



# FCC CO-LOCATION RADIO TEST REPORT

**FCC ID** : PY321100529  
**Equipment** : Netgear 5G MHS Travel Router  
**Brand Name** : Netgear  
**Model Name** : MR6500  
**Applicant** : Netgear Inc  
350 E. Plumeria Drive, San Jose, CA 95134, United States  
**Manufacturer** : Netgear Inc  
350 E. Plumeria Drive, San Jose, CA 95134, United States  
**Standard** : FCC Part 15 Subpart E §15.407

The product was received on Nov. 04, 2021 and testing was performed from Dec. 17, 2021 to Dec. 20, 2021. 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 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.

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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### History of this test report

| Report No. | Version | Description             | Issue Date    |
|------------|---------|-------------------------|---------------|
| FR190614E  | 01      | Initial issue of report | Jan. 28, 2022 |
|            |         |                         |               |
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|            |         |                         |               |



### Summary of Test Result

| Report Clause | Ref Std. Clause     | Test Items          | Result (PASS/FAIL) | Remark                                |
|---------------|---------------------|---------------------|--------------------|---------------------------------------|
| 3.1           | 15.407(b)           | Unwanted Emissions  | Pass               | 6.01 dB under the limit at 85.890 MHz |
| 3.2           | 15.203<br>15.407(a) | Antenna Requirement | Pass               | -                                     |

**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: Avis Chuang**  
**Report Producer: Vivian Hsu**



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

LTE/5G NR, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, Wi-Fi 6GHz 802.11a/n/ac/ax, and GPS

| Product Feature       |                                                                                                                                                             |                              |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Antenna Type          | WWAN:<br><Ant. 1>: Monopole Antenna<br><Ant. 2>: Monopole Antenna<br>WLAN:<br><Ant. 3>: Monopole Antenna<br><Ant. 4>: Monopole Antenna<br>GPS: PIFA Antenna |                              |
| Antenna information   |                                                                                                                                                             |                              |
| 2400 MHz ~ 2483.5 MHz | Peak Gain (dBi)                                                                                                                                             | Ant. 3: 2.63<br>Ant. 4: 2.15 |
| 5150 MHz ~ 5250 MHz   | Peak Gain (dBi)                                                                                                                                             | Ant. 3: 3.29<br>Ant. 4: 2.59 |

**Remark:** 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 Testing Location

|                           |                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Test Site</b>          | Sporton International Inc. EMC & Wireless Communications Laboratory                                                       |
| <b>Test Site Location</b> | No.52, Huaya 1st Rd., Guishan Dist.,<br>Taoyuan City 333, Taiwan (R.O.C.)<br>TEL: +886-3-327-3456<br>FAX: +886-3-328-4978 |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b><br>03CH07-HY                                                                                      |

**Note:** The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW1190

### 1.4 Applicable Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ ANSI C63.10-2013

**Remark:**

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



## 2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find X plane as worst plane.

### 2.1 Carrier Frequency and Channel

| 2400-2483.5 MHz<br>802.11b |             | 5150-5250 MHz<br>802.11a |             |
|----------------------------|-------------|--------------------------|-------------|
| Channel                    | Freq. (MHz) | Channel                  | Freq. (MHz) |
| 11                         | 2462        | 36                       | 5180        |

### 2.2 Test Mode

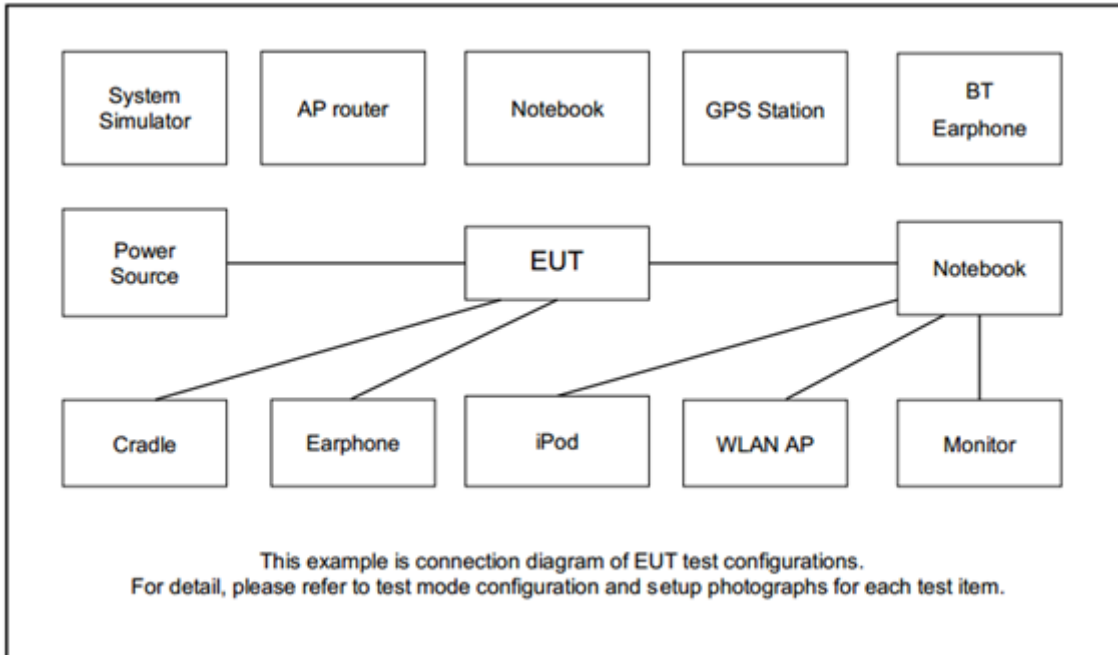
The final test modes consider the modulation and the worst data rates as shown in the table below.

#### <Co-Location>

| Modulation                                                                   | Data Rate              |
|------------------------------------------------------------------------------|------------------------|
| 2.4GHz 802.11b for Ant. 3 + 5GHz 802.11a for Ant. 4 + LTE Band 48 for Ant. 1 | 1 Mbps + 6 Mbps + QPSK |
| 2.4GHz 802.11b for Ant. 4 + 5GHz 802.11a for Ant. 3 + LTE Band 30 for Ant. 2 | 1 Mbps + 6 Mbps + QPSK |

Remark: For Radiated Test Cases, the tests were performed with Adapter 1.

### 2.3 Connection Diagram of Test System



### 2.4 Support Unit used in test configuration and system

| Item | Equipment        | Brand Name | Model Name | FCC ID | Data Cable | Power Cord        |
|------|------------------|------------|------------|--------|------------|-------------------|
| 1.   | System Simulator | Anritsu    | MT8821C    | N/A    | N/A        | Unshielded, 1.8 m |

### 2.5 EUT Operation Test Setup

The RF test items, utility “QSPR v5.0.00188” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.





### 3 Test Result

#### 3.1 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

##### 3.1.1 Limit of Unwanted Emissions

(1) Unwanted spurious emissions falls in restricted bands shall comply with the general field strength limits as below table:

| Frequency (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009 – 0.490   | 2400/F(kHz)                       | 300                           |
| 0.490 – 1.705   | 24000/F(kHz)                      | 30                            |
| 1.705 – 30.0    | 30                                | 30                            |
| 30 – 88         | 100                               | 3                             |
| 88 – 216        | 150                               | 3                             |
| 216 - 960       | 200                               | 3                             |
| Above 960       | 500                               | 3                             |

Note: The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$

| EIRP (dBm) | Field Strength at 3m (dBμV/m) |
|------------|-------------------------------|
| - 27       | 68.3                          |

(2) KDB789033 D02 v02r01 G)2)c)

(i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.

(ii) Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are based on the use of a peak detector.



### 3.1.2 Measuring Instruments

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

### 3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Section G) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000 MHz

- RBW = 120 kHz
- VBW = 300 kHz
- Detector = Peak
- Trace mode = max hold

(2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

- RBW = 1 MHz
- VBW  $\geq$  3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

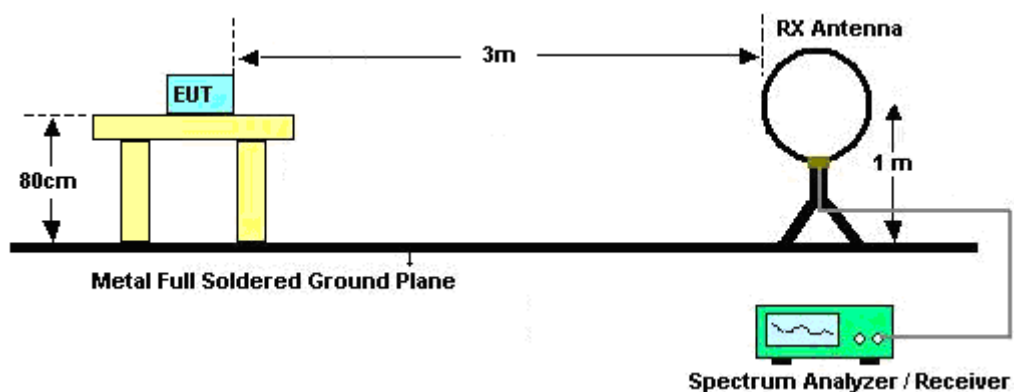
(3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz

- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW  $\geq$  1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

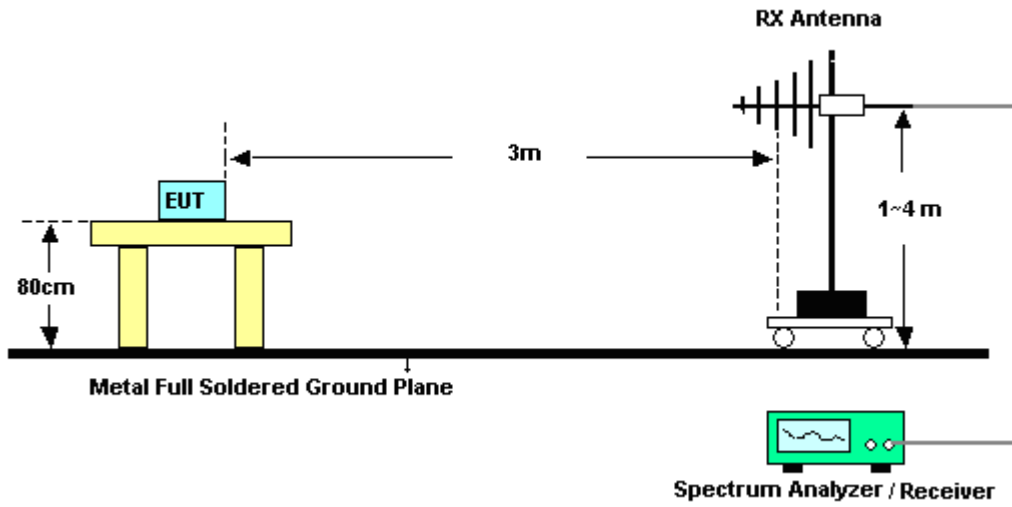
2. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
3. The EUT is set 3 meters away from the receiving antenna which is mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and 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 adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-”.
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.

### 3.1.4 Test Setup

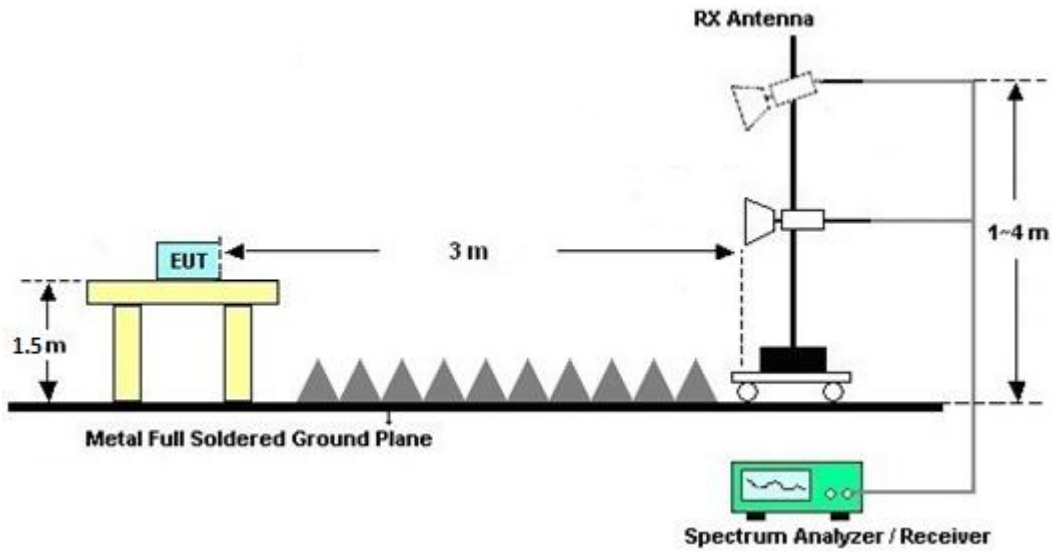
For radiated emissions below 30MHz



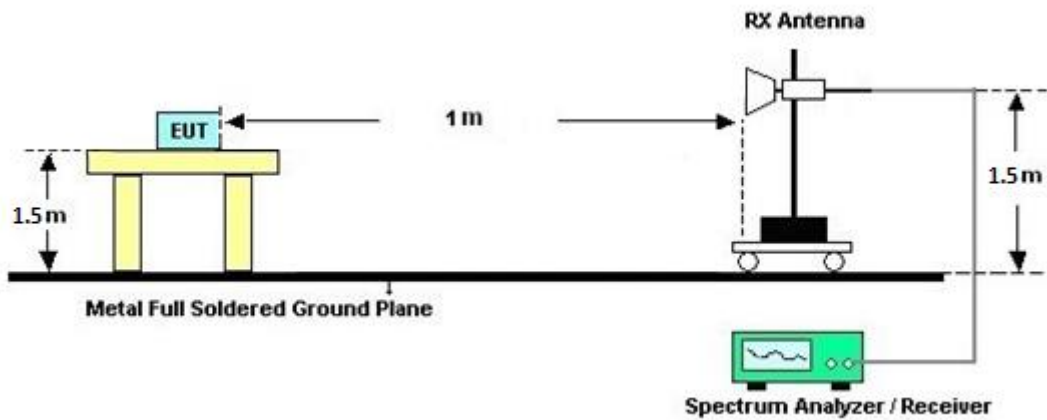
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



### 3.1.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

### 3.1.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A and B.

### 3.1.7 Duty Cycle

Please refer to Appendix C.

### 3.1.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix A and B.



## **3.2 Antenna Requirements**

### **3.2.1 Standard Applicable**

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **3.2.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.

### **3.2.3 Antenna Gain**

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



## 4 List of Measuring Equipment

| Instrument                | Brand Name      | Model No.                  | Serial No.            | Characteristics      | Calibration Date | Test Date                       | Due Date      | Remark                   |
|---------------------------|-----------------|----------------------------|-----------------------|----------------------|------------------|---------------------------------|---------------|--------------------------|
| Bilog Antenna             | TESEQ           | CBL 6111D & 00800N1D01N-06 | 35419 & 03            | 30MHz~1GHz           | Apr. 28, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Apr. 27, 2022 | Radiation<br>(03CH07-HY) |
| Double Ridge Horn Antenna | ESCO            | 3117                       | 00075962              | 1GHz ~ 18GHz         | Dec. 03, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Dec. 02, 2022 | Radiation<br>(03CH07-HY) |
| Loop Antenna              | Rohde & Schwarz | HFH2-Z2                    | 100315                | 9 kHz~30 MHz         | Jan. 04, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Jan. 03, 2022 | Radiation<br>(03CH07-HY) |
| Preamplifier              | MITEQ           | AMF-7D-00101<br>800-30-10P | 1590075               | 1GHz~18GHz           | Apr. 22, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Apr. 21, 2022 | Radiation<br>(03CH07-HY) |
| Preamplifier              | COM-POWER       | PA-103A                    | 161241                | 10MHz~1GHz           | Oct. 04, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Oct. 03, 2022 | Radiation<br>(03CH07-HY) |
| Preamplifier              | Agilent         | 8449B                      | 3008A02362            | 1GHz~26.5GHz         | Oct. 04, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Oct. 03, 2022 | Radiation<br>(03CH07-HY) |
| Preamplifier              | EMEC            | EM18G40G                   | 0600789               | 18-40GHz             | Jul. 23, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Jul. 22, 2022 | Radiation<br>(03CH07-HY) |
| Spectrum Analyzer         | Agilent         | N9030A                     | MY52350276            | 3Hz~44GHz            | Jul. 22, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Jul. 21, 2022 | Radiation<br>(03CH07-HY) |
| RF Cable                  | HUBER + SUHNER  | SUCOFLEX 104               | MY15682-4             | 30MHz to 18GHz       | Feb. 24, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Feb. 23, 2022 | Radiation<br>(03CH07-HY) |
| RF Cable                  | HUBER + SUHNER  | SUCOFLEX 104               | MY24971-4             | 9kHz to 18GHz        | Feb. 24, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Feb. 23, 2022 | Radiation<br>(03CH07-HY) |
| RF Cable                  | HUBER + SUHNER  | SUCOFLEX 104               | MY28655-4             | 9kHz to 18GHz        | Feb. 24, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Feb. 23, 2022 | Radiation<br>(03CH07-HY) |
| RF Cable                  | HUBER + SUHNER  | SUCOFLEX 102               | MY2858/2,801<br>606/2 | 18GHz~40GHz          | Feb. 24, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Feb. 23, 2022 | Radiation<br>(03CH07-HY) |
| RF Cable                  | HUBER + SUHNER  | SUCOFLEX 126               | 532078/126E           | 30MHz~18GHz          | Sep. 17, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Sep. 16, 2022 | Radiation<br>(03CH07-HY) |
| RF Cable                  | HUBER + SUHNER  | SUCOFLEX 102               | 801606/2              | 9KHz ~ 40GHz         | Apr. 03, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Apr. 02, 2022 | Radiation<br>(03CH07-HY) |
| Controller                | EMEC            | EM1000                     | N/A                   | Control Ant Mast     | N/A              | Dec. 17, 2021~<br>Dec. 20, 2021 | N/A           | Radiation<br>(03CH07-HY) |
| Controller                | MF              | MF-7802                    | N/A                   | Control Turn table   | N/A              | Dec. 17, 2021~<br>Dec. 20, 2021 | N/A           | Radiation<br>(03CH07-HY) |
| Antenna Mast              | EMEC            | AM-BS-4500E                | N/A                   | Boresight mast 1M~4M | N/A              | Dec. 17, 2021~<br>Dec. 20, 2021 | N/A           | Radiation<br>(03CH07-HY) |
| Turn Table                | ChainTek        | Chaintek 3000              | N/A                   | 0~360 Degree         | N/A              | Dec. 17, 2021~<br>Dec. 20, 2021 | N/A           | Radiation<br>(03CH07-HY) |
| Software                  | Audix           | E3                         | N/A                   | N/A                  | N/A              | Dec. 17, 2021~<br>Dec. 20, 2021 | N/A           | Radiation<br>(03CH07-HY) |
| USB Data Logger           | TECPEL          | TR-32                      | HE17XB2495            | N/A                  | Mar. 09, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Mar. 08, 2022 | Radiation<br>(03CH07-HY) |
| SHF-EHF Horn Antenna      | SCHWARZBECK     | BBHA 9170                  | BBHA9170251           | 18GHz~40GHz          | Nov. 30, 2021    | Dec. 17, 2021~<br>Dec. 20, 2021 | Nov. 29, 2022 | Radiation<br>(03CH07-HY) |



## 5 Uncertainty of Evaluation

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

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.1 dB |
|-------------------------------------------------------------------------|--------|

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

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.8 dB |
|-------------------------------------------------------------------------|--------|

### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.0 dB |
|-------------------------------------------------------------------------|--------|





## Appendix A. Radiated Spurious Emission

|                 |                                   |                     |             |
|-----------------|-----------------------------------|---------------------|-------------|
| Test Engineer : | Jesse Wang, Stan Hsieh and Ken Wu | Temperature :       | 23.1~25.3°C |
|                 |                                   | Relative Humidity : | 53.6~59.1%  |

2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 3 + 802.11a\_Tx\_CH36\_ANT 4 + LTE Band 48\_ANT 1

(Band Edge @ 3m)

| WIFI Ant.                   | Note                                                                                        | Frequency ( MHz ) | Level ( dBμV/m ) | Over Limit ( dB ) | Limit Line ( dBμV/m ) | Read Level ( dBμV ) | Antenna Factor ( dB/m ) | Path Loss ( dB ) | Preamp Factor ( dB ) | Ant Pos ( cm ) | Table Pos ( deg ) | Peak Avg. (P/A) | Pol. (H/V) |
|-----------------------------|---------------------------------------------------------------------------------------------|-------------------|------------------|-------------------|-----------------------|---------------------|-------------------------|------------------|----------------------|----------------|-------------------|-----------------|------------|
| 802.11b<br>CH 11<br>2462MHz | *                                                                                           | 2462              | 104.88           | -                 | -                     | 89.84               | 32.25                   | 18.23            | 35.44                | 170            | 20                | P               | H          |
|                             | *                                                                                           | 2462              | 101.7            | -                 | -                     | 86.66               | 32.25                   | 18.23            | 35.44                | 170            | 20                | A               | H          |
|                             |                                                                                             | 2494.76           | 55.14            | -18.86            | 74                    | 39.97               | 32.38                   | 18.25            | 35.46                | 170            | 20                | P               | H          |
|                             |                                                                                             | 2494.92           | 44.21            | -9.79             | 54                    | 29.04               | 32.38                   | 18.25            | 35.46                | 170            | 20                | A               | H          |
|                             |                                                                                             |                   |                  |                   |                       |                     |                         |                  |                      |                |                   |                 | H          |
|                             |                                                                                             |                   |                  |                   |                       |                     |                         |                  |                      |                |                   |                 | H          |
|                             | *                                                                                           | 2462              | 98.43            | -                 | -                     | 83.39               | 32.25                   | 18.23            | 35.44                | 177            | 360               | P               | V          |
|                             | *                                                                                           | 2462              | 95.17            | -                 | -                     | 80.13               | 32.25                   | 18.23            | 35.44                | 177            | 360               | A               | V          |
|                             |                                                                                             | 2488.68           | 54.3             | -19.7             | 74                    | 39.16               | 32.35                   | 18.24            | 35.45                | 177            | 360               | P               | V          |
|                             |                                                                                             | 2494.04           | 44.21            | -9.79             | 54                    | 29.04               | 32.38                   | 18.25            | 35.46                | 177            | 360               | A               | V          |
|                             |                                                                                             |                   |                  |                   |                       |                     |                         |                  |                      |                |                   |                 | V          |
|                             |                                                                                             |                   |                  |                   |                       |                     |                         |                  |                      |                |                   |                 | V          |
| Remark                      | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                   |                  |                   |                       |                     |                         |                  |                      |                |                   |                 |            |



**2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz**

**802.11b\_Tx\_CH11\_ANT 3 + 802.11a\_Tx\_CH36\_ANT 4 + LTE Band 48\_ANT 1**

**(Band Edge @ 3m)**

| WIFI Ant.                   | Note                                                                                        | Frequency | Level      | Over Limit | Limit Line | Read Level | Antenna Factor | Path Loss | Preamp Factor | Ant Pos | Table Pos | Peak Avg. | Pol.  |   |
|-----------------------------|---------------------------------------------------------------------------------------------|-----------|------------|------------|------------|------------|----------------|-----------|---------------|---------|-----------|-----------|-------|---|
| Simultaneously              |                                                                                             | ( MHz )   | ( dBμV/m ) | ( dB )     | ( dBμV/m ) | ( dBμV )   | ( dB/m )       | ( dB )    | ( dB )        | ( cm )  | ( deg )   | (P/A)     | (H/V) |   |
| 802.11a<br>CH 36<br>5180MHz |                                                                                             | 5104.26   | 49.87      | -24.13     | 74         | 39.03      | 34.4           | 11.74     | 35.3          | 103     | 121       | P         | H     |   |
|                             |                                                                                             | 5132.86   | 39.95      | -14.05     | 54         | 29.07      | 34.4           | 11.77     | 35.29         | 103     | 121       | A         | H     |   |
|                             | *                                                                                           | 5180      | 100.36     | -          | -          | 89.28      | 34.52          | 11.83     | 35.27         | 103     | 121       | P         | H     |   |
|                             | *                                                                                           | 5180      | 92.68      | -          | -          | 81.6       | 34.52          | 11.83     | 35.27         | 103     | 121       | A         | H     |   |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           | H     |   |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           | H     |   |
|                             |                                                                                             |           | 5050.7     | 49.49      | -24.51     | 74         | 38.94          | 34.2      | 11.68         | 35.33   | 100       | 302       | P     | V |
|                             |                                                                                             |           | 5150       | 40.19      | -13.81     | 54         | 29.28          | 34.4      | 11.79         | 35.28   | 100       | 302       | A     | V |
|                             | *                                                                                           |           | 5180       | 102.41     | -          | -          | 91.33          | 34.52     | 11.83         | 35.27   | 100       | 302       | P     | V |
|                             | *                                                                                           |           | 5180       | 94.98      | -          | -          | 83.9           | 34.52     | 11.83         | 35.27   | 100       | 302       | A     | V |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           | V     |   |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           | V         |       |   |
| <b>Remark</b>               | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |           |            |            |            |            |                |           |               |         |           |           |       |   |



2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 3 + 802.11a\_Tx\_CH36\_ANT 4 + LTE Band 48\_ANT 1

(Harmonic @ 3m)

| WIFI Ant.                                                       | Note                                                                                                                                                                                                                                                                                        | Frequency | Level      | Over Limit | Limit Line | Read Level | Antenna Factor | Path Loss | Preamp Factor | Ant Pos | Table Pos | Peak Avg. | Pol.  |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|------------|------------|------------|----------------|-----------|---------------|---------|-----------|-----------|-------|
| Simultaneously                                                  |                                                                                                                                                                                                                                                                                             | ( MHz )   | ( dBμV/m ) | ( dB )     | ( dBμV/m ) | ( dBμV )   | ( dB/m )       | ( dB )    | ( dB )        | ( cm )  | ( deg )   | (P/A)     | (H/V) |
| 802.11b<br>CH 11<br>2462MHz<br>+<br>802.11a<br>CH 36<br>5180MHz |                                                                                                                                                                                                                                                                                             | 4924      | 50.52      | -23.48     | 74         | 39.96      | 34.25          | 11.64     | 35.33         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 7386      | 43.94      | -30.06     | 74         | 50.38      | 36.24          | 15.3      | 57.98         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 10360     | 49.73      | -18.47     | 68.2       | 52.81      | 37.66          | 18.57     | 59.31         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 15540     | 48.1       | -25.9      | 74         | 40.9       | 41.1           | 23.33     | 57.23         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 4924      | 50.17      | -23.83     | 74         | 39.61      | 34.25          | 11.64     | 35.33         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 7386      | 42.46      | -31.54     | 74         | 48.9       | 36.24          | 15.3      | 57.98         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 10360     | 50.3       | -17.9      | 68.2       | 53.38      | 37.66          | 18.57     | 59.31         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 15540     | 47.64      | -26.36     | 74         | 40.44      | 41.1           | 23.33     | 57.23         | -       | -         | P         | V     |
| Remark                                                          | <ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> <li>The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.</li> </ol> |           |            |            |            |            |                |           |               |         |           |           |       |



**2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz**

**802.11b\_Tx\_CH11\_ANT 4 + 802.11a\_Tx\_CH36\_ANT 3 + LTE Band 30\_ANT 2**

**(Band Edge @ 3m)**

| WIFI Ant.                   | Note                                                                                        | Frequency | Level      | Over Limit | Limit Line | Read Level | Antenna Factor | Path Loss | Preamp Factor | Ant Pos | Table Pos | Peak Avg. | Pol.  |   |
|-----------------------------|---------------------------------------------------------------------------------------------|-----------|------------|------------|------------|------------|----------------|-----------|---------------|---------|-----------|-----------|-------|---|
| Simultaneously              |                                                                                             | ( MHz )   | ( dBμV/m ) | ( dB )     | ( dBμV/m ) | ( dBμV )   | ( dB/m )       | ( dB )    | ( dB )        | ( cm )  | ( deg )   | (P/A)     | (H/V) |   |
| 802.11b<br>CH 11<br>2462MHz | *                                                                                           | 2462      | 103.11     | -          | -          | 88.07      | 32.25          | 18.23     | 35.44         | 282     | 162       | P         | H     |   |
|                             | *                                                                                           | 2462      | 100.01     | -          | -          | 84.97      | 32.25          | 18.23     | 35.44         | 282     | 162       | A         | H     |   |
|                             |                                                                                             | 2499.2    | 54.9       | -19.1      | 74         | 39.7       | 32.4           | 18.26     | 35.46         | 282     | 162       | P         | H     |   |
|                             |                                                                                             | 2493.12   | 44.11      | -9.89      | 54         | 28.95      | 32.37          | 18.25     | 35.46         | 282     | 162       | A         | H     |   |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           | H     |   |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           |       | H |
|                             | *                                                                                           | 2462      | 98.04      | -          | -          | 83         | 32.25          | 18.23     | 35.44         | 369     | 51        | P         | V     |   |
|                             | *                                                                                           | 2462      | 95.08      | -          | -          | 80.04      | 32.25          | 18.23     | 35.44         | 369     | 51        | A         | V     |   |
|                             |                                                                                             | 2492.2    | 54.85      | -19.15     | 74         | 39.69      | 32.37          | 18.25     | 35.46         | 369     | 51        | P         | V     |   |
|                             |                                                                                             | 2492.96   | 44.19      | -9.81      | 54         | 29.03      | 32.37          | 18.25     | 35.46         | 369     | 51        | A         | V     |   |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           |       | V |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           | V     |   |
| <b>Remark</b>               | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |           |            |            |            |            |                |           |               |         |           |           |       |   |



**2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz**

**802.11b\_Tx\_CH11\_ANT 4 + 802.11a\_Tx\_CH36\_ANT 3 + LTE Band 30\_ANT 2**

**(Band Edge @ 3m)**

| WIFI Ant.                   | Note                                                                                        | Frequency | Level      | Over Limit | Limit Line | Read Level | Antenna Factor | Path Loss | Preamp Factor | Ant Pos | Table Pos | Peak Avg. | Pol.  |   |
|-----------------------------|---------------------------------------------------------------------------------------------|-----------|------------|------------|------------|------------|----------------|-----------|---------------|---------|-----------|-----------|-------|---|
| Simultaneously              |                                                                                             | ( MHz )   | ( dBμV/m ) | ( dB )     | ( dBμV/m ) | ( dBμV )   | ( dB/m )       | ( dB )    | ( dB )        | ( cm )  | ( deg )   | (P/A)     | (H/V) |   |
| 802.11a<br>CH 36<br>5180MHz |                                                                                             | 5109.46   | 49.3       | -24.7      | 74         | 38.45      | 34.4           | 11.75     | 35.3          | 100     | 117       | P         | H     |   |
|                             |                                                                                             | 5131.3    | 39.98      | -14.02     | 54         | 29.1       | 34.4           | 11.77     | 35.29         | 100     | 117       | A         | H     |   |
|                             | *                                                                                           | 5180      | 99.13      | -          | -          | 88.05      | 34.52          | 11.83     | 35.27         | 100     | 117       | P         | H     |   |
|                             | *                                                                                           | 5180      | 91.52      | -          | -          | 80.44      | 34.52          | 11.83     | 35.27         | 100     | 117       | A         | H     |   |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           | H     |   |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           |       | H |
|                             |                                                                                             |           | 5037.44    | 48.85      | -25.15     | 74         | 38.3           | 34.23     | 11.66         | 35.34   | 100       | 296       | P     | V |
|                             |                                                                                             |           | 5130.26    | 39.95      | -14.05     | 54         | 29.07          | 34.4      | 11.77         | 35.29   | 100       | 296       | A     | V |
|                             | *                                                                                           |           | 5180       | 102.21     | -          | -          | 91.13          | 34.52     | 11.83         | 35.27   | 100       | 296       | P     | V |
|                             | *                                                                                           |           | 5180       | 94.87      | -          | -          | 83.79          | 34.52     | 11.83         | 35.27   | 100       | 296       | A     | V |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           |       | V |
|                             |                                                                                             |           |            |            |            |            |                |           |               |         |           |           | V     |   |
| <b>Remark</b>               | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |           |            |            |            |            |                |           |               |         |           |           |       |   |



**2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz**

**802.11b\_Tx\_CH11\_ANT 4 + 802.11a\_Tx\_CH36\_ANT 3 + LTE Band 30\_ANT 2**

**(Band Edge @ 3m)**

| WIFI Ant.                                                       | Note                                                                                                                                                                                                                                                                                        | Frequency | Level      | Over Limit | Limit Line | Read Level | Antenna Factor | Path Loss | Preamp Factor | Ant Pos | Table Pos | Peak Avg. | Pol.  |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|------------|------------|------------|----------------|-----------|---------------|---------|-----------|-----------|-------|
| Simultaneously                                                  |                                                                                                                                                                                                                                                                                             | ( MHz )   | ( dBμV/m ) | ( dB )     | ( dBμV/m ) | ( dBμV )   | ( dB/m )       | ( dB )    | ( dB )        | ( cm )  | ( deg )   | (P/A)     | (H/V) |
| 802.11b<br>CH 11<br>2462MHz<br>+<br>802.11a<br>CH 36<br>5180MHz |                                                                                                                                                                                                                                                                                             | 4924      | 49.98      | -24.02     | 74         | 39.42      | 34.25          | 11.64     | 35.33         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 7386      | 41.81      | -32.19     | 74         | 48.25      | 36.24          | 15.3      | 57.98         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 10360     | 50.7       | -17.5      | 68.2       | 53.78      | 37.66          | 18.57     | 59.31         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 15540     | 47.43      | -26.57     | 74         | 40.23      | 41.1           | 23.33     | 57.23         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 4924      | 49.68      | -24.32     | 74         | 39.12      | 34.25          | 11.64     | 35.33         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 7386      | 41.48      | -32.52     | 74         | 47.92      | 36.24          | 15.3      | 57.98         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 10360     | 48.6       | -19.6      | 68.2       | 51.68      | 37.66          | 18.57     | 59.31         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                                                                                             | 15540     | 47.31      | -26.69     | 74         | 40.11      | 41.1           | 23.33     | 57.23         | -       | -         | P         | V     |
| Remark                                                          | <ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> <li>The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.</li> </ol> |           |            |            |            |            |                |           |               |         |           |           |       |



Emission below 1GHz

2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 3 + 802.11a\_Tx\_CH36\_ANT 4 + LTE Band 48\_ANT 1

(LF)

| WIFI                                                            | Note                                                                                                                                                                                                                  | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Path   | Preamp | Ant    | Table   | Peak    | Pol.    |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|---------|---------|
| Ant.                                                            |                                                                                                                                                                                                                       | ( MHz )   | ( dBμV/m ) | ( dB ) | Limit      | Level    | Factor   | Loss   | Factor | Pos    | Pos     | Avg.    |         |
| Simultaneously                                                  |                                                                                                                                                                                                                       |           |            |        | ( dBμV/m ) | ( dBμV ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | ( P/A ) | ( H/V ) |
| 802.11b<br>CH 11<br>2462MHz<br>+<br>802.11a<br>CH 36<br>5180MHz |                                                                                                                                                                                                                       | 57        | 27.92      | -12.08 | 40         | 44.41    | 12.17    | 1.35   | 30.01  | -      | -       | P       | H       |
|                                                                 |                                                                                                                                                                                                                       | 89.94     | 35.29      | -8.21  | 43.5       | 49.03    | 14.66    | 1.59   | 29.99  | -      | -       | P       | H       |
|                                                                 |                                                                                                                                                                                                                       | 162.03    | 30.01      | -13.49 | 43.5       | 41.46    | 16.41    | 2.12   | 29.98  | -      | -       | P       | H       |
|                                                                 |                                                                                                                                                                                                                       | 772.5     | 30.2       | -15.8  | 46         | 27.75    | 27.77    | 4.32   | 29.64  | -      | -       | P       | H       |
|                                                                 |                                                                                                                                                                                                                       | 878.9     | 31.48      | -14.52 | 46         | 27.16    | 28.73    | 4.64   | 29.05  | -      | -       | P       | H       |
|                                                                 |                                                                                                                                                                                                                       | 951.7     | 32.87      | -13.13 | 46         | 26.3     | 30.39    | 4.88   | 28.7   | -      | -       | P       | H       |
|                                                                 |                                                                                                                                                                                                                       | 30        | 32.78      | -7.22  | 40         | 37.34    | 24.57    | 0.9    | 30.03  | -      | -       | P       | V       |
|                                                                 |                                                                                                                                                                                                                       | 57.54     | 32.38      | -7.62  | 40         | 49.02    | 12.01    | 1.36   | 30.01  | -      | -       | P       | V       |
|                                                                 |                                                                                                                                                                                                                       | 85.89     | 33.99      | -6.01  | 40         | 48.3     | 14.1     | 1.59   | 30     | -      | -       | P       | V       |
|                                                                 |                                                                                                                                                                                                                       | 771.1     | 30.2       | -15.8  | 46         | 27.77    | 27.76    | 4.31   | 29.64  | -      | -       | P       | V       |
|                                                                 |                                                                                                                                                                                                                       | 874       | 31.69      | -14.31 | 46         | 27.35    | 28.8     | 4.63   | 29.09  | -      | -       | P       | V       |
|                                                                 | 957.3                                                                                                                                                                                                                 | 33.82     | -12.18     | 46     | 26.93      | 30.67    | 4.9      | 28.68  | -      | -      | P       | V       |         |
| Remark                                                          | 1. No other spurious found.<br>2. All results are PASS against limit line.<br>3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. |           |            |        |            |          |          |        |        |        |         |         |         |



Emission below 1GHz  
 2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz  
 802.11b\_Tx\_CH11\_ANT 4 + 802.11a\_Tx\_CH36\_ANT 3 + LTE Band 30\_ANT 2  
 (LF)

| WIFI Ant.                                                       | Note                                                                                                                                                                                                                  | Frequency | Level      | Over Limit | Limit Line | Read Level | Antenna Factor | Path Loss | Preamp Factor | Ant Pos | Table Pos | Peak Avg. | Pol.  |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|------------|------------|------------|----------------|-----------|---------------|---------|-----------|-----------|-------|
| Simultaneously                                                  |                                                                                                                                                                                                                       | ( MHz )   | ( dBμV/m ) | ( dB )     | ( dBμV/m ) | ( dBμV )   | ( dB/m )       | ( dB )    | ( dB )        | ( cm )  | ( deg )   | (P/A)     | (H/V) |
| 802.11b<br>CH 11<br>2462MHz<br>+<br>802.11a<br>CH 36<br>5180MHz |                                                                                                                                                                                                                       | 52.14     | 27.36      | -12.64     | 40         | 42.75      | 13.31          | 1.31      | 30.01         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                       | 91.29     | 34.23      | -9.27      | 43.5       | 47.82      | 14.79          | 1.61      | 29.99         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                       | 161.76    | 30.86      | -12.64     | 43.5       | 42.3       | 16.42          | 2.12      | 29.98         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                       | 806.8     | 29.76      | -16.24     | 46         | 27.22      | 27.65          | 4.43      | 29.54         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                       | 870.5     | 31.77      | -14.23     | 46         | 27.49      | 28.76          | 4.63      | 29.11         | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                       | 953.1     | 33.24      | -12.76     | 46         | 26.6       | 30.46          | 4.88      | 28.7          | -       | -         | P         | H     |
|                                                                 |                                                                                                                                                                                                                       | 30        | 31.8       | -8.2       | 40         | 36.36      | 24.57          | 0.9       | 30.03         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                       | 52.41     | 31.77      | -8.23      | 40         | 47.27      | 13.2           | 1.31      | 30.01         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                       | 86.7      | 33.39      | -6.61      | 40         | 47.57      | 14.23          | 1.59      | 30            | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                       | 773.2     | 29.61      | -16.39     | 46         | 27.15      | 27.78          | 4.32      | 29.64         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                       | 841.8     | 30.65      | -15.35     | 46         | 26.9       | 28.48          | 4.58      | 29.31         | -       | -         | P         | V     |
|                                                                 |                                                                                                                                                                                                                       | 953.8     | 33.26      | -12.74     | 46         | 26.58      | 30.49          | 4.89      | 28.7          | -       | -         | P         | V     |
| Remark                                                          | 1. No other spurious found.<br>2. All results are PASS against limit line.<br>3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. |           |            |            |            |            |                |           |               |         |           |           |       |





**Note symbol**

|     |                                                                                                                                                          |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| *   | <b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency. |
| !   | Test result is <b>over limit</b> line.                                                                                                                   |
| P/A | <b>Peak</b> or <b>Average</b>                                                                                                                            |
| H/V | <b>Horizontal</b> or <b>Vertical</b>                                                                                                                     |



A calculation example for radiated spurious emission is shown as below:

| WIFI    | Note | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Path   | Preamp | Ant    | Table   | Peak    | Pol.    |
|---------|------|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|---------|---------|
| Ant.    |      |           |            | Limit  | Line       | Level    | Factor   | Loss   | Factor | Pos    | Pos     | Avg.    |         |
| 1+2     |      | ( MHz )   | ( dBμV/m ) | ( dB ) | ( dBμV/m ) | ( dBμV ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | ( P/A ) | ( H/V ) |
| 802.11b |      | 2390      | 55.45      | -18.55 | 74         | 54.51    | 32.22    | 4.58   | 35.86  | 103    | 308     | P       | H       |
| CH 01   |      |           |            |        |            |          |          |        |        |        |         |         |         |
| 2412MHz |      | 2390      | 43.54      | -10.46 | 54         | 42.6     | 32.22    | 4.58   | 35.86  | 103    | 308     | A       | H       |

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =  
Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

1. Level(dBμV/m)  
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)  
= 55.45 (dBμV/m)
2. Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 55.45(dBμV/m) – 74(dBμV/m)  
= -18.55(dB)

**For Average Limit @ 2390MHz:**

1. Level(dBμV/m)  
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)  
= 43.54 (dBμV/m)
2. Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 43.54(dBμV/m) – 54(dBμV/m)  
= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



## Appendix B. Radiated Spurious Emission Plots

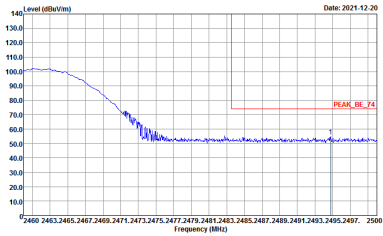
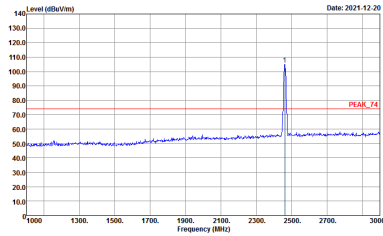
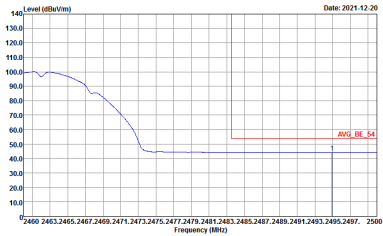
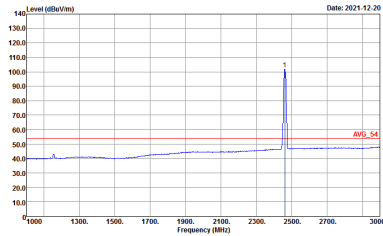
|                 |                                   |                     |             |
|-----------------|-----------------------------------|---------------------|-------------|
| Test Engineer : | Jesse Wang, Stan Hsieh and Ken Wu | Temperature :       | 23.1~25.3°C |
|                 |                                   | Relative Humidity : | 53.6~59.1%  |



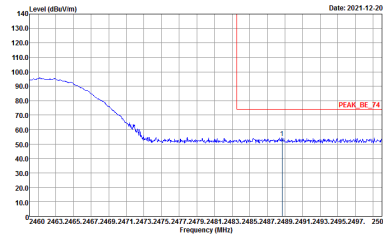
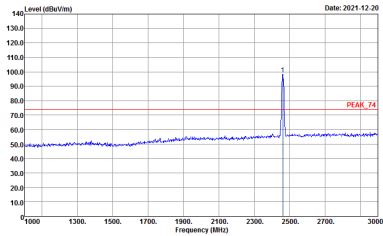
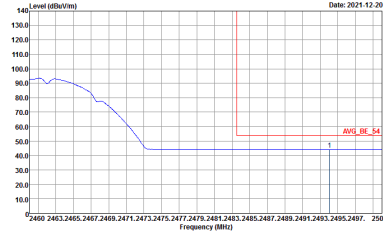
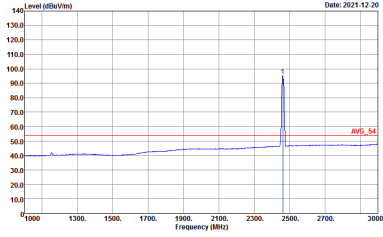
2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 3 + 802.11a\_Tx\_CH36\_ANT 4 + LTE Band 48\_ANT 1

(Band Edge @ 3m)

| ANT            | 802.11b CH11 2462MHz                                                                                                                                                                                              |                                                                                                                                                                                                                 |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously | Horizontal                                                                                                                                                                                                        | Fundamental                                                                                                                                                                                                     |
| Peak           |  <p>Site : 03CH07-HY<br/>Condition : PEAK_BE_74 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |  <p>Site : 03CH07-HY<br/>Condition : PEAK_74 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |
| Avg.           |  <p>Site : 03CH07-HY<br/>Condition : AVG_BE_54 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:0.030kHz SWT:Auto</p>   |  <p>Site : 03CH07-HY<br/>Condition : AVG_54 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:0.030kHz SWT:Auto</p>   |



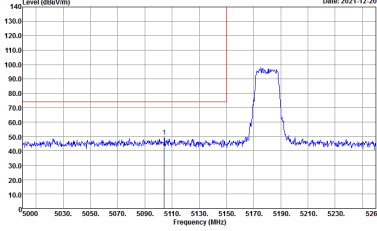
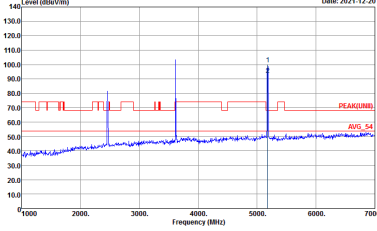
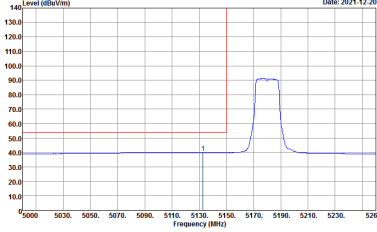
| ANT            | 802.11b CH11 2462MHz                                                                                                                                                                                                                    |                                                                                                                                                                                                                                       |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously | Vertical                                                                                                                                                                                                                                | Fundamental                                                                                                                                                                                                                           |
| Peak           |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : PEAK_BE_74 3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : PEAK_74 3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |
| Avg.           |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : AVG_BE_54 3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:0.010kHz SWT:Auto</p>   |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : AVG_54 3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:0.010kHz SWT:Auto</p>   |



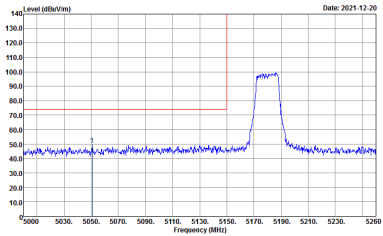
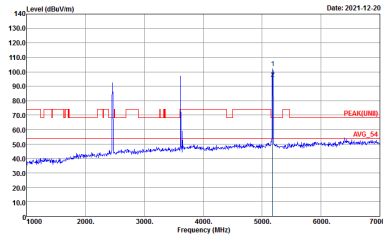
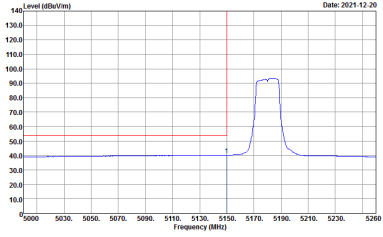
2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 3 + 802.11a\_Tx\_CH36\_ANT 4 + LTE Band 48\_ANT 1

(Band Edge @ 3m)

| ANT            | 802.11a CH36 5180MHz                                                                                                                                                                                               |                                                                                                                                                                                                                    |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously | Horizontal                                                                                                                                                                                                         | Fundamental                                                                                                                                                                                                        |
| Peak           |  <p>Site : 03CH07-HY<br/>Condition : PEAK_BE_74 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>  |  <p>Site : 03CH07-HY<br/>Condition : PEAK(LINE) 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |
| Avg.           |  <p>Site : 03CH07-HY<br/>Condition : AVG_BE_54 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> | Left blank                                                                                                                                                                                                         |



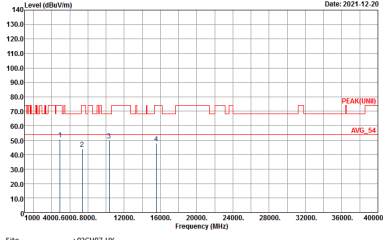
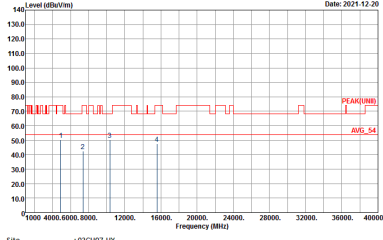
| ANT                   | 802.11a CH36 5180MHz                                                                                                                                                                                                               |                                                                                                                                                                                                                                      |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Simultaneously</b> | <b>Vertical</b><br> <p>Site : 03CH07-HY<br/>Condition : PEAK_BE_74.3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> | <b>Fundamental</b><br> <p>Site : 03CH07-HY<br/>Condition : PEAK[UN] 3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |
| <b>Peak</b>           |  <p>Site : 03CH07-HY<br/>Condition : AVG_BE_54.3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:3.000kHz SWT:Auto</p>                      | <b>Left blank</b>                                                                                                                                                                                                                    |



2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 3 + 802.11a\_Tx\_CH36\_ANT 4 + LTE Band 48\_ANT 1

(Band Edge @ 3m)

| ANT                                                            | 11b_Tx_Ch11_ANT3 + 11a_Tx_Ch36_ANT4 + LTE B48_ANT1                                                                                                                                                              |                                                                                                                                                                                                                |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously                                                 | Horizontal                                                                                                                                                                                                      | Vertical                                                                                                                                                                                                       |
| <p style="text-align: center;"><b>Peak</b><br/><b>Avg.</b></p> |  <p style="font-size: small;">Date: 2021.12.20<br/>Site : 08CH07-4Y<br/>Condition : PEAK[UM] 3m HF_ANT_00060504 HORIZONTAL</p> |  <p style="font-size: small;">Date: 2021.12.20<br/>Site : 08CH07-4Y<br/>Condition : PEAK[UM] 3m HF_ANT_00060504 VERTICAL</p> |

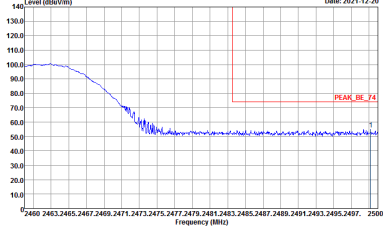
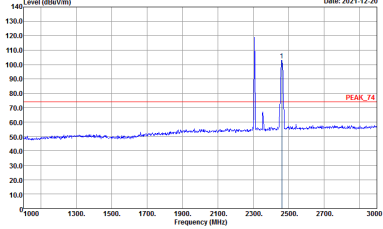
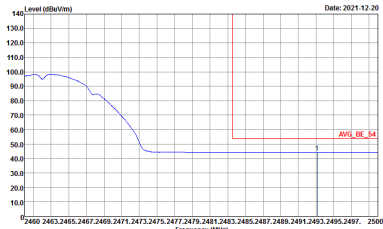
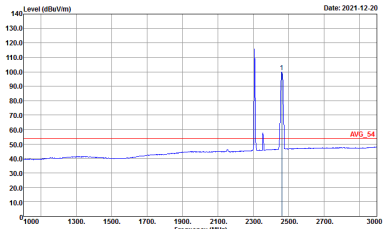




2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 4 + 802.11a\_Tx\_CH36\_ANT 3 + LTE Band 30\_ANT 2

(Band Edge @ 3m)

| ANT            | 802.11b CH11 2462MHz                                                                                                                                                                                                                      |                                                                                                                                                                                                                                         |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously | Horizontal                                                                                                                                                                                                                                | Fundamental                                                                                                                                                                                                                             |
| Peak           |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : PEAK_BE_74 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : PEAK_74 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |
| Avg.           |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : AVG_BE_54 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:0.010kHz SWT:Auto</p>   |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : AVG_54 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000kHz VBW:0.010kHz SWT:Auto</p>   |



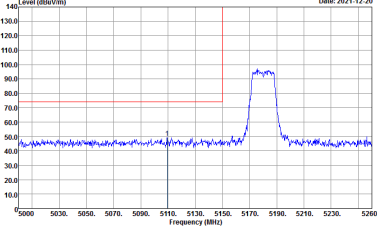
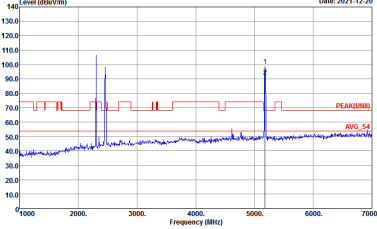
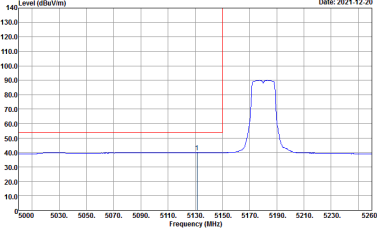
| ANT            | 802.11b CH11 2462MHz                                                                                                                                                                                                          |                                                                                                                                                                                                                         |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously | Vertical                                                                                                                                                                                                                      | Fundamental                                                                                                                                                                                                             |
| Peak           | <p style="text-align: right;">Date: 2021-12-20</p> <p style="text-align: right;">PEAK_BE_74</p> <p>Site : 03CH07-4Y<br/>Condition : PEAK_BE_74 3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> | <p style="text-align: right;">Date: 2021-12-20</p> <p style="text-align: right;">PEAK_74</p> <p>Site : 03CH07-4Y<br/>Condition : PEAK_74 3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |
| Avg.           | <p style="text-align: right;">Date: 2021-12-20</p> <p style="text-align: right;">AVG_BE_54</p> <p>Site : 03CH07-4Y<br/>Condition : AVG_BE_54 3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:0.010kHz SWT:Auto</p>      | <p style="text-align: right;">Date: 2021-12-20</p> <p style="text-align: right;">AVG_54</p> <p>Site : 03CH07-4Y<br/>Condition : AVG_54 3m HF_ANT_00066584 VERTICAL<br/>: RBW:1000.000kHz VBW:0.010kHz SWT:Auto</p>      |



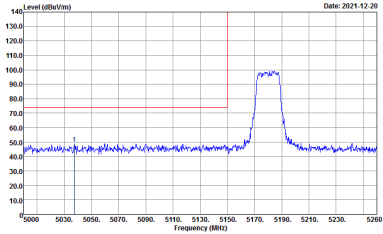
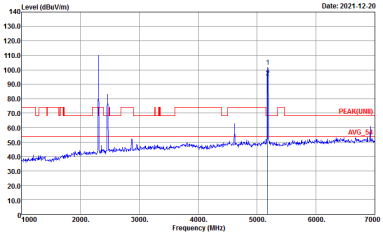
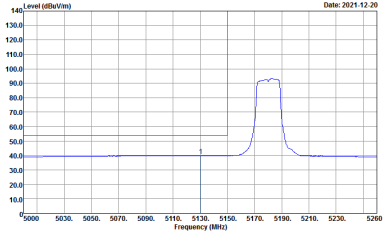
2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 4 + 802.11a\_Tx\_CH36\_ANT 3 + LTE Band 30\_ANT 2

(Band Edge @ 3m)

| ANT            | 802.11a CH36 5180MHz                                                                                                                                                                                                                      |                                                                                                                                                                                                                                          |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously | Horizontal                                                                                                                                                                                                                                | Fundamental                                                                                                                                                                                                                              |
| Peak           |  <p>Date: 2021-12-20</p> <p>Site : 03CH7-HY<br/>Condition : PEAK_BE_74.3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>  |  <p>Date: 2021-12-20</p> <p>Site : 03CH7-HY<br/>Condition : PEAK(UNI) 3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p> |
| Avg.           |  <p>Date: 2021-12-20</p> <p>Site : 03CH7-HY<br/>Condition : AVG_BE_34.3m HF_ANT_00066584 HORIZONTAL<br/>: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p> | Left blank                                                                                                                                                                                                                               |



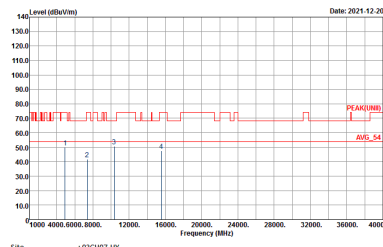
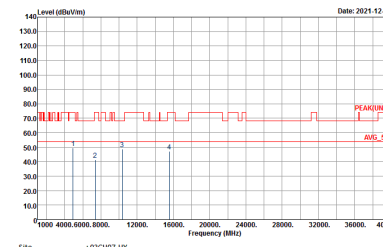
| ANT            | 802.11a CH36 5180MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously | Vertical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Fundamental                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Peak           |  <p>Level (dBV/m) vs Frequency (MHz) plot showing a peak at 5180 MHz. The y-axis ranges from 10.0 to 140.0 dBV/m, and the x-axis ranges from 5000 to 5260 MHz. A red vertical line marks the peak at 5180 MHz. The plot shows a sharp peak at 5180 MHz with a level of approximately 100 dBV/m. The background noise floor is around 40-50 dBV/m.</p> <p>Site : 03CH07-HY<br/>           Condition : PEAK_BE_74.3m HF_ANT_00066584 VERTICAL<br/>           : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |  <p>Level (dBV/m) vs Frequency (MHz) plot showing a peak at 5180 MHz. The y-axis ranges from 10.0 to 140.0 dBV/m, and the x-axis ranges from 1000 to 7000 MHz. A red vertical line marks the peak at 5180 MHz. The plot shows a sharp peak at 5180 MHz with a level of approximately 100 dBV/m. The background noise floor is around 40-50 dBV/m.</p> <p>Site : 03CH07-HY<br/>           Condition : PEAK(UNF) 3m HF_ANT_00066584 VERTICAL<br/>           : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p> |
| Avg.           |  <p>Level (dBV/m) vs Frequency (MHz) plot showing a peak at 5180 MHz. The y-axis ranges from 10.0 to 140.0 dBV/m, and the x-axis ranges from 5000 to 5260 MHz. A red vertical line marks the peak at 5180 MHz. The plot shows a sharp peak at 5180 MHz with a level of approximately 100 dBV/m. The background noise floor is around 40-50 dBV/m.</p> <p>Site : 03CH07-HY<br/>           Condition : AVG_BE_54.3m HF_ANT_00066584 VERTICAL<br/>           : RBW:1000.000kHz VBW:3.010kHz SWT:Auto</p>   | Left blank                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 4 + 802.11a\_Tx\_CH36\_ANT 3 + LTE Band 30\_ANT 2

(Band Edge @ 3m)

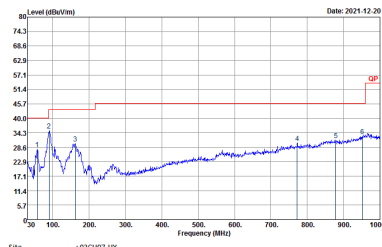
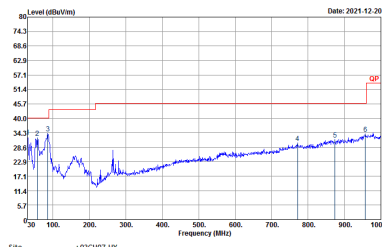
| ANT                  | 11b_Tx_Ch11_ANT4 + 11a_Tx_Ch36_ANT3 + LTE B30_ANT2                                                                                                                                        |                                                                                                                                                                                          |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously       | Horizontal                                                                                                                                                                                | Vertical                                                                                                                                                                                 |
| <p>Peak<br/>Avg.</p> |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : PEAR(UMI) 3m HF_ANT_00060504 HORIZONTAL</p> |  <p>Date: 2021-12-20</p> <p>Site : 03CH07-HY<br/>Condition : PEAR(UMI) 3m HF_ANT_00060504 VERTICAL</p> |



2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 3 + 802.11a\_Tx\_CH36\_ANT 4 + LTE Band 48\_ANT 1

(LF @ 3m)

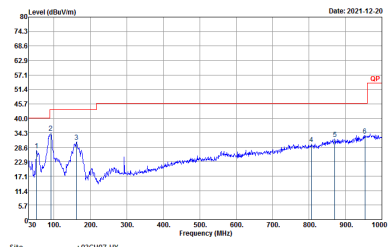
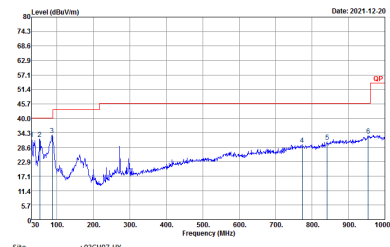
| ANT            | 11b_Tx_Ch11_ANT3 + 11a_Tx_Ch36_ANT4 + LTE B48_ANT1                                                                                                                                                          |                                                                                                                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously | Horizontal                                                                                                                                                                                                  | Vertical                                                                                                                                                                                                    |
| QP /<br>Peak   |  <p data-bbox="478 772 861 795">Date: 2021-12-20<br/>Site : 03CH07-HY<br/>Condition : QP 3m LF-ANT-35419(6) HORIZONTAL</p> |  <p data-bbox="957 772 1340 795">Date: 2021-12-20<br/>Site : 03CH07-HY<br/>Condition : QP 3m LF-ANT-35419(6) VERTICAL</p> |



2.4GHz 2400~2483.5MHz + 5GHz Band 1 5150~5250MHz

802.11b\_Tx\_CH11\_ANT 4 + 802.11a\_Tx\_CH36\_ANT 3 + LTE Band 30\_ANT 2

(LF @ 3m)

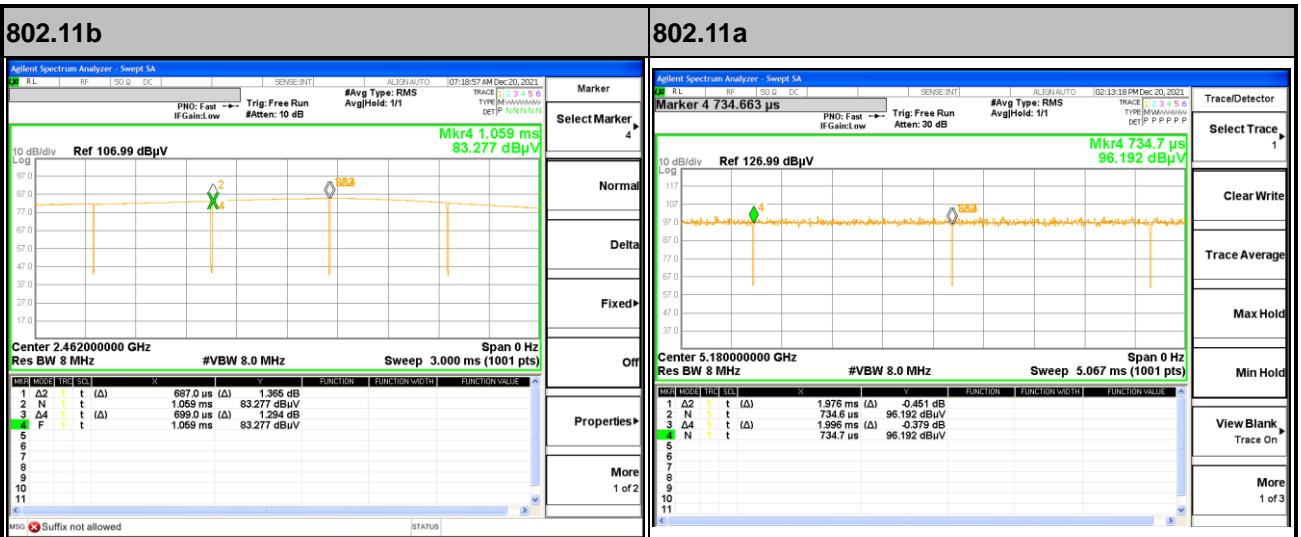
| ANT            | 11b_Tx_Ch11_ANT4 + 11a_Tx_Ch36_ANT3 + LTE B30_ANT2                                                                                                                                     |                                                                                                                                                                                        |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneously | Horizontal                                                                                                                                                                             | Vertical                                                                                                                                                                               |
| QP /<br>Peak   |  <p data-bbox="478 772 869 795">Site : 03CH07-HY<br/>Condition : QP 3m LF-ANT-35413(6) HORIZONTAL</p> |  <p data-bbox="957 772 1348 795">Site : 03CH07-HY<br/>Condition : QP 3m LF-ANT-35413(6) VERTICAL</p> |



### Appendix C. Duty Cycle Plots

| Antenna | Band    | Duty Cycle(%) | T(us) | 1/T(kHz) | VBW Setting |
|---------|---------|---------------|-------|----------|-------------|
| 3       | 802.11b | 98.28         | -     | -        | 10Hz        |
| 4       | 802.11b | 97.72         | 686   | 1.46     | 10Hz        |
| 3       | 802.11a | 99.00         | -     | -        | 10Hz        |
| 4       | 802.11a | 99.25         | -     | -        | 10Hz        |

<Ant. 3>



<Ant. 4>

