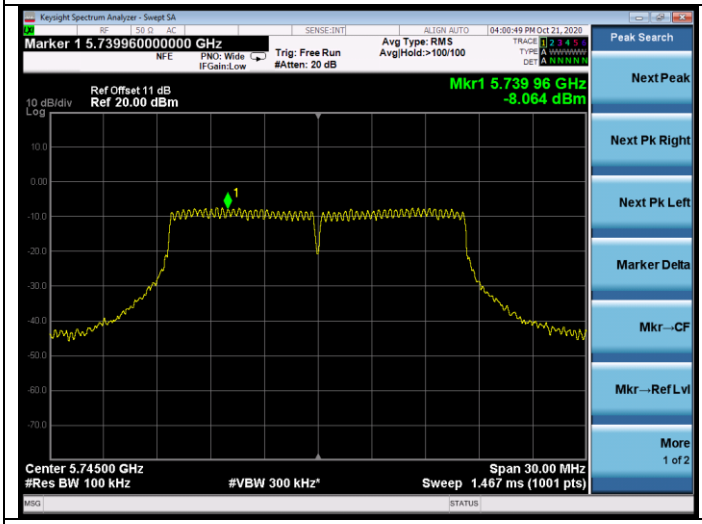
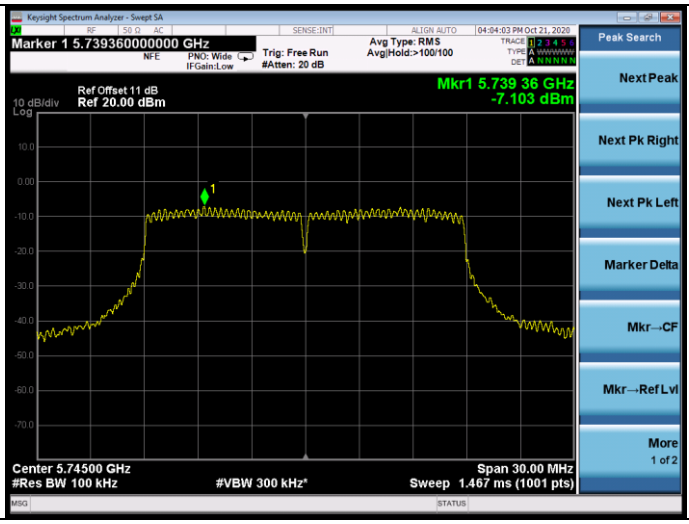
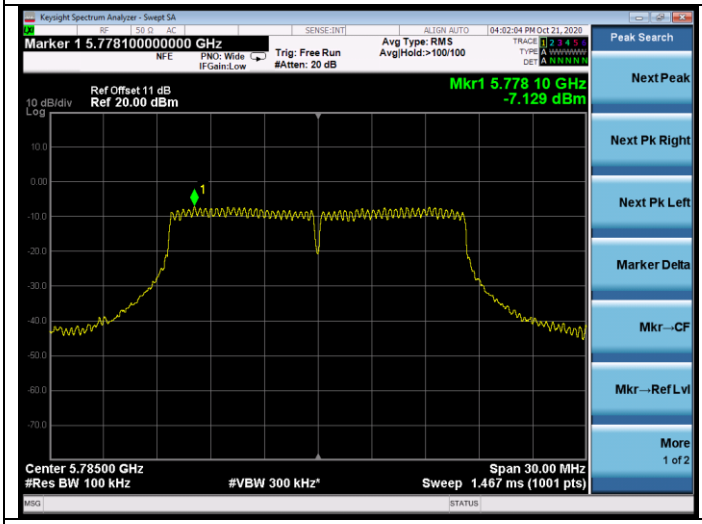
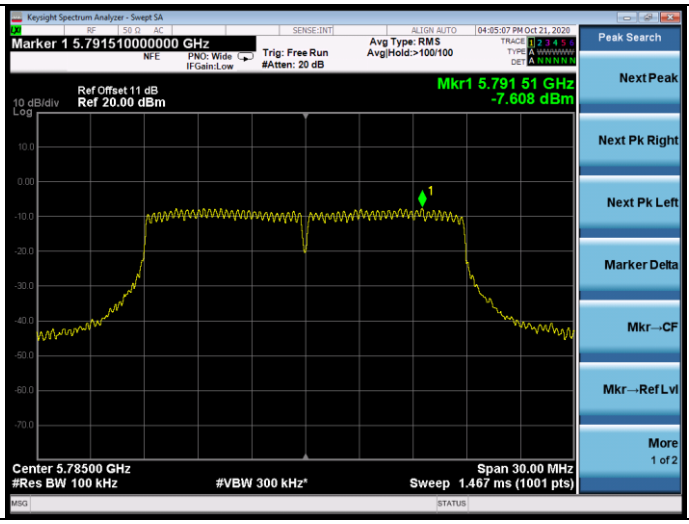
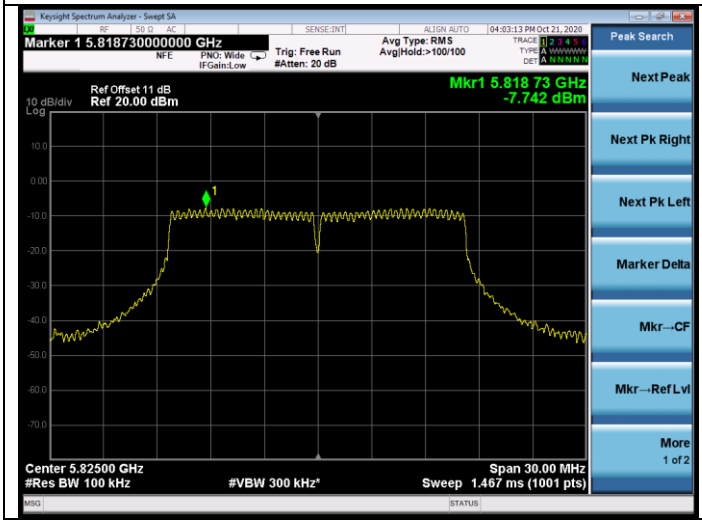
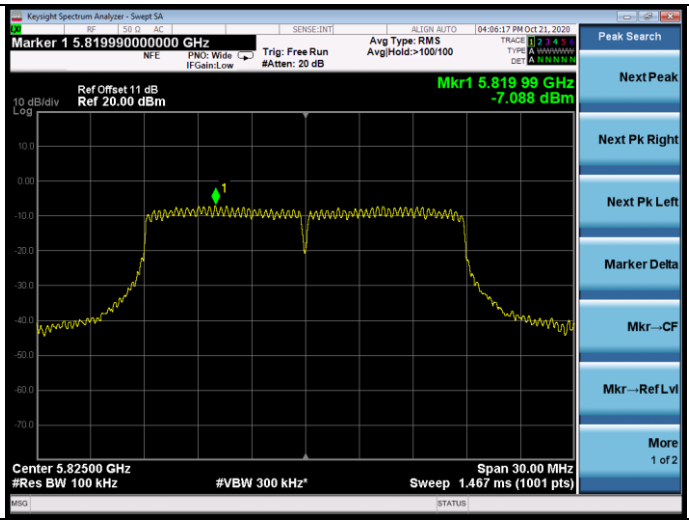
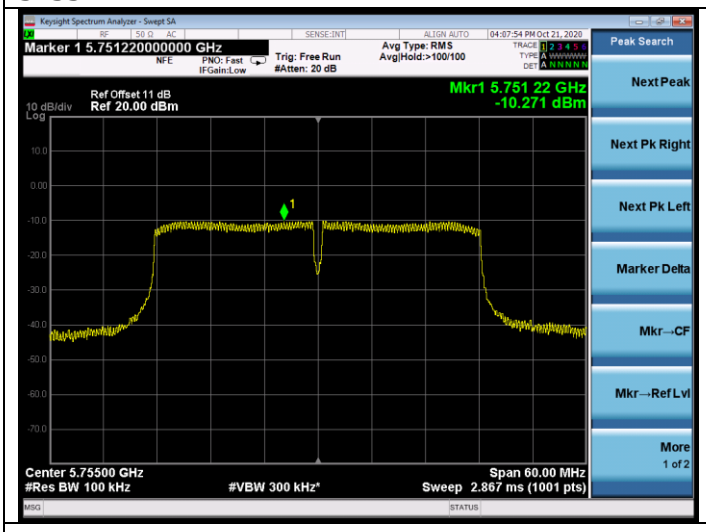
**U-NII-3 Band:**

**ANT B**

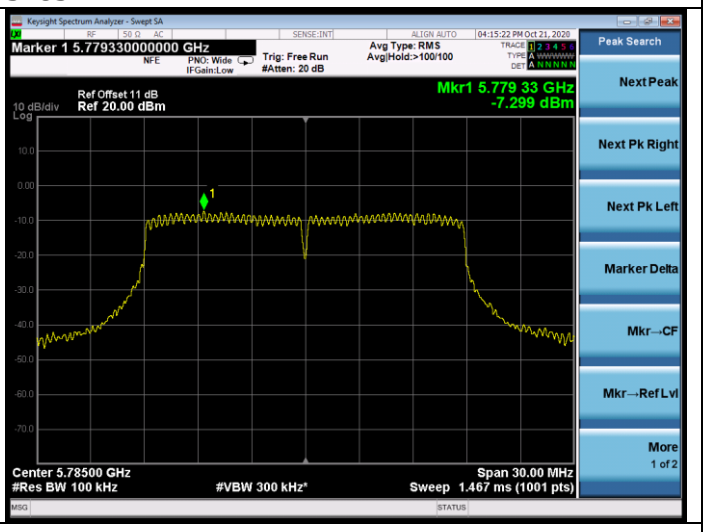
| **11a** | **11n HT20** |
|---|---|
| 5745MHz | 5745MHz |
|  |  |
| 5785MHz | 5785MHz |
|  |  |
| 5825MHz | 5825MHz |
|  |  |

## 11n HT40

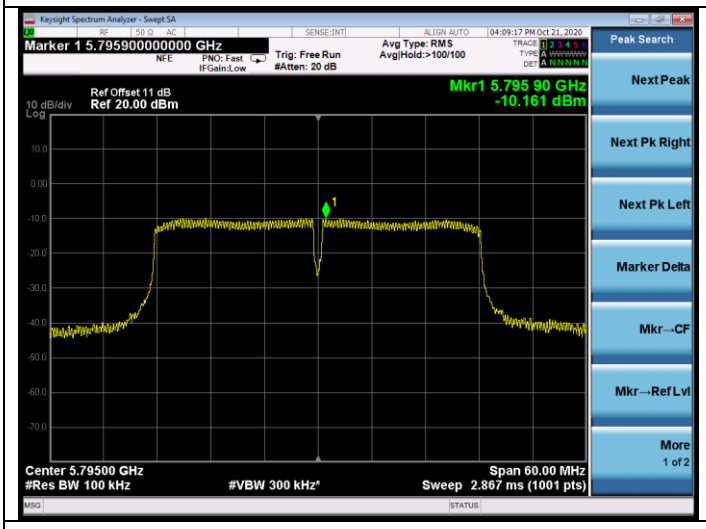
5755MHz



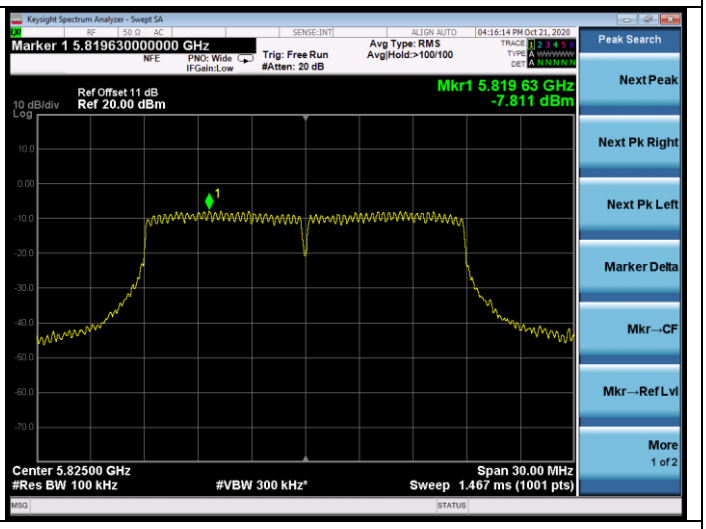

5785MHz




5795MHz

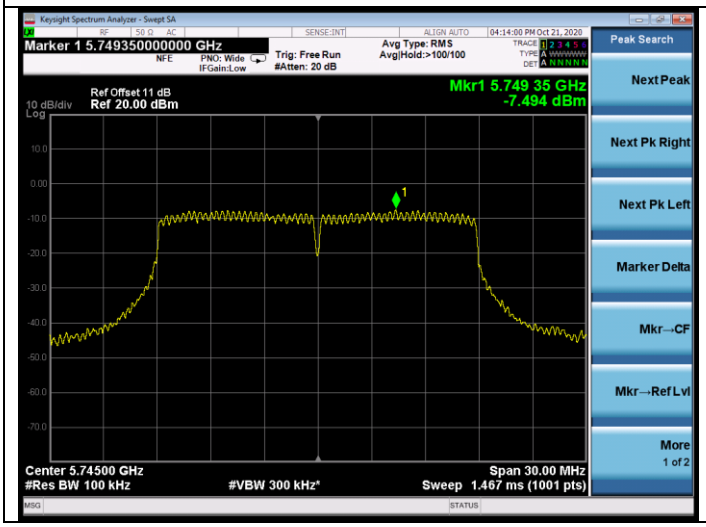



5825MHz



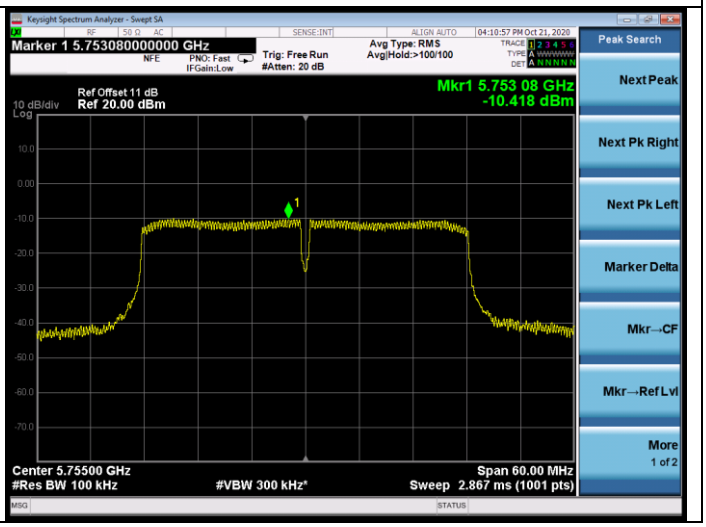

## 11ac VHT20

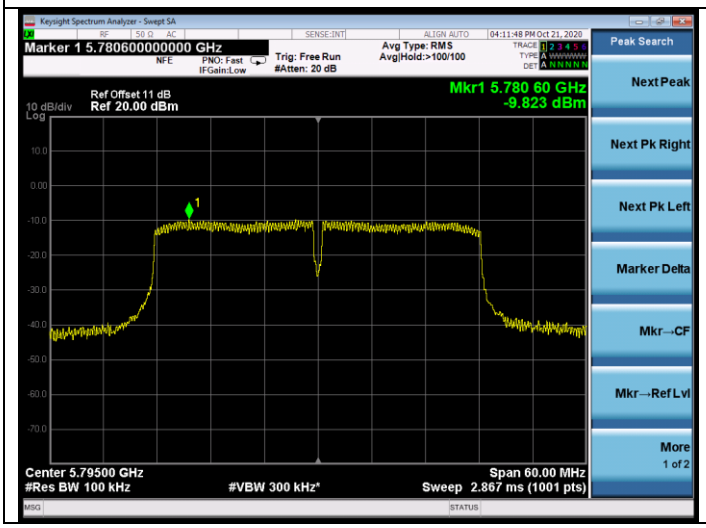
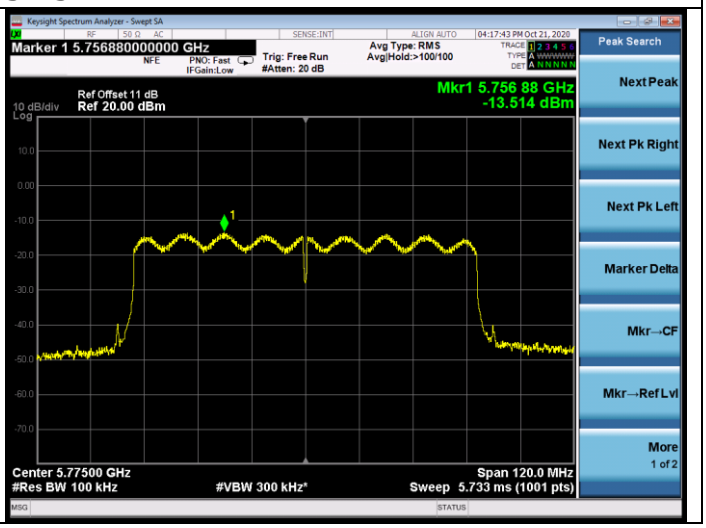
5745MHz




## 11ac VHT40

5755MHz



| | **11ac VHT80** |
|---|---|
| 5795MHz | 5775MHz |
|  |  |

# 10. FREQUENCY STABILITY MEASUREMENT

## 10.1. Test Equipment

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|---|
| 4. | PXA Signal Analyzer | Agilent | N9030A | MY51380221 | Apr.12,20 | 1 Year |
| 5. | Attenuator | Agilent | 8491B | MY39269201 | Oct.12,20 | 1 Year |
| 6. | RF Cable | EMCI | EMC102-KM-KM 3500 | 170702 | Apr.12,20 | 1 Year |

## 10.2. Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

## 10.3. Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
   EUT have transmitted absence of modulation signal and fixed channelise. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings. fc is declaring of channel frequency. Then the frequency error formula is $(fc-f)/f \times 10^{-6}$ppm. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
2. Extreme temperature rule is -30 ℃~50 ℃.

## 10.4.Test Result

| | | |
|---|---|---|
| EUT: WiFi module | | |
| M/N: U9W34 | | |
| Test date: 2020-10-26 | Pressure: 102.7±1.0 kpa | Humidity: 52.5±3.0% |
| Tested by: Leo | Test site: RF site | Temperature:22.7±0.6 ℃ |

Frequency Stability vs.Voltage:

| Test Voltage | Temperature | CH | Max. Reading (MHz) | Target Frequency (MHz) | Result (ppm) |
|---|---|---|---|---|---|
| DC 2.81V | 20℃ | CH36 | 5179.9715 | 5180 | -5.50 |
| | | CH38 | 5189.9725 | 5190 | -5.30 |
| | | CH40 | 5199.9710 | 5200 | -5.58 |
| | | CH42 | 5209.9705 | 5210 | -5.66 |
| | | CH46 | 5229.9705 | 5230 | -5.64 |
| | | CH48 | 5239.9705 | 5240 | -5.63 |
| | | CH149 | 5744.9705 | 5745 | -5.13 |
| | | CH151 | 5754.9730 | 5755 | -4.69 |
| | | CH155 | 5774.9675 | 5775 | -5.63 |
| | | CH157 | 5784.9700 | 5785 | -5.19 |
| | | CH159 | 5794.9715 | 5795 | -4.92 |
| | | CH165 | 5824.9695 | 5825 | -5.24 |
| DC 3.3V | 20℃ | CH36 | 5179.9730 | 5180 | -5.21 |
| | | CH38 | 5189.9720 | 5190 | -5.39 |
| | | CH40 | 5199.9715 | 5200 | -5.48 |
| | | CH42 | 5209.9710 | 5210 | -5.57 |
| | | CH46 | 5229.9710 | 5230 | -5.54 |
| | | CH48 | 5239.9710 | 5240 | -5.53 |
| | | CH149 | 5744.9710 | 5745 | -5.05 |
| | | CH151 | 5754.9685 | 5755 | -5.47 |
| | | CH155 | 5774.9710 | 5775 | -5.02 |
| | | CH157 | 5784.9700 | 5785 | -5.19 |
| | | CH159 | 5794.9710 | 5795 | -5.00 |
| | | CH165 | 5824.9695 | 5825 | -5.24 |

| | | | | | |
|---|---|---|---|---|---|
| DC 3.8V | 20℃ | CH36 | 5179.9960 | 5180 | -0.77 |
| | | CH38 | 5189.9955 | 5190 | -0.96 |
| | | CH40 | 5199.9960 | 5200 | -0.77 |
| | | CH42 | 5209.9935 | 5210 | -1.34 |
| | | CH46 | 5229.9655 | 5230 | -6.69 |
| | | CH48 | 5239.9940 | 5240 | -1.15 |
| | | CH149 | 5744.9935 | 5745 | -1.22 |
| | | CH151 | 5754.9920 | 5755 | -1.39 |
| | | CH155 | 5774.9930 | 5775 | -1.21 |
| | | CH157 | 5784.9920 | 5785 | -1.38 |
| | | CH159 | 5794.9965 | 5795 | -0.69 |
| | | CH165 | 5824.9930 | 5825 | -1.20 |

Frequency Stability vs.Temperature:

| Test Voltage | Temperature | CH | Max. Reading ( MHz ) | Target Frequency (MHz) | Result (ppm) |
|---|---|---|---|---|---|
| DC 3.3V | 0℃ | CH36 | 5179.9840 | 5180 | -3.09 |
| | | CH38 | 5189.9560 | 5190 | -8.48 |
| | | CH40 | 5199.9350 | 5200 | -12.50 |
| | | CH42 | 5209.9270 | 5210 | -14.03 |
| | | CH46 | 5229.9270 | 5230 | -13.95 |
| | | CH48 | 5239.9390 | 5240 | -11.54 |
| | | CH149 | 5744.9690 | 5745 | -5.40 |
| | | CH151 | 5754.9690 | 5755 | -5.34 |
| | | CH155 | 5774.9630 | 5775 | -6.41 |
| | | CH157 | 5784.9630 | 5785 | -6.40 |
| | | CH159 | 5794.9960 | 5795 | -0.67 |
| | | CH165 | 5824.9940 | 5825 | -1.05 |
| DC 3.3V | 10℃ | CH36 | 5179.9890 | 5180 | -2.15 |
| | | CH38 | 5189.9890 | 5190 | -2.13 |
| | | CH40 | 5199.99600 | 5200 | -0.79 |
| | | CH42 | 5209.9875 | 5210 | -2.50 |
| | | CH46 | 5229.9875 | 5230 | -2.49 |
| | | CH48 | 5239.9850 | 5240 | -2.83 |
| | | CH149 | 5744.9915 | 5745 | -1.56 |
| | | CH151 | 5754.9915 | 5755 | -1.54 |
| | | CH155 | 5774.9930 | 5775 | -1.20 |
| | | CH157 | 5784.9980 | 5785 | -0.35 |
| | | CH159 | 5794.9920 | 5795 | -1.36 |
| | | CH165 | 5824.9920 | 5825 | -1.37 |

| | | | | | |
|---|---|---|---|---|---|
| DC 3.3V | 20℃ | CH36 | 5179.9930 | 5180 | -1.35 |
| | | CH38 | 5189.9925 | 5190 | -1.54 |
| | | CH40 | 5199.9925 | 5200 | -1.53 |
| | | CH42 | 5209.9930 | 5210 | -1.32 |
| | | CH46 | 5229.9615 | 5230 | -7.41 |
| | | CH48 | 5239.9985 | 5240 | -0.37 |
| | | CH149 | 5744.9955 | 5745 | -0.87 |
| | | CH151 | 5754.9960 | 5755 | -0.72 |
| | | CH155 | 5774.9910 | 5775 | -1.56 |
| | | CH157 | 5784.9960 | 5785 | -0.66 |
| | | CH159 | 5794.9940 | 5795 | -1.04 |
| | | CH165 | 5824.9940 | 5825 | -1.02 |
| DC 3.3V | 30℃ | CH36 | 5179.9960 | 5180 | -0.77 |
| | | CH38 | 5189.9920 | 5190 | -1.53 |
| | | CH40 | 5199.9960 | 5200 | -0.77 |
| | | CH42 | 5209.9940 | 5210 | -1.15 |
| | | CH46 | 5229.9650 | 5230 | -6.65 |
| | | CH48 | 5239.9910 | 5240 | -1.72 |
| | | CH149 | 5744.9960 | 5745 | -0.71 |
| | | CH151 | 5754.9970 | 5755 | -0.52 |
| | | CH155 | 5774.9960 | 5775 | -0.70 |
| | | CH157 | 5784.9920 | 5785 | -1.39 |
| | | CH159 | 5794.9940 | 5795 | -1.03 |
| | | CH165 | 5824.9960 | 5825 | -0.68 |
| DC 3.3V | 40℃ | CH36 | 5179.9930 | 5180 | -1.35 |
| | | CH38 | 5189.9925 | 5190 | -1.52 |
| | | CH40 | 5199.9960 | 5200 | -0.76 |
| | | CH42 | 5209.9925 | 5210 | -1.51 |
| | | CH46 | 5229.9955 | 5230 | -0.95 |
| | | CH48 | 5239.9960 | 5240 | -0.77 |
| | | CH149 | 5744.9955 | 5745 | -0.87 |
| | | CH151 | 5754.9970 | 5755 | -0.52 |
| | | CH155 | 5774.9965 | 5775 | -0.68 |
| | | CH157 | 5784.9940 | 5785 | -1.03 |
| | | CH159 | 5794.9960 | 5795 | -0.69 |
| | | CH165 | 5824.9940 | 5825 | -1.01 |

| | | | | | |
|---|---|---|---|---|---|
| DC 3.3V | 50℃ | CH36 | 5179.9970 | 5180 | -0.59 |
| | | CH38 | 5189.9960 | 5190 | -0.77 |
| | | CH40 | 5199.9940 | 5200 | -1.15 |
| | | CH42 | 5209.9920 | 5210 | -1.53 |
| | | CH46 | 5229.9950 | 5230 | -0.95 |
| | | CH48 | 5239.9920 | 5240 | -1.53 |
| | | CH149 | 5744.9990 | 5745 | -0.16 |
| | | CH151 | 5754.9930 | 5755 | -1.21 |
| | | CH155 | 5774.9940 | 5775 | -1.03 |
| | | CH157 | 5784.9920 | 5785 | -1.39 |
| | | CH159 | 5794.9930 | 5795 | -1.20 |
| | | CH165 | 5824.9940 | 5825 | -1.01 |
| DC 3.3V | 60℃ | CH36 | 5179.9980 | 5180 | -0.38 |
| | | CH38 | 5189.9945 | 5190 | -1.15 |
| | | CH40 | 5199.9960 | 5200 | -0.79 |
| | | CH42 | 5209.9935 | 5210 | -1.32 |
| | | CH46 | 5229.9945 | 5230 | -1.16 |
| | | CH48 | 5239.9945 | 5240 | -1.17 |
| | | CH149 | 5744.9950 | 5745 | -0.86 |
| | | CH151 | 5754.9950 | 5755 | -0.83 |
| | | CH155 | 5774.9935 | 5775 | -1.21 |
| | | CH157 | 5784.9925 | 5785 | -1.34 |
| | | CH159 | 5794.9945 | 5795 | -1.02 |
| | | CH165 | 5824.9950 | 5825 | -0.88 |

# 11. ANTENNA REQUIREMENT

## 11.1. 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 15.407 (a), 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.

## 11.2. Antenna Connected Construction

The antennas used for this product are monopole 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 **U-NII-1 Band:**ANT A: 1.90dBi & ANT B: 0.8dBi; **U-NII-3 Band:**ANT A: -0.04dBi & ANT B: -3.17dBi.

# 12. DEVIATION TO TEST SPECIFICATIONS

[ NONE]

THE END