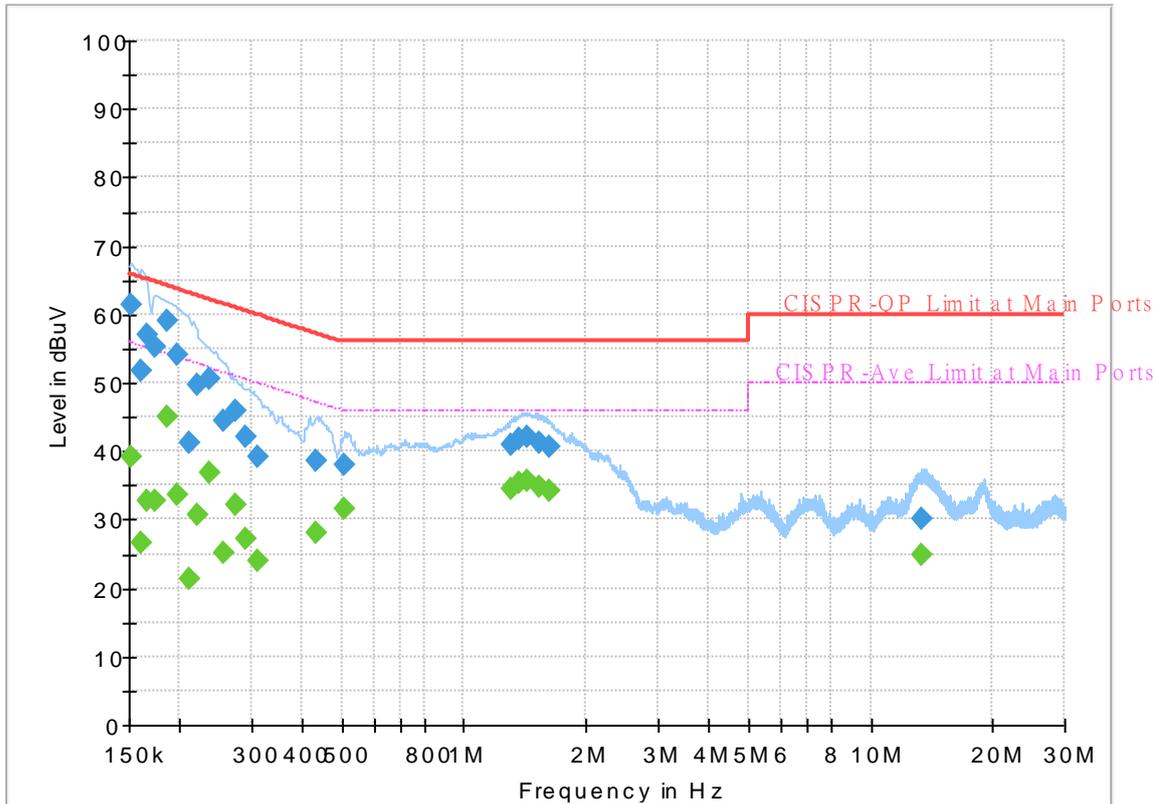
Appendix A. AC Conducted Emission Test Results

| | |
|--------------------------------|-----------------------------------|
| Test Engineer : Tom Lee | Temperature : 23~26°C |
| | Relative Humidity : 45~55% |

EUT Information

Report NO : 242614
 Test Mode : Mode 1
 Test Voltage : Power From System
 Phase : Line

Full Spectrum



Final_Result

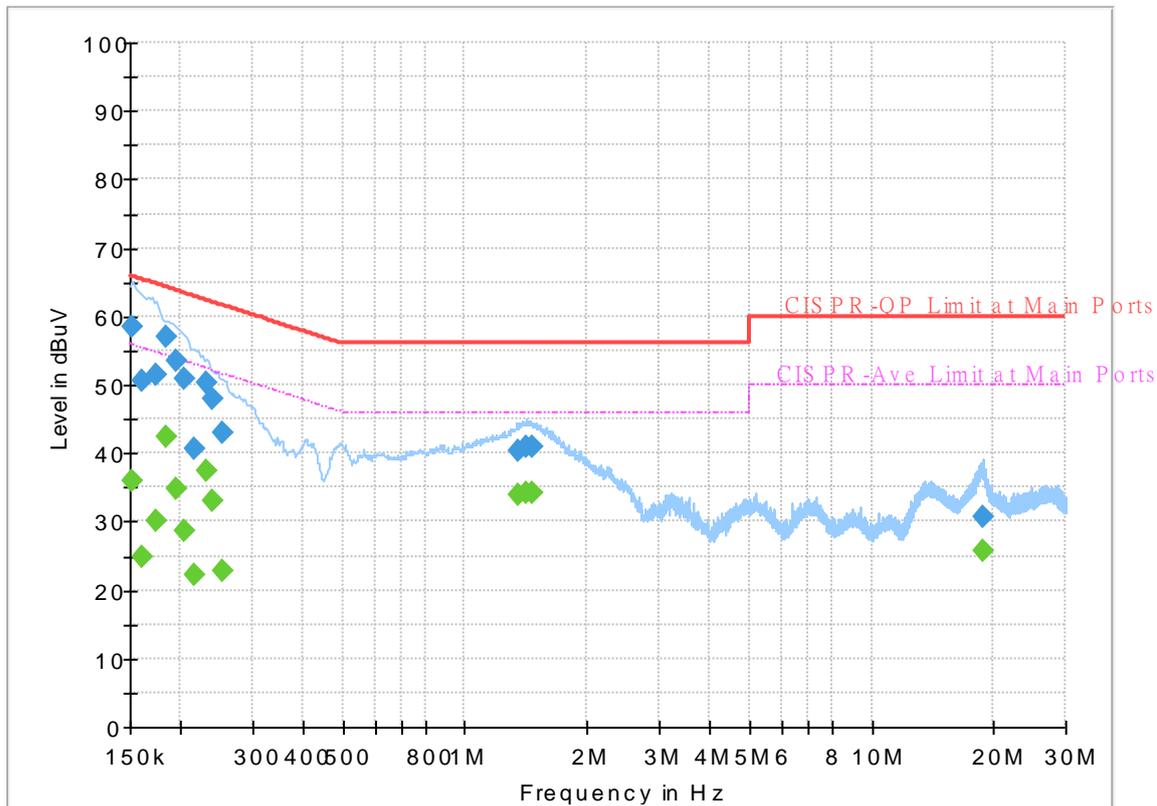
| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.152250 | --- | 39.25 | 55.88 | 16.63 | L1 | OFF | 19.6 |
| 0.152250 | 61.39 | --- | 65.88 | 4.49 | L1 | OFF | 19.6 |
| 0.161250 | --- | 26.51 | 55.40 | 28.89 | L1 | OFF | 19.6 |
| 0.161250 | 51.85 | --- | 65.40 | 13.55 | L1 | OFF | 19.6 |
| 0.165750 | --- | 32.63 | 55.17 | 22.54 | L1 | OFF | 19.6 |
| 0.165750 | 57.01 | --- | 65.17 | 8.16 | L1 | OFF | 19.6 |
| 0.174750 | --- | 32.78 | 54.73 | 21.95 | L1 | OFF | 19.6 |
| 0.174750 | 55.28 | --- | 64.73 | 9.45 | L1 | OFF | 19.6 |
| 0.186000 | --- | 45.11 | 54.21 | 9.10 | L1 | OFF | 19.6 |
| 0.186000 | 59.07 | --- | 64.21 | 5.14 | L1 | OFF | 19.6 |
| 0.197250 | --- | 33.65 | 53.73 | 20.08 | L1 | OFF | 19.6 |
| 0.197250 | 54.05 | --- | 63.73 | 9.68 | L1 | OFF | 19.6 |
| 0.210750 | --- | 21.45 | 53.18 | 31.73 | L1 | OFF | 19.6 |
| 0.210750 | 41.23 | --- | 63.18 | 21.95 | L1 | OFF | 19.6 |
| 0.222000 | --- | 30.81 | 52.74 | 21.93 | L1 | OFF | 19.6 |
| 0.222000 | 49.57 | --- | 62.74 | 13.17 | L1 | OFF | 19.6 |
| 0.237750 | --- | 36.77 | 52.17 | 15.40 | L1 | OFF | 19.6 |
| 0.237750 | 50.72 | --- | 62.17 | 11.45 | L1 | OFF | 19.6 |
| 0.255750 | --- | 25.26 | 51.57 | 26.31 | L1 | OFF | 19.6 |
| 0.255750 | 44.36 | --- | 61.57 | 17.21 | L1 | OFF | 19.6 |
| 0.273750 | --- | 32.24 | 51.00 | 18.76 | L1 | OFF | 19.6 |

| | | | | | | | |
|-----------|-------|-------|-------|-------|----|-----|------|
| 0.273750 | 45.81 | --- | 61.00 | 15.19 | L1 | OFF | 19.6 |
| 0.289500 | --- | 27.20 | 50.54 | 23.34 | L1 | OFF | 19.6 |
| 0.289500 | 41.99 | --- | 60.54 | 18.55 | L1 | OFF | 19.6 |
| 0.309750 | --- | 24.02 | 49.98 | 25.96 | L1 | OFF | 19.6 |
| 0.309750 | 39.16 | --- | 59.98 | 20.82 | L1 | OFF | 19.6 |
| 0.431250 | --- | 28.04 | 47.23 | 19.19 | L1 | OFF | 19.6 |
| 0.431250 | 38.63 | --- | 57.23 | 18.60 | L1 | OFF | 19.6 |
| 0.510000 | --- | 31.67 | 46.00 | 14.33 | L1 | OFF | 19.6 |
| 0.510000 | 38.05 | --- | 56.00 | 17.95 | L1 | OFF | 19.6 |
| 1.302000 | --- | 34.38 | 46.00 | 11.62 | L1 | OFF | 19.6 |
| 1.302000 | 41.00 | --- | 56.00 | 15.00 | L1 | OFF | 19.6 |
| 1.371750 | --- | 35.24 | 46.00 | 10.76 | L1 | OFF | 19.6 |
| 1.371750 | 41.94 | --- | 56.00 | 14.06 | L1 | OFF | 19.6 |
| 1.437000 | --- | 35.54 | 46.00 | 10.46 | L1 | OFF | 19.6 |
| 1.437000 | 42.05 | --- | 56.00 | 13.95 | L1 | OFF | 19.6 |
| 1.533750 | --- | 34.76 | 46.00 | 11.24 | L1 | OFF | 19.6 |
| 1.533750 | 41.13 | --- | 56.00 | 14.87 | L1 | OFF | 19.6 |
| 1.617000 | --- | 34.09 | 46.00 | 11.91 | L1 | OFF | 19.6 |
| 1.617000 | 40.52 | --- | 56.00 | 15.48 | L1 | OFF | 19.6 |
| 13.382250 | --- | 24.95 | 50.00 | 25.05 | L1 | OFF | 19.8 |
| 13.382250 | 30.04 | --- | 60.00 | 29.96 | L1 | OFF | 19.8 |

EUT Information

Report NO : 242614
 Test Mode : Mode 1
 Test Voltage : Power From System
 Phase : Neutral

Full Spectrum



Final_Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.152250 | --- | 35.91 | 55.88 | 19.97 | N | OFF | 19.6 |
| 0.152250 | 58.52 | --- | 65.88 | 7.36 | N | OFF | 19.6 |
| 0.161250 | --- | 24.77 | 55.40 | 30.63 | N | OFF | 19.6 |
| 0.161250 | 50.52 | --- | 65.40 | 14.88 | N | OFF | 19.6 |
| 0.174750 | --- | 30.24 | 54.73 | 24.49 | N | OFF | 19.6 |
| 0.174750 | 51.52 | --- | 64.73 | 13.21 | N | OFF | 19.6 |
| 0.183750 | --- | 42.52 | 54.31 | 11.79 | N | OFF | 19.6 |
| 0.183750 | 57.09 | --- | 64.31 | 7.22 | N | OFF | 19.6 |
| 0.195000 | --- | 34.75 | 53.82 | 19.07 | N | OFF | 19.6 |
| 0.195000 | 53.56 | --- | 63.82 | 10.26 | N | OFF | 19.6 |
| 0.204000 | --- | 28.69 | 53.45 | 24.76 | N | OFF | 19.6 |
| 0.204000 | 50.95 | --- | 63.45 | 12.50 | N | OFF | 19.6 |
| 0.215250 | --- | 22.30 | 53.00 | 30.70 | N | OFF | 19.6 |
| 0.215250 | 40.64 | --- | 63.00 | 22.36 | N | OFF | 19.6 |
| 0.231000 | --- | 37.51 | 52.41 | 14.90 | N | OFF | 19.6 |
| 0.231000 | 50.20 | --- | 62.41 | 12.21 | N | OFF | 19.6 |
| 0.240000 | --- | 33.02 | 52.10 | 19.08 | N | OFF | 19.6 |
| 0.240000 | 48.03 | --- | 62.10 | 14.07 | N | OFF | 19.6 |
| 0.253500 | --- | 22.86 | 51.64 | 28.78 | N | OFF | 19.6 |
| 0.253500 | 43.12 | --- | 61.64 | 18.52 | N | OFF | 19.6 |
| 1.356000 | --- | 33.86 | 46.00 | 12.14 | N | OFF | 19.6 |

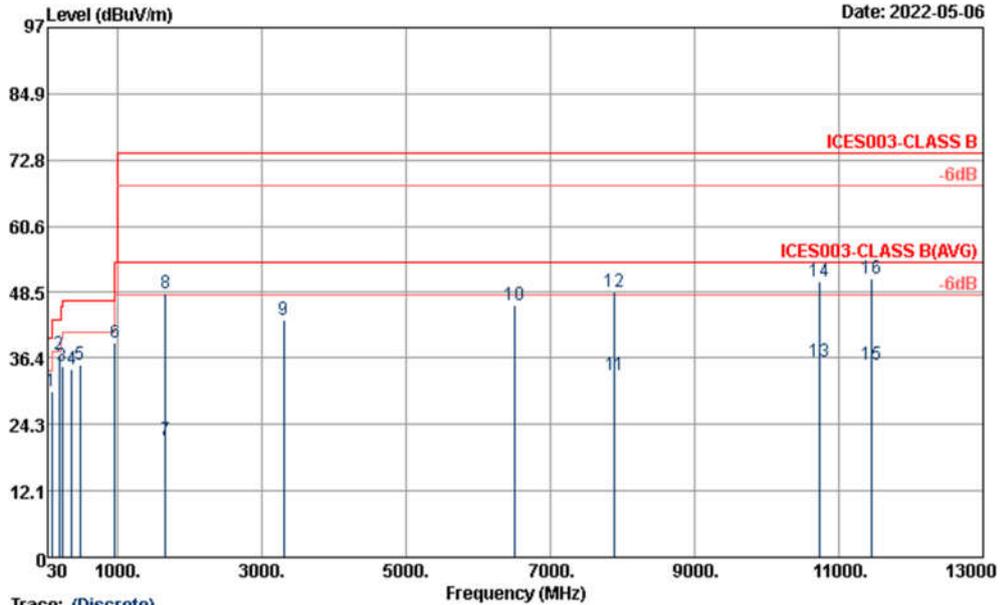
| | | | | | | | |
|------------------|--------------|--------------|--------------|--------------|----------|------------|-------------|
| 1.356000 | 40.42 | --- | 56.00 | 15.58 | N | OFF | 19.6 |
| 1.412250 | --- | 34.27 | 46.00 | 11.73 | N | OFF | 19.6 |
| 1.412250 | 40.88 | --- | 56.00 | 15.12 | N | OFF | 19.6 |
| 1.464000 | --- | 34.07 | 46.00 | 11.93 | N | OFF | 19.6 |
| 1.464000 | 40.84 | --- | 56.00 | 15.16 | N | OFF | 19.6 |
| 18.746250 | --- | 25.73 | 50.00 | 24.27 | N | OFF | 19.9 |
| 18.746250 | 30.85 | --- | 60.00 | 29.15 | N | OFF | 19.9 |



Appendix B. Radiated Emission Test Result

| | | | |
|----------------|---------------------------|--------------------|------------|
| Test Engineer: | YouXian Chen,Howard Huang | Temperature: | 24~26°C |
| | | Relative Humidity: | 47~52% |
| Test Distance: | 3m | Polarization: | Horizontal |

- Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
- Factor(dB) = Antenna Factor + Cable Loss + Filter loss – Preamp Factor
- Corrected Reading: Factor(dB) + Read Level = Level
- The test that passed at the minimum margin was marked by the frame in the following test record



Trace: (Discrete)

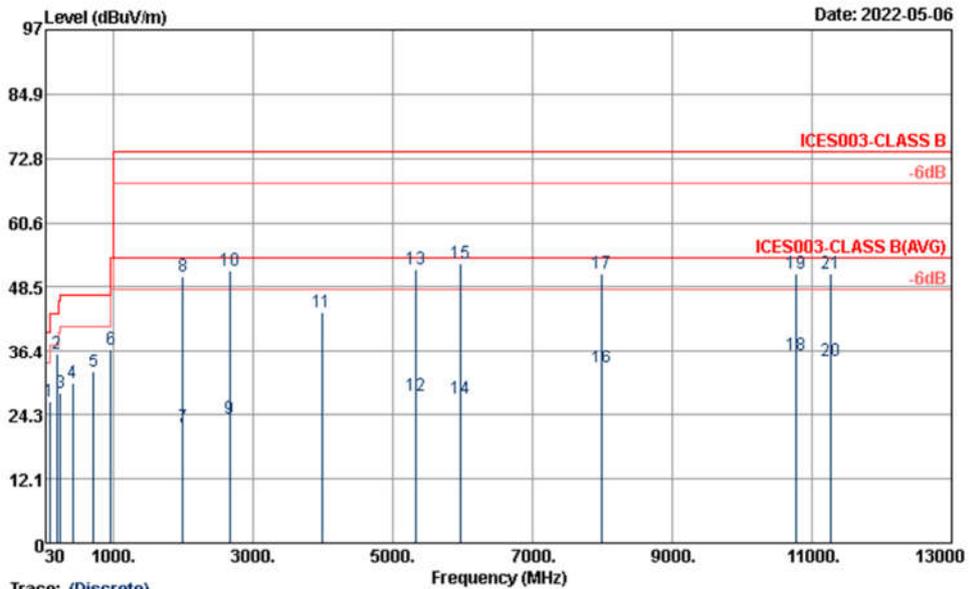
Site : 03CH06-HY
 Condition : ICES003-CLASS B 3m 9120B_1156 HORIZONTAL
 Project : 242614
 Power : From System
 Memo : Mode 1

| | Freq | Level | Over | Limit | Read | A/Pos | T/Pos | Remark |
|----|----------|--------|--------|--------|-------|--------|-------|-------------|
| | MHz | dBuV/m | Limit | Line | Level | Factor | cm | deg |
| | | | dB | dBuV/m | dBuV | dB/m | | |
| 1 | 85.62 | 30.39 | -9.61 | 40.00 | 46.10 | -15.71 | 237 | 360 QP |
| 2 | 193.89 | 37.14 | -6.36 | 43.50 | 51.43 | -14.29 | --- | --- |
| 3 | 234.12 | 34.99 | -12.01 | 47.00 | 47.22 | -12.23 | --- | --- |
| 4 | 367.20 | 34.33 | -12.67 | 47.00 | 41.91 | -7.58 | --- | --- |
| 5 | 479.20 | 35.14 | -11.86 | 47.00 | 39.53 | -4.39 | --- | --- |
| 6 | 960.00 | 39.13 | -7.87 | 47.00 | 33.60 | 5.53 | --- | --- |
| 7 | 1664.00 | 21.32 | -32.68 | 54.00 | 52.10 | -30.78 | 100 | 353 Average |
| 8 | 1664.00 | 48.42 | -25.58 | 74.00 | 79.20 | -30.78 | 100 | 353 Peak |
| 9 | 3308.00 | 43.49 | -30.51 | 74.00 | 68.03 | -24.54 | --- | --- |
| 10 | 6508.00 | 46.18 | -27.82 | 74.00 | 60.13 | -13.95 | --- | --- |
| 11 | 7892.00 | 33.26 | -20.74 | 54.00 | 44.90 | -11.64 | --- | --- |
| 12 | 7892.00 | 48.58 | -25.42 | 74.00 | 60.22 | -11.64 | --- | --- |
| 13 | 10738.00 | 35.71 | -18.29 | 54.00 | 41.10 | -5.39 | --- | --- |
| 14 | 10738.00 | 50.55 | -23.45 | 74.00 | 55.94 | -5.39 | --- | --- |
| 15 | 11456.00 | 35.11 | -18.89 | 54.00 | 39.61 | -4.50 | --- | --- |
| 16 | 11456.00 | 50.94 | -23.06 | 74.00 | 55.44 | -4.50 | --- | --- |



| | | | |
|-----------------------|---------------------------|---------------------------|----------|
| Test Engineer: | YouXian Chen,Howard Huang | Temperature: | 24~26°C |
| | | Relative Humidity: | 47~52% |
| Test Distance: | 3m | Polarization: | Vertical |

- Emission level (dBµV/m) = 20 log Emission level (µV/m)
- Factor(dB) = Antenna Factor + Cable Loss + Filter loss – Preamp Factor
- Corrected Reading: Factor(dB) + Read Level = Level
- The test that passed at the minimum margin was marked by the frame in the following test record



Trace: (Discrete)
 Site : 03CHO6-HY
 Condition : ICES003-CLASS B 3m 9120D_1156 VERTICAL
 Project : 242614
 Power : From System
 Memo : Mode 1

| | Freq | Level | Over Limit | Limit Line | Read Level | Factor | A/Pos | T/Pos | Remark |
|----|----------|--------|------------|------------|------------|--------|-------|-------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | cm | deg | |
| 1 | 86.43 | 26.67 | -13.33 | 40.00 | 42.33 | -15.66 | --- | --- | Peak |
| 2 | 191.46 | 36.07 | -7.43 | 43.50 | 50.47 | -14.40 | --- | --- | Peak |
| 3 | 237.63 | 28.42 | -18.58 | 47.00 | 40.17 | -11.75 | --- | --- | Peak |
| 4 | 419.70 | 30.32 | -16.68 | 47.00 | 35.73 | -5.41 | --- | --- | Peak |
| 5 | 720.70 | 32.35 | -14.65 | 47.00 | 32.28 | 0.07 | --- | --- | Peak |
| 6 | 960.00 | 36.63 | -10.37 | 47.00 | 31.10 | 5.53 | --- | --- | Peak |
| 7 | 1990.00 | 21.84 | -32.16 | 54.00 | 50.80 | -28.96 | 100 | 215 | Average |
| 8 | 1990.00 | 50.64 | -23.36 | 74.00 | 79.60 | -28.96 | 100 | 215 | Peak |
| 9 | 2666.00 | 23.57 | -30.43 | 54.00 | 49.51 | -25.94 | 100 | 360 | Average |
| 10 | 2666.00 | 51.48 | -22.52 | 74.00 | 77.42 | -25.94 | 100 | 360 | Peak |
| 11 | 3986.00 | 43.75 | -30.25 | 74.00 | 65.18 | -21.43 | --- | --- | Peak |
| 12 | 5324.00 | 27.80 | -26.20 | 54.00 | 46.61 | -18.81 | 100 | 203 | Average |
| 13 | 5324.00 | 52.00 | -22.00 | 74.00 | 70.81 | -18.81 | 100 | 203 | Peak |
| 14 | 5972.00 | 27.39 | -26.61 | 54.00 | 44.49 | -17.10 | 100 | 3 | Average |
| 15 | 5972.00 | 52.94 | -21.06 | 74.00 | 70.04 | -17.10 | 100 | 3 | Peak |
| 16 | 7988.00 | 33.33 | -20.67 | 54.00 | 44.51 | -11.18 | --- | --- | Average |
| 17 | 7988.00 | 51.17 | -22.83 | 74.00 | 62.35 | -11.18 | --- | --- | Peak |
| 18 | 10764.00 | 35.77 | -18.23 | 54.00 | 40.99 | -5.22 | --- | --- | Average |
| 19 | 10764.00 | 51.16 | -22.84 | 74.00 | 56.38 | -5.22 | --- | --- | Peak |
| 20 | 11266.00 | 34.56 | -19.44 | 54.00 | 39.40 | -4.84 | --- | --- | Average |
| 21 | 11266.00 | 51.07 | -22.93 | 74.00 | 55.91 | -4.84 | --- | --- | Peak |

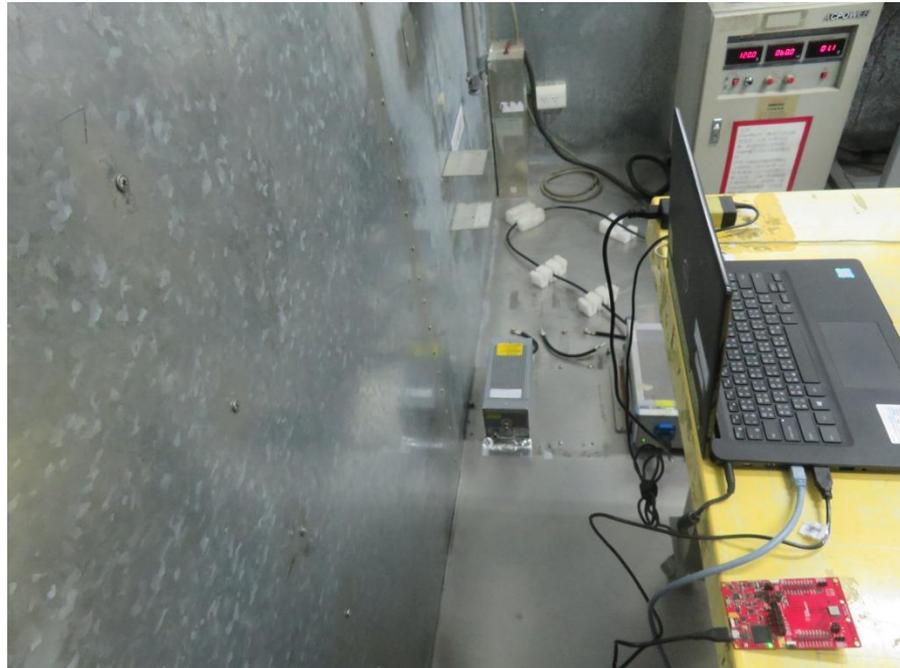
Appendix C. Setup Photographs

<Conducted Emission>

Mode 1

Remote View





Rear View



<Radiated Emission>

Mode 1

LF



HF



—————THE END—————