



# FCC RADIO TEST REPORT

**FCC ID** : P4Q-N564A  
**Equipment** : Tablet  
**Brand Name** : MiTAC, Mio, NAVMAN, MAGELLAN  
**Model Name** : N564A  
**Applicant** : MiTAC Digital Technology Corporation  
No.200, Wen Hua 2nd Rd., Guishan Dist., Taoyuan City  
333, Taiwan (R.O.C.)  
**Manufacturer** : MITAC Computer (Kunshan) Co., Ltd.  
No. 269, 2nd Avenue, District A, Comprehensive Free  
Trade Zone, 300 Kunshan, China  
**Standard** : FCC Part 15 Subpart C §15.247

The product was received on Apr. 11, 2018 and testing was started from Apr. 18, 2018 and completed on May 06, 2018. We, SPORTON INTERNATIONAL INC., 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Jones Tsai

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**

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



## Table of Contents

|                                                                 |           |
|-----------------------------------------------------------------|-----------|
| <b>History of this test report.....</b>                         | <b>3</b>  |
| <b>Summary of Test Result.....</b>                              | <b>4</b>  |
| <b>1 General Description .....</b>                              | <b>5</b>  |
| 1.1 Product Feature of Equipment Under Test.....                | 5         |
| 1.2 Modification of EUT .....                                   | 5         |
| 1.3 Testing Location .....                                      | 6         |
| 1.4 Applicable Standards.....                                   | 6         |
| <b>2 Test Configuration of Equipment Under Test .....</b>       | <b>7</b>  |
| 2.1 Carrier Frequency and Channel .....                         | 7         |
| 2.2 Test Mode.....                                              | 7         |
| 2.3 Connection Diagram of Test System.....                      | 8         |
| 2.4 Support Unit used in test configuration and system .....    | 8         |
| 2.5 EUT Operation Test Setup .....                              | 8         |
| <b>3 Test Result .....</b>                                      | <b>9</b>  |
| 3.1 Output Power Measurement.....                               | 9         |
| 3.2 Radiated Band Edges and Spurious Emission Measurement ..... | 10        |
| 3.3 AC Conducted Emission Measurement.....                      | 14        |
| 3.4 Antenna Requirements.....                                   | 16        |
| <b>4 List of Measuring Equipment.....</b>                       | <b>17</b> |
| <b>5 Uncertainty of Evaluation .....</b>                        | <b>19</b> |
| <b>Appendix A. Conducted Test Results</b>                       |           |
| <b>Appendix B. AC Conducted Emission Test Result</b>            |           |
| <b>Appendix C. Radiated Spurious Emission</b>                   |           |
| <b>Appendix D. Radiated Spurious Emission Plots</b>             |           |
| <b>Appendix E. Duty Cycle Plots</b>                             |           |
| <b>Appendix F. Setup Photographs</b>                            |           |



## History of this test report

| Report No.   | Version | Description                                                                 | Issued Date  |
|--------------|---------|-----------------------------------------------------------------------------|--------------|
| FR722135-10C | 01      | Initial issue of report                                                     | May 21, 2018 |
| FR722135-10C | 02      | Revise the report type to variant report                                    | May 29, 2018 |
| FR722135-10C | 03      | Add FCC ID of the referenced report in the remark of summary of test result | May 31, 2018 |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |
|              |         |                                                                             |              |

## Summary of Test Result

| Report Clause | Ref Std. Clause       | Test Items                                         | Result (PASS/FAIL) | Remark                                    |
|---------------|-----------------------|----------------------------------------------------|--------------------|-------------------------------------------|
| -             | 15.247(a)(2)          | 6dB Bandwidth                                      | Not Required       | -                                         |
| -             | 2.1049                | 99% Occupied Bandwidth                             | Not Required       | -                                         |
| 3.1           | 15.247(b)             | Power Output Measurement                           | Pass               | -                                         |
| -             | 15.247(e)             | Power Spectral Density                             | Not Required       | -                                         |
| -             | 15.247(d)             | Conducted Band Edges                               | Not Required       | -                                         |
|               |                       | Conducted Spurious Emission                        | Not Required       | -                                         |
| 3.2           | 15.247(d)             | Radiated Band Edges and Radiated Spurious Emission | Pass               | Under limit<br>2.33 dB at<br>2389.905 MHz |
| 3.3           | 15.207                | AC Conducted Emission                              | Pass               | Under limit<br>11.32 dB at<br>0.566 MHz   |
| 3.4           | 15.203 &<br>15.247(b) | Antenna Requirement                                | Pass               | -                                         |

**Remark:**

- Not required means after assessing, test items are not necessary to carry out.
- This is a variant report. All the test cases were performed on original report which can be referred to Sporton Report Number FR722135-07C (FCC ID: P4Q-N564B).

**Reviewed by: Joseph Lin**

**Report Producer: Polly Tsai**

# 1 General Description

## 1.1 Product Feature of Equipment Under Test

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n, NFC, and GNSS

| Product Specification subjective to this standard |                                                                                                  |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Sample 1                                          | EUT with SKU 1                                                                                   |
| Sample 2                                          | EUT with SKU 2                                                                                   |
| Sample 3                                          | EUT with SKU 3                                                                                   |
| Integrated WLAN Module                            | Brand Name: Qualcomm<br>Model Name: WCN3660B                                                     |
| Antenna Type                                      | WLAN: PIFA Antenna<br>Bluetooth: PIFA Antenna<br>GPS/GLONASS: PATCH Antenna<br>NFC: Loop Antenna |

**Remark:** All test items were performed with Sample 3.

### <Sample Information>

| SKU            | SKU 1              | SKU 2              | SKU3               |
|----------------|--------------------|--------------------|--------------------|
| Model name     | N564B              | N564B              | N564A              |
| WLAN           | Support(2.4G + 5G) | Support(2.4G + 5G) | Support(2.4G + 5G) |
| WWAN           | Support            | Support            | Not Support        |
| RFID(13.56MHz) | Support            | Not Support        | Support            |
| RAM            | 2G                 | 2G                 | 2G                 |
| Storage        | 16G                | 16G                | 16G                |
| Camera         | Support            | Support            | Support            |

## 1.2 Modification of EUT

No modifications are made to the EUT during all test items.

### 1.3 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

|                           |                                                                                                                       |         |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------|---------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL INC.                                                                                            |         |
| <b>Test Site Location</b> | No.52, Huaya 1st Rd., Guishan Dist.,<br>Taoyuan City, 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>                                                                                               |         |
|                           | TH05-HY                                                                                                               | CO05-HY |

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

|                           |                                                                                                                                         |  |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Test Site</b>          | SPORTON INTERNATIONAL INC.                                                                                                              |  |
| <b>Test Site Location</b> | No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist.,<br>Taoyuan City, Taiwan (R.O.C.)<br>TEL: +886-3-327-0868<br>FAX: +886-3-327-0855 |  |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                 |  |
|                           | 03CH12-HY                                                                                                                               |  |

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

### 1.4 Applicable Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
- ♦ ANSI C63.10-2013

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

## 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: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

### 2.1 Carrier Frequency and Channel

| Frequency Band  | Channel | Freq. (MHz) | Channel | Freq. (MHz) |
|-----------------|---------|-------------|---------|-------------|
| 2400-2483.5 MHz | 1       | 2412        | 7       | 2442        |
|                 | 2       | 2417        | 8       | 2447        |
|                 | 3       | 2422        | 9       | 2452        |
|                 | 4       | 2427        | 10      | 2457        |
|                 | 5       | 2432        | 11      | 2462        |
|                 | 6       | 2437        |         |             |

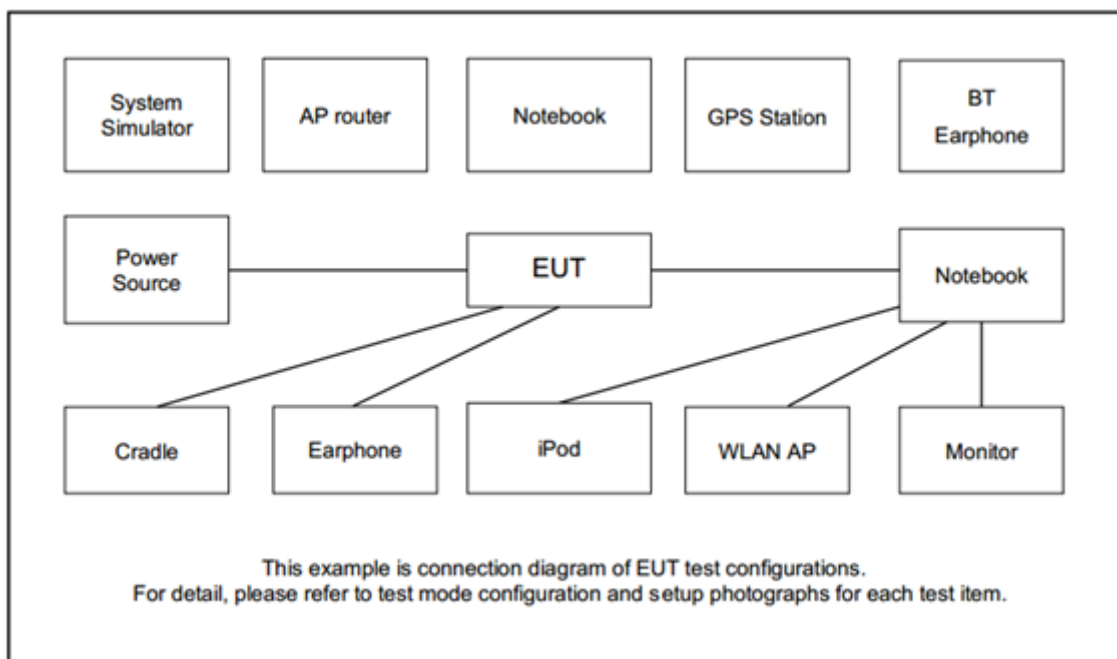
### 2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

| Modulation   | Data Rate |
|--------------|-----------|
| 802.11b      | 1 Mbps    |
| 802.11g      | 6 Mbps    |
| 802.11n HT20 | MCS0      |

| Test Cases                   |                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AC Conducted Emission</b> | Mode 1: Bluetooth Link + WLAN (2.4GHz) Link + GLONASS Rx + Cradle 1 + Earphone + USB Cable (Charging from AC Adapter) + USB Flash Drive (Link) |

## 2.3 Connection Diagram of Test System



## 2.4 Support Unit used in test configuration and system

| Item | Equipment          | Trade Name    | Model Name     | FCC ID                                       | Data Cable       | Power Cord                                                 |
|------|--------------------|---------------|----------------|----------------------------------------------|------------------|------------------------------------------------------------|
| 1.   | GPS Station        | Pendulum      | GSG-54         | N/A                                          | N/A              | Unshielded, 1.8 m                                          |
| 2.   | WLAN AP            | ASUS          | RT-AC66U       | MSQ-RTAC66U                                  | N/A              | Unshielded, 1.8 m                                          |
| 3.   | Bluetooth Earphone | Sony Ericsson | MW600          | PY7DDA-2029                                  | N/A              | N/A                                                        |
| 4.   | iPod Earphone      | Apple         | N/A            | Verification                                 | Unshielded, 1.0m | N/A                                                        |
| 5.   | Notebook           | DELL          | Latitude E6320 | FCC DoC/<br>Contains FCC ID:<br>QDS-BRCM1054 | N/A              | AC I/P:<br>Unshielded, 1.2 m<br>DC O/P:<br>Shielded, 1.8 m |
| 6.   | SD Card            | SanDisk       | MicroSD HC     | FCC DoC                                      | N/A              | N/A                                                        |
| 7.   | USB Flash Drive    | Kingston      | DataTraveler   | N/A                                          | N/A              | N/A                                                        |

## 2.5 EUT Operation Test Setup

The RF test items, utility "QRCT" 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 Output Power Measurement

##### 3.1.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

##### 3.1.2 Measuring Instruments

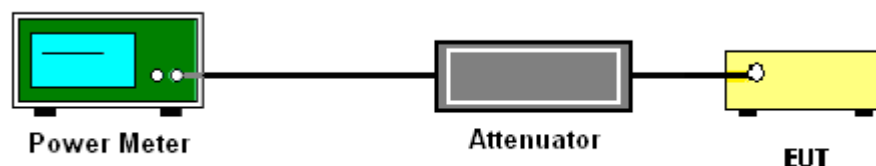
See list of measuring equipment of this test report.

##### 3.1.3 Test Procedures

The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v04 section 9.2.3.2 Method AVGPM-G.

1. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Measure the conducted output power and record the results in the test report.

##### 3.1.4 Test Setup



##### 3.1.5 Test Result of Peak Output Power (Reporting Only)

Please refer to Appendix A.

##### 3.1.6 Test Result of Average output Power

Please refer to Appendix A.

## 3.2 Radiated Band Edges and Spurious Emission Measurement

### 3.2.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(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                                |

### 3.2.2 Measuring Instruments

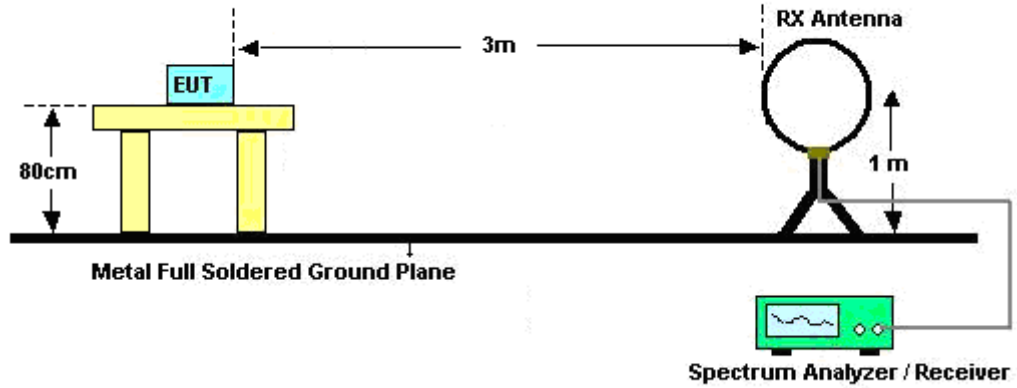
See list of measuring equipment of this test report.

### 3.2.3 Test Procedures

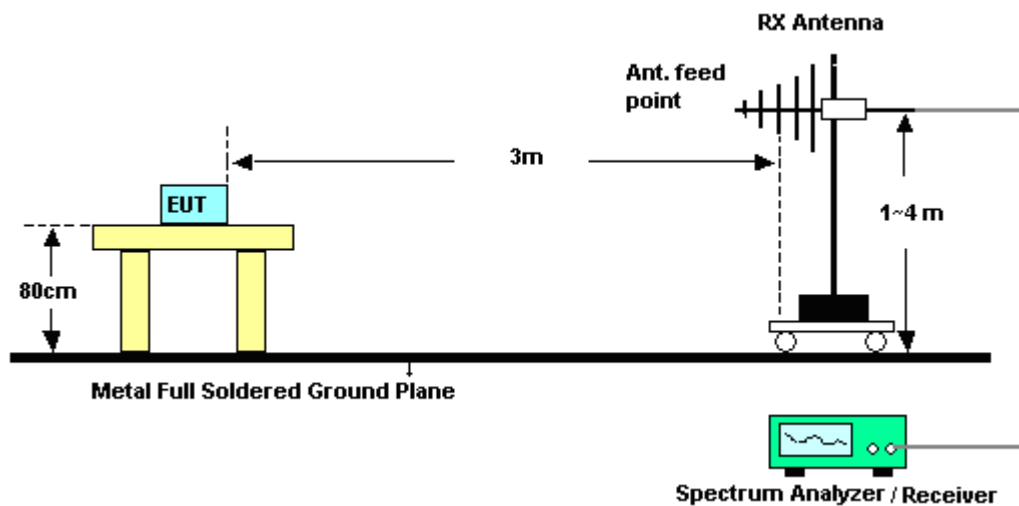
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 kHz for  $f < 1$  GHz;  $VBW \geq RBW$ ; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1$  GHz for peak measurement.  
For average measurement:
    - $VBW = 10$  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.

### 3.2.4 Test Setup

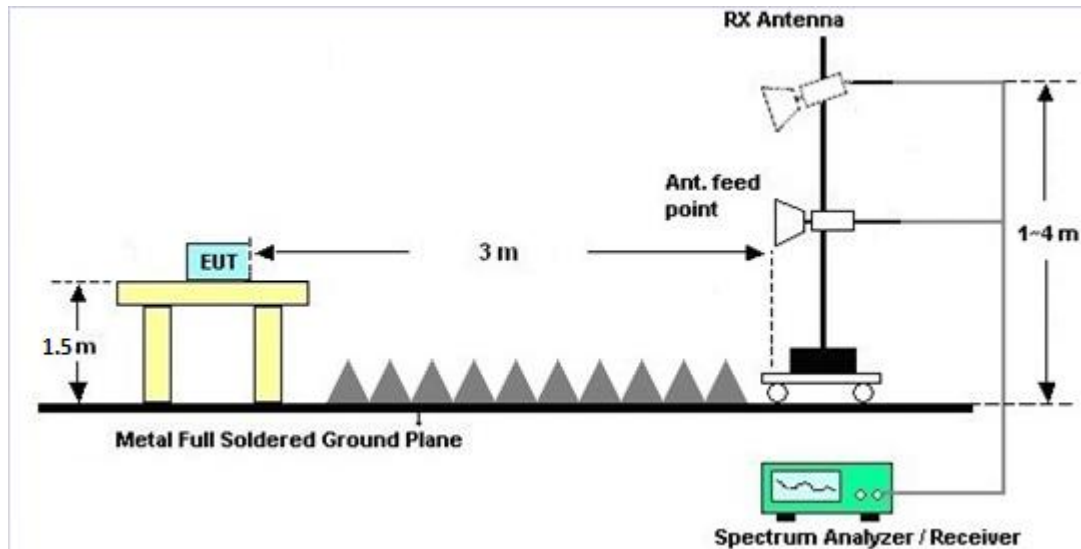
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

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

Please refer to Appendix C and D.

### 3.2.7 Duty Cycle

Please refer to Appendix E.

### 3.2.8 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)

Please refer to Appendix C and D.

### 3.3 AC Conducted Emission Measurement

#### 3.3.1 Limit of AC Conducted Emission

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

| Frequency of Emission<br>(MHz) | Conducted Limit (dB $\mu$ V) |           |
|--------------------------------|------------------------------|-----------|
|                                | Quasi-Peak                   | Average   |
| 0.15-0.5                       | 66 to 56*                    | 56 to 46* |
| 0.5-5                          | 56                           | 46        |
| 5-30                           | 60                           | 50        |

\*Decreases with the logarithm of the frequency.

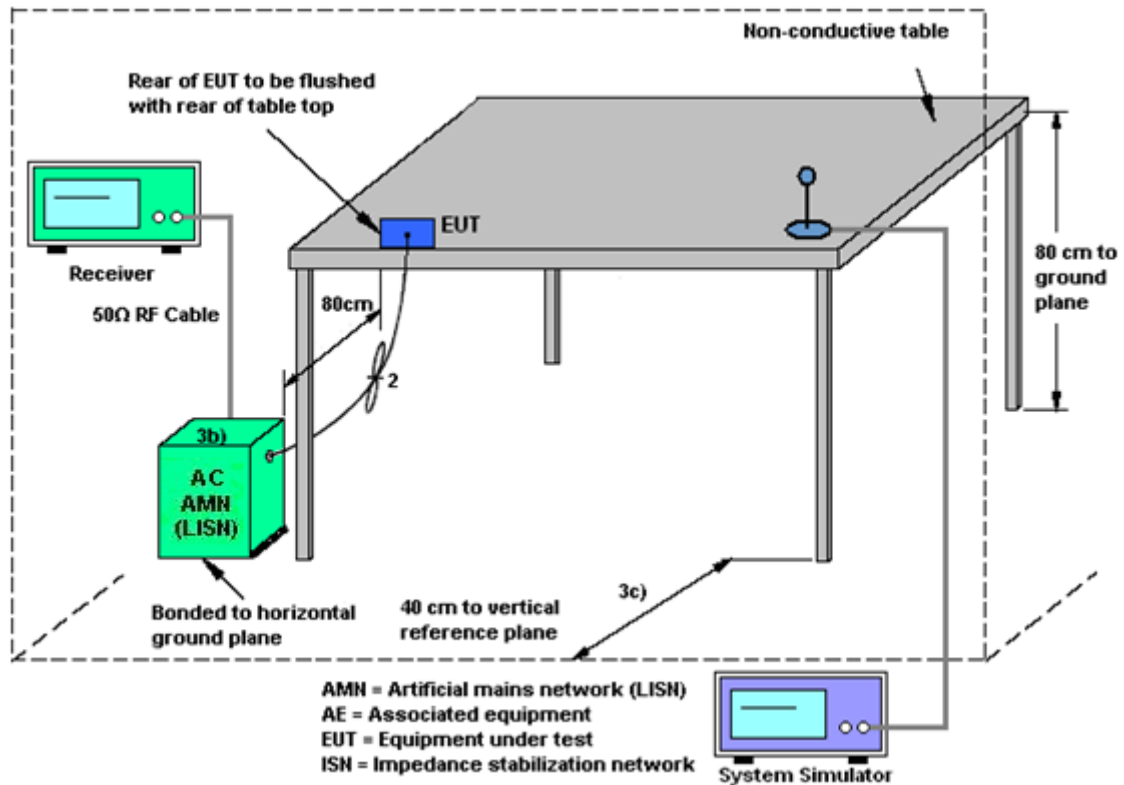
#### 3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

#### 3.3.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

### 3.3.4 Test Setup



### 3.3.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



## **3.4 Antenna Requirements**

### **3.4.1 Standard Applicable**

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

### **3.4.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.

### **3.4.3 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            | Manufacturer      | Model No.        | Serial No.       | Characteristics               | Calibration Date | Test Date                     | Due Date      | Remark                |
|-----------------------|-------------------|------------------|------------------|-------------------------------|------------------|-------------------------------|---------------|-----------------------|
| Power Meter           | Anritsu           | ML2495A          | 0932001          | N/A                           | Sep. 26, 2017    | Apr. 18, 2018                 | Sep. 25, 2018 | Conducted (TH05-HY)   |
| Power Sensor          | Anritsu           | MA2411B          | 0846202          | 300MHz~40GHz                  | Sep. 26, 2017    | Apr. 18, 2018                 | Sep. 25, 2018 | Conducted (TH05-HY)   |
| Spectrum Analyzer     | Rohde & Schwarz   | FSP30            | 101067           | 9kHz ~ 30GHz                  | Nov. 13, 2017    | Apr. 18, 2018                 | Nov. 12, 2018 | Conducted (TH05-HY)   |
| Switch Box & RF Cable | Burgeon           | ETF-058          | EC1300484        | N/A                           | Mar. 01, 2018    | Apr. 18, 2018                 | Feb. 28, 2019 | Conducted (TH05-HY)   |
| AC Power Source       | ChainTek          | APC-1000W        | N/A              | N/A                           | N/A              | Apr. 19, 2018                 | N/A           | Conduction (CO05-HY)  |
| EMI Test Receiver     | Rohde & Schwarz   | ESR3             | 102388           | 3.6GHz                        | Dec. 08, 2017    | Apr. 19, 2018                 | Dec. 07, 2018 | Conduction (CO05-HY)  |
| LISN                  | Rohde & Schwarz   | ENV216           | 100080           | 9kHz~30MHz                    | Nov. 30, 2017    | Apr. 19, 2018                 | Nov. 29, 2018 | Conduction (CO05-HY)  |
| LISN                  | Rohde & Schwarz   | ENV216           | 100081           | 9kHz~30MHz                    | Dec. 08, 2017    | Apr. 19, 2018                 | Dec. 07, 2018 | Conduction (CO05-HY)  |
| Test Software         | Rohde & Schwarz   | EMC32 V10.30     | N/A              | N/A                           | N/A              | Apr. 19, 2018                 | N/A           | Conduction (CO05-HY)  |
| LF Cable              | HUBER + SUHNER    | RG-214/U         | LF01             | N/A                           | Jan. 03, 2018    | Apr. 19, 2018                 | Jan. 02, 2019 | Conduction (CO05-HY)  |
| Pulse Limiter         | Rohde & Schwarz   | ESH3-Z2          | 100851           | N/A                           | Jan. 03, 2018    | Apr. 19, 2018                 | Jan. 02, 2019 | Conduction (CO05-HY)  |
| Loop Antenna          | Rohde & Schwarz   | HFH2-Z2          | 100488           | 9 kHz~30 MHz                  | Nov. 23, 2017    | May 02, 2018~<br>May 06, 2018 | Nov. 22, 2018 | Radiation (03CH12-HY) |
| Bilog Antenna         | TESEQ             | CBL 6111D&N-6-06 | 35414&AT-N0602   | 30MHz~1GHz                    | Oct. 14, 2017    | May 02, 2018~<br>May 06, 2018 | Oct. 13, 2018 | Radiation (03CH12-HY) |
| Horn Antenna          | SCHWARZBECK       | BBHA 9120D       | 9120D-1328       | 1GHz ~ 18GHz                  | Oct. 20, 2017    | May 02, 2018~<br>May 06, 2018 | Oct. 19, 2018 | Radiation (03CH12-HY) |
| SHF-EHF Horn Antenna  | SCHWARZBECK       | BBHA 9170        | BBHA9170584      | 18GHz ~ 40GHz                 | Nov. 27, 2017    | May 02, 2018~<br>May 06, 2018 | Nov. 26, 2018 | Radiation (03CH12-HY) |
| Amplifier             | Sonoma-Instrument | 310 N            | 187282           | 9KHz~1GHz                     | Jan. 19, 2018    | May 02, 2018~<br>May 06, 2018 | Jan. 18, 2020 | Radiation (03CH12-HY) |
| Preamplifier          | Keysight          | 83017A           | MY53270148       | 1GHz~26.5GHz                  | Jan. 15, 2018    | May 02, 2018~<br>May 06, 2018 | Jan. 14, 2019 | Radiation (03CH12-HY) |
| Preamplifier          | Jet-Power         | JPA0118-55-303K  | 1710001800054002 | 1GHz~18GHz                    | Apr. 17, 2018    | May 02, 2018~<br>May 06, 2018 | Apr. 16, 2019 | Radiation (03CH12-HY) |
| Amplifier             | MITEQ             | TTA1840-35-HG    | 1871923          | 18GHz~40GHz, VSWR : 2.5:1 max | Jul. 18, 2017    | May 02, 2018~<br>May 06, 2018 | Jul. 17, 2018 | Radiation (03CH12-HY) |
| EMI Test Receiver     | Rohde & Schwarz   | ESU26            | 100390           | 20Hz~26.5GHz                  | Dec. 25, 2017    | May 02, 2018~<br>May 06, 2018 | Dec. 24, 2018 | Radiation (03CH12-HY) |
| Test Software         | Audix             | E3 6.2009-8-24   | RK-000989        | N/A                           | N/A              | May 02, 2018~<br>May 06, 2018 | N/A           | Radiation (03CH12-HY) |
| Antenna Mast          | EMEC              | AM-BS-4500-B     | N/A              | 1m~4m                         | N/A              | May 02, 2018~<br>May 06, 2018 | N/A           | Radiation (03CH12-HY) |
| Turn Table            | EMEC              | TT2000           | N/A              | 0~360 Degree                  | N/A              | May 02, 2018~<br>May 06, 2018 | N/A           | Radiation (03CH12-HY) |



| Instrument | Manufacturer      | Model No.                           | Serial No.    | Characteristics | Calibration Date | Test Date                     | Due Date      | Remark                   |
|------------|-------------------|-------------------------------------|---------------|-----------------|------------------|-------------------------------|---------------|--------------------------|
| Filter     | Wainwright        | WLKS1200-1<br>2SS                   | SN2           | 1.2G Low Pass   | Mar. 23, 2018    | May 02, 2018~<br>May 06, 2018 | Mar. 22, 2019 | Radiation<br>(03CH12-HY) |
| Filter     | Wainwright        | WHKX12-270<br>0-3000-18000<br>-60ST | SN2           | 3 GHz Highpass  | Mar. 23, 2018    | May 02, 2018~<br>May 06, 2018 | Mar. 22, 2019 | Radiation<br>(03CH12-HY) |
| RF Cable   | HUBER +<br>SUHNER | SUCOFLEX<br>126E                    | 0058/126E     | 30M-18G         | Mar. 14, 2018    | May 02, 2018~<br>May 06, 2018 | Mar. 13, 2019 | Radiation<br>(03CH12-HY) |
| RF Cable   | HUBER +<br>SUHNER | SUCOFLEX<br>104                     | MY15539/<br>4 | 30M-18G         | Mar. 14, 2018    | May 02, 2018~<br>May 06, 2018 | Mar. 13, 2019 | Radiation<br>(03CH12-HY) |
| RF Cable   | HUBER +<br>SUHNER | SUCOFLEX<br>104                     | MY36979/<br>4 | 30M-18G         | Mar. 14, 2018    | May 02, 2018~<br>May 06, 2018 | Mar. 13, 2019 | Radiation<br>(03CH12-HY) |

## 5 Uncertainty of Evaluation

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

|                                                                         |     |
|-------------------------------------------------------------------------|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.7 |
|-------------------------------------------------------------------------|-----|

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

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

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

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

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

|                                                                         |     |
|-------------------------------------------------------------------------|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.7 |
|-------------------------------------------------------------------------|-----|

**Appendix A. Test Result of Conducted Test Items**

|                |             |                    |       |    |
|----------------|-------------|--------------------|-------|----|
| Test Engineer: | Eason Huang | Temperature:       | 21~25 | °C |
| Test Date:     | 2018/4/18   | Relative Humidity: | 51~54 | %  |

**TEST RESULTS DATA**  
**Peak Output Power**

| 2.4GHz Band |           |     |     |             |                            |                             |          |                  |                        |            |
|-------------|-----------|-----|-----|-------------|----------------------------|-----------------------------|----------|------------------|------------------------|------------|
| Mod.        | Data Rate | NTX | CH. | Freq. (MHz) | Peak Conducted Power (dBm) | Conducted Power Limit (dBm) | DG (dBi) | EIRP Power (dBm) | EIRP Power Limit (dBm) | Pass /Fail |
|             |           |     |     |             | Ant 1                      | Ant 1                       | Ant 1    | Ant 1            | Ant 1                  |            |
| 11b         | 1Mbps     | 1   | 1   | 2412        | 18.01                      | 30.00                       | -6.60    | 11.41            | 36.00                  | Pass       |
| 11b         | 1Mbps     | 1   | 6   | 2437        | 18.02                      | 30.00                       | -6.60    | 11.42            | 36.00                  | Pass       |
| 11b         | 1Mbps     | 1   | 11  | 2462        | 18.12                      | 30.00                       | -6.60    | 11.52            | 36.00                  | Pass       |
| 11g         | 6Mbps     | 1   | 1   | 2412        | 22.10                      | 30.00                       | -6.60    | 15.50            | 36.00                  | Pass       |
| 11g         | 6Mbps     | 1   | 6   | 2437        | 21.89                      | 30.00                       | -6.60    | 15.29            | 36.00                  | Pass       |
| 11g         | 6Mbps     | 1   | 11  | 2462        | 20.56                      | 30.00                       | -6.60    | 13.96            | 36.00                  | Pass       |
| HT20        | MCS0      | 1   | 1   | 2412        | 21.50                      | 30.00                       | -6.60    | 14.90            | 36.00                  | Pass       |
| HT20        | MCS0      | 1   | 6   | 2437        | 21.61                      | 30.00                       | -6.60    | 15.01            | 36.00                  | Pass       |
| HT20        | MCS0      | 1   | 11  | 2462        | 20.32                      | 30.00                       | -6.60    | 13.72            | 36.00                  | Pass       |

Note: Measured power (dBm) has offset with cable loss.

**TEST RESULTS DATA**  
**Average Output Power**

| 2.4GHz Band |           |                 |     |             |                  |                               |
|-------------|-----------|-----------------|-----|-------------|------------------|-------------------------------|
| Mod.        | Data Rate | N <sub>TX</sub> | CH. | Freq. (MHz) | Duty Factor (dB) | Average Conducted Power (dBm) |
|             |           |                 |     |             | Ant 1            | Ant 1                         |
| 11b         | 1Mbps     | 1               | 1   | 2412        | 0.10             | 15.25                         |
| 11b         | 1Mbps     | 1               | 6   | 2437        | 0.10             | 15.24                         |
| 11b         | 1Mbps     | 1               | 11  | 2462        | 0.10             | 15.37                         |
| 11g         | 6Mbps     | 1               | 1   | 2412        | 0.58             | 15.20                         |
| 11g         | 6Mbps     | 1               | 6   | 2437        | 0.58             | 15.54                         |
| 11g         | 6Mbps     | 1               | 11  | 2462        | 0.58             | 13.81                         |
| HT20        | MCS0      | 1               | 1   | 2412        | 0.62             | 14.22                         |
| HT20        | MCS0      | 1               | 6   | 2437        | 0.62             | 15.99                         |
| HT20        | MCS0      | 1               | 11  | 2462        | 0.62             | 13.34                         |

Note: Measured power (dBm) has offset with cable loss.



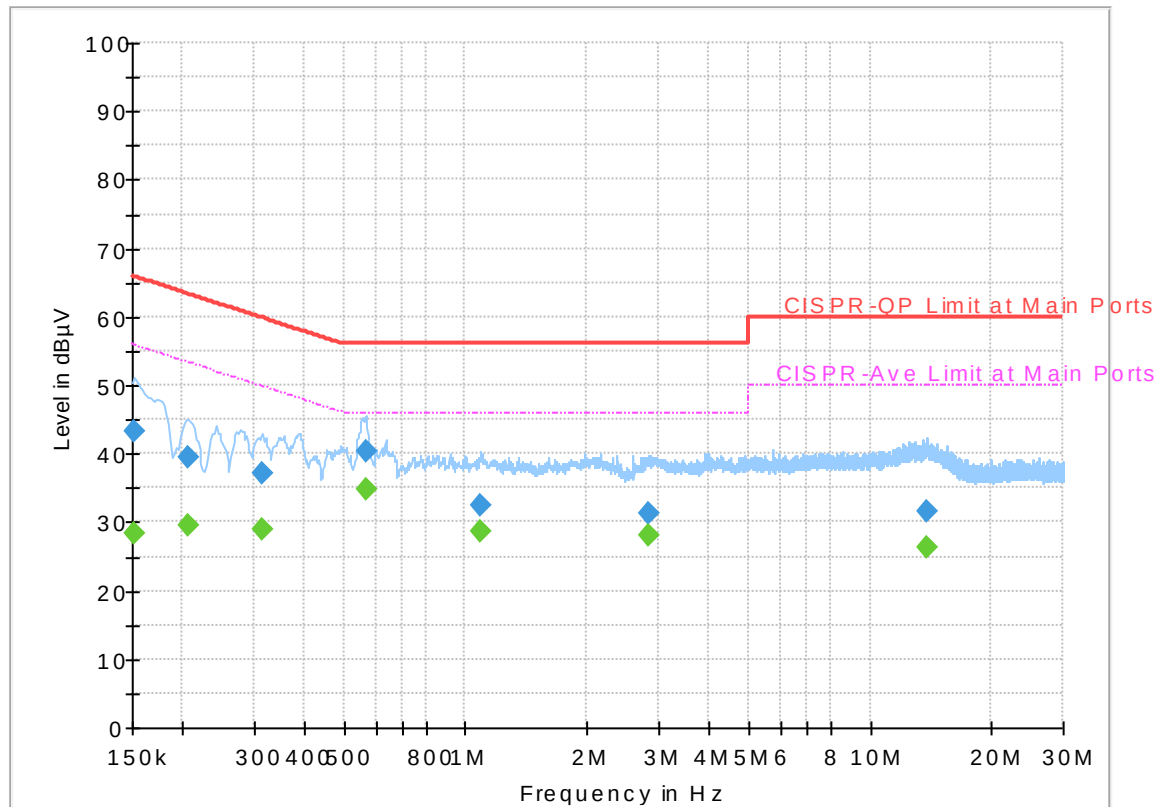
## **Appendix B. AC Conducted Emission Test Results**

|                        |            |                            |        |
|------------------------|------------|----------------------------|--------|
| <b>Test Engineer :</b> | Shareef Yu | <b>Temperature :</b>       | 23~24℃ |
|                        |            | <b>Relative Humidity :</b> | 58~62% |

## EUT Information

Report NO : 722135-10  
Test Mode : Mode 1  
Test Voltage : 120Vac/60Hz  
Phase : Line

Full Spectrum



## Final\_Result

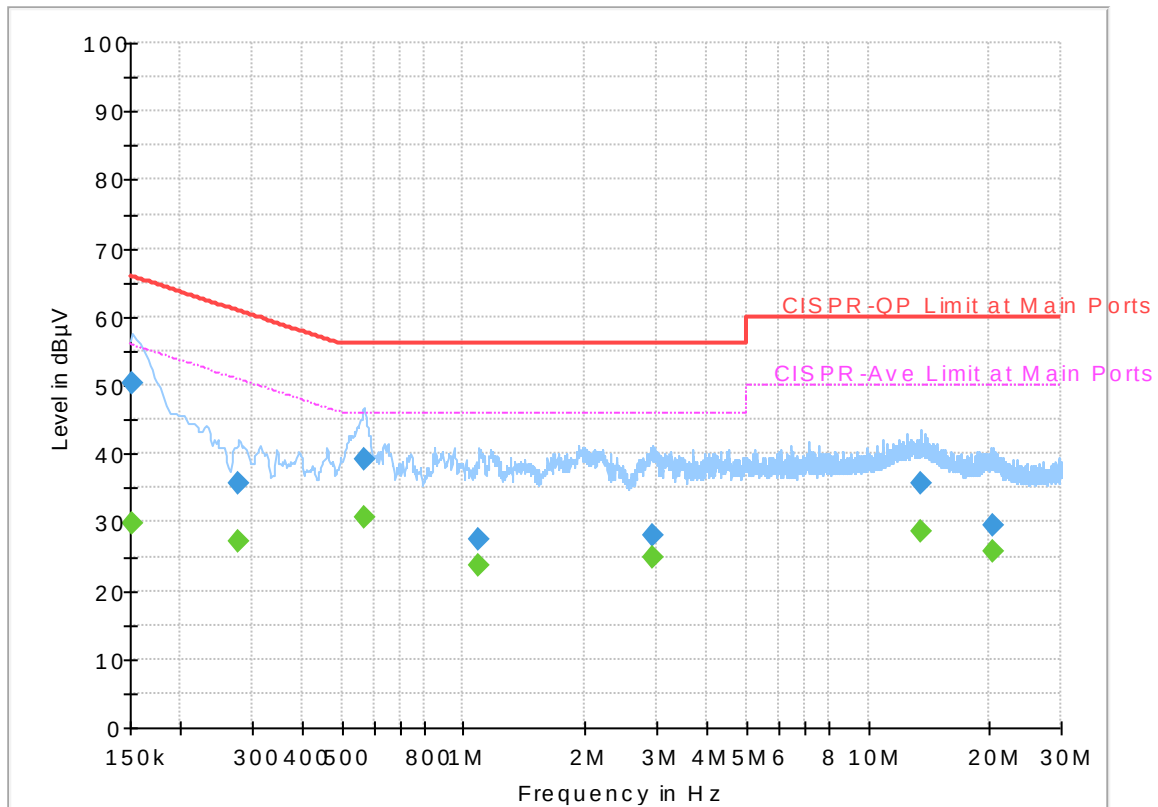
| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.152250        | ---              | 28.23           | 55.88        | 27.65       | L1   | OFF    | 19.5       |
| 0.152250        | 43.23            | ---             | 65.88        | 22.65       | L1   | OFF    | 19.5       |
| 0.206250        | ---              | 29.49           | 53.36        | 23.87       | L1   | OFF    | 19.5       |
| 0.206250        | 39.49            | ---             | 63.36        | 23.87       | L1   | OFF    | 19.5       |
| 0.314250        | ---              | 28.90           | 49.86        | 20.96       | L1   | OFF    | 19.5       |
| 0.314250        | 37.01            | ---             | 59.86        | 22.85       | L1   | OFF    | 19.5       |
| 0.566250        | ---              | 34.68           | 46.00        | 11.32       | L1   | OFF    | 19.5       |
| 0.566250        | 40.28            | ---             | 56.00        | 15.72       | L1   | OFF    | 19.5       |
| 1.092750        | ---              | 28.55           | 46.00        | 17.45       | L1   | OFF    | 19.5       |
| 1.092750        | 32.60            | ---             | 56.00        | 23.40       | L1   | OFF    | 19.5       |
| 2.847750        | ---              | 28.00           | 46.00        | 18.00       | L1   | OFF    | 19.6       |
| 2.847750        | 31.18            | ---             | 56.00        | 24.82       | L1   | OFF    | 19.6       |
| 13.857000       | ---              | 26.27           | 50.00        | 23.73       | L1   | OFF    | 19.7       |
| 13.857000       | 31.46            | ---             | 60.00        | 28.54       | L1   | OFF    | 19.7       |



## EUT Information

Report NO : 722135-10  
 Test Mode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Neutral

Full Spectrum



## Final\_Result

| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.152250        | ---              | 29.83           | 55.88        | 26.05       | N    | OFF    | 19.5       |
| 0.152250        | 50.32            | ---             | 65.88        | 15.56       | N    | OFF    | 19.5       |
| 0.278250        | ---              | 27.18           | 50.87        | 23.69       | N    | OFF    | 19.5       |
| 0.278250        | 35.56            | ---             | 60.87        | 25.31       | N    | OFF    | 19.5       |
| 0.566250        | ---              | 30.83           | 46.00        | 15.17       | N    | OFF    | 19.5       |
| 0.566250        | 39.08            | ---             | 56.00        | 16.92       | N    | OFF    | 19.5       |
| 1.095000        | ---              | 23.71           | 46.00        | 22.29       | N    | OFF    | 19.5       |
| 1.095000        | 27.42            | ---             | 56.00        | 28.58       | N    | OFF    | 19.5       |
| 2.935500        | ---              | 24.80           | 46.00        | 21.20       | N    | OFF    | 19.6       |
| 2.935500        | 28.04            | ---             | 56.00        | 27.96       | N    | OFF    | 19.6       |
| 13.560000       | ---              | 28.73           | 50.00        | 21.27       | N    | OFF    | 19.8       |
| 13.560000       | 35.65            | ---             | 60.00        | 24.35       | N    | OFF    | 19.8       |
| 20.316750       | ---              | 25.59           | 50.00        | 24.41       | N    | OFF    | 19.9       |
| 20.316750       | 29.66            | ---             | 60.00        | 30.34       | N    | OFF    | 19.9       |



## Appendix C. Radiated Spurious Emission

|                 |                                   |                     |         |
|-----------------|-----------------------------------|---------------------|---------|
| Test Engineer : | Karl Hou, Nick Yu, and Peter Liao | Temperature :       | 23~25°C |
|                 |                                   | Relative Humidity : | 56~61%  |

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

| 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                           |                                                                                             | ( 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      | 102.57     | -      | -          | 92.7     | 27.32    | 14.11  | 31.56  | 108    | 124     | P       | H       |
|                             | *                                                                                           | 2462      | 98.2       | -      | -          | 88.33    | 27.32    | 14.11  | 31.56  | 108    | 124     | A       | H       |
|                             |                                                                                             | 2487.28   | 54.09      | -19.91 | 74         | 44.15    | 27.36    | 14.14  | 31.56  | 108    | 124     | P       | H       |
|                             |                                                                                             | 2487.52   | 42.84      | -11.16 | 54         | 32.86    | 27.4     | 14.14  | 31.56  | 108    | 124     | A       | H       |
|                             |                                                                                             |           |            |        |            |          |          |        |        |        |         |         | H       |
|                             |                                                                                             |           |            |        |            |          |          |        |        |        |         |         | H       |
|                             | *                                                                                           | 2462      | 103.86     | -      | -          | 93.99    | 27.32    | 14.11  | 31.56  | 198    | 88      | P       | V       |
|                             | *                                                                                           | 2462      | 99.29      | -      | -          | 89.42    | 27.32    | 14.11  | 31.56  | 198    | 88      | A       | V       |
|                             |                                                                                             | 2488.92   | 54.69      | -19.31 | 74         | 44.71    | 27.4     | 14.14  | 31.56  | 198    | 88      | P       | V       |
|                             |                                                                                             | 2487.68   | 43.04      | -10.96 | 54         | 33.06    | 27.4     | 14.14  | 31.56  | 198    | 88      | 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**  
**WIFI 802.11b (Harmonic @ 3m)**

| WIFI<br>Ant.<br>1                    | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Path<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|--------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| <b>802.11b<br/>CH 11<br/>2462MHz</b> |                                                                                             | 4924                 | 40.52               | -33.48                  | 74                          | 58.76                     | 31.56                         | 6.73                   | 56.53                      | 100                  | 0                       | P                       | H               |
|                                      |                                                                                             | 7386                 | 44.66               | -29.34                  | 74                          | 56.46                     | 36.33                         | 8.01                   | 56.14                      | 100                  | 0                       | P                       | H               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | H               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | H               |
|                                      |                                                                                             | 4924                 | 40                  | -34                     | 74                          | 58.24                     | 31.56                         | 6.73                   | 56.53                      | 100                  | 0                       | P                       | V               |
|                                      |                                                                                             | 7386                 | 45.18               | -28.82                  | 74                          | 56.98                     | 36.33                         | 8.01                   | 56.14                      | 100                  | 0                       | P                       | 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**  
**WIFI 802.11g (Band Edge @ 3m)**

| WIFI<br>Ant.<br>1                    | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Path<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|--------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| <b>802.11g<br/>CH 06<br/>2437MHz</b> |                                                                                             | 2373.84              | 59.71               | -14.29                  | 74                          | 50.14                     | 27.11                         | 14.04                  | 31.58                      | 100                  | 120                     | P                       | H               |
|                                      |                                                                                             | 2384.48              | 43.94               | -10.06                  | 54                          | 34.35                     | 27.11                         | 14.06                  | 31.58                      | 100                  | 120                     | A                       | H               |
|                                      | *                                                                                           | 2437                 | 102.92              | -                       | -                           | 93.11                     | 27.28                         | 14.1                   | 31.57                      | 100                  | 120                     | P                       | H               |
|                                      | *                                                                                           | 2437                 | 92.97               | -                       | -                           | 83.16                     | 27.28                         | 14.1                   | 31.57                      | 100                  | 120                     | A                       | H               |
|                                      |                                                                                             | 2485.37              | 66.33               | -7.67                   | 74                          | 56.39                     | 27.36                         | 14.14                  | 31.56                      | 100                  | 120                     | P                       | H               |
|                                      |                                                                                             | 2489.22              | 44.51               | -9.49                   | 54                          | 34.53                     | 27.4                          | 14.14                  | 31.56                      | 100                  | 120                     | A                       | H               |
|                                      |                                                                                             | 2369.78              | 59.39               | -14.61                  | 74                          | 49.82                     | 27.11                         | 14.04                  | 31.58                      | 183                  | 89                      | P                       | V               |
|                                      |                                                                                             | 2384.9               | 44.38               | -9.62                   | 54                          | 34.79                     | 27.11                         | 14.06                  | 31.58                      | 183                  | 89                      | A                       | V               |
|                                      | *                                                                                           | 2437                 | 103.84              | -                       | -                           | 94.03                     | 27.28                         | 14.1                   | 31.57                      | 183                  | 89                      | P                       | V               |
|                                      | *                                                                                           | 2437                 | 93.82               | -                       | -                           | 84.01                     | 27.28                         | 14.1                   | 31.57                      | 183                  | 89                      | A                       | V               |
|                                      |                                                                                             | 2485.93              | 71.25               | -2.75                   | 74                          | 61.31                     | 27.36                         | 14.14                  | 31.56                      | 183                  | 89                      | P                       | V               |
|                                      |                                                                                             | 2489.22              | 45.17               | -8.83                   | 54                          | 35.19                     | 27.4                          | 14.14                  | 31.56                      | 183                  | 89                      | A                       | 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**  
**WIFI 802.11g (Harmonic @ 3m)**

| WIFI<br>Ant.<br>1                    | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Path<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|--------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| <b>802.11g<br/>CH 06<br/>2437MHz</b> |                                                                                             | 4874                 | 38.94               | -35.06                  | 74                          | 57.3                      | 31.46                         | 6.73                   | 56.55                      | 100                  | 0                       | P                       | H               |
|                                      |                                                                                             | 7311                 | 43.12               | -30.88                  | 74                          | 55.17                     | 36.11                         | 8.07                   | 56.23                      | 100                  | 0                       | P                       | H               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | H               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | H               |
|                                      |                                                                                             | 4874                 | 38.75               | -35.25                  | 74                          | 57.11                     | 31.46                         | 6.73                   | 56.55                      | 100                  | 0                       | P                       | V               |
|                                      |                                                                                             | 7311                 | 43.75               | -30.25                  | 74                          | 55.8                      | 36.11                         | 8.07                   | 56.23                      | 100                  | 0                       | P                       | 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

## WIFI 802.11n HT20 (Band Edge @ 3m)

| WIFI<br>Ant.<br>1                   | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Path<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|-------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11n<br>HT20<br>CH 01<br>2412MHz |                                                                                             | 2389.8               | 66.21               | -7.79                   | 74                          | 56.57                     | 27.15                         | 14.06                  | 31.57                      | 101                  | 121                     | P                       | H               |
|                                     |                                                                                             | 2389.38              | 49.21               | -4.79                   | 54                          | 39.58                     | 27.15                         | 14.06                  | 31.58                      | 101                  | 121                     | A                       | H               |
|                                     | *                                                                                           | 2412                 | 100.3               | -                       | -                           | 90.6                      | 27.19                         | 14.08                  | 31.57                      | 101                  | 121                     | P                       | H               |
|                                     | *                                                                                           | 2412                 | 90.28               | -                       | -                           | 80.58                     | 27.19                         | 14.08                  | 31.57                      | 101                  | 121                     | A                       | H               |
|                                     |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | H               |
|                                     |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | H               |
|                                     |                                                                                             | 2389.905             | 71.67               | -2.33                   | 74                          | 62.03                     | 27.15                         | 14.06                  | 31.57                      | 207                  | 89                      | P                       | V               |
|                                     |                                                                                             | 2390                 | 50.18               | -3.82                   | 54                          | 40.54                     | 27.15                         | 14.06                  | 31.57                      | 207                  | 89                      | A                       | V               |
|                                     | *                                                                                           | 2412                 | 101.83              | -                       | -                           | 92.13                     | 27.19                         | 14.08                  | 31.57                      | 207                  | 89                      | P                       | V               |
|                                     | *                                                                                           | 2412                 | 91.89               | -                       | -                           | 82.19                     | 27.19                         | 14.08                  | 31.57                      | 207                  | 89                      | 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

## WIFI 802.11n HT20 (Harmonic @ 3m)

| WIFI<br>Ant.<br>1                   | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Path<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|-------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11n<br>HT20<br>CH 01<br>2412MHz |                                                                                             | 4824                 | 38.72               | -35.28                  | 74                          | 57.23                     | 31.36                         | 6.7                    | 56.57                      | 100                  | 0                       | P                       | H               |
|                                     |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | H               |
|                                     |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | H               |
|                                     |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | H               |
|                                     |                                                                                             | 4824                 | 39.23               | -34.77                  | 74                          | 57.74                     | 31.36                         | 6.7                    | 56.57                      | 100                  | 0                       | P                       | V               |
|                                     |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | V               |
|                                     |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | V               |
|                                     |                                                                                             |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         | V               |
| Remark                              | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         |                 |



## Emission below 1GHz

## 2.4GHz WIFI 802.11n HT20 (LF)

| 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                               |                                                                            | ( MHz )   | ( dBμV/m ) | ( dB ) | ( dBμV/m ) | ( dBμV ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | ( P/A ) | ( H/V ) |
| 2.4GHz<br>802.11n<br>HT20<br>LF |                                                                            | 30        | 25.17      | -14.83 | 40         | 28.71    | 26.2     | 0.44   | 30.18  | -      | -       | P       | H       |
|                                 |                                                                            | 133.95    | 24.05      | -19.45 | 43.5       | 35.39    | 18.04    | 1.01   | 30.39  | -      | -       | P       | H       |
|                                 |                                                                            | 254.1     | 23.03      | -22.97 | 46         | 32.61    | 19.2     | 1.44   | 30.22  | -      | -       | P       | H       |
|                                 |                                                                            | 497.4     | 32.65      | -13.35 | 46         | 36.24    | 24.34    | 1.86   | 29.79  | 100    | 0       | P       | H       |
|                                 |                                                                            | 810.3     | 31.37      | -14.63 | 46         | 30.01    | 28.22    | 2.42   | 29.28  | -      | -       | P       | H       |
|                                 |                                                                            | 997.2     | 33.55      | -20.45 | 54         | 29.73    | 29.91    | 2.77   | 28.86  | -      | -       | P       | H       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | H       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | H       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | H       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | H       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | H       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | H       |
|                                 |                                                                            | 85.35     | 34.45      | -5.55  | 40         | 49.67    | 14.4     | 0.82   | 30.44  | 100    | 0       | P       | V       |
|                                 |                                                                            | 100.2     | 26.94      | -16.56 | 43.5       | 40.32    | 16.2     | 0.85   | 30.43  | -      | -       | P       | V       |
|                                 |                                                                            | 164.19    | 23.58      | -19.92 | 43.5       | 36.06    | 16.7     | 1.18   | 30.36  | -      | -       | P       | V       |
|                                 |                                                                            | 256.8     | 23.47      | -22.53 | 46         | 32.72    | 19.5     | 1.47   | 30.22  | -      | -       | P       | V       |
|                                 |                                                                            | 722.1     | 31.38      | -14.62 | 46         | 31.47    | 27.1     | 2.28   | 29.47  | -      | -       | P       | V       |
|                                 |                                                                            | 960.1     | 34.25      | -19.75 | 54         | 30.4     | 30.06    | 2.75   | 28.96  | -      | -       | P       | V       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | V       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | V       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | V       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | V       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | V       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | V       |
|                                 |                                                                            |           |            |        |            |          |          |        |        |        |         |         | V       |
| Remark                          | 1. No other spurious found.<br>2. All results are PASS against limit line. |           |            |        |            |          |          |        |        |        |         |         |         |



**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       |      | ( 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”.**





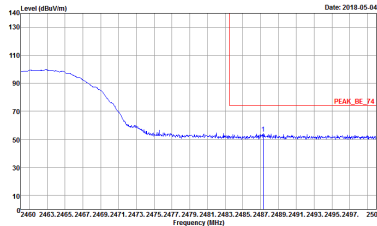
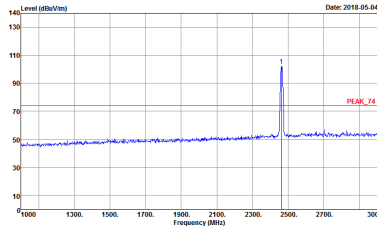
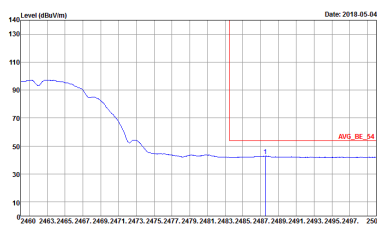
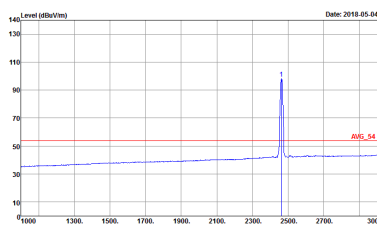
## Appendix D. Radiated Spurious Emission Plots

|                 |                                   |                     |         |
|-----------------|-----------------------------------|---------------------|---------|
| Test Engineer : | Karl Hou, Nick Yu, and Peter Liao | Temperature :       | 23~25°C |
|                 |                                   | Relative Humidity : | 56~61%  |

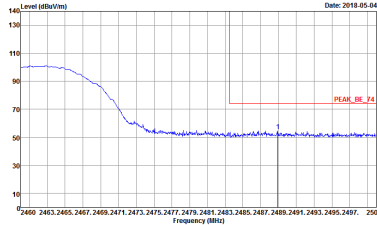
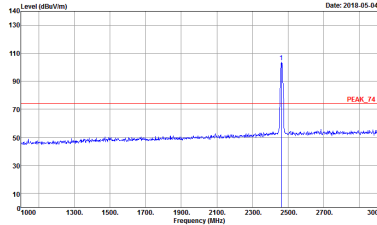
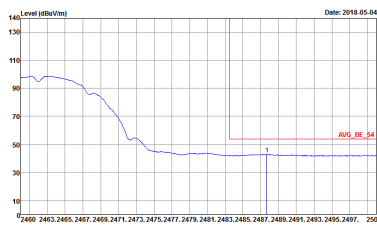
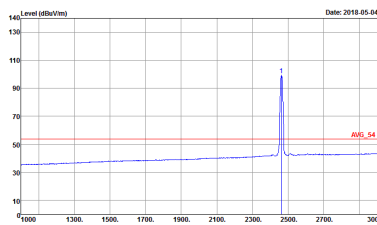
### Note symbol

|    |                       |
|----|-----------------------|
| -L | Low channel location  |
| -R | High channel location |

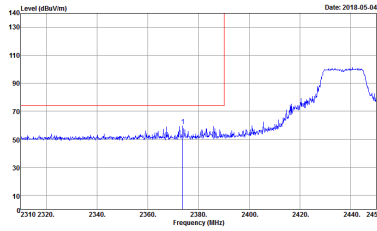
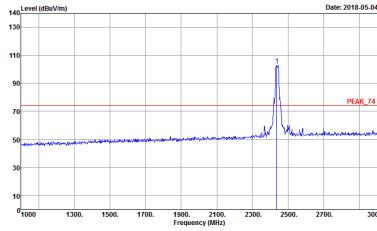
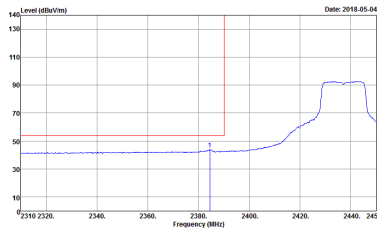
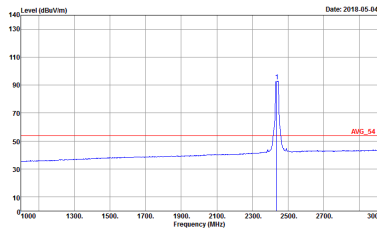
**2.4GHz 2400~2483.5MHz**
**WIFI 802.11b (Band Edge @ 3m)**

| WIFI        | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                         |                                                                                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT         | 802.11b CH11 2462MHz                                                                                                                                                                                                         |                                                                                                                                                                                                                            |
| 1           | Horizontal                                                                                                                                                                                                                   | Fundamental                                                                                                                                                                                                                |
| <b>Peak</b> |  <p>Site : 03CH12-HY<br/>Condition : PEAK_BE_74 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p>  |  <p>Site : 03CH12-HY<br/>Condition : PEAK_74 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p>  |
|             |  <p>Site : 03CH12-HY<br/>Condition : AVG_BE_54 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p> |  <p>Site : 03CH12-HY<br/>Condition : AVG_54 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p> |

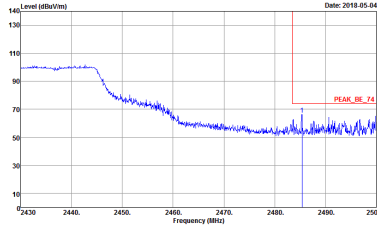
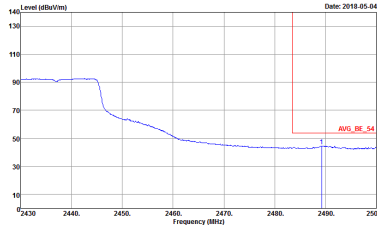


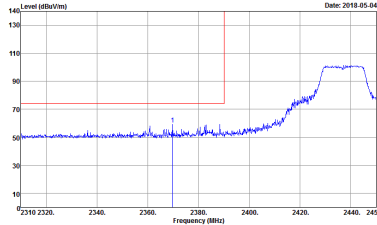
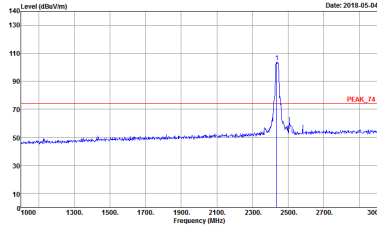
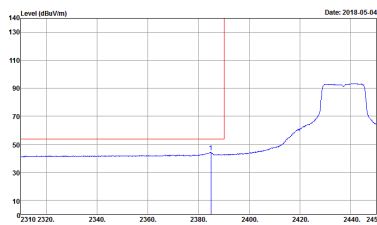
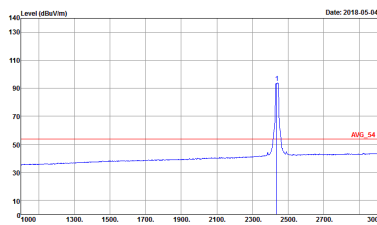
| WIFI | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                       |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11b CH11 2462MHz                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                       |
| 1    | Vertical                                                                                                                                                                                                                                                                | Fundamental                                                                                                                                                                                                                                                           |
| Peak |  <p>Site : 03CH12-HY<br/>Condition : PEAK_BE_74 3m HORN_91200_1328 VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p>  |  <p>Site : 03CH12-HY<br/>Condition : PEAK_74 3m HORN_91200_1328 VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p>  |
|      |  <p>Site : 03CH12-HY<br/>Condition : AVG_BE_54 3m HORN_91200_1328 VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p> |  <p>Site : 03CH12-HY<br/>Condition : AVG_54 3m HORN_91200_1328 VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p> |

**2.4GHz 2400~2483.5MHz**
**WIFI 802.11g (Band Edge @ 3m)**

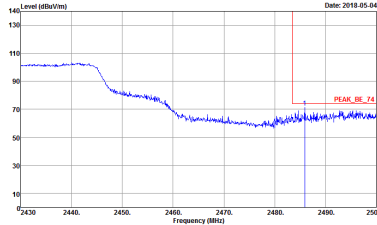
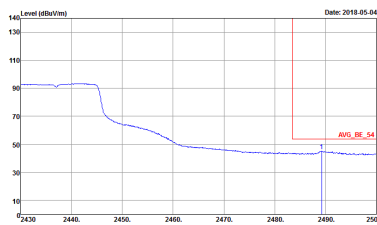
| WIFI | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                         |                                                                                                                                                                                                                            |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11g CH06 2437MHz - L                                                                                                                                                                                                     |                                                                                                                                                                                                                            |
| 1    | Horizontal                                                                                                                                                                                                                   | Fundamental                                                                                                                                                                                                                |
| Peak |  <p>Site : 03CH12-HY<br/>Condition : PEAK_BE_74 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p>  |  <p>Site : 03CH12-HY<br/>Condition : PEAK_74 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p>  |
| Avg. |  <p>Site : 03CH12-HY<br/>Condition : AVG_BE_54 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p> |  <p>Site : 03CH12-HY<br/>Condition : AVG_54 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p> |



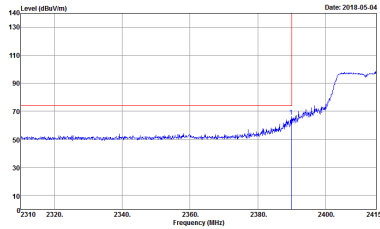
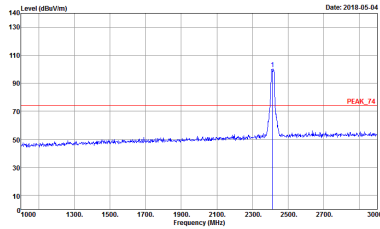
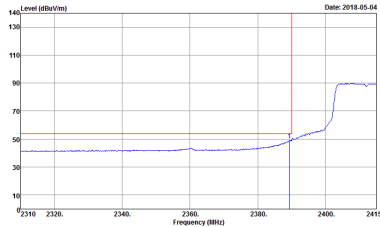
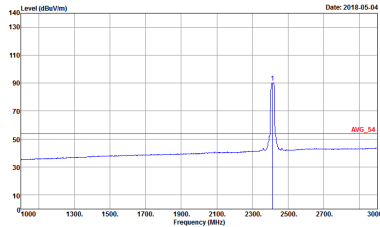
| WIFI | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                                                                     |             |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| ANT  | 802.11g CH06 2437MHz - R                                                                                                                                                                                                                                                 |             |
| 1    | Horizontal                                                                                                                                                                                                                                                               | Fundamental |
| Peak | <div><p>Site : 03CH12-HY<br/>Condition : PEAK_BE_74 3m HORN_91200_1328 HORIZONTAL<br/>Detector : RBW:10000000Hz VBW:3000.0000Hz SWT:Auto<br/>Project : 722135-10<br/>Mode : 4</p></div> | Left blank  |
| Avg. | <div><p>Site : 03CH12-HY<br/>Condition : AVG_BE_54 3m HORN_91200_1328 HORIZONTAL<br/>Detector : RBW:10000000Hz VBW:1.0000Hz SWT:Auto<br/>Project : 722135-10<br/>Mode : 4</p></div>   | Left blank  |

| WIFI | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                 |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11g CH06 2437MHz - L                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                 |
| 1    | Vertical                                                                                                                                                                                                                                                                          | Fundamental                                                                                                                                                                                                                                                                     |
| Peak |  <p>Site : 03CH12-HY<br/>Condition : PEAK_9C_74 3m HORN_91200_1328 VERTICAL<br/>Detector : RBW:3000.000kHz VBW:3000.000kHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p> |  <p>Site : 03CH12-HY<br/>Condition : PEAK_74 3m HORN_91200_1328 VERTICAL<br/>Detector : RBW:3000.000kHz VBW:3000.000kHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p> |
| Avg. |  <p>Site : 03CH12-HY<br/>Condition : AVG_9C_74 3m HORN_91200_1328 VERTICAL<br/>Detector : RBW:3000.000kHz VBW:1000kHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p>    |  <p>Site : 03CH12-HY<br/>Condition : AVG_74 3m HORN_91200_1328 VERTICAL<br/>Detector : RBW:3000.000kHz VBW:1000kHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p>    |

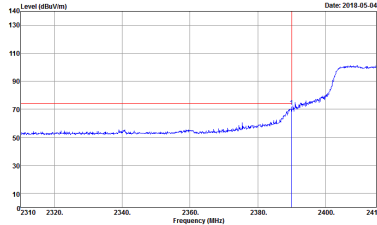
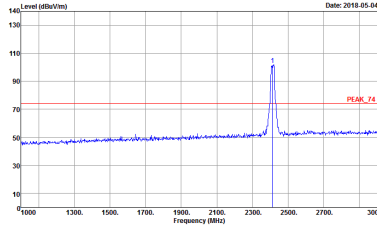
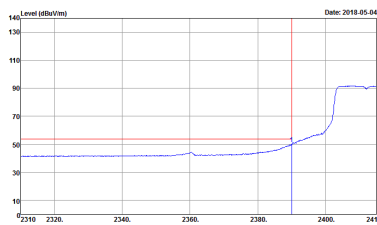
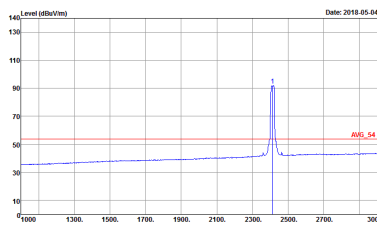


| WIFI | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                                                                               |             |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| ANT  | 802.11g CH06 2437MHz - R                                                                                                                                                                                                                                                           |             |
| 1    | Vertical                                                                                                                                                                                                                                                                           | Fundamental |
| Peak | <div><p>Site : 03CH12-HY<br/>Condition : PEAK_BE_74 3m HORN_91200_1328 VERTICAL<br/>RBW:1000.0000kHz VBW:3000.0000kHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p></div> | Left Blank  |
| Avg. | <div><p>Site : 03CH12-HY<br/>Condition : AVG_BE_54 3m HORN_91200_1328 VERTICAL<br/>RBW:1000.0000kHz VBW:1.0000kHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p></div>   | Left Blank  |

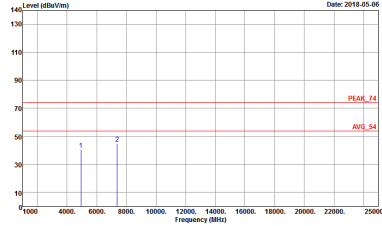
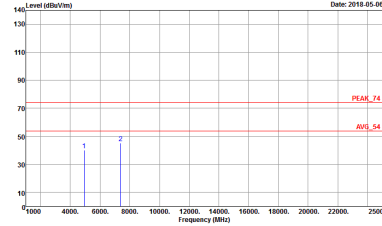
**2.4GHz 2400~2483.5MHz**
**WIFI 802.11n HT20 (Band Edge @ 3m)**

| WIFI        | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                         |                                                                                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT         | 802.11n HT20 CH01 2412MHz                                                                                                                                                                                                    |                                                                                                                                                                                                                            |
| 1           | Horizontal                                                                                                                                                                                                                   | Fundamental                                                                                                                                                                                                                |
| <b>Peak</b> |  <p>Site : 03CH12-HY<br/>Condition : PEAK_BE_74 3m HORN_9120D_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p>  |  <p>Site : 03CH12-HY<br/>Condition : PEAK_74 3m HORN_9120D_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p>  |
|             |  <p>Site : 03CH12-HY<br/>Condition : AVG_BE_54 3m HORN_9120D_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p> |  <p>Site : 03CH12-HY<br/>Condition : AVG_54 3m HORN_9120D_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p> |

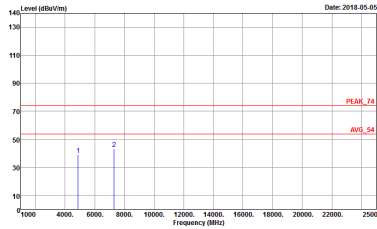
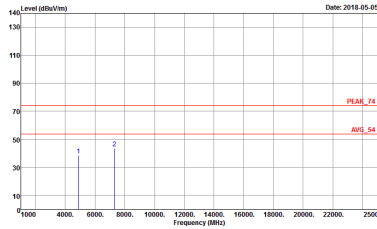


| WIFI | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                 |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT20 CH01 2412MHz                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                 |
| 1    | Vertical                                                                                                                                                                                                                                                                          | Fundamental                                                                                                                                                                                                                                                                     |
| Peak |  <p>Site : 03CH12-HY<br/>Condition : PEAK_9C_74 3m HORN_91200_1328 VERTICAL<br/>Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p> |  <p>Site : 03CH12-HY<br/>Condition : PEAK_74 3m HORN_91200_1328 VERTICAL<br/>Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p> |
| Avg. |  <p>Site : 03CH12-HY<br/>Condition : AVG_BE_54 3m HORN_91200_1328 VERTICAL<br/>Detector : RBW:1000.000KHz VBW:1.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p>   |  <p>Site : 03CH12-HY<br/>Condition : AVG_54 3m HORN_91200_1328 VERTICAL<br/>Detector : RBW:1000.000KHz VBW:1.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p>   |

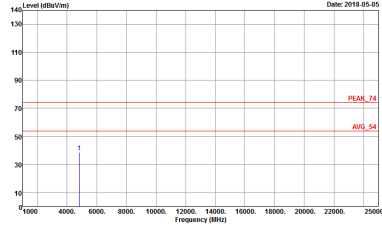
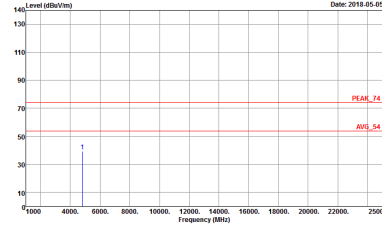
**2.4GHz 2400~2483.5MHz**
**WIFI 802.11b (Harmonic @ 3m)**

| WIFI         | 2.4GHz 2400~2483.5MHz Harmonic @ 3m                                                                                                                                                                                      |                                                                                                                                                                                                                         |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11b CH11 2462MHz                                                                                                                                                                                                     |                                                                                                                                                                                                                         |
| 1            | Horizontal                                                                                                                                                                                                               | Vertical                                                                                                                                                                                                                |
| Peak<br>Avg. |  <p>Site : 03CH12-4Y<br/>Condition : PEAK_74 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p> |  <p>Site : 03CH12-4Y<br/>Condition : PEAK_74 3m HORN_91200_1328 VERTICAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 3</p> |
|              |                                                                                                                                                                                                                          |                                                                                                                                                                                                                         |

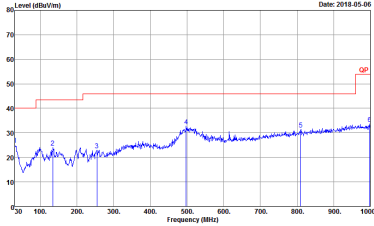
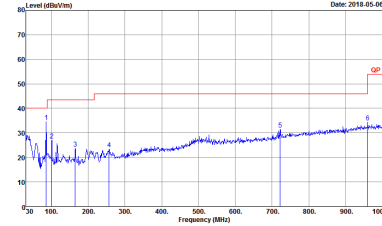
**2.4GHz 2400~2483.5MHz****WIFI 802.11g (Harmonic @ 3m)**

| WIFI                 | 2.4GHz 2400~2483.5MHz Harmonic @ 3m                                                                                                                                                                                      |                                                                                                                                                                                                                         |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT                  | 802.11g CH06 2437MHz                                                                                                                                                                                                     |                                                                                                                                                                                                                         |
| 1                    | Horizontal                                                                                                                                                                                                               | Vertical                                                                                                                                                                                                                |
| <b>Peak<br/>Avg.</b> |  <p>Site : 03CH12-4Y<br/>Condition : PEAK_74 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p> |  <p>Site : 03CH12-4Y<br/>Condition : PEAK_74 3m HORN_91200_1328 VERTICAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 4</p> |
|                      |                                                                                                                                                                                                                          |                                                                                                                                                                                                                         |

**2.4GHz 2400~2483.5MHz**
**WIFI 802.11n HT20 (Harmonic @ 3m)**

| WIFI         | 2.4GHz 2400~2483.5MHz Harmonic @ 3m                                                                                                                                                                                      |                                                                                                                                                                                                                         |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT20 CH01 2412MHz                                                                                                                                                                                                |                                                                                                                                                                                                                         |
| 1            | Horizontal                                                                                                                                                                                                               | Vertical                                                                                                                                                                                                                |
| Peak<br>Avg. |  <p>Site : 03CH12-4Y<br/>Condition : PEAK_74 3m HORN_91200_1328 HORIZONTAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p> |  <p>Site : 03CH12-4Y<br/>Condition : PEAK_74 3m HORN_91200_1328 VERTICAL<br/>Detector : Peak<br/>Project : 722135-10<br/>Mode : 5</p> |
|              |                                                                                                                                                                                                                          |                                                                                                                                                                                                                         |

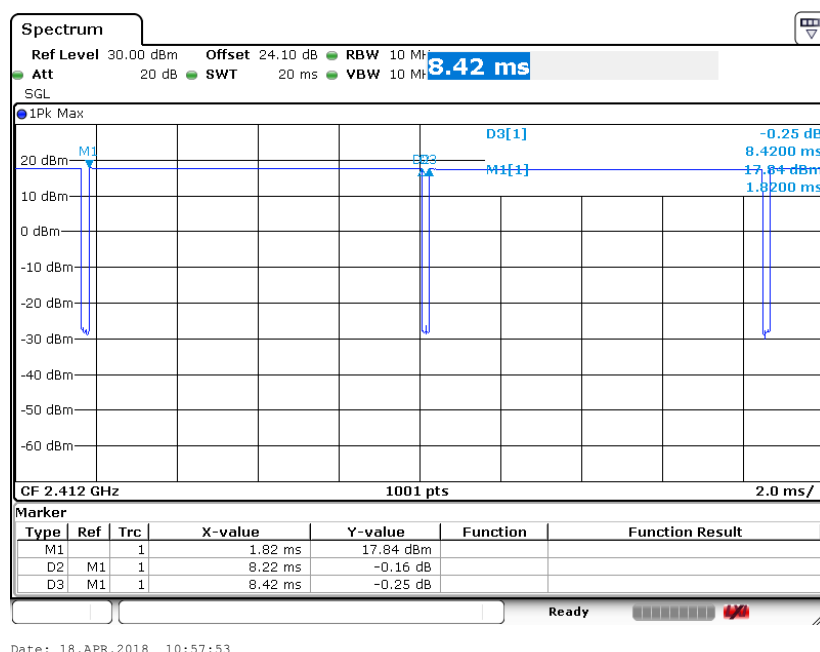
**Emission below 1GHz**  
**2.4GHz WIFI 802.11n HT20 (LF)**

| WIFI                 | 2.4GHz 2400~2483.5MHz                                                                                                                                                                                                       |                                                                                                                                                                                                                            |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT                  | 802.11n HT20 LF                                                                                                                                                                                                             |                                                                                                                                                                                                                            |
| 1                    | Horizontal                                                                                                                                                                                                                  | Vertical                                                                                                                                                                                                                   |
| <b>QP /<br/>Peak</b> |  <p>Site : 03CH12-HY<br/> Condition : QP 3m 81LO6_611D_47020A06 HORIZONTAL<br/> Detector : Peak<br/> Project : 722135-10<br/> Mode : 8</p> |  <p>Site : 03CH12-HY<br/> Condition : QP 3m 81LO6_611D_47020A06 VERTICAL<br/> Detector : Peak<br/> Project : 722135-10<br/> Mode : 8</p> |
|                      |                                                                                                                                                                                                                             |                                                                                                                                                                                                                            |

## Appendix E. Duty Cycle Plots

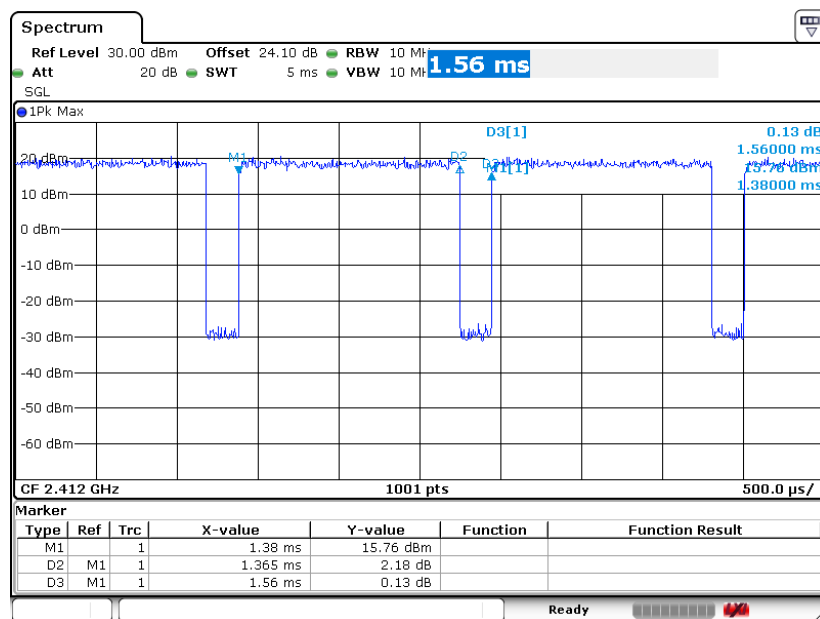
| Band                | Duty Cycle (%) | T(us)   | 1/T(kHz) | VBW Setting | Duty Factor (dB) |
|---------------------|----------------|---------|----------|-------------|------------------|
| 802.11b             | 97.62          | 8220.00 | 0.12     | 300Hz       | 0.10             |
| 802.11g             | 87.50          | 1365.00 | 0.73     | 1kHz        | 0.58             |
| 2.4GHz 802.11n HT20 | 86.73          | 1275.00 | 0.78     | 1kHz        | 0.62             |

### 802.11b



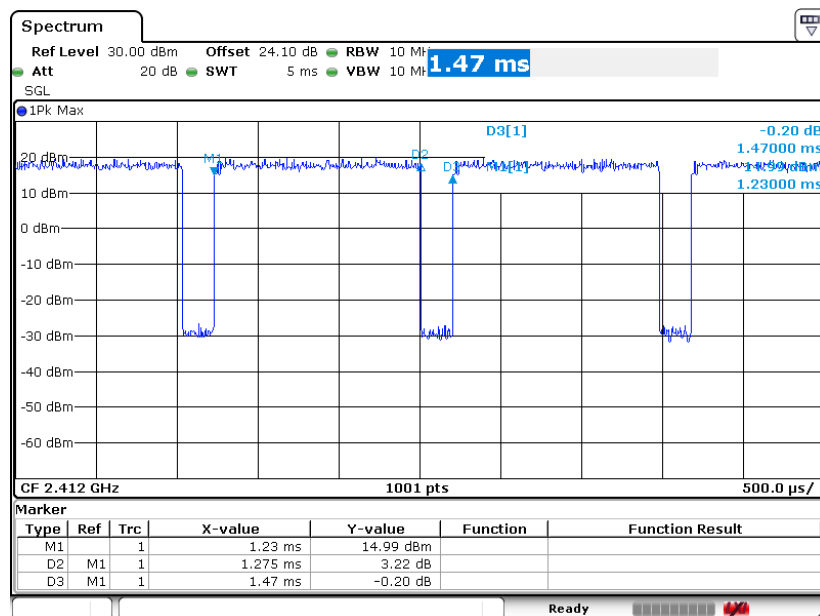


## 802.11g



Date: 18.APR.2018 11:15:29

## 802.11n HT20



Date: 18.APR.2018 11:35:13