# 9. POWER SPECTRAL DENSITY TEST

## 9.1.Test Equipment

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | PXA Signal Analyzer | Agilent | N9030A | MY51380221 | Jun.30,19 | 1 Year |
| 2. | Attenuator | Agilent | 8491B | MY39269201 | Oct.13,19 | 1 Year |
| 3. | RF Cable | EMCI | EMC102-KM-KM 3500 | 170702 | May.13,19 | 1 Year |

## 9.2.Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

## 9.3.Test Procedure

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ [3 × RBW].
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.

## 9.4.Test Results

| | | |
|---|---|---|
| EUT: WiFi +BT module | | |
| M/N: WCT5GM2511 | | |
| Test date: 2020-02-15~17 | Pressure: 102.3±1.0 kpa | Humidity: 53.6±3.0% |
| Tested by: Lynn | Test site: RF site | Temperature: 25.5±0.6 ℃ |

| Test Mode | CH | Power Density (dBm/3kHz) | | | Limit (dBm/3kHz) |
|---|---|---|---|---|---|
| | | ANTA | ANTB | Total | |
| 11b | CH1 | 2.887 | 3.545 | 6.24 | 8 |
| | CH6 | 3.080 | 3.730 | 6.43 | |
| | CH11 | 3.411 | 3.679 | 6.56 | |
| 11g | CH1 | -12.073 | -12.603 | -9.32 | 8 |
| | CH6 | -12.512 | -13.052 | -9.76 | |
| | CH11 | -12.504 | -13.762 | -10.08 | |
| 11n HT20 | CH1 | -14.430 | -12.177 | -10.15 | 8 |
| | CH6 | -14.844 | -14.708 | -11.77 | |
| | CH11 | -13.980 | -11.133 | -9.32 | |
| 11n HT40 | CH3 | -19.134 | -18.756 | -15.93 | 8 |
| | CH6 | -19.157 | -17.984 | -15.52 | |
| | CH9 | -19.167 | -17.981 | -15.52 | |
| Conclusion: PASS | | | | | |

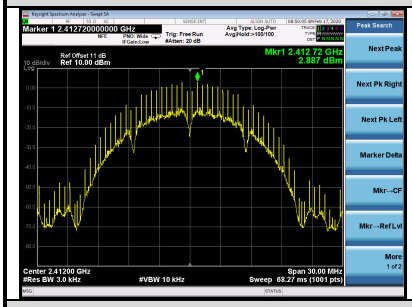
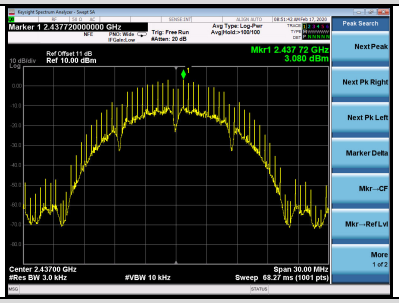
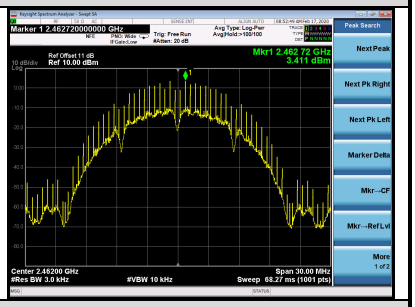
Note: 1. Directional Gain= $10 \log[(10^{2.08/20}+10^{2/20})^2/2]$dBi

= 5.05dB < 6dBi.

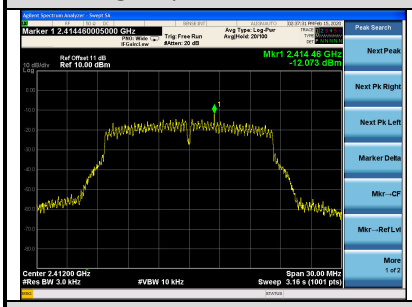
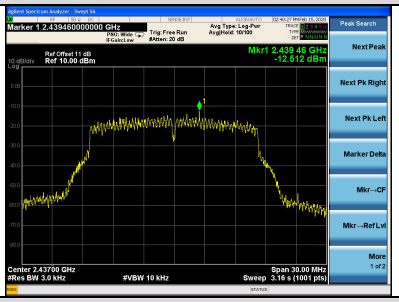
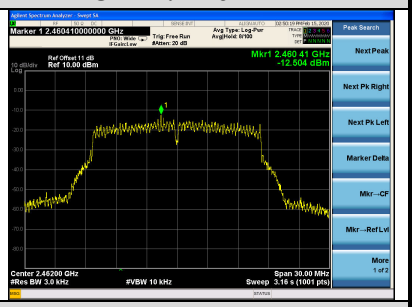
2. The transmit signals are correlated.

## ANT A

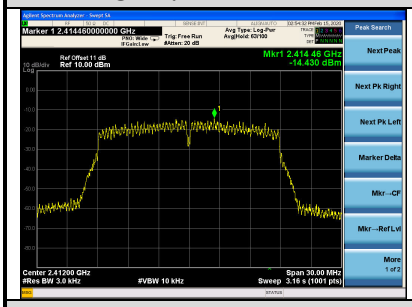
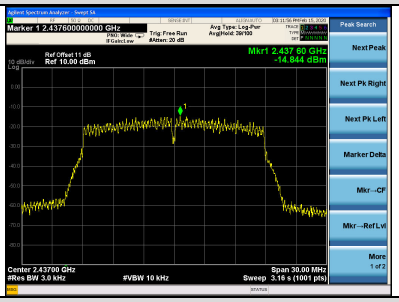
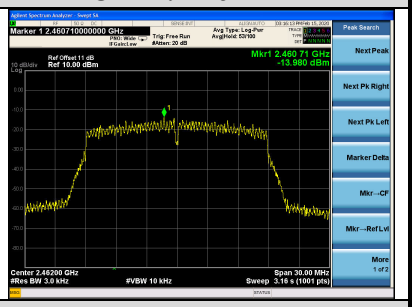
### IEEE 802.11b

| CH1: 2412MHz | CH6: 2437MHz | CH11: 2462MHz |
|---|---|---|
|  |  |  |

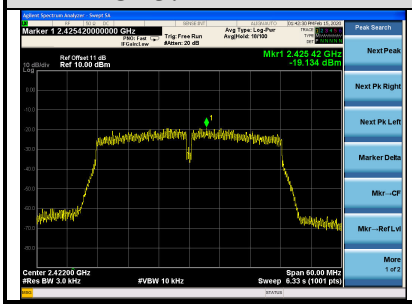
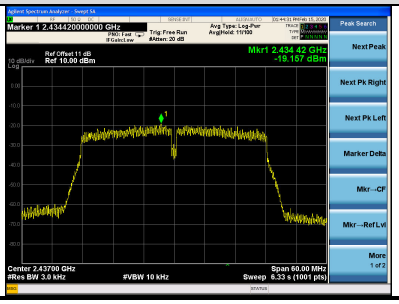
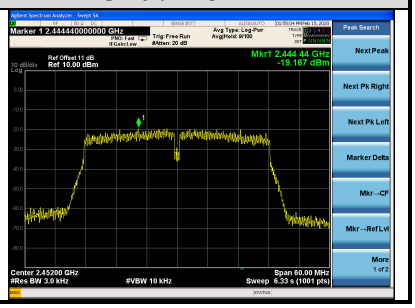
### IEEE 802.11g

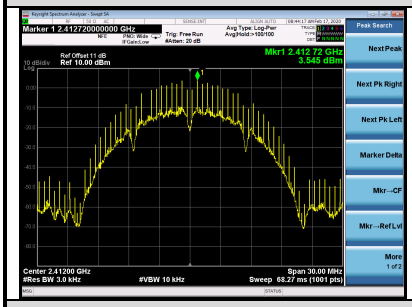
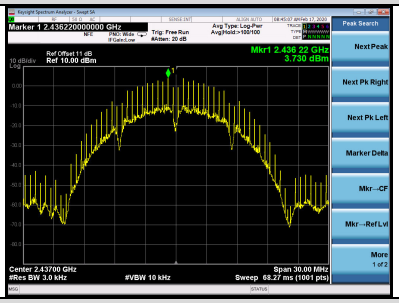
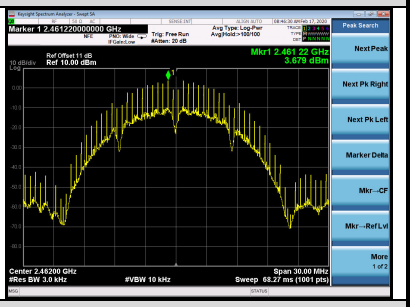
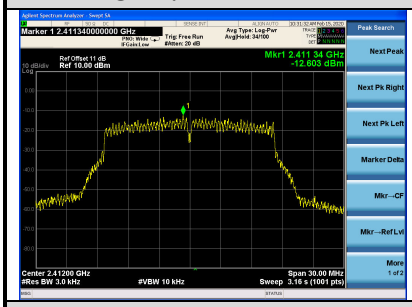
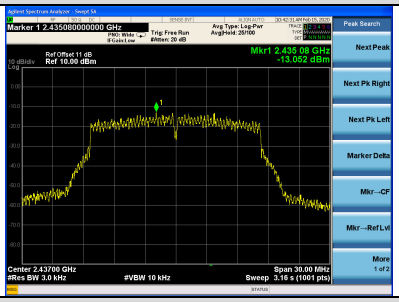
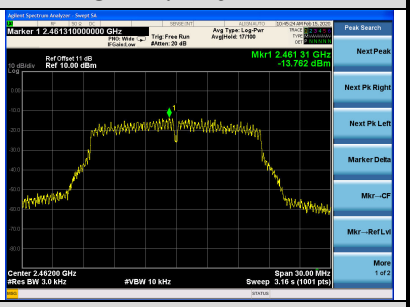
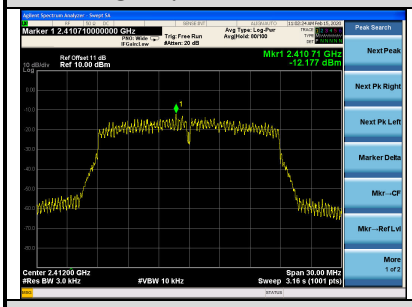
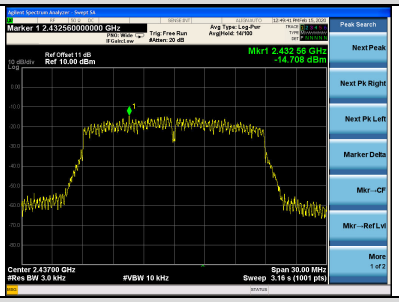
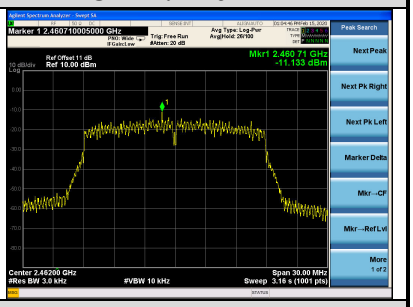
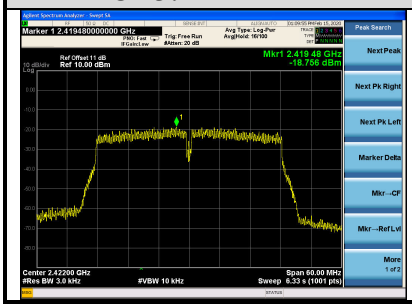
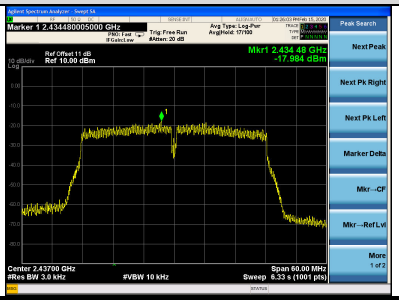
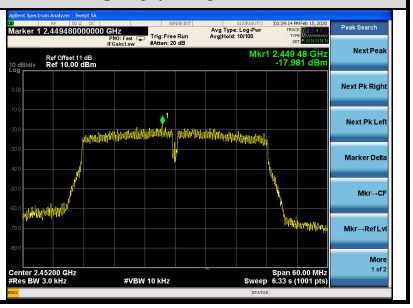
| CH1: 2412MHz | CH6: 2437MHz | CH11: 2462MHz |
|---|---|---|
|  |  |  |

### IEEE 802.11n HT20

| CH1: 2412MHz | CH6: 2437MHz | CH11: 2462MHz |
|---|---|---|
|  |  |  |

### IEEE 802.11n HT40

| CH3: 2422MHz | CH6: 2437MHz | CH9: 2452MHz |
|---|---|---|
|  |  |  |

| ANT B | | |
|---|---|---|
| IEEE 802.11b | | |
| CH1: 2412MHz | CH6: 2437MHz | CH11: 2462MHz |
|  |  |  |
| IEEE 802.11g | | |
| CH1: 2412MHz | CH6: 2437MHz | CH11: 2462MHz |
|  |  |  |
| IEEE 802.11n HT20 | | |
| CH1: 2412MHz | CH6: 2437MHz | CH11: 2462MHz |
|  |  |  |
| IEEE 802.11n HT40 | | |
| CH3: 2422MHz | CH6: 2437MHz | CH9: 2452MHz |
|  |  |  |

# 10. ANTENNA REQUIREMENT

## 10.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

## 10.2. Antenna Connected Construction

The antennas used for this product are PCB antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is ANT A: 2.08dBi & ANT B: 2dBi.

# 11. DEVIATION TO TEST SPECIFICATIONS

[NONE]

THE END