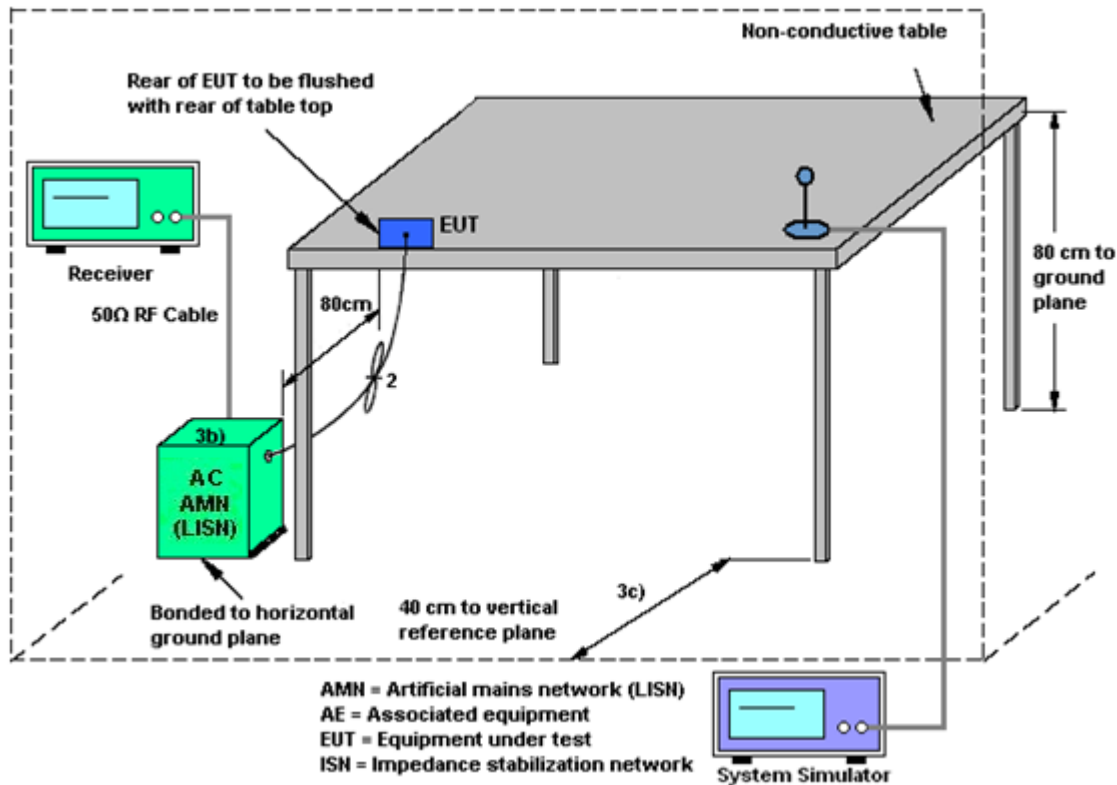


### 3.6.4 Test Setup



### 3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

### 3.7 Antenna Requirements

#### 3.7.1 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.

#### 3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

#### 3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain =  $G_{ANT}$  + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain =  $10 \log(N_{ANT}/N_{SS}=1)$  dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ .

Directional gain may be calculated by using the formulas applicable to equal gain antennas with  $G_{ANT}$  set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain  $G_{ANT}$  is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

| <CDD Modes> |        |        |              |            |                       |                     |
|-------------|--------|--------|--------------|------------|-----------------------|---------------------|
|             | Ant. 1 | Ant. 2 | DG for Power | DG for PSD | Power Limit Reduction | PSD Limit Reduction |
|             | (dBi)  | (dBi)  | (dBi)        | (dBi)      | (dB)                  | (dB)                |
| 2.4 GHz     | -2.00  | -2.00  | -2.00        | 1.01       | 0.00                  | 0.00                |

*Power Limit Reduction = DG(Power) – 6dBi, ( min = 0 )*

*PSD Limit Reduction = DG(PSD) – 6dBi, ( min = 0 )*



## 4 List of Measuring Equipment

| Instrument                              | Manufacturer | Model No.                        | Serial No.       | Characteristics    | Calibration Date | Test Date                     | Due Date      | Remark                   |
|-----------------------------------------|--------------|----------------------------------|------------------|--------------------|------------------|-------------------------------|---------------|--------------------------|
| Spectrum Analyzer                       | R&S          | FSV40                            | 101078           | 10Hz~40GHz         | Apr. 16, 2010    | May 02, 2020~<br>May 10, 2020 | Apr. 15, 2021 | Conducted<br>(TH01-SZ)   |
| Pulse Power Sensor                      | Anritsu      | MA2411B                          | 1207253          | 30MHz~40GHz        | Dec. 26, 2019    | May 02, 2020~<br>May 10, 2020 | Dec. 25, 2020 | Conducted<br>(TH01-SZ)   |
| Power Meter                             | Anritsu      | ML2495A                          | 1218010          | 50MHz<br>Bandwidth | Dec. 26, 2019    | May 02, 2020~<br>May 10, 2020 | Dec. 25, 2020 | Conducted<br>(TH01-SZ)   |
| EXA Spectrum Analyzer                   | KEYSIGHT     | N9010A                           | MY55150213       | 10Hz~44GHz         | Apr. 17, 2020    | May 22, 2020                  | Apr. 16, 2021 | Radiation<br>(03CH02-SZ) |
| Loop Antenna                            | R&S          | HFH2-Z2                          | 100354           | 9kHz~30MHz         | May 29, 2019     | May 22, 2020                  | May 28, 2020  | Radiation<br>(03CH02-SZ) |
| Bilog Antenna                           | TeseQ        | CBL6112D                         | 35407            | 30MHz~2GHz         | Jul. 19, 2019    | May 22, 2020                  | Jul. 18, 2020 | Radiation<br>(03CH02-SZ) |
| Double Ridge Horn Antenna               | ETS-Lindgren | 3117                             | 00119436         | 1GHz~18GHz         | Aug. 27, 2019    | May 22, 2020                  | Aug. 26, 2020 | Radiation<br>(03CH02-SZ) |
| HF Amplifier                            | MITEQ        | TTA1840-35-H<br>G                | 1871923          | 18GHz~40GHz        | Jul. 22, 2019    | May 22, 2020                  | Jul. 21, 2020 | Radiation<br>(03CH02-SZ) |
| SHF-EHF Horn                            | com-power    | AH-840                           | 101071           | 18GHz~40GHz        | Apr. 17, 2020    | May 22, 2020                  | Apr. 16, 2021 | Radiation<br>(03CH02-SZ) |
| LF Amplifier                            | Burgeon      | BPA-530                          | 102211           | 0.01~3000Mhz       | Oct. 18, 2019    | May 22, 2020                  | Oct. 17, 2020 | Radiation<br>(03CH02-SZ) |
| HF Amplifier                            | MITEQ        | AMF-7D-0010<br>1800-30-10P-<br>R | 1943528          | 1GHz~18GHz         | Oct. 18, 2019    | May 22, 2020                  | Oct. 17, 2020 | Radiation<br>(03CH02-SZ) |
| HF Amplifier                            | KEYSIGHT     | 83017A                           | MY53270105       | 0.5GHz~26.5GHz     | Oct. 18, 2019    | May 22, 2020                  | Oct. 17, 2020 | Radiation<br>(03CH02-SZ) |
| AC Power Source                         | Chroma       | 61601                            | 6160100024<br>70 | N/A                | NCR              | May 22, 2020                  | NCR           | Radiation<br>(03CH02-SZ) |
| Turn Table                              | Chaintek     | T-200                            | N/A              | 0~360 degree       | NCR              | May 22, 2020                  | NCR           | Radiation<br>(03CH02-SZ) |
| Antenna Mast                            | Chaintek     | MBS-400                          | N/A              | 1 m~4 m            | NCR              | May 22, 2020                  | NCR           | Radiation<br>(03CH02-SZ) |
| EMI Receiver                            | R&S          | ESR7                             | 101630           | 9kHz~7GHz;         | Dec. 26, 2019    | May 19, 2020                  | Dec. 25, 2020 | Conduction<br>(CO01-SZ)  |
| AC LISN                                 | EMCO         | 3816/2SH                         | 00103912         | 9kHz~30MHz         | Oct. 17, 2019    | May 19, 2020                  | Oct. 16, 2020 | Conduction<br>(CO01-SZ)  |
| AC LISN<br>(for auxiliary<br>equipment) | EMCO         | 3816/2SH                         | 00103892         | 9kHz~30MHz         | Oct. 17, 2019    | May 19, 2020                  | Oct. 16, 2020 | Conduction<br>(CO01-SZ)  |
| AC Power Source                         | Chroma       | 61602                            | 6160200008<br>91 | 100Vac~250Vac      | Jul. 23, 2019    | May 19, 2020                  | Jul. 22, 2020 | Conduction<br>(CO01-SZ)  |

NCR: No Calibration Required

## 5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage  $K=2$  to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

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

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.6dB |
|-------------------------------------------------------------------------|-------|

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

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.0dB |
|-------------------------------------------------------------------------|-------|

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

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.0dB |
|-------------------------------------------------------------------------|-------|

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

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.4dB |
|-------------------------------------------------------------------------|-------|



## **Appendix A. Conducted Test Results**

Appendix A. Test Result of Conducted Test Items

|                |                     |                    |       |    |
|----------------|---------------------|--------------------|-------|----|
| Test Engineer: | Zeng meng hui       | Temperature:       | 21~25 | °C |
| Test Date:     | 2020/5/02~2020/5/10 | Relative Humidity: | 51~54 | %  |

**TEST RESULTS DATA**  
**6dB and 99% Occupied Bandwidth**

| 2.4GHz Band |           |     |     |             |                       |       |              |       |                    |           |
|-------------|-----------|-----|-----|-------------|-----------------------|-------|--------------|-------|--------------------|-----------|
| Mod.        | Data Rate | NTX | CH. | Freq. (MHz) | 99% Occupied BW (MHz) |       | 6dB BW (MHz) |       | 6dB BW Limit (MHz) | Pass/Fail |
|             |           |     |     |             | Ant 1                 | Ant 2 | Ant 1        | Ant 2 |                    |           |
| 11b         | 1Mbps     | 2   | 1   | 2412        | 13.54                 | 13.49 | 8.07         | 8.07  | 0.50               | Pass      |
| 11b         | 1Mbps     | 2   | 6   | 2437        | 13.64                 | 13.64 | 8.07         | 8.05  | 0.50               | Pass      |
| 11b         | 1Mbps     | 2   | 11  | 2462        | 13.59                 | 13.64 | 8.07         | 8.07  | 0.50               | Pass      |
| 11g         | 6Mbps     | 2   | 1   | 2412        | 16.68                 | 16.58 | 15.54        | 15.32 | 0.50               | Pass      |
| 11g         | 6Mbps     | 2   | 6   | 2437        | 16.68                 | 16.58 | 15.52        | 15.44 | 0.50               | Pass      |
| 11g         | 6Mbps     | 2   | 11  | 2462        | 16.63                 | 16.58 | 15.36        | 15.70 | 0.50               | Pass      |
| HT20        | MCS0      | 2   | 1   | 2412        | 17.83                 | 17.78 | 16.00        | 15.10 | 0.50               | Pass      |
| HT20        | MCS0      | 2   | 6   | 2437        | 17.88                 | 17.78 | 16.52        | 15.94 | 0.50               | Pass      |
| HT20        | MCS0      | 2   | 11  | 2462        | 17.83                 | 17.78 | 15.96        | 15.96 | 0.50               | Pass      |
| HT40        | MCS0      | 2   | 3   | 2422        | 36.46                 | 36.26 | 35.12        | 35.08 | 0.50               | Pass      |
| HT40        | MCS0      | 2   | 6   | 2437        | 36.46                 | 36.36 | 35.12        | 35.68 | 0.50               | Pass      |
| HT40        | MCS0      | 2   | 9   | 2452        | 36.56                 | 36.36 | 35.36        | 35.68 | 0.50               | Pass      |

**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 2 | SUM   | Ant 1                       | Ant 2 | Ant 1    | Ant 2 | Ant 1            | Ant 2 | Ant 1                  | Ant 2 |            |
| 11b         | 1Mbps     | 2   | 1   | 2412        | 20.55                      | 20.52 | 23.55 | 30.00                       |       | -2.00    |       | 21.55            |       | 36.00                  |       | Pass       |
| 11b         | 1Mbps     | 2   | 6   | 2437        | 20.54                      | 20.40 | 23.48 | 30.00                       |       | -2.00    |       | 21.48            |       | 36.00                  |       | Pass       |
| 11b         | 1Mbps     | 2   | 11  | 2462        | 20.52                      | 20.67 | 23.61 | 30.00                       |       | -2.00    |       | 21.61            |       | 36.00                  |       | Pass       |
| 11g         | 6Mbps     | 2   | 1   | 2412        | 21.64                      | 21.18 | 24.43 | 30.00                       |       | -2.00    |       | 22.43            |       | 36.00                  |       | Pass       |
| 11g         | 6Mbps     | 2   | 6   | 2437        | 21.59                      | 21.13 | 24.38 | 30.00                       |       | -2.00    |       | 22.38            |       | 36.00                  |       | Pass       |
| 11g         | 6Mbps     | 2   | 11  | 2462        | 21.63                      | 21.55 | 24.60 | 30.00                       |       | -2.00    |       | 22.60            |       | 36.00                  |       | Pass       |
| HT20        | MCS0      | 2   | 1   | 2412        | 21.51                      | 21.26 | 24.40 | 30.00                       |       | -2.00    |       | 22.40            |       | 36.00                  |       | Pass       |
| HT20        | MCS0      | 2   | 6   | 2437        | 21.54                      | 21.14 | 24.35 | 30.00                       |       | -2.00    |       | 22.35            |       | 36.00                  |       | Pass       |
| HT20        | MCS0      | 2   | 11  | 2462        | 21.55                      | 21.62 | 24.60 | 30.00                       |       | -2.00    |       | 22.60            |       | 36.00                  |       | Pass       |
| HT40        | MCS0      | 2   | 3   | 2422        | 21.73                      | 21.44 | 24.60 | 30.00                       |       | -2.00    |       | 22.60            |       | 36.00                  |       | Pass       |
| HT40        | MCS0      | 2   | 6   | 2437        | 21.73                      | 21.25 | 24.51 | 30.00                       |       | -2.00    |       | 22.51            |       | 36.00                  |       | Pass       |
| HT40        | MCS0      | 2   | 9   | 2452        | 21.66                      | 21.19 | 24.44 | 30.00                       |       | -2.00    |       | 22.44            |       | 36.00                  |       | Pass       |

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

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

| 2.4GHz Band |           |     |     |             |                               |       |       |                             |       |          |       |                  |       |                        |       |            |
|-------------|-----------|-----|-----|-------------|-------------------------------|-------|-------|-----------------------------|-------|----------|-------|------------------|-------|------------------------|-------|------------|
| Mod.        | Data Rate | NTx | CH. | Freq. (MHz) | Average Conducted Power (dBm) |       |       | Conducted Power Limit (dBm) |       | DG (dBi) |       | EIRP Power (dBm) |       | EIRP Power Limit (dBm) |       | Pass /Fail |
|             |           |     |     |             | Ant 1                         | Ant 2 | SUM   | Ant 1                       | Ant 2 | Ant 1    | Ant 2 | Ant 1            | Ant 2 | Ant 1                  | Ant 2 |            |
| 11b         | 1Mbps     | 2   | 1   | 2412        | 19.00                         | 18.50 | 21.77 | 30.00                       |       | -2.00    |       | 19.77            |       | 36.00                  |       | Pass       |
| 11b         | 1Mbps     | 2   | 6   | 2437        | 19.00                         | 18.60 | 21.81 | 30.00                       |       | -2.00    |       | 19.81            |       | 36.00                  |       | Pass       |
| 11b         | 1Mbps     | 2   | 11  | 2462        | 19.00                         | 18.80 | 21.91 | 30.00                       |       | -2.00    |       | 19.91            |       | 36.00                  |       | Pass       |
| 11g         | 6Mbps     | 2   | 1   | 2412        | 17.60                         | 17.00 | 20.32 | 30.00                       |       | -2.00    |       | 18.32            |       | 36.00                  |       | Pass       |
| 11g         | 6Mbps     | 2   | 6   | 2437        | 17.60                         | 17.00 | 20.32 | 30.00                       |       | -2.00    |       | 18.32            |       | 36.00                  |       | Pass       |
| 11g         | 6Mbps     | 2   | 11  | 2462        | 17.50                         | 17.40 | 20.46 | 30.00                       |       | -2.00    |       | 18.46            |       | 36.00                  |       | Pass       |
| HT20        | MCS0      | 2   | 1   | 2412        | 17.50                         | 17.20 | 20.36 | 30.00                       |       | -2.00    |       | 18.36            |       | 36.00                  |       | Pass       |
| HT20        | MCS0      | 2   | 6   | 2437        | 17.60                         | 17.10 | 20.37 | 30.00                       |       | -2.00    |       | 18.37            |       | 36.00                  |       | Pass       |
| HT20        | MCS0      | 2   | 11  | 2462        | 17.50                         | 17.40 | 20.46 | 30.00                       |       | -2.00    |       | 18.46            |       | 36.00                  |       | Pass       |
| HT40        | MCS0      | 2   | 3   | 2422        | 16.20                         | 15.80 | 19.01 | 30.00                       |       | -2.00    |       | 17.01            |       | 36.00                  |       | Pass       |
| HT40        | MCS0      | 2   | 6   | 2437        | 16.20                         | 15.70 | 18.97 | 30.00                       |       | -2.00    |       | 16.97            |       | 36.00                  |       | Pass       |
| HT40        | MCS0      | 2   | 9   | 2452        | 16.10                         | 15.60 | 18.87 | 30.00                       |       | -2.00    |       | 16.87            |       | 36.00                  |       | Pass       |

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

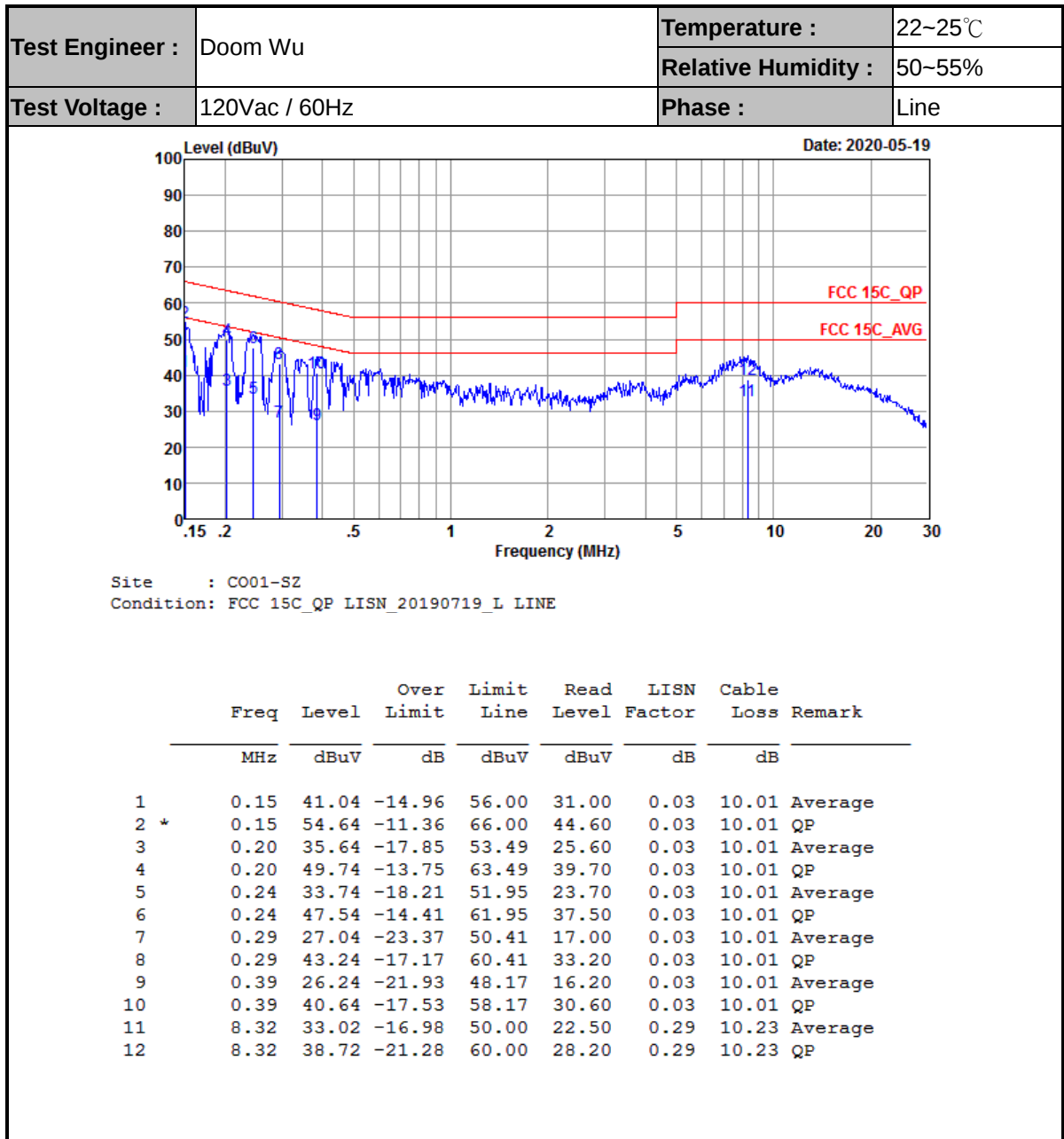
**TEST RESULTS DATA**  
**Peak Power Spectral Density**

| 2.4GHz Band |           |     |     |             |                     |        |              |          |       |                           |       |           |
|-------------|-----------|-----|-----|-------------|---------------------|--------|--------------|----------|-------|---------------------------|-------|-----------|
| Mod.        | Data Rate | NTX | CH. | Freq. (MHz) | Peak PSD (dBm/3kHz) |        |              | DG (dBi) |       | Peak PSD Limit (dBm/3kHz) |       | Pass/Fail |
|             |           |     |     |             | Ant 1               | Ant 2  | Worse + 3.01 | Ant 1    | Ant 2 | Ant 1                     | Ant 2 |           |
| 11b         | 1Mbps     | 2   | 1   | 2412        | -7.85               | -7.19  | -4.18        | 1.01     |       | 8.00                      |       | Pass      |
| 11b         | 1Mbps     | 2   | 6   | 2437        | -7.66               | -7.42  | -4.41        | 1.01     |       | 8.00                      |       | Pass      |
| 11b         | 1Mbps     | 2   | 11  | 2462        | -7.13               | -7.40  | -4.12        | 1.01     |       | 8.00                      |       | Pass      |
| 11g         | 6Mbps     | 2   | 1   | 2412        | -9.46               | -10.25 | -6.45        | 1.01     |       | 8.00                      |       | Pass      |
| 11g         | 6Mbps     | 2   | 6   | 2437        | -8.25               | -8.82  | -5.24        | 1.01     |       | 8.00                      |       | Pass      |
| 11g         | 6Mbps     | 2   | 11  | 2462        | -9.42               | -9.18  | -6.17        | 1.01     |       | 8.00                      |       | Pass      |
| HT20        | MCS0      | 2   | 1   | 2412        | -9.32               | -9.69  | -6.31        | 1.01     |       | 8.00                      |       | Pass      |
| HT20        | MCS0      | 2   | 6   | 2437        | -8.94               | -9.33  | -5.93        | 1.01     |       | 8.00                      |       | Pass      |
| HT20        | MCS0      | 2   | 11  | 2462        | -9.97               | -9.19  | -6.18        | 1.01     |       | 8.00                      |       | Pass      |
| HT40        | MCS0      | 2   | 3   | 2422        | -12.48              | -13.51 | -9.47        | 1.01     |       | 8.00                      |       | Pass      |
| HT40        | MCS0      | 2   | 6   | 2437        | -12.91              | -12.79 | -9.78        | 1.01     |       | 8.00                      |       | Pass      |
| HT40        | MCS0      | 2   | 9   | 2452        | -11.74              | -12.75 | -8.73        | 1.01     |       | 8.00                      |       | Pass      |

Measured power density (dBm) has offset with cable loss.

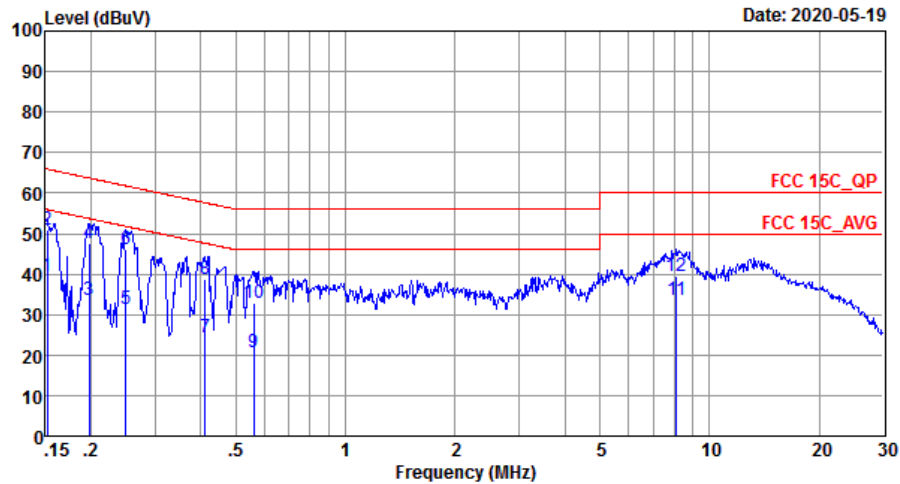


## Appendix B. AC Conducted Emission Test Results





|                 |               |                     |         |
|-----------------|---------------|---------------------|---------|
| Test Engineer : | Doom Wu       | Temperature :       | 22~25℃  |
|                 |               | Relative Humidity : | 50~55%  |
| Test Voltage :  | 120Vac / 60Hz | Phase :             | Neutral |



Site : CO01-SZ  
Condition: FCC 15C\_QP LISN\_20190719\_N NEUTRAL

|     | Freq | Level | Over   | Limit | Read  | LISN   | Cable |         |
|-----|------|-------|--------|-------|-------|--------|-------|---------|
|     | MHz  | dBuV  | Limit  | Line  | Level | Factor | Loss  | Remark  |
|     |      |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1   | 0.15 | 39.34 | -16.57 | 55.91 | 29.30 | 0.03   | 10.01 | Average |
| 2 * | 0.15 | 51.04 | -14.87 | 65.91 | 41.00 | 0.03   | 10.01 | QP      |
| 3   | 0.20 | 33.54 | -20.17 | 53.71 | 23.50 | 0.03   | 10.01 | Average |
| 4   | 0.20 | 47.54 | -16.17 | 63.71 | 37.50 | 0.03   | 10.01 | QP      |
| 5   | 0.25 | 31.54 | -20.24 | 51.78 | 21.50 | 0.03   | 10.01 | Average |
| 6   | 0.25 | 46.24 | -15.54 | 61.78 | 36.20 | 0.03   | 10.01 | QP      |
| 7   | 0.41 | 24.34 | -23.25 | 47.59 | 14.30 | 0.02   | 10.02 | Average |
| 8   | 0.41 | 38.64 | -18.95 | 57.59 | 28.60 | 0.02   | 10.02 | QP      |
| 9   | 0.56 | 20.58 | -25.42 | 46.00 | 10.50 | 0.02   | 10.06 | Average |
| 10  | 0.56 | 32.98 | -23.02 | 56.00 | 22.90 | 0.02   | 10.06 | QP      |
| 11  | 8.11 | 33.53 | -16.47 | 50.00 | 23.19 | 0.11   | 10.23 | Average |
| 12  | 8.11 | 39.33 | -20.67 | 60.00 | 28.99 | 0.11   | 10.23 | QP      |

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



## Appendix C. Radiated Spurious Emission

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

| WIFI<br>Ant.                | Note | Frequency | Level      | Over<br>Limit | Limit<br>Line | Read<br>Level | Antenna<br>Factor | Cable<br>Loss | Preamp<br>Factor | Ant<br>Pos | Table<br>Pos | Peak<br>Avg. | Pol.    |
|-----------------------------|------|-----------|------------|---------------|---------------|---------------|-------------------|---------------|------------------|------------|--------------|--------------|---------|
| 1+2                         |      | ( MHz )   | ( dBμV/m ) | ( dB )        | ( dBμV/m )    | ( dBμV )      | ( dB/m )          | ( dB )        | ( dB )           | ( cm )     | ( deg )      | ( P/A )      | ( H/V ) |
| 802.11b<br>CH 01<br>2412MHz |      | 2388.01   | 51.27      | -22.73        | 74            | 46.38         | 27.7              | 7.54          | 30.35            | 100        | 292          | P            | H       |
|                             |      | 2388.12   | 40.49      | -13.51        | 54            | 35.6          | 27.7              | 7.54          | 30.35            | 100        | 292          | A            | H       |
|                             | *    | 2412      | 108.54     | -             | -             | 103.69        | 27.67             | 7.54          | 30.36            | 100        | 292          | P            | H       |
|                             | *    | 2412      | 104.71     | -             | -             | 99.86         | 27.67             | 7.54          | 30.36            | 100        | 292          | A            | H       |
|                             |      | 2374.26   | 49.56      | -24.44        | 74            | 44.63         | 27.77             | 7.51          | 30.35            | 323        | 56           | P            | V       |
|                             |      | 2388.22   | 39.02      | -14.98        | 54            | 34.13         | 27.7              | 7.54          | 30.35            | 323        | 56           | A            | V       |
|                             | *    | 2412      | 98.99      | -             | -             | 94.14         | 27.67             | 7.54          | 30.36            | 323        | 56           | P            | V       |
|                             | *    | 2412      | 96.41      | -             | -             | 91.56         | 27.67             | 7.54          | 30.36            | 323        | 56           | A            | V       |
| 802.11b<br>CH 06<br>2437MHz |      | 2388.96   | 49.88      | -24.12        | 74            | 44.99         | 27.7              | 7.54          | 30.35            | 100        | 297          | P            | H       |
|                             |      | 2389.94   | 40.17      | -13.83        | 54            | 35.29         | 27.7              | 7.54          | 30.36            | 100        | 297          | A            | H       |
|                             | *    | 2437      | 108.97     | -             | -             | 104.2         | 27.6              | 7.54          | 30.37            | 100        | 297          | P            | H       |
|                             | *    | 2437      | 104.98     | -             | -             | 100.21        | 27.6              | 7.54          | 30.37            | 100        | 297          | A            | H       |
|                             |      | 2484.6    | 49.86      | -24.14        | 74            | 45.25         | 27.47             | 7.53          | 30.39            | 100        | 297          | P            | H       |
|                             |      | 2483.5    | 40.09      | -13.91        | 54            | 35.48         | 27.47             | 7.53          | 30.39            | 100        | 297          | A            | H       |
|                             |      | 2337.02   | 49.78      | -24.22        | 74            | 44.73         | 27.9              | 7.48          | 30.33            | 318        | 34           | P            | V       |
|                             |      | 2389.8    | 38.87      | -15.13        | 54            | 33.99         | 27.7              | 7.54          | 30.36            | 318        | 34           | A            | V       |
|                             | *    | 2437      | 99.8       | -             | -             | 95.03         | 27.6              | 7.54          | 30.37            | 318        | 34           | P            | V       |
|                             | *    | 2437      | 97.19      | -             | -             | 92.42         | 27.6              | 7.54          | 30.37            | 318        | 34           | A            | V       |
|                             |      | 2497.55   | 49.06      | -24.94        | 74            | 44.53         | 27.4              | 7.53          | 30.4             | 318        | 34           | P            | V       |
|                             |      | 2484.04   | 38.69      | -15.31        | 54            | 34.08         | 27.47             | 7.53          | 30.39            | 318        | 34           | A            | V       |



|                                                  |                                                                                                                                                  |         |        |        |    |        |       |      |       |     |     |   |   |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|--------|----|--------|-------|------|-------|-----|-----|---|---|
| <b>802.11b</b><br><b>CH 11</b><br><b>2462MHz</b> | *                                                                                                                                                | 2462    | 108.36 | -      | -  | 103.67 | 27.53 | 7.54 | 30.38 | 100 | 297 | P | H |
|                                                  | *                                                                                                                                                | 2462    | 103.49 | -      | -  | 98.8   | 27.53 | 7.54 | 30.38 | 100 | 297 | A | H |
|                                                  |                                                                                                                                                  | 2485.6  | 49.97  | -24.03 | 74 | 45.36  | 27.47 | 7.53 | 30.39 | 100 | 297 | P | H |
|                                                  |                                                                                                                                                  | 2483.52 | 40.11  | -13.89 | 54 | 35.5   | 27.47 | 7.53 | 30.39 | 100 | 297 | A | H |
|                                                  | *                                                                                                                                                | 2462    | 99.34  | -      | -  | 94.65  | 27.53 | 7.54 | 30.38 | 307 | 16  | P | V |
|                                                  | *                                                                                                                                                | 2462    | 96.49  | -      | -  | 91.8   | 27.53 | 7.54 | 30.38 | 307 | 16  | A | V |
|                                                  |                                                                                                                                                  | 2487.76 | 49     | -25    | 74 | 44.46  | 27.4  | 7.53 | 30.39 | 307 | 16  | P | V |
|                                                  |                                                                                                                                                  | 2483.52 | 38.5   | -15.5  | 54 | 33.89  | 27.47 | 7.53 | 30.39 | 307 | 16  | A | V |
| <b>Remark</b>                                    | <ol style="list-style-type: none"><li>1. No other spurious found.</li><li>2. All results are PASS against Peak and Average limit line.</li></ol> |         |        |        |    |        |       |      |       |     |     |   |   |



## 2.4GHz 2400~2483.5MHz

## WIFI 802.11b (Harmonic @ 3m)

| WIFI<br>Ant.<br>1+2         | 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 ) | Cable<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 ) |
|-----------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11b<br>CH 01<br>2412MHz |                                                                                             | 4824                 | 39.03               | -34.97                  | 74                          | 52.39                     | 31.15                         | 9.86                    | 54.37                      | 185                  | 255                     | P                       | H               |
|                             |                                                                                             | 4824                 | 39.02               | -34.98                  | 74                          | 52.38                     | 31.15                         | 9.86                    | 54.37                      | 189                  | 153                     | P                       | V               |
| 802.11b<br>CH 06<br>2437MHz |                                                                                             | 4874                 | 38.71               | -35.29                  | 74                          | 52.05                     | 31.13                         | 9.88                    | 54.35                      | 165                  | 106                     | P                       | H               |
|                             |                                                                                             | 7311                 | 44.59               | -29.41                  | 74                          | 50.82                     | 36.4                          | 11.88                   | 54.51                      | 174                  | 100                     | P                       | H               |
|                             |                                                                                             | 4874                 | 37.88               | -36.12                  | 74                          | 51.22                     | 31.13                         | 9.88                    | 54.35                      | 177                  | 261                     | P                       | V               |
|                             |                                                                                             | 7311                 | 44.94               | -29.06                  | 74                          | 51.17                     | 36.4                          | 11.88                   | 54.51                      | 121                  | 61                      | P                       | V               |
| 802.11b<br>CH 11<br>2462MHz |                                                                                             | 4924                 | 38.94               | -35.06                  | 74                          | 52.13                     | 31.23                         | 9.91                    | 54.33                      | 150                  | 285                     | P                       | H               |
|                             |                                                                                             | 7386                 | 44.54               | -29.46                  | 74                          | 50.83                     | 36.3                          | 12.01                   | 54.6                       | 155                  | 274                     | P                       | H               |
|                             |                                                                                             | 4924                 | 38.95               | -35.05                  | 74                          | 52.14                     | 31.23                         | 9.91                    | 54.33                      | 142                  | 85                      | P                       | V               |
|                             |                                                                                             | 7386                 | 43.88               | -30.12                  | 74                          | 50.17                     | 36.3                          | 12.01                   | 54.6                       | 178                  | 145                     | P                       | 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 802.11g (Band Edge @ 3m)

| WIFI<br>Ant.<br>1+2         | 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 ) | Cable<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 ) |
|-----------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11g<br>CH 01<br>2412MHz |      | 2389.8               | 56.27               | -17.73                  | 74                          | 51.39                     | 27.7                          | 7.54                    | 30.36                      | 100                  | 91                      | P                       | H               |
|                             |      | 2390                 | 47.27               | -6.73                   | 54                          | 42.39                     | 27.7                          | 7.54                    | 30.36                      | 100                  | 91                      | A                       | H               |
|                             | *    | 2412                 | 109.36              | -                       | -                           | 104.51                    | 27.67                         | 7.54                    | 30.36                      | 100                  | 91                      | P                       | H               |
|                             | *    | 2412                 | 102.2               | -                       | -                           | 97.35                     | 27.67                         | 7.54                    | 30.36                      | 100                  | 91                      | A                       | H               |
|                             |      | 2390                 | 53.32               | -20.68                  | 74                          | 48.44                     | 27.7                          | 7.54                    | 30.36                      | 101                  | 11                      | P                       | V               |
|                             |      | 2390                 | 43.22               | -10.78                  | 54                          | 38.34                     | 27.7                          | 7.54                    | 30.36                      | 101                  | 11                      | A                       | V               |
|                             | *    | 2412                 | 103.3               | -                       | -                           | 98.45                     | 27.67                         | 7.54                    | 30.36                      | 101                  | 11                      | P                       | V               |
|                             | *    | 2412                 | 96.6                | -                       | -                           | 91.75                     | 27.67                         | 7.54                    | 30.36                      | 101                  | 11                      | A                       | V               |
| 802.11g<br>CH 06<br>2437MHz |      | 2388.26              | 50.38               | -23.62                  | 74                          | 45.49                     | 27.7                          | 7.54                    | 30.35                      | 144                  | 139                     | P                       | H               |
|                             |      | 2389.94              | 40.64               | -13.36                  | 54                          | 35.76                     | 27.7                          | 7.54                    | 30.36                      | 144                  | 139                     | A                       | H               |
|                             | *    | 2437                 | 108.65              | -                       | -                           | 103.88                    | 27.6                          | 7.54                    | 30.37                      | 144                  | 139                     | P                       | H               |
|                             | *    | 2437                 | 101.54              | -                       | -                           | 96.77                     | 27.6                          | 7.54                    | 30.37                      | 144                  | 139                     | A                       | H               |
|                             |      | 2483.69              | 50.51               | -23.49                  | 74                          | 45.9                      | 27.47                         | 7.53                    | 30.39                      | 144                  | 139                     | P                       | H               |
|                             |      | 2483.5               | 39.45               | -14.55                  | 54                          | 34.84                     | 27.47                         | 7.53                    | 30.39                      | 144                  | 139                     | P                       | H               |
|                             |      | 2371.46              | 49.85               | -24.15                  | 74                          | 44.92                     | 27.77                         | 7.51                    | 30.35                      | 107                  | 91                      | P                       | V               |
|                             |      | 2389.8               | 38.93               | -15.07                  | 54                          | 34.05                     | 27.7                          | 7.54                    | 30.36                      | 107                  | 91                      | A                       | V               |
|                             | *    | 2437                 | 97.98               | -                       | -                           | 93.21                     | 27.6                          | 7.54                    | 30.37                      | 107                  | 91                      | P                       | V               |
|                             | *    | 2437                 | 91.01               | -                       | -                           | 86.24                     | 27.6                          | 7.54                    | 30.37                      | 107                  | 91                      | A                       | V               |
|                             |      | 2484.11              | 49.27               | -24.73                  | 74                          | 44.66                     | 27.47                         | 7.53                    | 30.39                      | 107                  | 91                      | P                       | V               |
|                             |      | 2484.25              | 38.64               | -15.36                  | 54                          | 34.03                     | 27.47                         | 7.53                    | 30.39                      | 107                  | 91                      | A                       | V               |



|                                                  |                                                                                                                                                  |         |        |        |    |        |       |      |       |     |     |   |   |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|--------|----|--------|-------|------|-------|-----|-----|---|---|
| <b>802.11g</b><br><b>CH 11</b><br><b>2462MHz</b> | *                                                                                                                                                | 2462    | 109    | -      | -  | 104.31 | 27.53 | 7.54 | 30.38 | 227 | 166 | P | H |
|                                                  | *                                                                                                                                                | 2462    | 100.82 | -      | -  | 96.13  | 27.53 | 7.54 | 30.38 | 227 | 166 | A | H |
|                                                  |                                                                                                                                                  | 2483.8  | 56.66  | -17.34 | 74 | 52.05  | 27.47 | 7.53 | 30.39 | 227 | 166 | P | H |
|                                                  |                                                                                                                                                  | 2483.52 | 43.72  | -10.28 | 54 | 39.11  | 27.47 | 7.53 | 30.39 | 227 | 166 | A | H |
|                                                  | *                                                                                                                                                | 2462    | 104.87 | -      | -  | 100.18 | 27.53 | 7.54 | 30.38 | 304 | 115 | P | V |
|                                                  | *                                                                                                                                                | 2462    | 98.48  | -      | -  | 93.79  | 27.53 | 7.54 | 30.38 | 304 | 115 | A | V |
|                                                  |                                                                                                                                                  | 2484.96 | 50.8   | -23.2  | 74 | 46.19  | 27.47 | 7.53 | 30.39 | 304 | 115 | P | V |
|                                                  |                                                                                                                                                  | 2483.52 | 40.21  | -13.79 | 54 | 35.6   | 27.47 | 7.53 | 30.39 | 304 | 115 | A | V |
| <b>Remark</b>                                    | <ol style="list-style-type: none"><li>1. No other spurious found.</li><li>2. All results are PASS against Peak and Average limit line.</li></ol> |         |        |        |    |        |       |      |       |     |     |   |   |



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

| WIFI<br>Ant.<br>1+2         | 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 ) | Cable<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 ) |
|-----------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11g<br>CH 01<br>2412MHz |                                                                                             | 4824                 | 37.74               | -36.26                  | 74                          | 51.1                      | 31.15                         | 9.86                    | 54.37                      | 118                  | 203                     | P                       | H               |
|                             |                                                                                             | 4824                 | 38.27               | -35.73                  | 74                          | 51.63                     | 31.15                         | 9.86                    | 54.37                      | 172                  | 146                     | P                       | V               |
| 802.11g<br>CH 06<br>2437MHz |                                                                                             | 4874                 | 38.1                | -35.9                   | 74                          | 51.44                     | 31.13                         | 9.88                    | 54.35                      | 189                  | 156                     | P                       | H               |
|                             |                                                                                             | 7311                 | 44.66               | -29.34                  | 74                          | 50.89                     | 36.4                          | 11.88                   | 54.51                      | 145                  | 198                     | P                       | H               |
|                             |                                                                                             | 4874                 | 38.26               | -35.74                  | 74                          | 51.6                      | 31.13                         | 9.88                    | 54.35                      | 196                  | 163                     | P                       | V               |
|                             |                                                                                             | 7311                 | 44.63               | -29.37                  | 74                          | 50.86                     | 36.4                          | 11.88                   | 54.51                      | 193                  | 191                     | P                       | V               |
| 802.11g<br>CH 11<br>2462MHz |                                                                                             | 4924                 | 38.32               | -35.68                  | 74                          | 51.51                     | 31.23                         | 9.91                    | 54.33                      | 116                  | 208                     | P                       | H               |
|                             |                                                                                             | 7386                 | 44.66               | -29.34                  | 74                          | 50.95                     | 36.3                          | 12.01                   | 54.6                       | 194                  | 234                     | P                       | H               |
|                             |                                                                                             | 4924                 | 38.32               | -35.68                  | 74                          | 51.51                     | 31.23                         | 9.91                    | 54.33                      | 158                  | 247                     | P                       | V               |
|                             |                                                                                             | 7386                 | 43.9                | -30.1                   | 74                          | 50.19                     | 36.3                          | 12.01                   | 54.6                       | 166                  | 38                      | P                       | 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 (Band Edge @ 3m)

| WIFI<br>Ant.<br>1+2                 | 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 ) | Cable<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               | 57.79               | -16.21                  | 74                          | 52.91                     | 27.7                          | 7.54                    | 30.36                      | 131                  | 98                      | P                       | H               |
|                                     |      | 2389.90              | 47.88               | -6.12                   | 54                          | 43                        | 27.7                          | 7.54                    | 30.36                      | 131                  | 98                      | A                       | H               |
|                                     | *    | 2412                 | 109.28              | -                       | -                           | 104.43                    | 27.67                         | 7.54                    | 30.36                      | 131                  | 98                      | P                       | H               |
|                                     | *    | 2412                 | 101.2               | -                       | -                           | 96.35                     | 27.67                         | 7.54                    | 30.36                      | 131                  | 98                      | A                       | H               |
|                                     |      | 2389                 | 52.51               | -21.49                  | 74                          | 47.62                     | 27.7                          | 7.54                    | 30.35                      | 103                  | 20                      | P                       | V               |
|                                     |      | 2389                 | 42.66               | -11.34                  | 54                          | 37.77                     | 27.7                          | 7.54                    | 30.35                      | 103                  | 20                      | A                       | V               |
|                                     | *    | 2412                 | 100.89              | -                       | -                           | 96.04                     | 27.67                         | 7.54                    | 30.36                      | 103                  | 20                      | P                       | V               |
|                                     | *    | 2412                 | 93.88               | -                       | -                           | 89.03                     | 27.67                         | 7.54                    | 30.36                      | 103                  | 20                      | A                       | V               |
| 802.11n<br>HT20<br>CH 06<br>2437MHz |      | 2388.4               | 50.73               | -23.27                  | 74                          | 45.84                     | 27.7                          | 7.54                    | 30.35                      | 110                  | 8                       | P                       | H               |
|                                     |      | 2389.66              | 42.08               | -11.92                  | 54                          | 37.19                     | 27.7                          | 7.54                    | 30.35                      | 110                  | 8                       | A                       | H               |
|                                     | *    | 2437                 | 109.83              | -                       | -                           | 105.06                    | 27.6                          | 7.54                    | 30.37                      | 110                  | 8                       | P                       | H               |
|                                     | *    | 2437                 | 103.58              | -                       | -                           | 98.81                     | 27.6                          | 7.54                    | 30.37                      | 110                  | 8                       | A                       | H               |
|                                     |      | 2483.55              | 50.01               | -23.99                  | 74                          | 45.4                      | 27.47                         | 7.53                    | 30.39                      | 110                  | 8                       | P                       | H               |
|                                     |      | 2483.76              | 41.33               | -12.67                  | 54                          | 36.72                     | 27.47                         | 7.53                    | 30.39                      | 110                  | 8                       | A                       | H               |
|                                     |      | 2389.24              | 50.16               | -23.84                  | 74                          | 45.27                     | 27.7                          | 7.54                    | 30.35                      | 117                  | 330                     | P                       | V               |
|                                     |      | 2389.52              | 40.17               | -13.83                  | 54                          | 35.28                     | 27.7                          | 7.54                    | 30.35                      | 117                  | 330                     | A                       | V               |
|                                     | *    | 2437                 | 105.31              | -                       | -                           | 100.54                    | 27.6                          | 7.54                    | 30.37                      | 117                  | 330                     | P                       | V               |
|                                     | *    | 2437                 | 97.84               | -                       | -                           | 93.07                     | 27.6                          | 7.54                    | 30.37                      | 117                  | 330                     | A                       | V               |
|                                     |      | 2488.87              | 49.31               | -24.69                  | 74                          | 44.77                     | 27.4                          | 7.53                    | 30.39                      | 117                  | 330                     | P                       | V               |
|                                     |      | 2484.95              | 39.91               | -14.09                  | 54                          | 35.3                      | 27.47                         | 7.53                    | 30.39                      | 117                  | 330                     | A                       | V               |



|                                                                 |                                                                                                                                                  |         |        |        |    |        |       |      |       |     |    |   |   |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|--------|----|--------|-------|------|-------|-----|----|---|---|
| <b>802.11n</b><br><b>HT20</b><br><b>CH 11</b><br><b>2462MHz</b> | *                                                                                                                                                | 2462    | 109.84 | -      | -  | 105.15 | 27.53 | 7.54 | 30.38 | 111 | 69 | P | H |
|                                                                 | *                                                                                                                                                | 2462    | 102.61 | -      | -  | 97.92  | 27.53 | 7.54 | 30.38 | 111 | 69 | A | H |
|                                                                 |                                                                                                                                                  | 2483.6  | 53.02  | -20.98 | 74 | 48.41  | 27.47 | 7.53 | 30.39 | 111 | 69 | P | H |
|                                                                 |                                                                                                                                                  | 2483.52 | 44.13  | -9.87  | 54 | 39.52  | 27.47 | 7.53 | 30.39 | 111 | 69 | A | H |
|                                                                 | *                                                                                                                                                | 2462    | 103.23 | -      | -  | 98.54  | 27.53 | 7.54 | 30.38 | 100 | 14 | P | V |
|                                                                 | *                                                                                                                                                | 2462    | 96.1   | -      | -  | 91.41  | 27.53 | 7.54 | 30.38 | 100 | 14 | A | V |
|                                                                 |                                                                                                                                                  | 2484.24 | 51.02  | -22.98 | 74 | 46.41  | 27.47 | 7.53 | 30.39 | 100 | 14 | P | V |
|                                                                 |                                                                                                                                                  | 2483.68 | 41.91  | -12.09 | 54 | 37.3   | 27.47 | 7.53 | 30.39 | 100 | 14 | A | V |
| <b>Remark</b>                                                   | <ol style="list-style-type: none"><li>1. No other spurious found.</li><li>2. All results are PASS against Peak and Average limit line.</li></ol> |         |        |        |    |        |       |      |       |     |    |   |   |



## 2.4GHz 2400~2483.5MHz

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

| WIFI<br>Ant.<br>1+2                 | 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 ) | Cable<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                 | 38.1                | -35.9                   | 74                          | 51.46                     | 31.15                         | 9.86                    | 54.37                      | 108                  | 166                     | P                     | H             |
|                                     |                                                                                             | 4824                 | 38.22               | -35.78                  | 74                          | 51.58                     | 31.15                         | 9.86                    | 54.37                      | 194                  | 311                     | P                     | V             |
| 802.11n<br>HT20<br>CH 06<br>2437MHz |                                                                                             | 4874                 | 38.24               | -35.76                  | 74                          | 51.58                     | 31.13                         | 9.88                    | 54.35                      | 131                  | 18                      | P                     | H             |
|                                     |                                                                                             | 7311                 | 46.28               | -27.72                  | 74                          | 52.51                     | 36.4                          | 11.88                   | 54.51                      | 118                  | 160                     | P                     | H             |
|                                     |                                                                                             | 4874                 | 37.41               | -36.59                  | 74                          | 50.75                     | 31.13                         | 9.88                    | 54.35                      | 189                  | 237                     | P                     | V             |
|                                     |                                                                                             | 7311                 | 44.28               | -29.72                  | 74                          | 50.51                     | 36.4                          | 11.88                   | 54.51                      | 104                  | 305                     | P                     | V             |
| 802.11n<br>HT20<br>CH 11<br>2462MHz |                                                                                             | 4924                 | 38.04               | -35.96                  | 74                          | 51.23                     | 31.23                         | 9.91                    | 54.33                      | 182                  | 291                     | P                     | H             |
|                                     |                                                                                             | 7386                 | 43.57               | -30.43                  | 74                          | 49.86                     | 36.3                          | 12.01                   | 54.6                       | 134                  | 308                     | P                     | H             |
|                                     |                                                                                             | 4924                 | 38.51               | -35.49                  | 74                          | 51.7                      | 31.23                         | 9.91                    | 54.33                      | 122                  | 94                      | P                     | V             |
|                                     |                                                                                             | 7386                 | 44.04               | -29.96                  | 74                          | 50.33                     | 36.3                          | 12.01                   | 54.6                       | 188                  | 164                     | P                     | 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 HT40 (Band Edge @ 3m)

| WIFI<br>Ant.<br>1+2                 | 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 ) | Cable<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>HT40<br>CH 03<br>2422MHz |      | 2387.28              | 51.26               | -22.74                  | 74                          | 46.37                     | 27.7                          | 7.54                    | 30.35                      | 322                  | 66                      | P                       | H               |
|                                     |      | 2387.28              | 41.98               | -12.02                  | 54                          | 37.09                     | 27.7                          | 7.54                    | 30.35                      | 322                  | 66                      | A                       | H               |
|                                     | *    | 2422                 | 102.88              | -                       | -                           | 98.08                     | 27.63                         | 7.54                    | 30.37                      | 322                  | 66                      | P                       | H               |
|                                     | *    | 2422                 | 95.23               | -                       | -                           | 90.43                     | 27.63                         | 7.54                    | 30.37                      | 322                  | 66                      | A                       | H               |
|                                     |      | 2492.72              | 48.99               | -25.01                  | 74                          | 44.46                     | 27.4                          | 7.53                    | 30.4                       | 322                  | 66                      | P                       | H               |
|                                     |      | 2485.44              | 39.43               | -14.57                  | 54                          | 34.82                     | 27.47                         | 7.53                    | 30.39                      | 322                  | 66                      | A                       | H               |
|                                     |      | 2389.94              | 58.21               | -15.79                  | 74                          | 53.33                     | 27.7                          | 7.54                    | 30.36                      | 322                  | 60                      | P                       | V               |
|                                     |      | 2389.8               | 47.95               | -6.05                   | 54                          | 43.07                     | 27.7                          | 7.54                    | 30.36                      | 322                  | 60                      | A                       | V               |
|                                     | *    | 2422                 | 98.65               | -                       | -                           | 93.85                     | 27.63                         | 7.54                    | 30.37                      | 322                  | 60                      | P                       | V               |
|                                     | *    | 2422                 | 91.34               | -                       | -                           | 86.54                     | 27.63                         | 7.54                    | 30.37                      | 322                  | 60                      | A                       | V               |
|                                     |      | 2484.74              | 49.28               | -24.72                  | 74                          | 44.67                     | 27.47                         | 7.53                    | 30.39                      | 322                  | 60                      | P                       | V               |
|                                     |      | 2485.23              | 39.64               | -14.36                  | 54                          | 35.03                     | 27.47                         | 7.53                    | 30.39                      | 322                  | 60                      | A                       | V               |
| 802.11n<br>HT40<br>CH 06<br>2437MHz |      | 2388.26              | 49.28               | -24.72                  | 74                          | 44.39                     | 27.7                          | 7.54                    | 30.35                      | 311                  | 70                      | P                       | H               |
|                                     |      | 2388.68              | 39.87               | -14.13                  | 54                          | 34.98                     | 27.7                          | 7.54                    | 30.35                      | 311                  | 70                      | A                       | H               |
|                                     | *    | 2437                 | 102.58              | -                       | -                           | 97.81                     | 27.6                          | 7.54                    | 30.37                      | 311                  | 70                      | P                       | H               |
|                                     | *    | 2437                 | 95.3                | -                       | -                           | 90.53                     | 27.6                          | 7.54                    | 30.37                      | 311                  | 70                      | A                       | H               |
|                                     |      | 2491.18              | 49.35               | -24.65                  | 74                          | 44.81                     | 27.4                          | 7.53                    | 30.39                      | 311                  | 70                      | P                       | H               |
|                                     |      | 2483.76              | 39.57               | -14.43                  | 54                          | 34.96                     | 27.47                         | 7.53                    | 30.39                      | 311                  | 70                      | A                       | H               |
|                                     |      | 2388.82              | 49.8                | -24.2                   | 74                          | 44.91                     | 27.7                          | 7.54                    | 30.35                      | 248                  | 101                     | P                       | V               |
|                                     |      | 2389.94              | 40.73               | -13.27                  | 54                          | 35.85                     | 27.7                          | 7.54                    | 30.36                      | 248                  | 101                     | A                       | V               |
|                                     | *    | 2437                 | 99                  | -                       | -                           | 94.23                     | 27.6                          | 7.54                    | 30.37                      | 248                  | 101                     | P                       | V               |
|                                     | *    | 2437                 | 95.48               | -                       | -                           | 90.71                     | 27.6                          | 7.54                    | 30.37                      | 248                  | 101                     | A                       | V               |
|                                     |      | 2493.21              | 48.7                | -25.3                   | 74                          | 44.17                     | 27.4                          | 7.53                    | 30.4                       | 248                  | 101                     | P                       | V               |
|                                     |      | 2484.11              | 39.38               | -14.62                  | 54                          | 34.77                     | 27.47                         | 7.53                    | 30.39                      | 248                  | 101                     | A                       | V               |



|                                                                             |                                                                                             |         |       |        |    |       |       |      |       |     |    |   |   |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------|-------|--------|----|-------|-------|------|-------|-----|----|---|---|
| <b>802.11n</b><br><br><b>HT40</b><br><br><b>CH 09</b><br><br><b>2452MHz</b> |                                                                                             | 2338    | 49.68 | -24.32 | 74 | 44.63 | 27.9  | 7.48 | 30.33 | 316 | 42 | P | H |
|                                                                             |                                                                                             | 2389.1  | 40.64 | -13.36 | 54 | 35.75 | 27.7  | 7.54 | 30.35 | 316 | 42 | A | H |
|                                                                             | *                                                                                           | 2452    | 103   | -      | -  | 98.24 | 27.6  | 7.54 | 30.38 | 316 | 42 | P | H |
|                                                                             | *                                                                                           | 2452    | 96.9  | -      | -  | 92.14 | 27.6  | 7.54 | 30.38 | 316 | 42 | A | H |
|                                                                             |                                                                                             | 2484.18 | 52.9  | -21.1  | 74 | 48.29 | 27.47 | 7.53 | 30.39 | 316 | 42 | P | H |
|                                                                             |                                                                                             | 2484.6  | 43.42 | -10.58 | 54 | 38.81 | 27.47 | 7.53 | 30.39 | 316 | 42 | A | H |
|                                                                             |                                                                                             | 2311.26 | 50.22 | -23.78 | 74 | 45.09 | 27.97 | 7.48 | 30.32 | 317 | 44 | P | V |
|                                                                             |                                                                                             | 2389.66 | 40.74 | -13.26 | 54 | 35.85 | 27.7  | 7.54 | 30.35 | 317 | 44 | A | V |
|                                                                             | *                                                                                           | 2452    | 100   | -      | -  | 95.24 | 27.6  | 7.54 | 30.38 | 317 | 44 | P | V |
|                                                                             | *                                                                                           | 2452    | 94.04 | -      | -  | 89.28 | 27.6  | 7.54 | 30.38 | 317 | 44 | A | V |
|                                                                             |                                                                                             | 2483.76 | 53.22 | -20.78 | 74 | 48.61 | 27.47 | 7.53 | 30.39 | 317 | 44 | P | V |
|                                                                             |                                                                                             | 2484.04 | 44.76 | -9.24  | 54 | 40.15 | 27.47 | 7.53 | 30.39 | 317 | 44 | P | 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 HT40 (Harmonic @ 3m)

| WIFI<br>Ant.<br>1+2 | 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 ) | Cable<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             |                                                                                             | 4844                 | 39.14               | -34.86                  | 74                          | 52.42                     | 31.2                          | 9.88                    | 54.36                      | 150                  | 350                     | P                       | H               |
| HT40                |                                                                                             | 7266                 | 45.49               | -28.51                  | 74                          | 51.76                     | 36.4                          | 11.81                   | 54.48                      | 200                  | 360                     | P                       | H               |
| CH 03               |                                                                                             | 4844                 | 38.29               | -35.71                  | 74                          | 51.57                     | 31.2                          | 9.88                    | 54.36                      | 196                  | 332                     | P                       | V               |
| 2422MHz             |                                                                                             | 7266                 | 44.99               | -29.01                  | 74                          | 51.26                     | 36.4                          | 11.81                   | 54.48                      | 266                  | 302                     | P                       | V               |
| 802.11n             |                                                                                             | 4874                 | 38.57               | -35.43                  | 74                          | 51.91                     | 31.13                         | 9.88                    | 54.35                      | 160                  | 211                     | P                       | H               |
| HT40                |                                                                                             | 7311                 | 44.81               | -29.19                  | 74                          | 51.04                     | 36.4                          | 11.88                   | 54.51                      | 136                  | 18                      | P                       | H               |
| CH 06               |                                                                                             | 4874                 | 38.26               | -35.74                  | 74                          | 51.6                      | 31.13                         | 9.88                    | 54.35                      | 108                  | 294                     | P                       | V               |
| 2437MHz             |                                                                                             | 7311                 | 45.12               | -28.88                  | 74                          | 51.35                     | 36.4                          | 11.88                   | 54.51                      | 117                  | 356                     | P                       | V               |
| 802.11n             |                                                                                             | 4904                 | 39.79               | -34.21                  | 74                          | 53.05                     | 31.17                         | 9.9                     | 54.33                      | 150                  | 360                     | P                       | H               |
| HT40                |                                                                                             | 7356                 | 44.32               | -29.68                  | 74                          | 50.54                     | 36.4                          | 11.94                   | 54.56                      | 165                  | 335                     | P                       | H               |
| CH 09               |                                                                                             | 4904                 | 38.06               | -35.94                  | 74                          | 51.32                     | 31.17                         | 9.9                     | 54.33                      | 185                  | 99                      | P                       | V               |
| 2452MHz             |                                                                                             | 7356                 | 44.26               | -29.74                  | 74                          | 50.48                     | 36.4                          | 11.94                   | 54.56                      | 136                  | 306                     | P                       | 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 HT40 (LF)

| WIFI                            | Note                                                                       | Frequency | Level      | Over   | Limit      | Read   | Antenna  | Cable  | Preamp | Ant    | Table   | Peak  | Pol.  |
|---------------------------------|----------------------------------------------------------------------------|-----------|------------|--------|------------|--------|----------|--------|--------|--------|---------|-------|-------|
| Ant.                            |                                                                            |           |            | Limit  | Line       | Level  | Factor   | Loss   | Factor | Pos    | Pos     | Avg.  |       |
| 1+2                             |                                                                            | ( MHz )   | ( dBμV/m ) | ( dB ) | ( dBμV/m ) | (dBμV) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | (P/A) | (H/V) |
| 2.4GHz<br>802.11n<br>HT40<br>LF |                                                                            | 30        | 24.12      | -15.88 | 40         | 30.06  | 24.8     | 0.56   | 31.3   | 163    | 187     | P     | H     |
|                                 |                                                                            | 63.95     | 19.24      | -20.76 | 40         | 37.8   | 12.12    | 0.82   | 31.5   | -      | -       | P     | H     |
|                                 |                                                                            | 107.6     | 23.29      | -20.21 | 43.5       | 37.2   | 16.6     | 1.07   | 31.58  | -      | -       | P     | H     |
|                                 |                                                                            | 127       | 24.44      | -19.06 | 43.5       | 37.34  | 17.43    | 1.16   | 31.49  | -      | -       | P     | H     |
|                                 |                                                                            | 323.91    | 26.51      | -19.49 | 46         | 35.98  | 19.98    | 1.9    | 31.35  | -      | -       | P     | H     |
|                                 |                                                                            | 847.71    | 28.09      | -17.91 | 46         | 27.54  | 28.74    | 3.2    | 31.39  | -      | -       | P     | H     |
|                                 |                                                                            | 30        | 25.59      | -14.41 | 40         | 31.53  | 24.8     | 0.56   | 31.3   | 141    | 228     | P     | V     |
|                                 |                                                                            | 61.04     | 20.71      | -19.29 | 40         | 39.63  | 11.88    | 0.8    | 31.6   | -      | -       | P     | V     |
|                                 |                                                                            | 82.38     | 24.15      | -15.85 | 40         | 41.08  | 13.68    | 0.94   | 31.55  | -      | -       | P     | V     |
|                                 |                                                                            | 130.88    | 25.25      | -18.25 | 43.5       | 38.09  | 17.45    | 1.19   | 31.48  | -      | -       | P     | V     |
|                                 |                                                                            | 435.46    | 24.9       | -21.1  | 46         | 31.61  | 22.55    | 2.22   | 31.48  | -      | -       | P     | V     |
|                                 |                                                                            | 683.78    | 28.59      | -17.41 | 46         | 30.8   | 26.55    | 2.83   | 31.59  | -      | -       | P     | 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>P</b> eak or <b>A</b> verage                                                                                                                          |
| H/V | <b>H</b> orizontal or <b>V</b> ertical                                                                                                                   |



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

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

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable 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) + Cable 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)

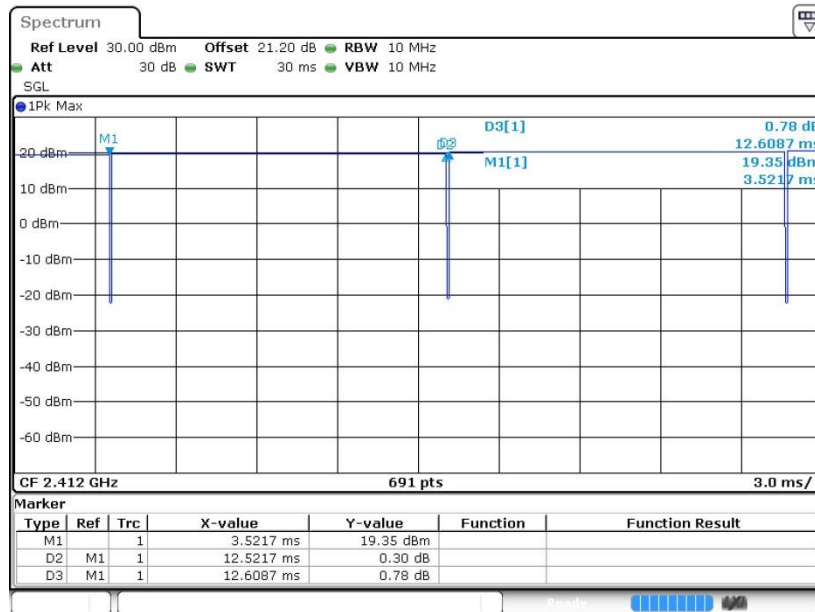
= -10.46(dB)

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

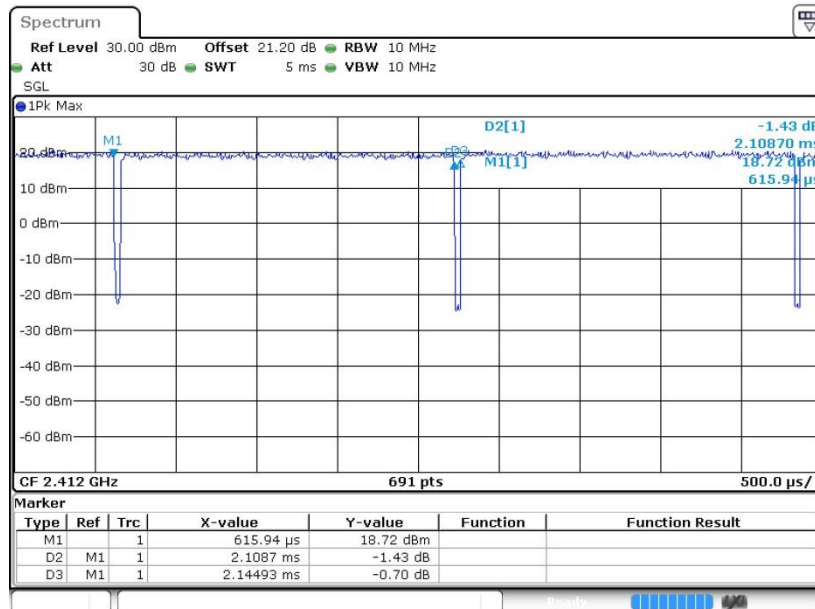
## Appendix D. Duty Cycle Plots

| Band         | Duty Cycle(%) | T(ms)  | 1/T(kHz) | VBW Setting |
|--------------|---------------|--------|----------|-------------|
| 802.11b      | 99.31         | -      | -        | 10Hz        |
| 802.11g      | 98.31         | -      | -        | 10Hz        |
| 802.11n HT20 | 96.52         | 2.0073 | 0.498    | 1kHz        |
| 802.11n HT40 | 91.61         | 1.0449 | 0.957    | 1kHz        |

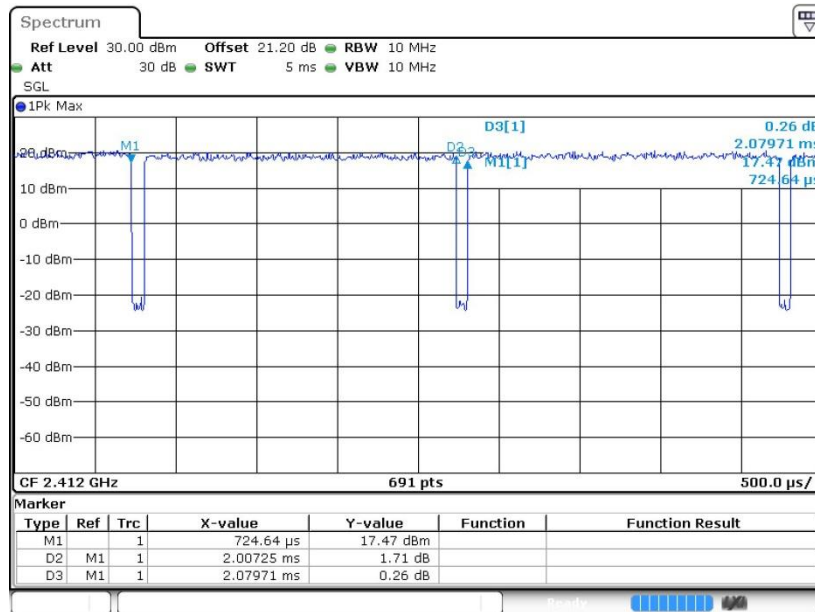
## 802.11b



## 802.11g



## 802.11n HT20



## 802.11n HT40

