## 7. CHANNEL BANDWIDTH

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(2) |
| Test Method: | KDB558074 D0115.247 Meas Guidance v05r02 |

### 7.1 APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C | | | | |
|---|---|---|---|---|
| Section | Test Item | Limit | Frequency Range (MHz) | Result |
| 15.247(a)(2) | Bandwidth | >= 500KHz (6dB bandwidth) | 2400-2483.5 | PASS |

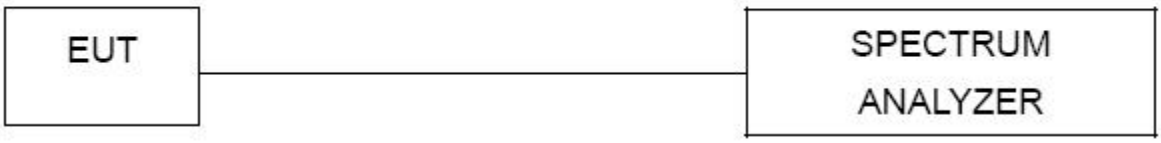
### 7.2 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 xRBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 7.3 DEVIATION FROM STANDARD

No deviation.

### 7.4 TEST SETUP




### 7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULT

| | | | |
|---|---|---|---|
| Temperature : | 26℃ | Relative Humidity : | 54% |
| Pressure : | 101kPa | Test Voltage : | AC 120V/60Hz |
| Test Mode : | TX b Mode | | |

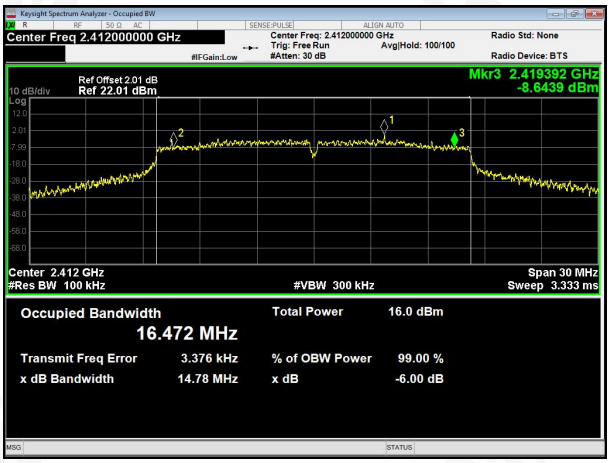
| | Frequency (MHz) | 6dB bandwidth (MHz) | Limit (kHz) | Result |
|---|---|---|---|---|
| 802.11b | 2412 | 9.681 | >500 | Pass |
| | 2437 | 9.329 | >500 | Pass |
| | 2462 | 9.563 | >500 | Pass |
| 802.11g | 2412 | 14.778 | >500 | Pass |
| | 2437 | 13.561 | >500 | Pass |
| | 2462 | 13.639 | >500 | Pass |
| 802.11n20 | 2412 | 15.032 | >500 | Pass |
| | 2437 | 15.075 | >500 | Pass |
| | 2462 | 14.686 | >500 | Pass |
| 802.11n40 | 2422 | 35.028 | >500 | Pass |
| | 2437 | 33.777 | >500 | Pass |
| | 2452 | 35.002 | >500 | Pass |

Test plot as follows:

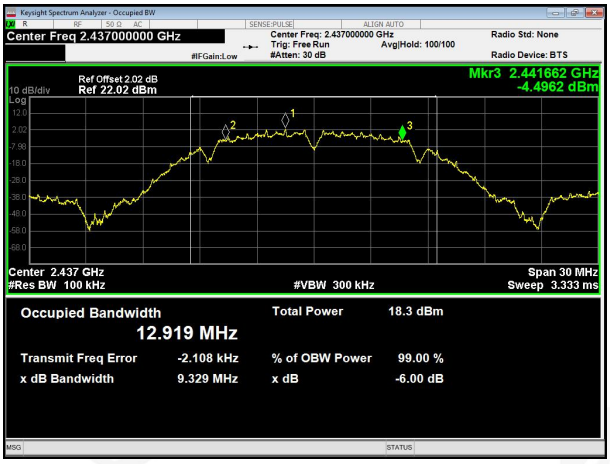
802.11b

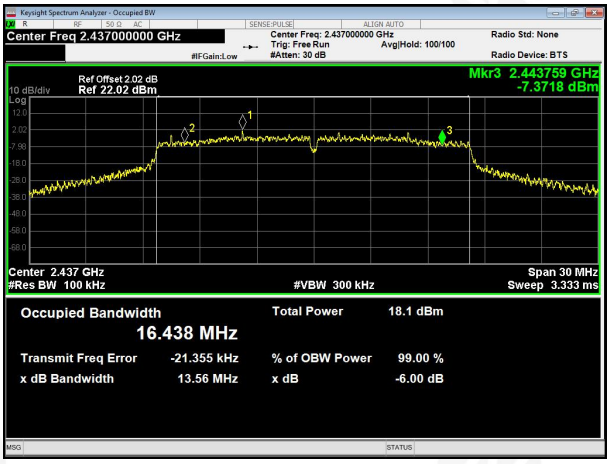
802.11g

Lowest channel

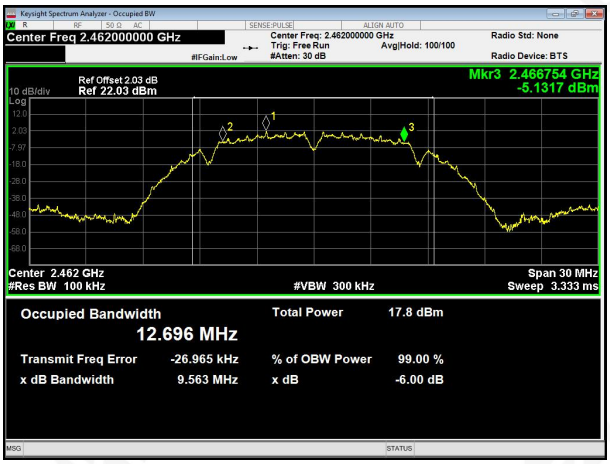


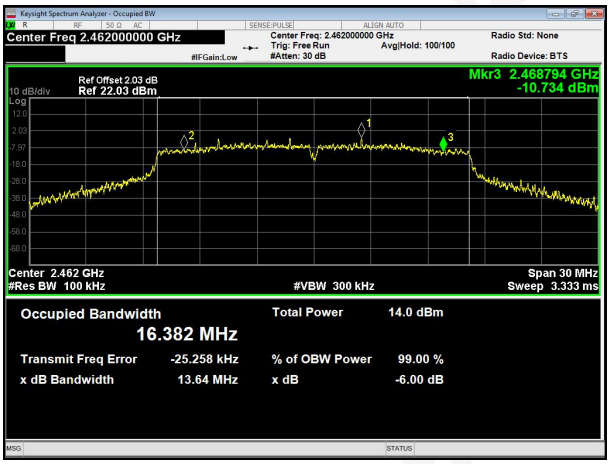

Middle channel



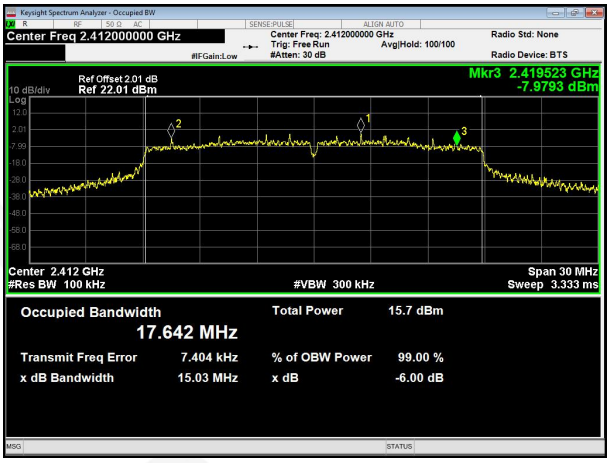

Highest channel



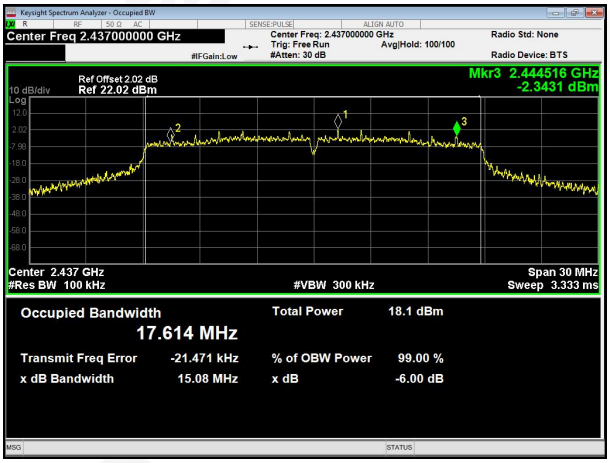



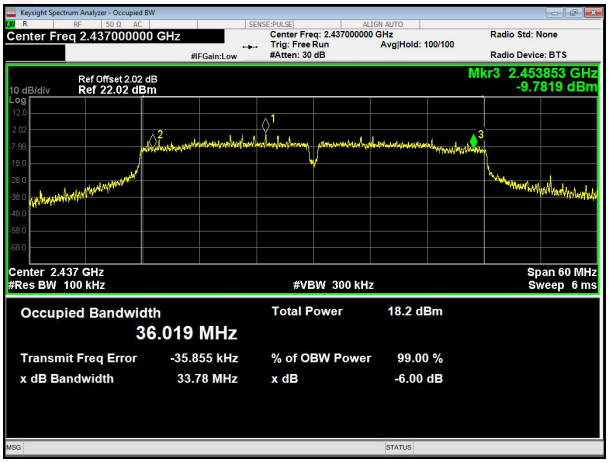
802.11n20 801.11n40

## Lowest channel

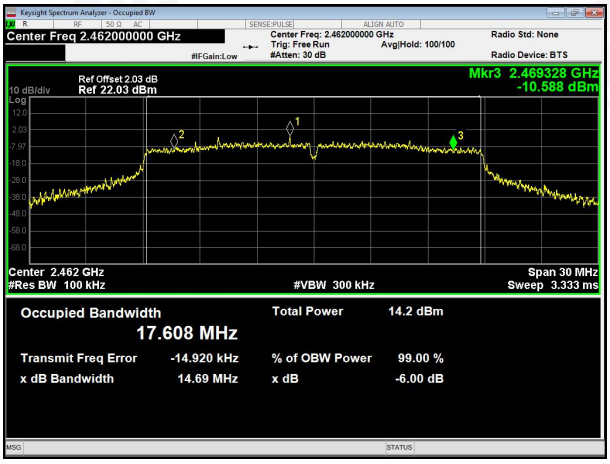


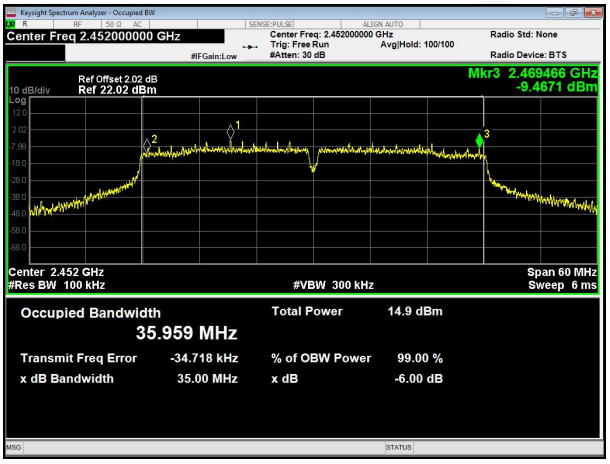
## Middle channel




## Highest channel



## 8.PEAK OUTPUT POWER TEST

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (b)(3) |
| Test Method: | KDB558074 D0115.247 Meas Guidance v05r02 |

### 8.1 APPLIED PROCEDURES/LIMIT

| FCC Part15 (15.247) , Subpart C | | | | |
|---|---|---|---|---|
| Section | Test Item | Limit | Frequency Range (MHz) | Result |
| 15.247(b)(3) | Peak Output Power | 1 watt or 30dBm | 2400-2483.5 | PASS |

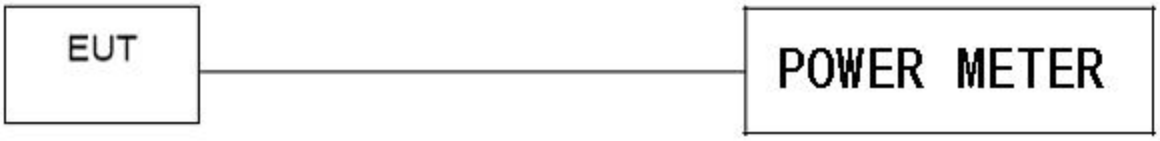
### 8.2 TEST PROCEDURE

a. The EUT was directly connected to the Power meter

### 8.3 DEVIATION FROM STANDARD

No deviation.

### 8.4 TEST SETUP




### 8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.6 TEST RESULT

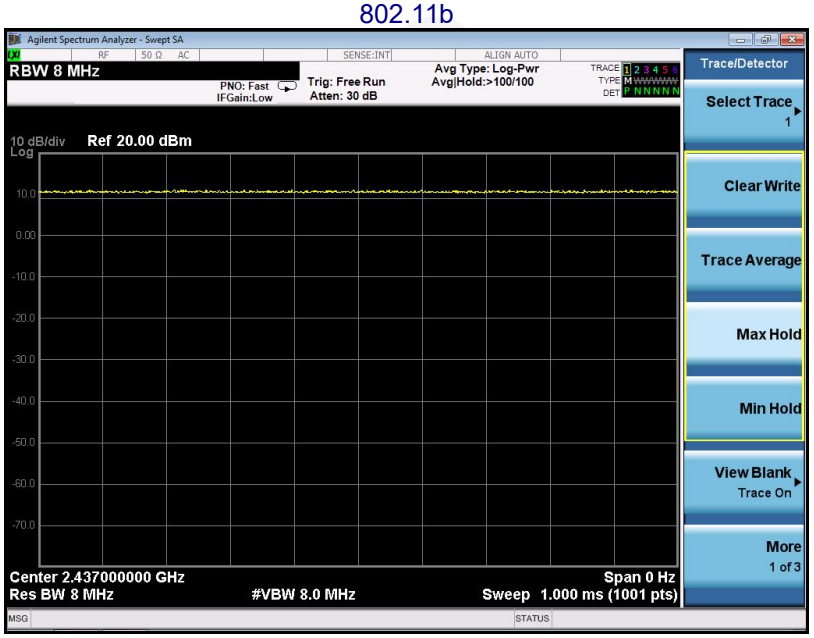
| | | | |
|---|---|---|---|
| Temperature : | 26℃ | Relative Humidity : | 54% |
| Pressure : | 101kPa | Test Voltage : | AC 120V/60Hz |

| Test CH | Peak Output Power (dBm) | | | | Limit(dBm) | Result |
|---|---|---|---|---|---|---|
| | 802.11b | 802.11g | 802.11n(HT20) | 802.11n(HT40) | | |
| Lowest | 12.668 | 11.583 | 10.174 | 10.142 | 30.00 | Pass |
| Middle | 12.705 | 11.507 | 10.280 | 10.307 | | |
| Highest | 12.646 | 11.239 | 10.215 | 10.225 | | |

| | Frequency | Output Power | Antenna gain | EIRP |
|---|---|---|---|---|
| | (MHz) | (dBm) | (dBi) | (dBm) |
| 802.11b | Lowest | 12.668 | 1.28 | 13.948 |
| | Middle | 12.705 | 1.28 | 13.985 |
| | Highest | 12.646 | 1.28 | 13.926 |
| 802.11g | Lowest | 11.583 | 1.28 | 12.863 |
| | Middle | 11.507 | 1.28 | 12.787 |
| | Highest | 11.239 | 1.28 | 12.519 |
| 802.11n20 | Lowest | 10.174 | 1.28 | 11.454 |
| | Middle | 10.280 | 1.28 | 11.56 |
| | Highest | 10.215 | 1.28 | 11.495 |
| 802.11n40 | Lowest | 10.142 | 1.28 | 11.422 |
| | Middle | 10.307 | 1.28 | 11.587 |
| | Highest | 10.225 | 1.28 | 11.505 |

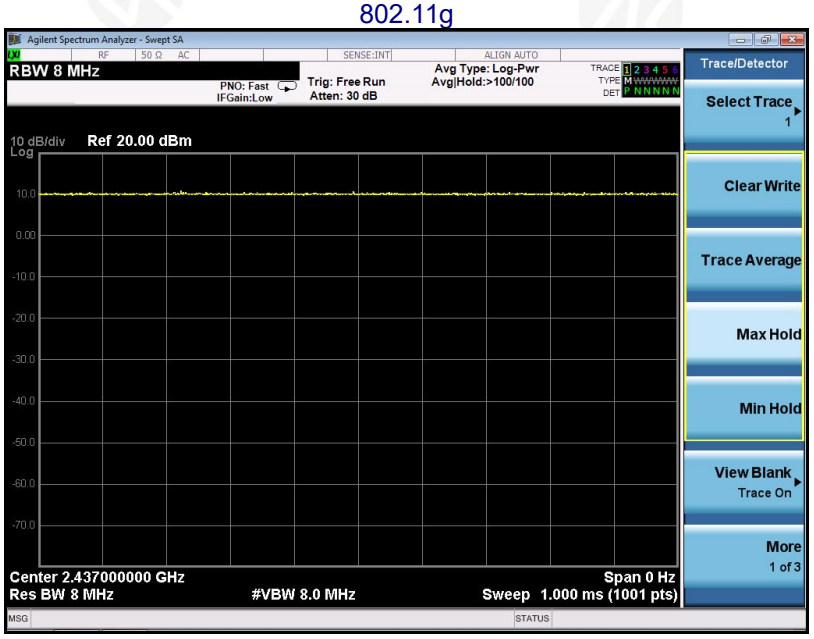
Duty Cycly:

802.11b



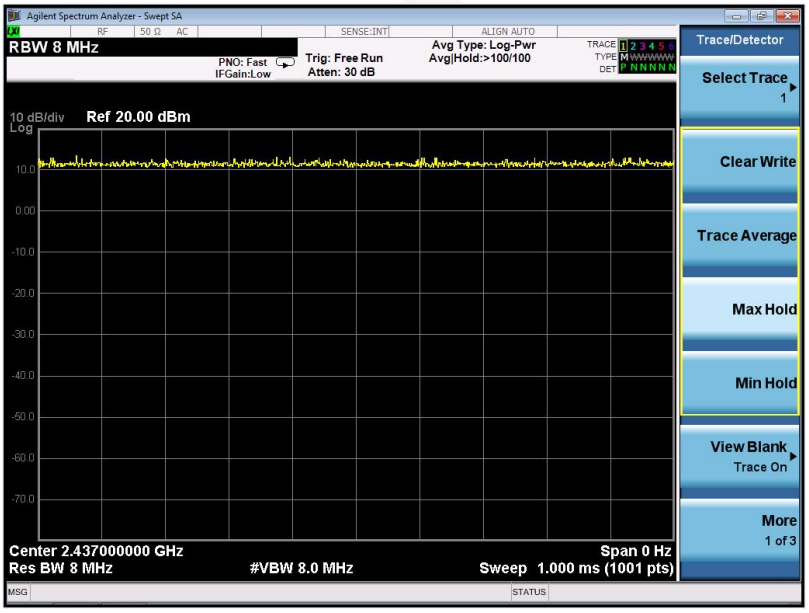

| Ton | Tp | Duty cycly(%) | Duty factor(dB) |
|---|---|---|---|
| 100.00 | 100.00 | 100.00% | 0.00 |

802.11g



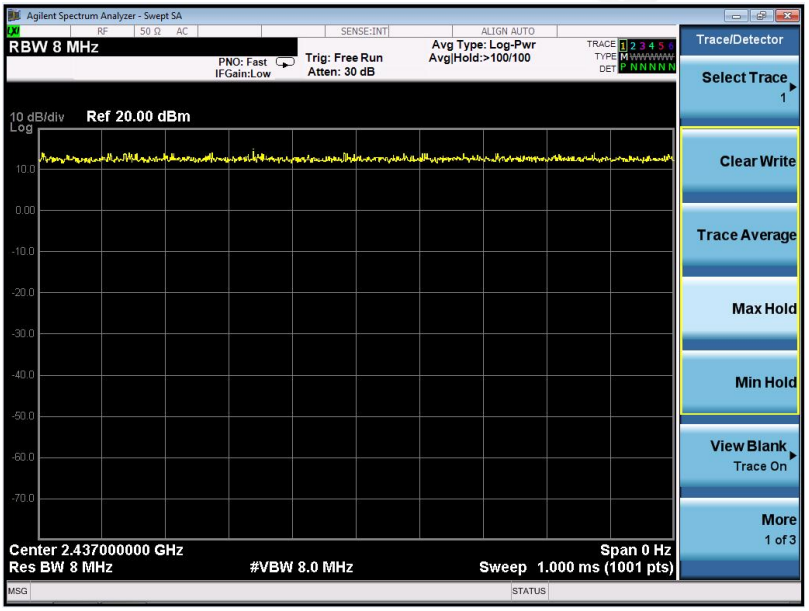

| Ton | Tp | Duty cycly(%) | Duty factor(dB) |
|---|---|---|---|
| 100.00 | 100.00 | 100.00% | 0.00 |

802.11n20




| Ton | Tp | Duty cycly(%) | Duty factor(dB) |
|---|---|---|---|
| 100.00 | 100.00 | 100.00% | 0.00 |

802.11n40




| Ton | Tp | Duty cycly(%) | Duty factor(dB) |
|---|---|---|---|
| 100.00 | 100.00 | 100.00% | 0.00 |

## 9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (d) |
| Test Method: | KDB558074 D0115.247 Meas Guidance v05r02 |

### 9.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in15.209(a).

### 9.2 TEST PROCEDURE

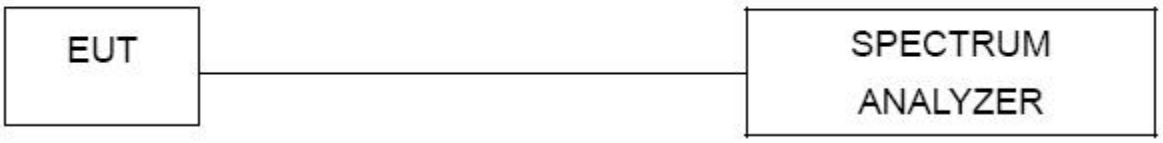
Using the following spectrum analyzer setting:

A) Set the RBW = 100KHz.
B) Set the VBW = 300KHz.
C) Sweep time = auto couple.
D) Detector function = peak.
E) Trace mode = max hold.
F) Allow trace to fully stabilize.

### 9.3 DEVIATION FROM STANDARD

No deviation.

### 9.4 TEST SETUP



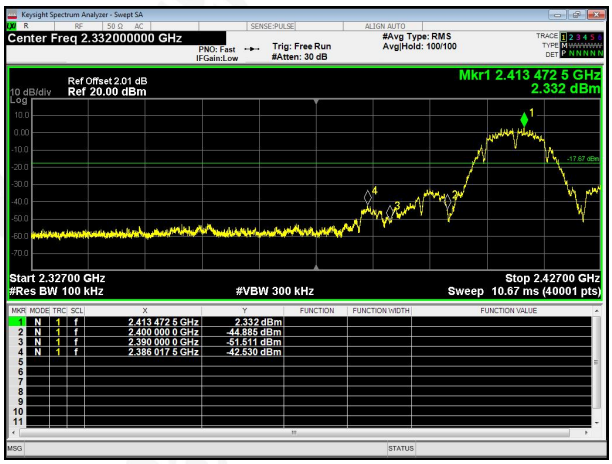

### 9.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

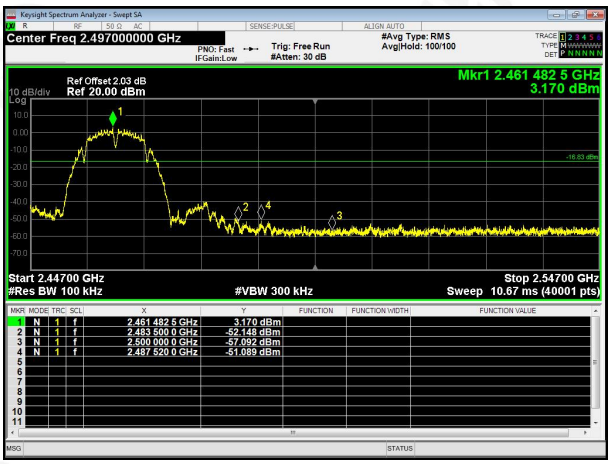
### 9.6 TEST RESULTS

Test plot as follows:

| Test mode: | 802.11b |
|---|---|

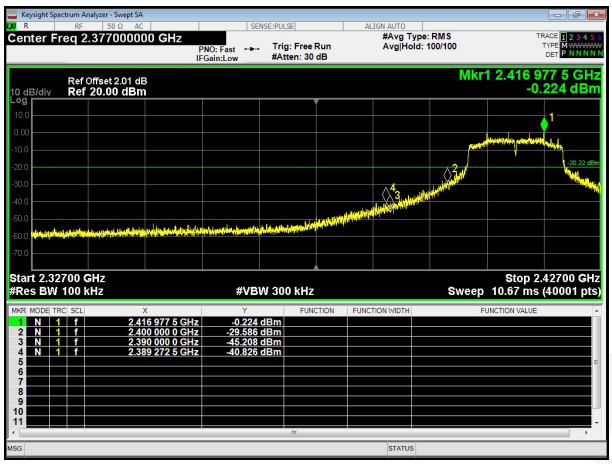



Lowest channel




Highest channel

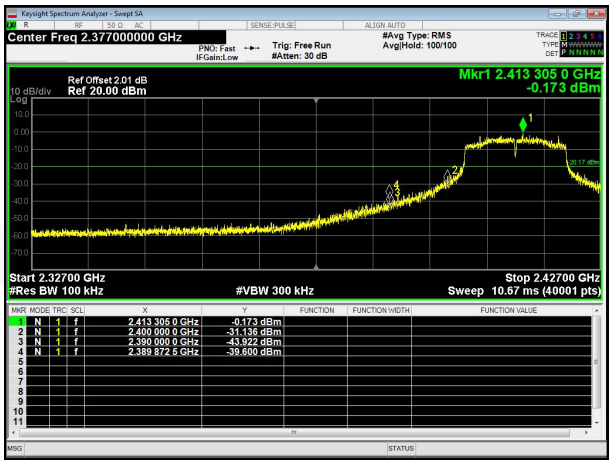
| Test mode: | 802.11g |
|---|---|



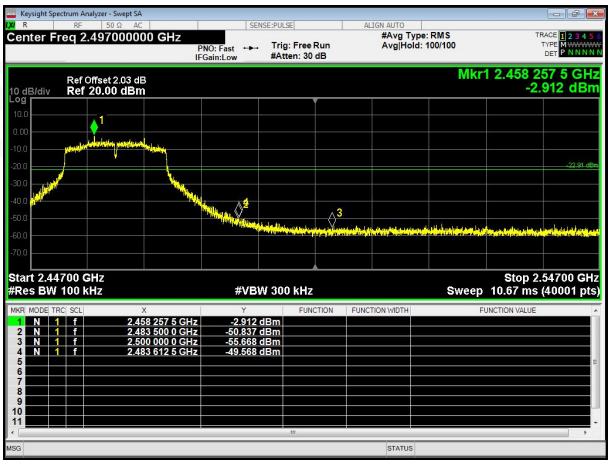

Lowest channel

Highest channel

| Test mode: | 802.11n(HT20) |
|---|---|



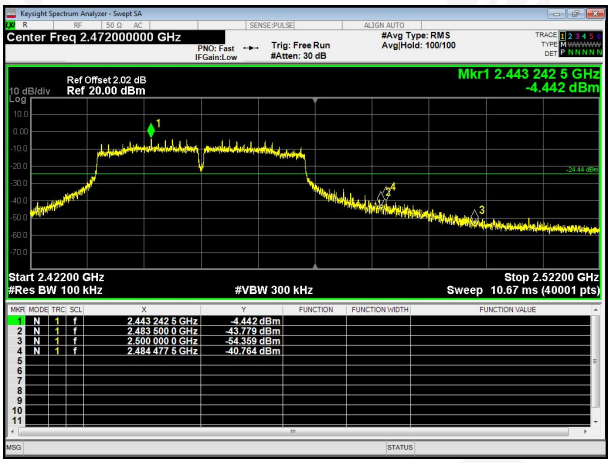

Lowest channel




Highest channel

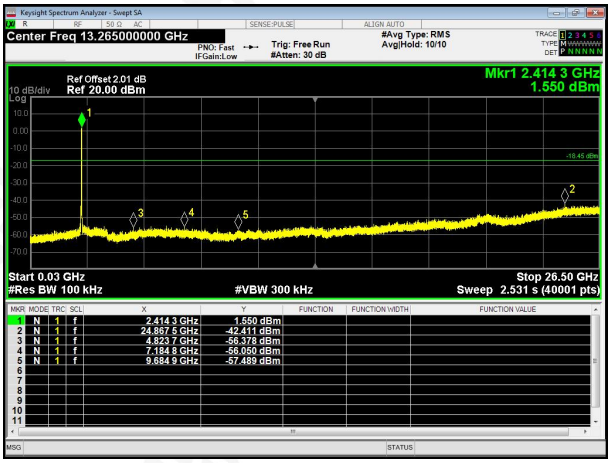
| Test mode: | 802.11n(HT40) |
|---|---|

Lowest channel

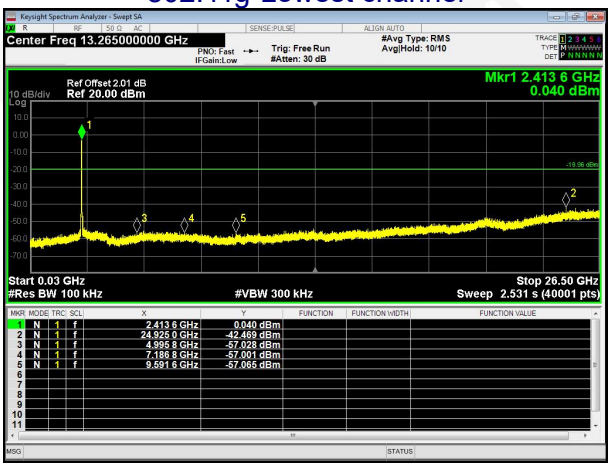



Highest channel

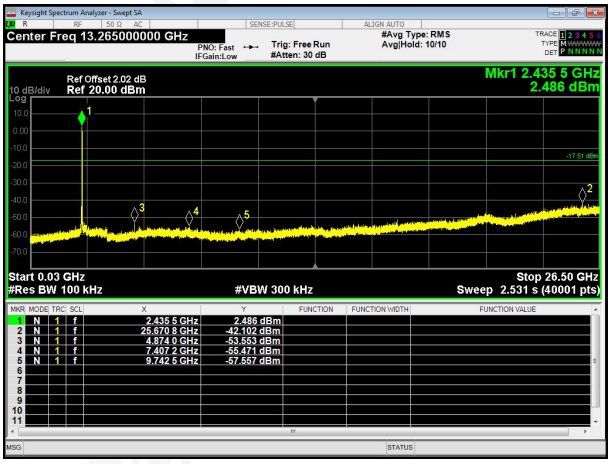
802.11b-Lowest channel



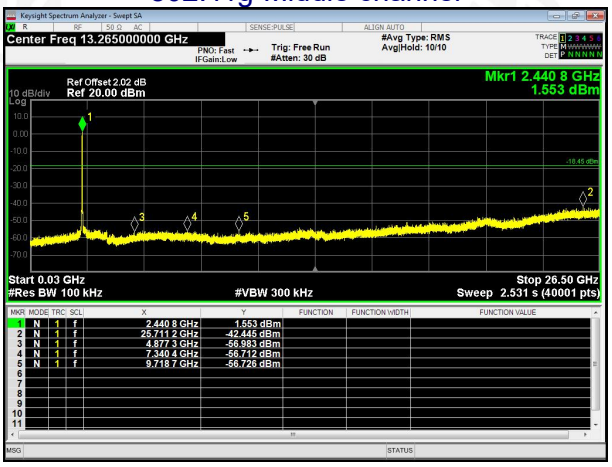

802.11g-Lowest channel



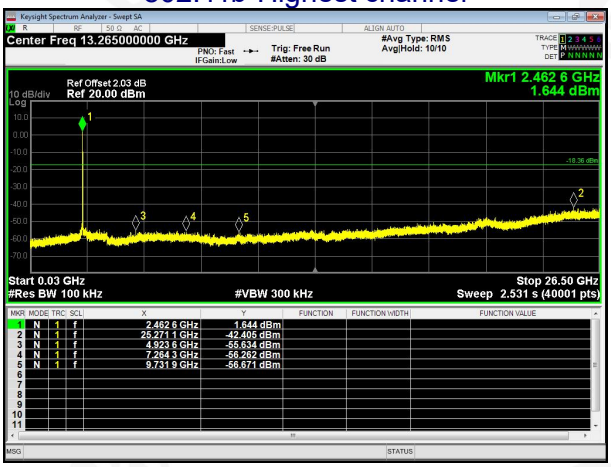

802.11b-Middle channel



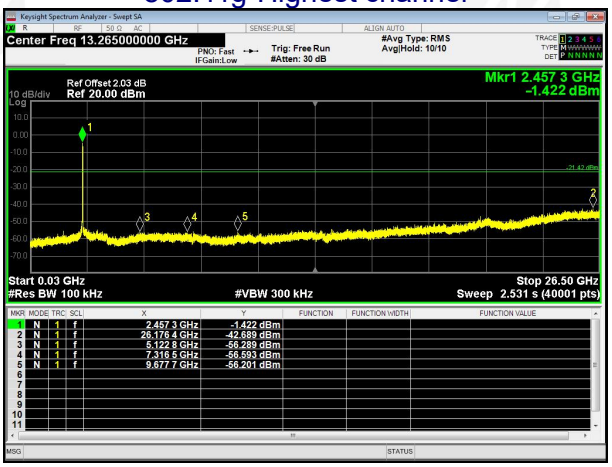

802.11g-Middle channel



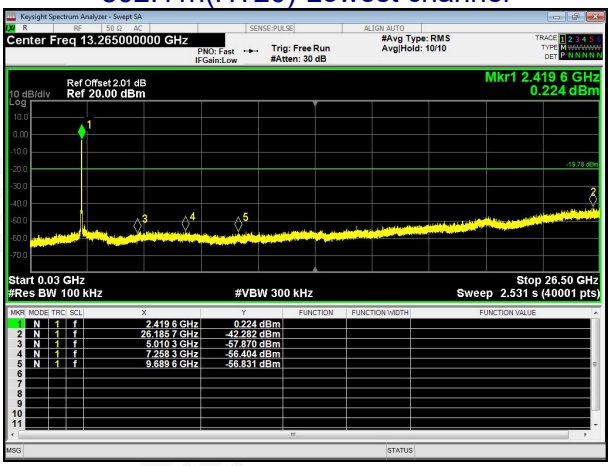

802.11b-Highest channel



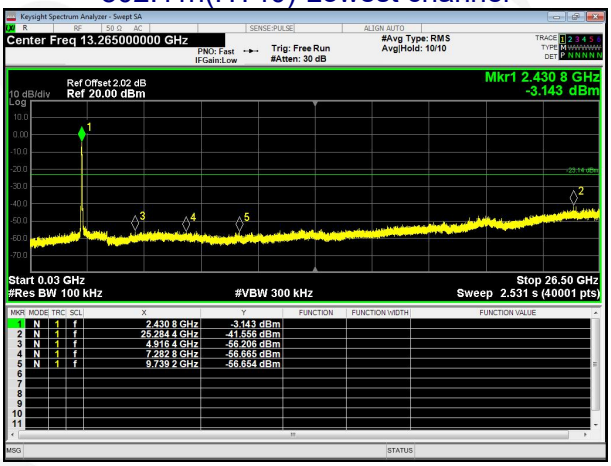

802.11g-Highest channel



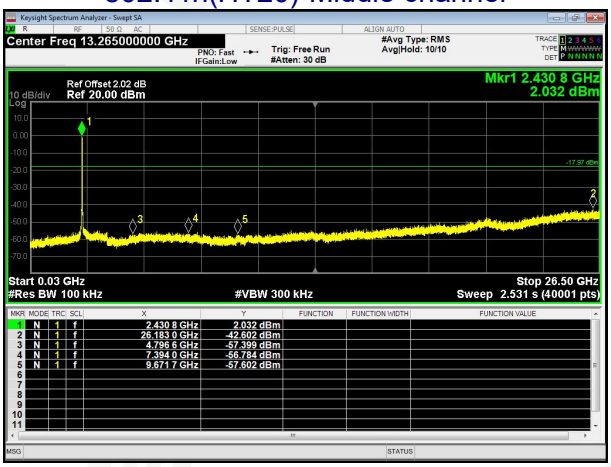
802.11n(HT20)-Lowest channel



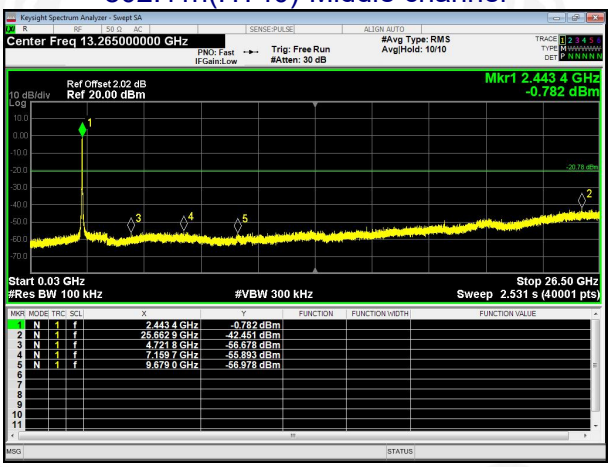

802.11n(HT40)-Lowest channel



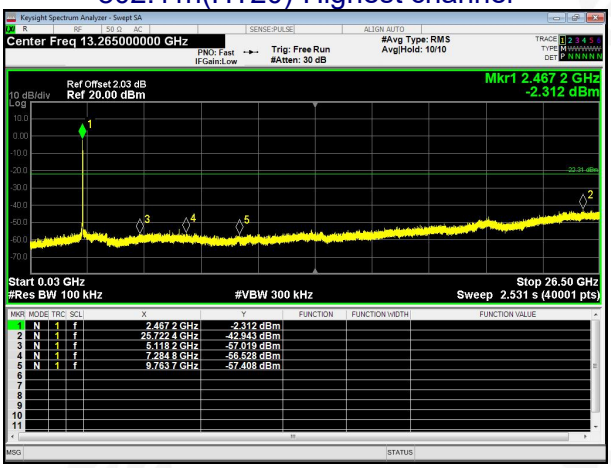

802.11n(HT20)-Middle channel



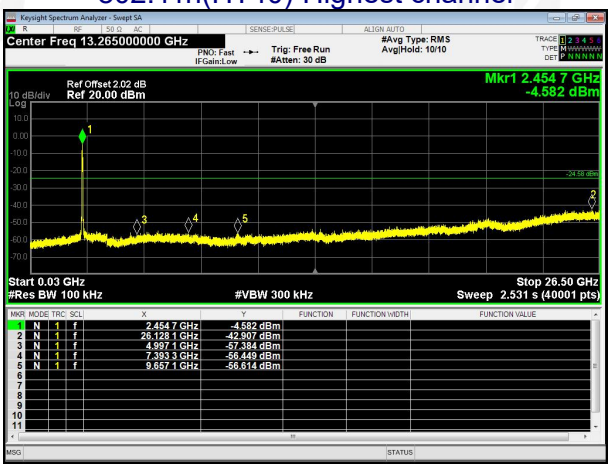

802.11n(HT40)-Middle channel




802.11n(HT20)-Highest channel




802.11n(HT40)-Highest channel



## 10. ANTENNA REQUIREMENT

| Standard requirement: | FCC Part15 C Section 15.203 /247(c) |
|---|---|
| 15.203 requirement:<br>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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.<br>15.247(c) (1)(i) requirement:<br>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi. | |
| EUT Antenna: | |
| The antennas are PIFA antenna, the best case gain of the antennas are 1.28dBi, reference to the appendix II for details | |

## 11. TEST SETUP PHOTO

Reference to the appendix I for details.

## 12. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

**※※※※※ END OF REPORT ※※※※※**