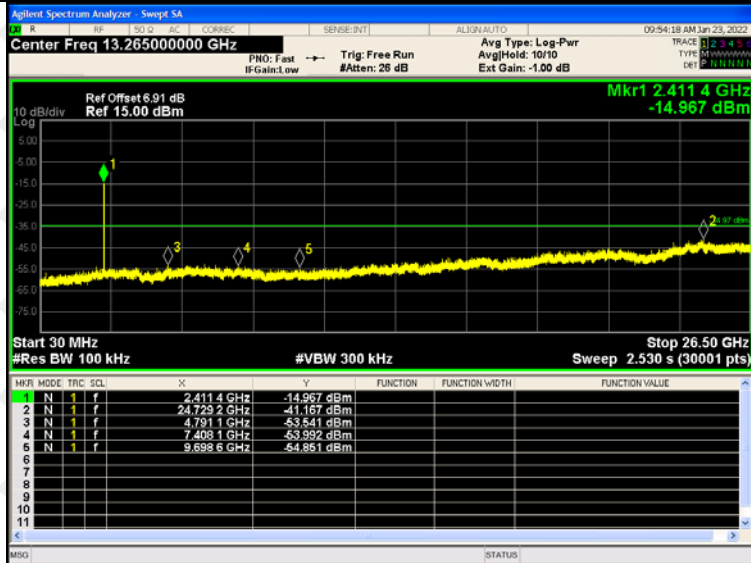
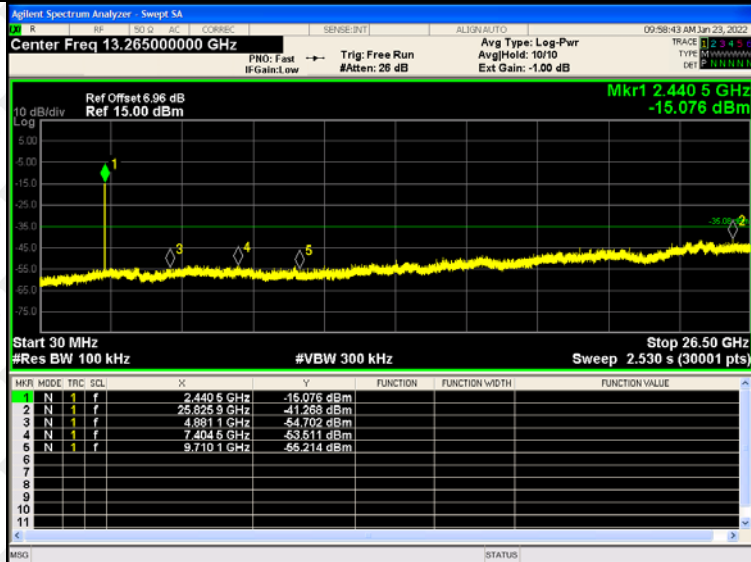
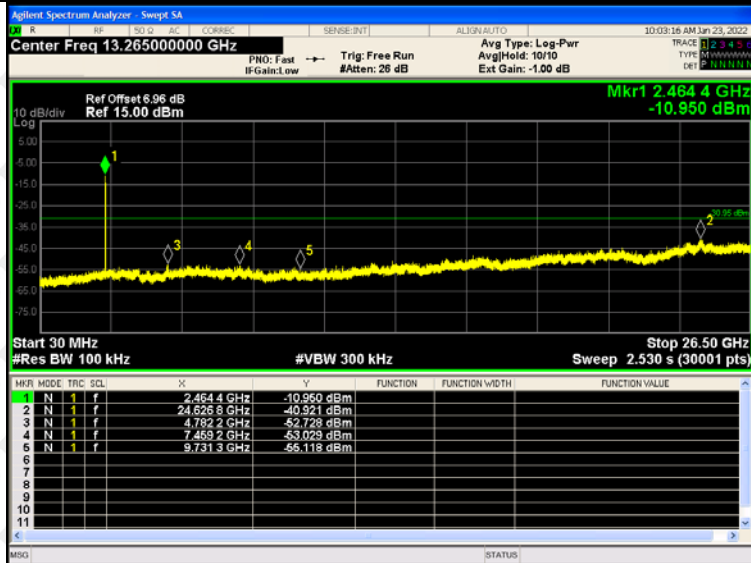
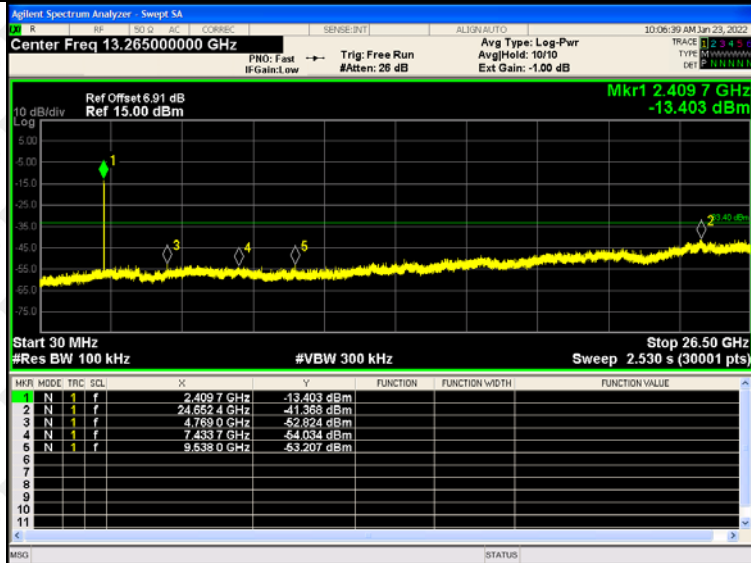


## RF Conducted Spurious Emissions Graphs

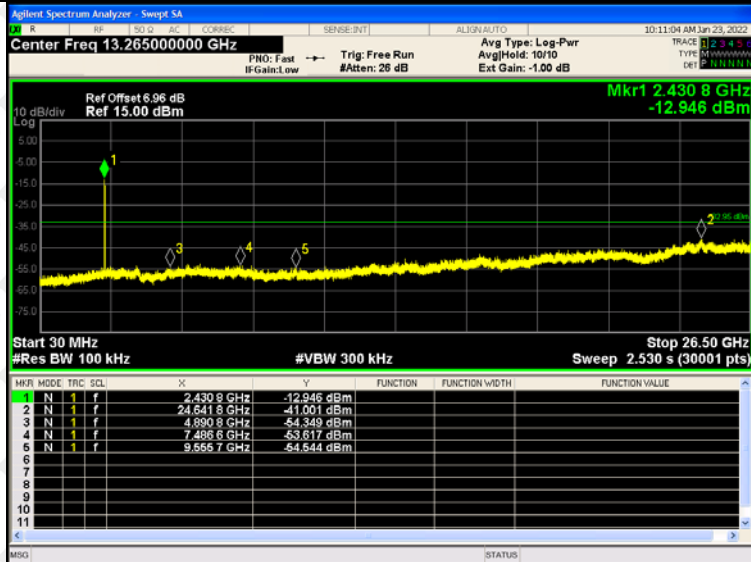
802.11g  
/LCH

802.11g  
/MCH

802.11g  
/HCH


# RF Conducted Spurious Emissions Graphs

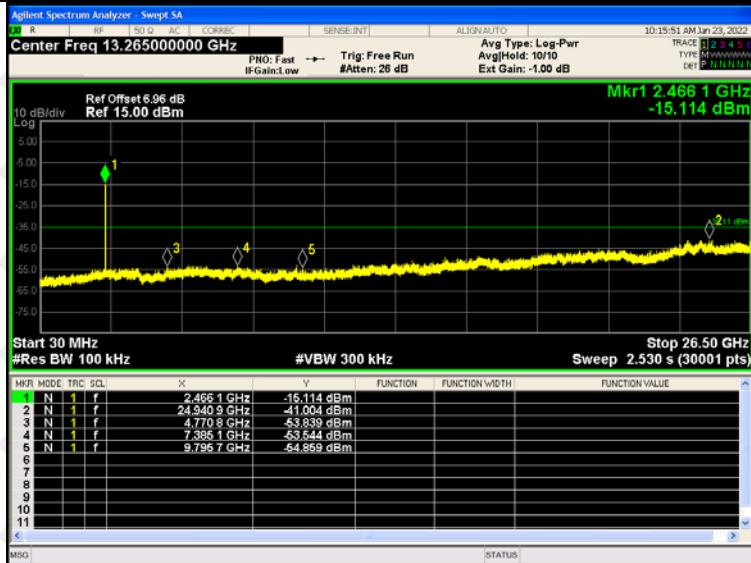
802.11n  
(HT20)/  
LCH



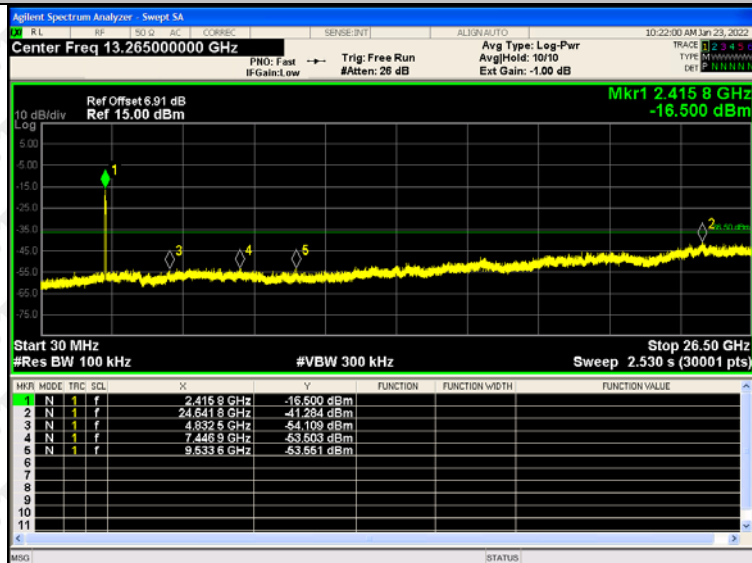
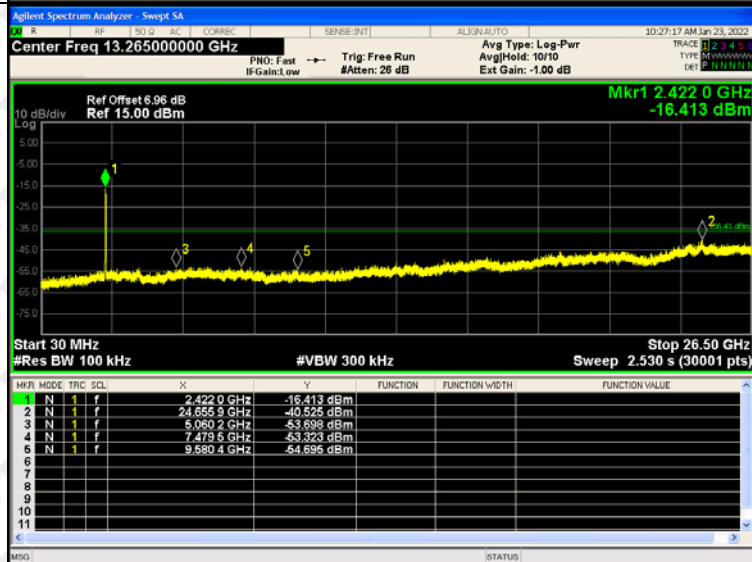
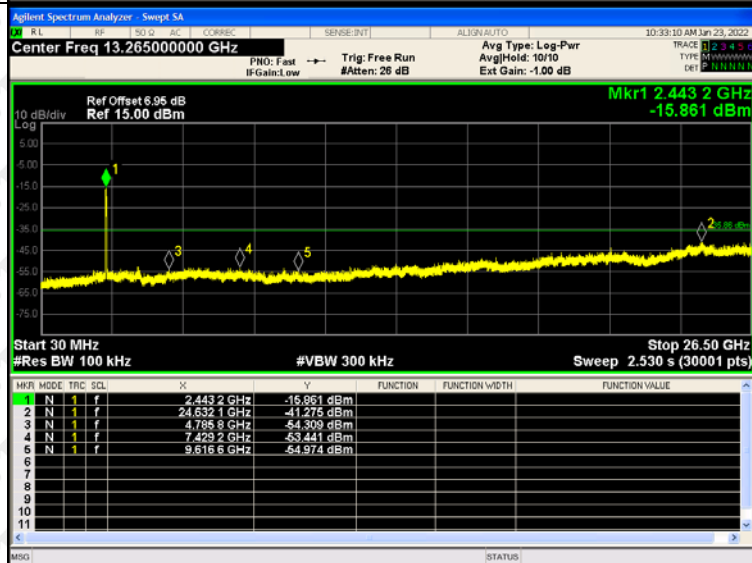
802.11  
n(HT20)/  
MCH



802.11  
n(HT20)/  
HCH

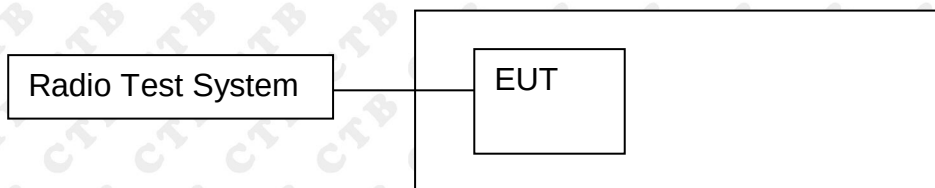


## RF Conducted Spurious Emissions Graphs

802.11  
n(HT40)  
/LCH

802.11  
n(HT40)  
/MCH

802.11  
n(HT40)  
/HCH


## 9. COUDUCTED OUTPUT POWER

### 9.1 Block Diagram Of Test Setup



### 9.2 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   |

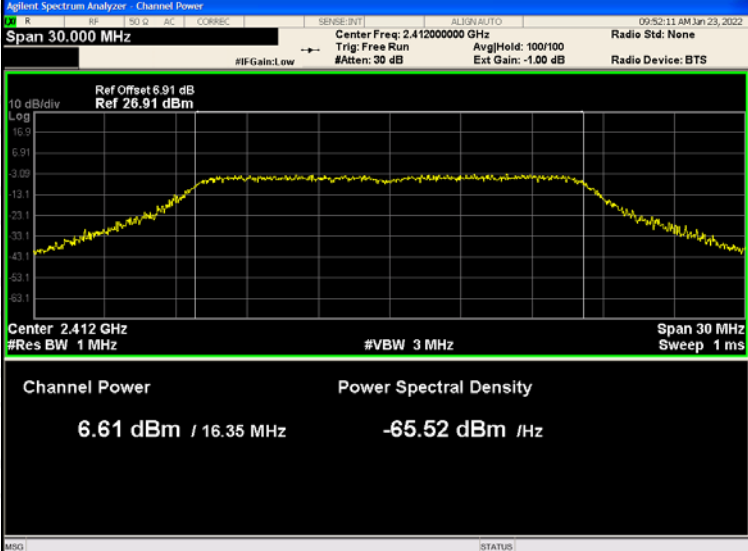
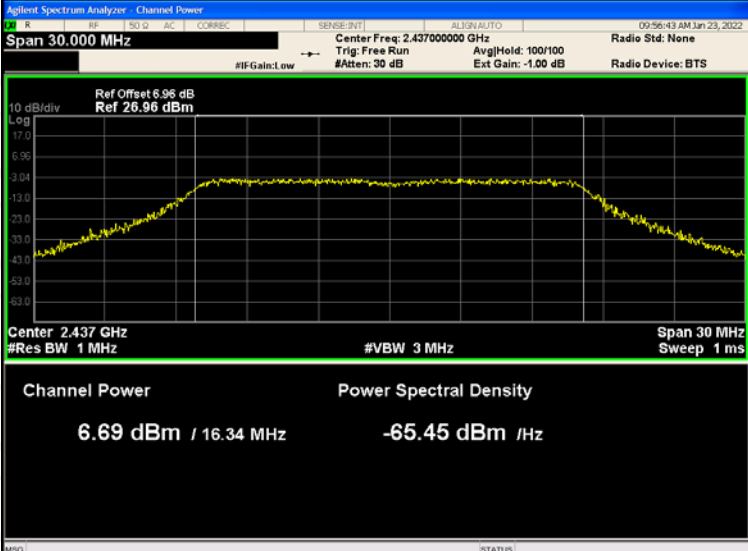
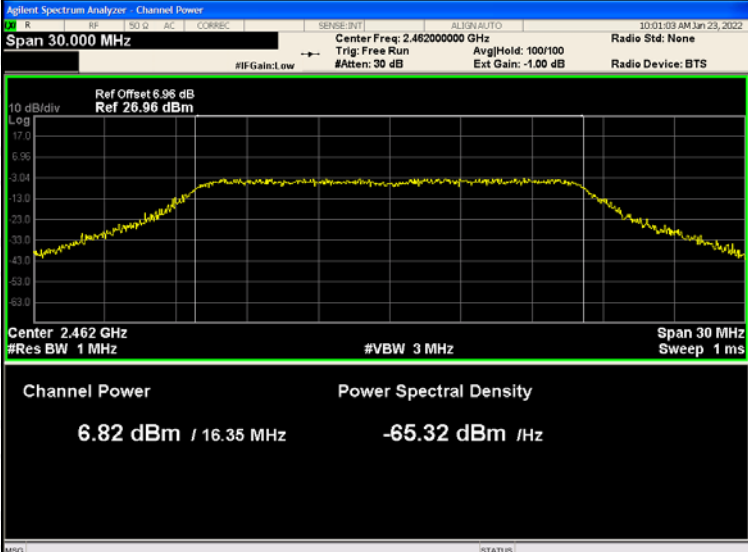
### 9.3 Test procedure

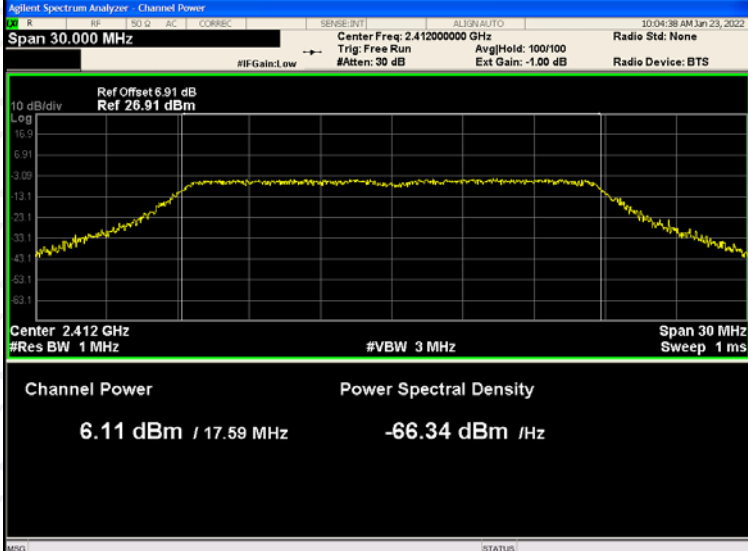
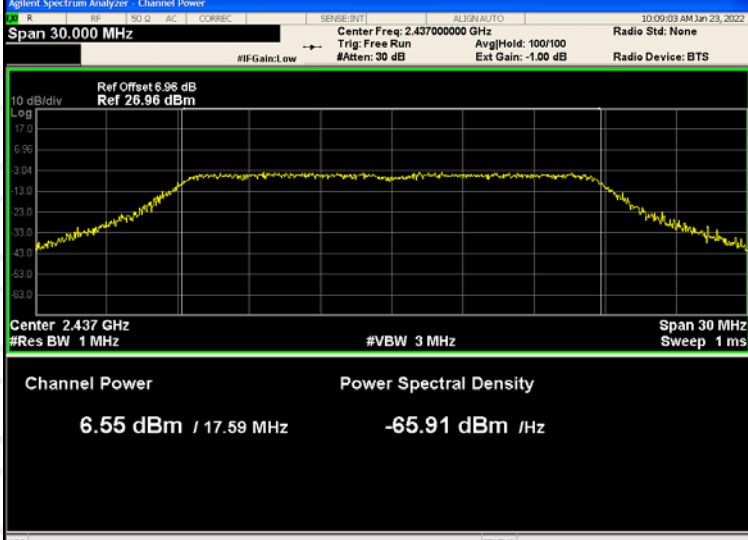
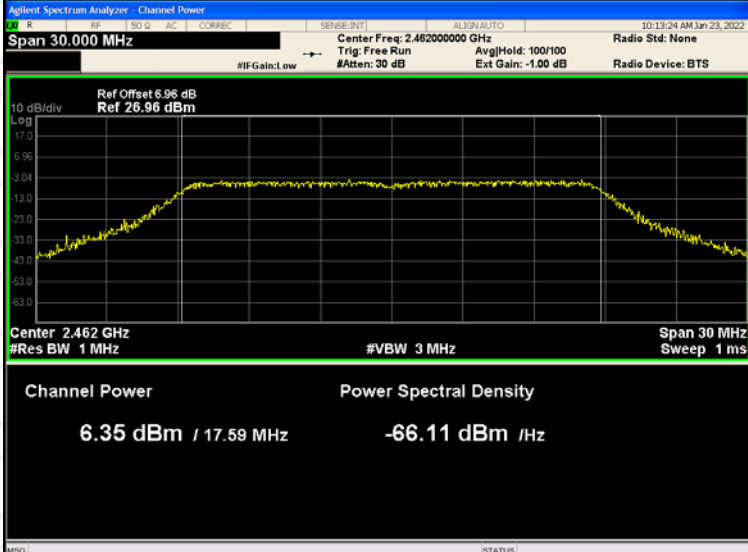
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW =1MHz. VBW = 3MHz. Sweep = auto; Detector Function = Peak. Channel power function is used
3. Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

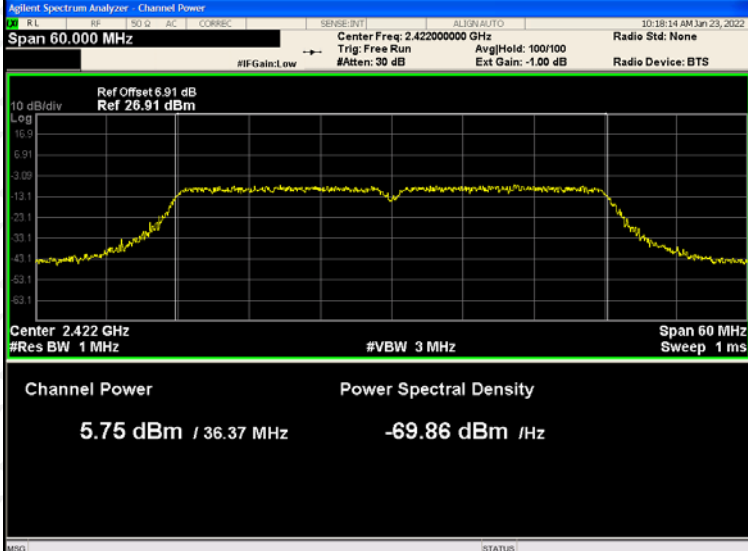
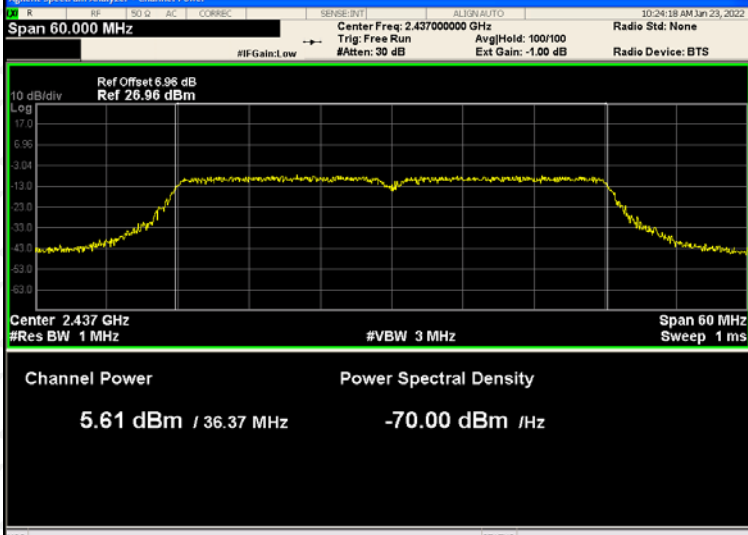
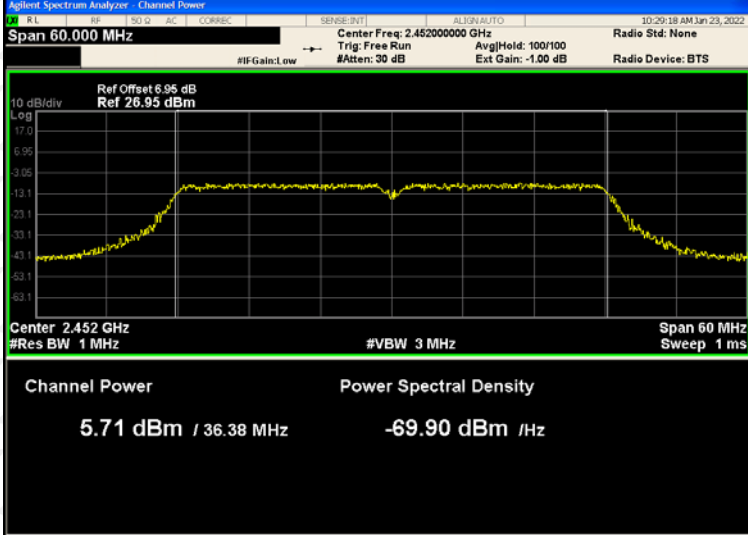
## 9.4 Test Result

| Mode          | Channel. | Peak Output Power [dBm] | Limit[dBm] | Verdict |
|---------------|----------|-------------------------|------------|---------|
| 802.11b       | LCH      | 7.11                    | 30         | PASS    |
|               | MCH      | 7.33                    | 30         | PASS    |
|               | HCH      | 7.17                    | 30         | PASS    |
| 802.11g       | LCH      | 6.61                    | 30         | PASS    |
|               | MCH      | 6.69                    | 30         | PASS    |
|               | HCH      | 6.82                    | 30         | PASS    |
| 802.11n(HT20) | LCH      | 6.11                    | 30         | PASS    |
|               | MCH      | 6.55                    | 30         | PASS    |
|               | HCH      | 6.35                    | 30         | PASS    |
| 802.11n(HT40) | LCH      | 5.75                    | 30         | PASS    |
|               | MCH      | 5.61                    | 30         | PASS    |
|               | HCH      | 5.71                    | 30         | PASS    |

| Mode    | Channel. | Maximum Output Power [dBm] |
|---------|----------|----------------------------|
| 802.11b | LCH      |                            |
|         | MCH      |                            |
|         | HCH      |                            |

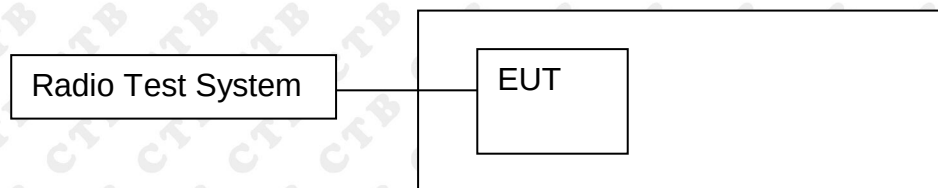
|         |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | LCH |  <p>Agilent Spectrum Analyzer - Channel Power</p> <p>Span 30.000 MHz</p> <p>Center Freq: 2.412000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 100/100</p> <p>#Att: 30 dB</p> <p>Ext Gain: -1.00 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 6.91 dB</p> <p>Ref 26.91 dBm</p> <p>Center 2.412 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 30 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>6.61 dBm / 16.35 MHz</p> <p>-65.52 dBm / Hz</p>   |
| 802.11g | MCH |  <p>Agilent Spectrum Analyzer - Channel Power</p> <p>Span 30.000 MHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 100/100</p> <p>#Att: 30 dB</p> <p>Ext Gain: -1.00 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 6.96 dB</p> <p>Ref 26.96 dBm</p> <p>Center 2.437 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 30 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>6.69 dBm / 16.34 MHz</p> <p>-65.45 dBm / Hz</p>  |
|         | HCH |  <p>Agilent Spectrum Analyzer - Channel Power</p> <p>Span 30.000 MHz</p> <p>Center Freq: 2.462000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 100/100</p> <p>#Att: 30 dB</p> <p>Ext Gain: -1.00 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 6.96 dB</p> <p>Ref 26.96 dBm</p> <p>Center 2.462 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 30 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>6.82 dBm / 16.35 MHz</p> <p>-65.32 dBm / Hz</p> |

|               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | LCH |  <p>Agilent Spectrum Analyzer - Channel Power</p> <p>Span 30.000 MHz</p> <p>Center Freq: 2.412000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 100/100</p> <p>#Att: 30 dB</p> <p>Ext Gain: -1.00 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 6.91 dB</p> <p>Ref 26.91 dBm</p> <p>Center 2.412 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 30 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>6.11 dBm / 17.59 MHz</p> <p>-66.34 dBm / Hz</p>   |
| 802.11n(HT20) | MCH |  <p>Agilent Spectrum Analyzer - Channel Power</p> <p>Span 30.000 MHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 100/100</p> <p>#Att: 30 dB</p> <p>Ext Gain: -1.00 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 6.96 dB</p> <p>Ref 26.96 dBm</p> <p>Center 2.437 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 30 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>6.55 dBm / 17.59 MHz</p> <p>-65.91 dBm / Hz</p>  |
|               | HCH |  <p>Agilent Spectrum Analyzer - Channel Power</p> <p>Span 30.000 MHz</p> <p>Center Freq: 2.462000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 100/100</p> <p>#Att: 30 dB</p> <p>Ext Gain: -1.00 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 6.96 dB</p> <p>Ref 26.96 dBm</p> <p>Center 2.462 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 30 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>6.35 dBm / 17.59 MHz</p> <p>-66.11 dBm / Hz</p> |

|               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|---------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|               | LCH |  <p>Agilent Spectrum Analyzer - Channel Power</p> <p>Span 60.000 MHz</p> <p>Center Freq: 2.422000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 100/100</p> <p>Ext Gain: -1.00 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 6.91 dB</p> <p>Ref 26.91 dBm</p> <p>Center 2.422 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 60 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>5.75 dBm / 36.37 MHz</p> <p>-69.86 dBm / Hz</p>   |  |
| 802.11n(HT40) | MCH |  <p>Agilent Spectrum Analyzer - Channel Power</p> <p>Span 60.000 MHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 100/100</p> <p>Ext Gain: -1.00 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 6.96 dB</p> <p>Ref 26.96 dBm</p> <p>Center 2.437 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 60 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>5.61 dBm / 36.37 MHz</p> <p>-70.00 dBm / Hz</p>  |  |
|               | HCH |  <p>Agilent Spectrum Analyzer - Channel Power</p> <p>Span 60.000 MHz</p> <p>Center Freq: 2.452000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 100/100</p> <p>Ext Gain: -1.00 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 6.95 dB</p> <p>Ref 26.95 dBm</p> <p>Center 2.452 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 60 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>5.71 dBm / 36.38 MHz</p> <p>-69.90 dBm / Hz</p> |  |

## 10. 6DB OCCUPIED BANDWIDTH

### 10.1 Block Diagram Of Test Setup



### 10.2 Limit

| FCC Part15 (15.247) , Subpart C |           |                                         |                       |        |
|---------------------------------|-----------|-----------------------------------------|-----------------------|--------|
| Section                         | Test Item | Limit                                   | Frequency Range (MHz) | Result |
| 15.247(a)(2)                    | Bandwidth | $\geq 500\text{KHz}$<br>(6dB bandwidth) | 2400-2483.5           | PASS   |

### 10.3 Test procedure

1. Rem1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW)  $\geq 3 \times \text{RBW}$ .
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.

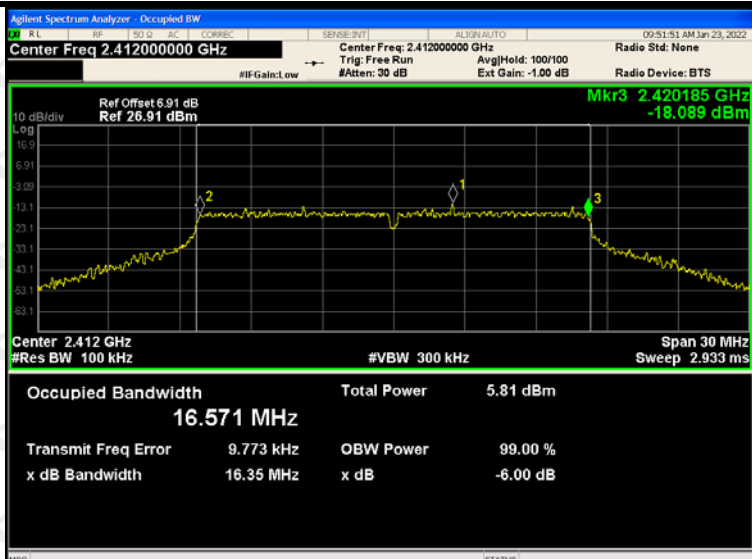
## 10.4 Test Result

| Test Mode     | Frequency | 6dB Bandwidth (MHz) | Limit(kHz) | Result |
|---------------|-----------|---------------------|------------|--------|
| 802.11b       | LCH       | 10.166              | 500        | PASS   |
|               | MCH       | 11.093              | 500        | PASS   |
|               | HCH       | 11.018              | 500        | PASS   |
| 802.11g       | LCH       | 16.35               | 500        | PASS   |
|               | MCH       | 16.344              | 500        | PASS   |
|               | HCH       | 16.353              | 500        | PASS   |
| 802.11n(HT20) | LCH       | 17.593              | 500        | PASS   |
|               | MCH       | 17.594              | 500        | PASS   |
|               | HCH       | 17.587              | 500        | PASS   |
| 802.11n(HT40) | LCH       | 36.37               | 500        | PASS   |
|               | MCH       | 36.366              | 500        | PASS   |
|               | HCH       | 36.381              | 500        | PASS   |

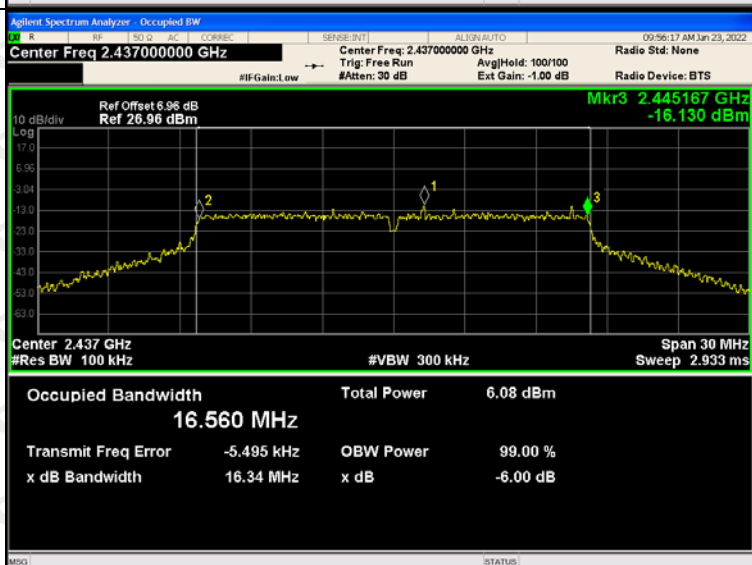
## Test Graph:



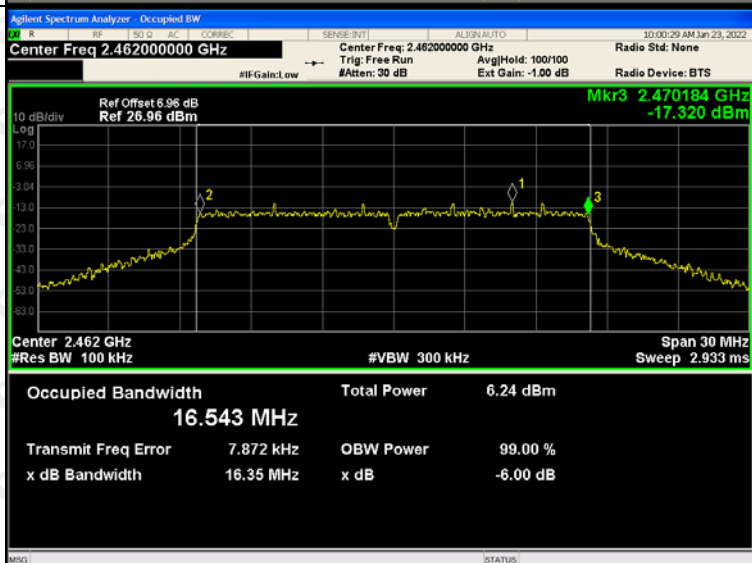
802.11g/LCH

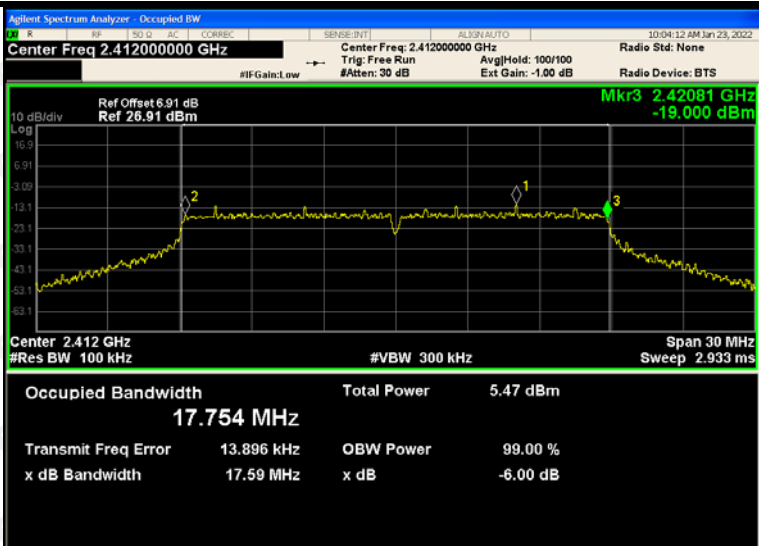
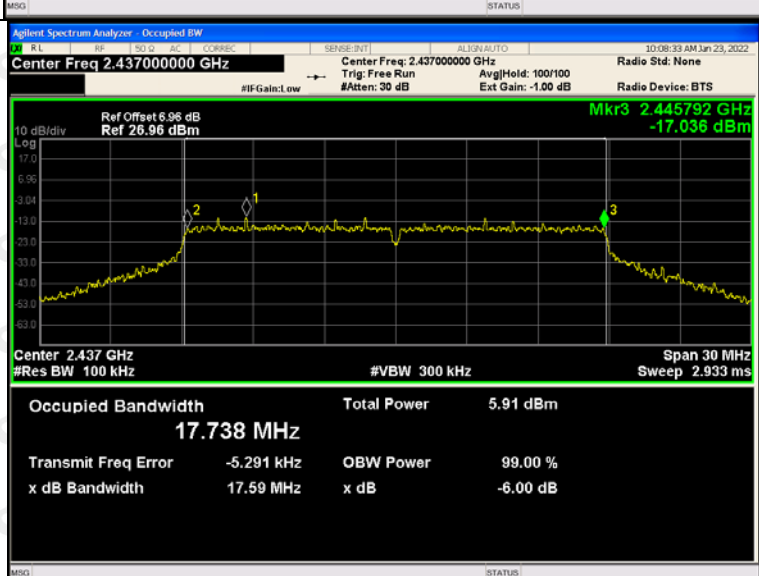
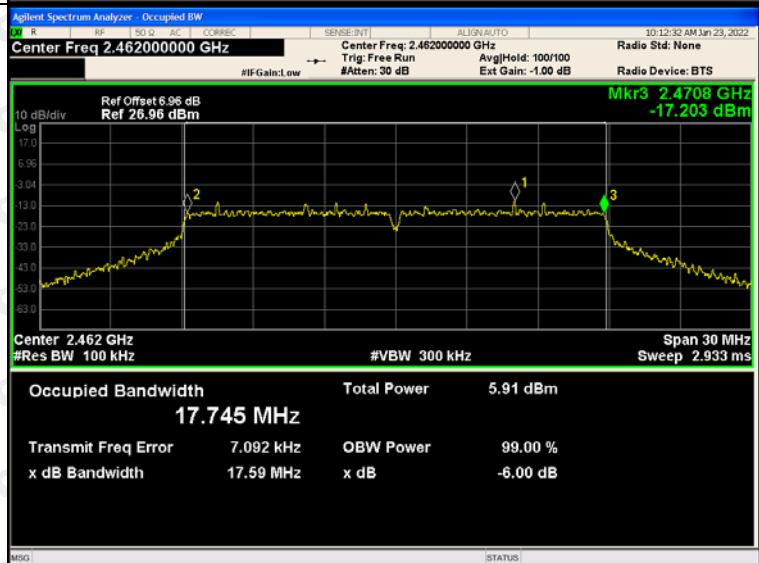


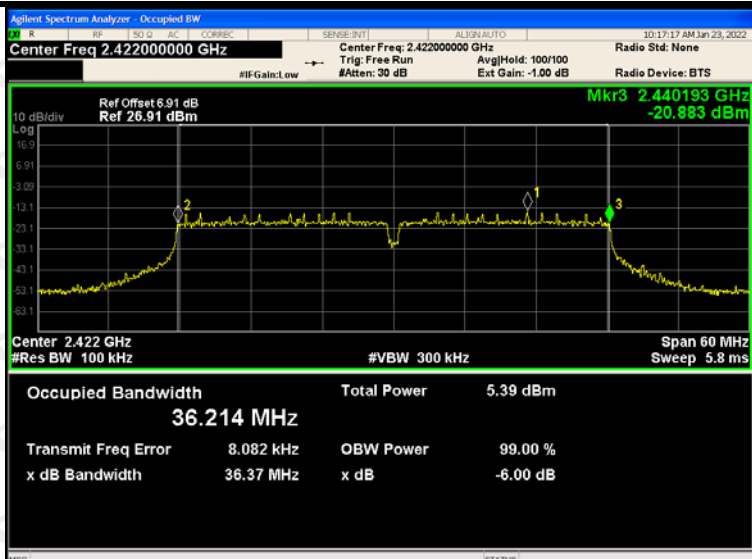
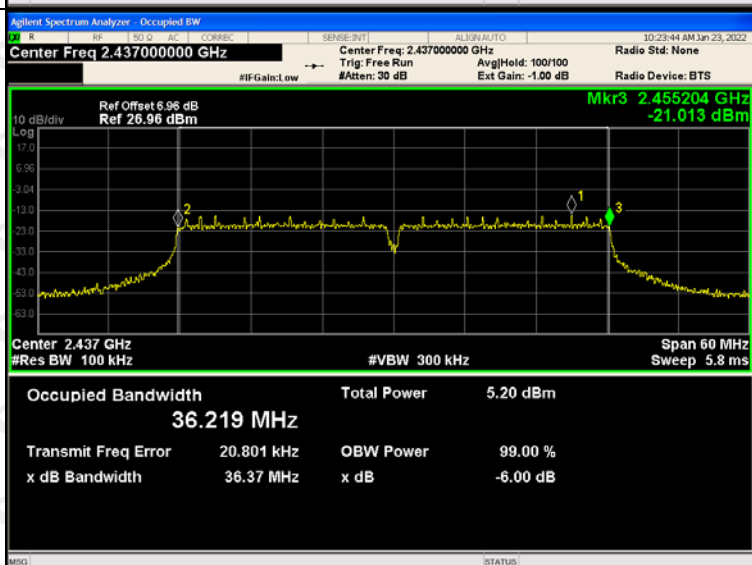
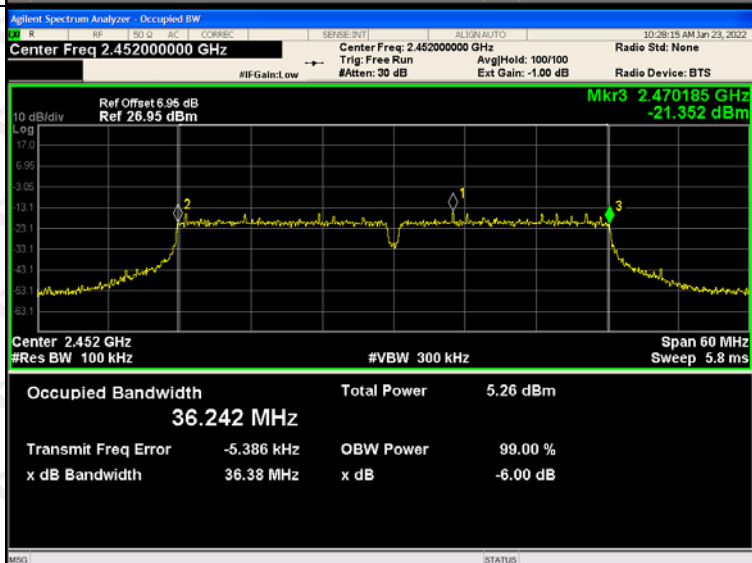
802.11g/MCH



802.11g/HCH

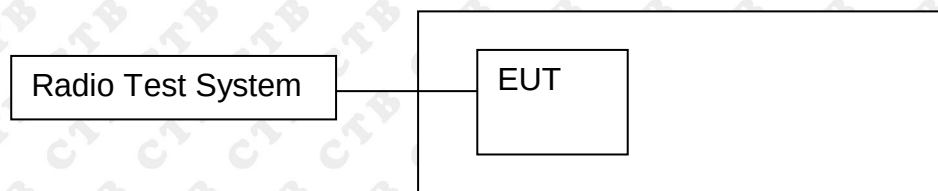


802.11n(HT20)/LC  
H

802.11n(HT20)/MC  
H

802.11n(HT20)/HC  
H


802.11n(HT40)/LC  
H

802.11n(HT40)/MC  
H

802.11n(HT40)/HC  
H


## 11. POWER SPECTRAL DENSITY

### 11.1 Block Diagram Of Test Setup



### 11.2 Limit

| FCC Part15 (15.247) , Subpart C |                        |                        |                       |        |
|---------------------------------|------------------------|------------------------|-----------------------|--------|
| Section                         | Test Item              | Limit                  | Frequency Range (MHz) | Result |
| 15.247                          | Power Spectral Density | 8 dBm<br>(in any 3KHz) | 2400-2483.5           | PASS   |

### 11.3 Test procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
4. Set the VBW  $\geq 3 \times \text{RBW}$ .
5. Detector = PEAK.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

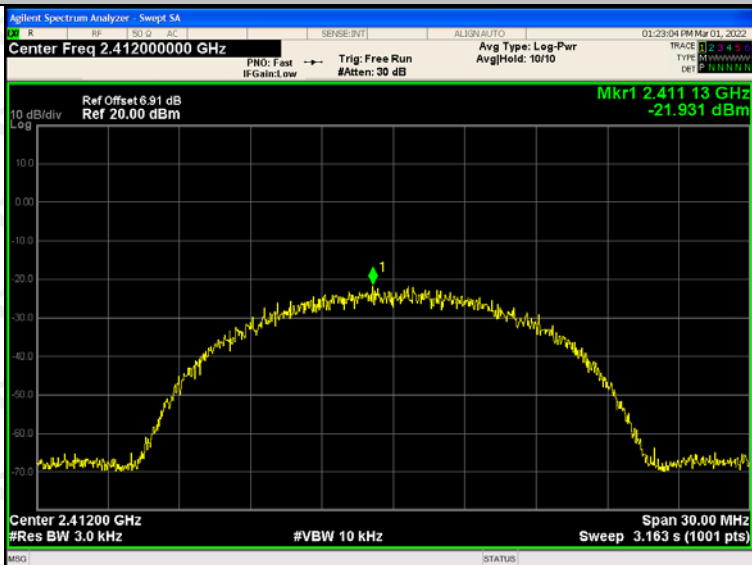
## 11.4 Test Result

| Mode           | Channel. | Power Spectral Density [dBm /3KHz] | Limit(8 dBm (in any 3KHz)) | Verdict |
|----------------|----------|------------------------------------|----------------------------|---------|
| 802.11b        | LCH      | -21.931                            | 8                          | PASS    |
|                | MCH      | -21.553                            | 8                          | PASS    |
|                | HCH      | -22.074                            | 8                          | PASS    |
| 802.11g        | LCH      | -25.742                            | 8                          | PASS    |
|                | MCH      | -26.134                            | 8                          | PASS    |
|                | HCH      | -26.458                            | 8                          | PASS    |
| 802.11n(H T20) | LCH      | -26.389                            | 8                          | PASS    |
|                | MCH      | -25.892                            | 8                          | PASS    |
|                | HCH      | -26.232                            | 8                          | PASS    |
| 802.11n(H T40) | LCH      | -29.985                            | 8                          | PASS    |
|                | MCH      | -29.618                            | 8                          | PASS    |
|                | HCH      | -30.83                             | 8                          | PASS    |

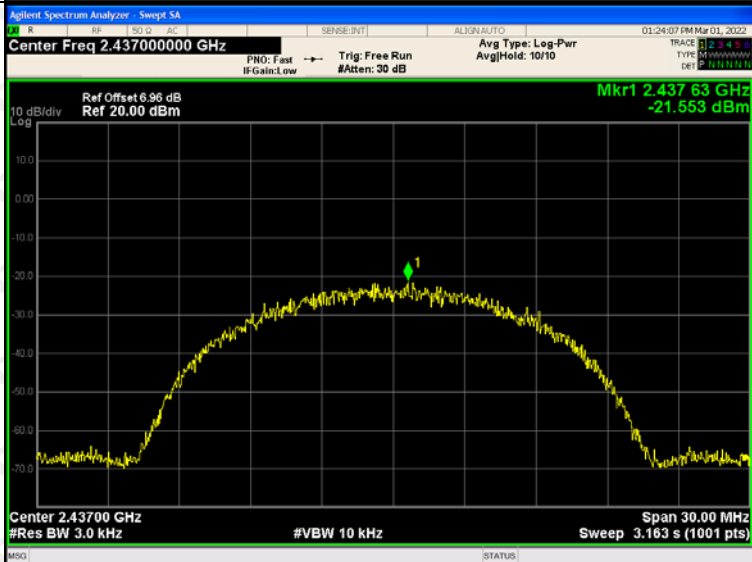
# Test Graph

## Graphs

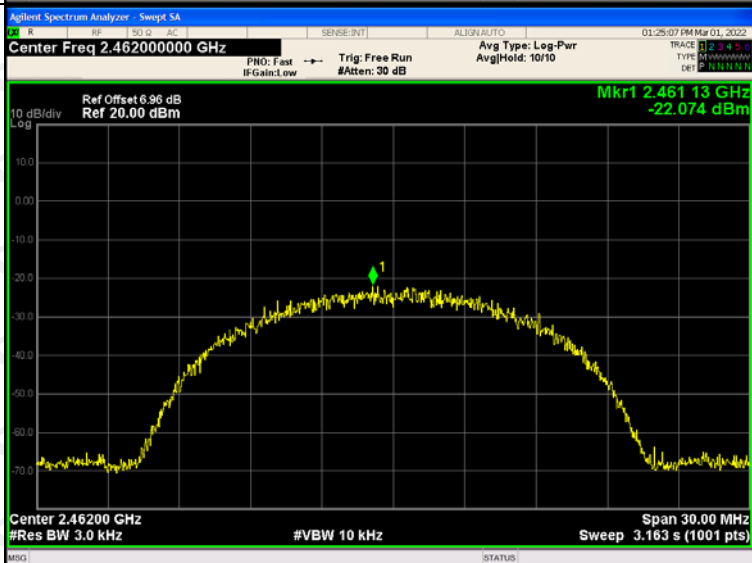
802.11b /LCH



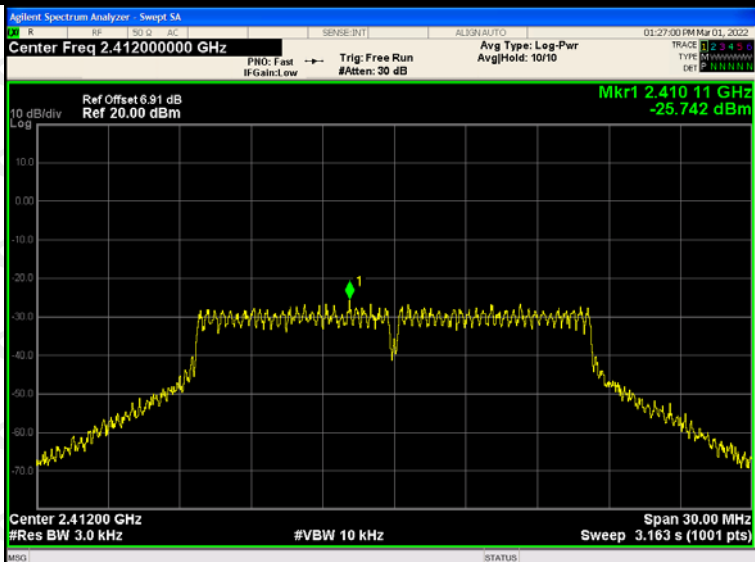
802.11b /MCH



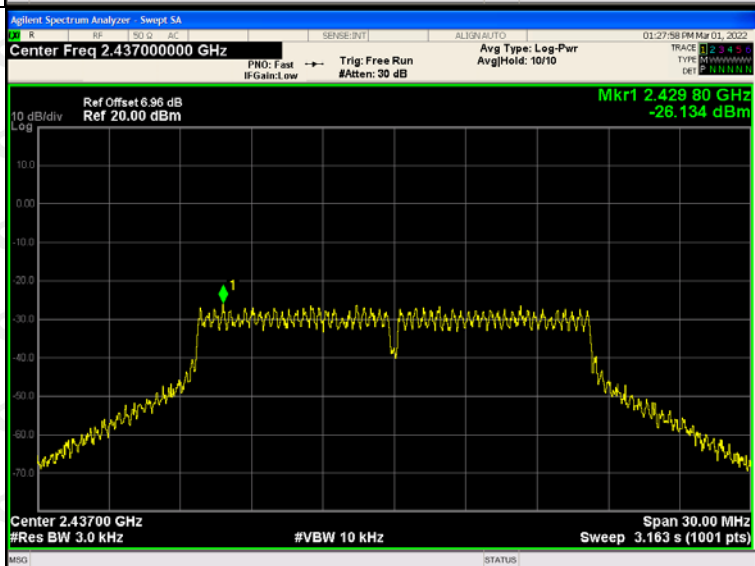
802.11b/HCH



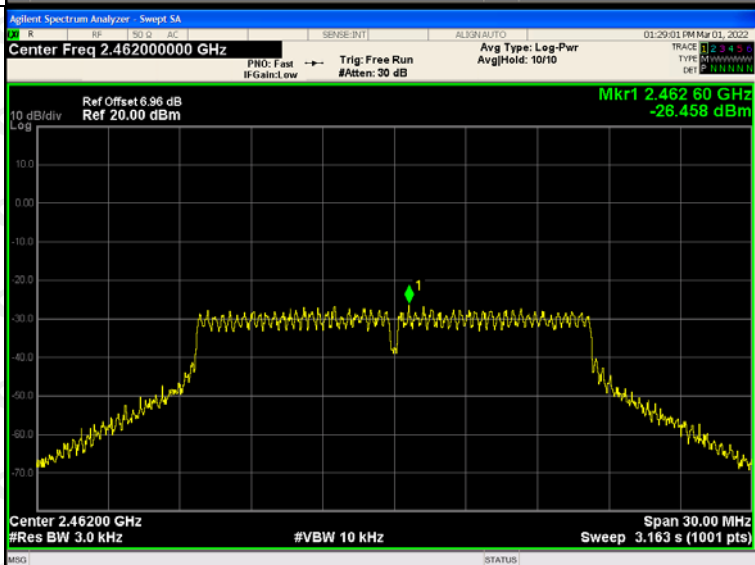
802.11g/LCH

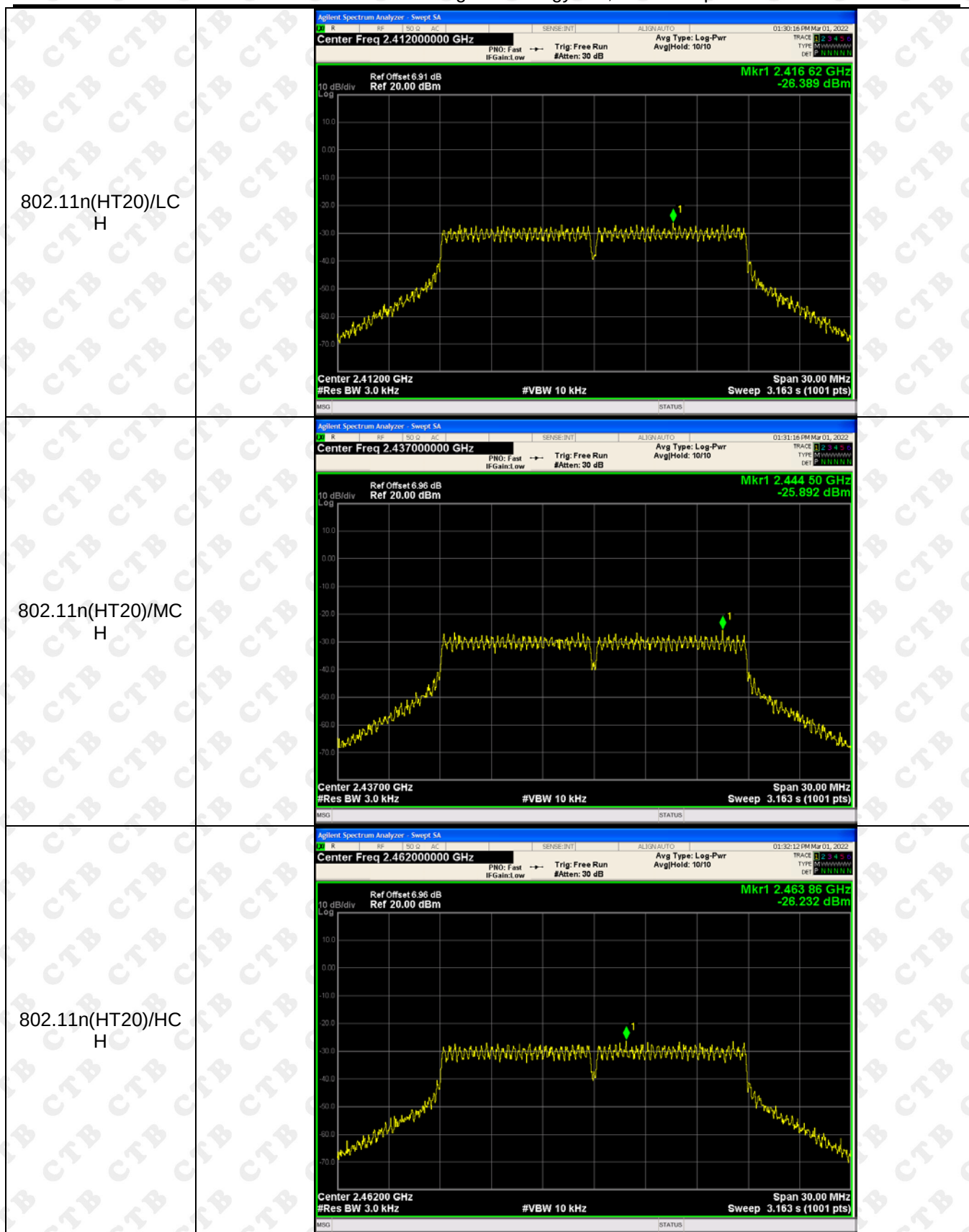


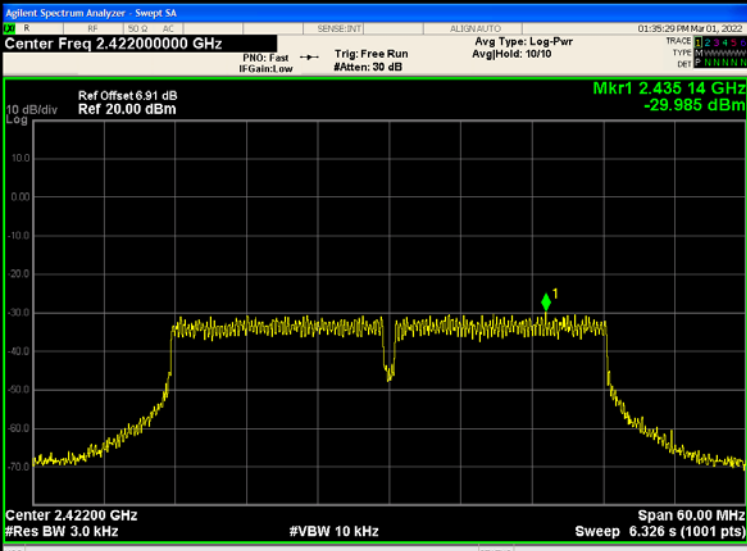
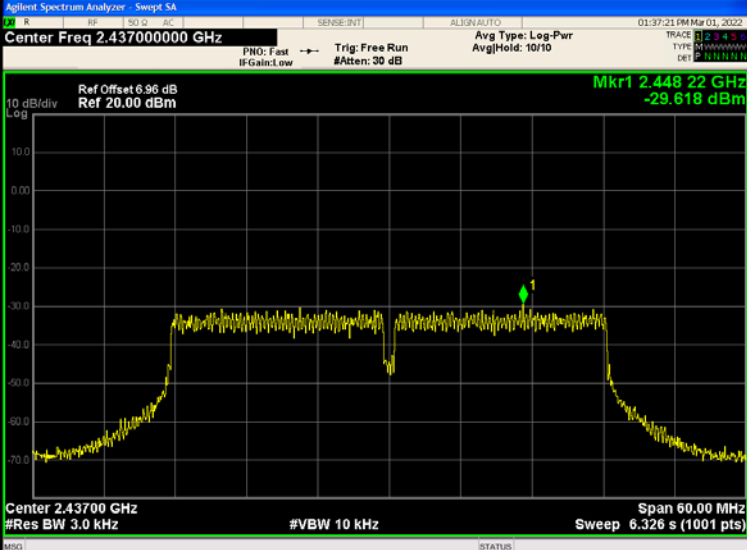
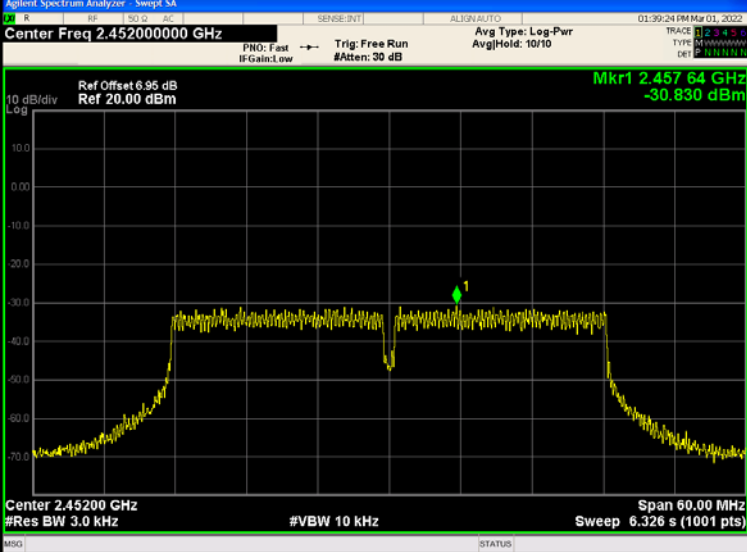
802.11g/MCH



802.11g/HCH





|                               |                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>802.11n(HT40)/LC<br/>H</p> |  <p>Agilent Spectrum Analyzer - Sweep SA<br/>Center Freq 2.422000000 GHz<br/>Ref Offset 6.91 dB<br/>Ref 20.00 dBm<br/>Mkr1 2.43514 GHz<br/>-29.985 dBm<br/>Center 2.42200 GHz<br/>#Res BW 3.0 kHz<br/>#VBW 10 kHz<br/>Span 60.00 MHz<br/>Sweep 6.326 s (1001 pts)</p>   |
| <p>802.11n(HT40)/MC<br/>H</p> |  <p>Agilent Spectrum Analyzer - Sweep SA<br/>Center Freq 2.437000000 GHz<br/>Ref Offset 6.96 dB<br/>Ref 20.00 dBm<br/>Mkr1 2.44822 GHz<br/>-29.618 dBm<br/>Center 2.43700 GHz<br/>#Res BW 3.0 kHz<br/>#VBW 10 kHz<br/>Span 60.00 MHz<br/>Sweep 6.326 s (1001 pts)</p>  |
| <p>802.11n(HT40)/HC<br/>H</p> |  <p>Agilent Spectrum Analyzer - Sweep SA<br/>Center Freq 2.452000000 GHz<br/>Ref Offset 6.96 dB<br/>Ref 20.00 dBm<br/>Mkr1 2.45764 GHz<br/>-30.830 dBm<br/>Center 2.45200 GHz<br/>#Res BW 3.0 kHz<br/>#VBW 10 kHz<br/>Span 60.00 MHz<br/>Sweep 6.326 s (1001 pts)</p> |

## 12. ANTENNA REQUIREMENT

### 15.203 requirement:

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.

### 15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### EUT Antenna:

The antenna is PCB antenna and no consideration of replacement. The best case gain of the antenna is 1.0dBi.

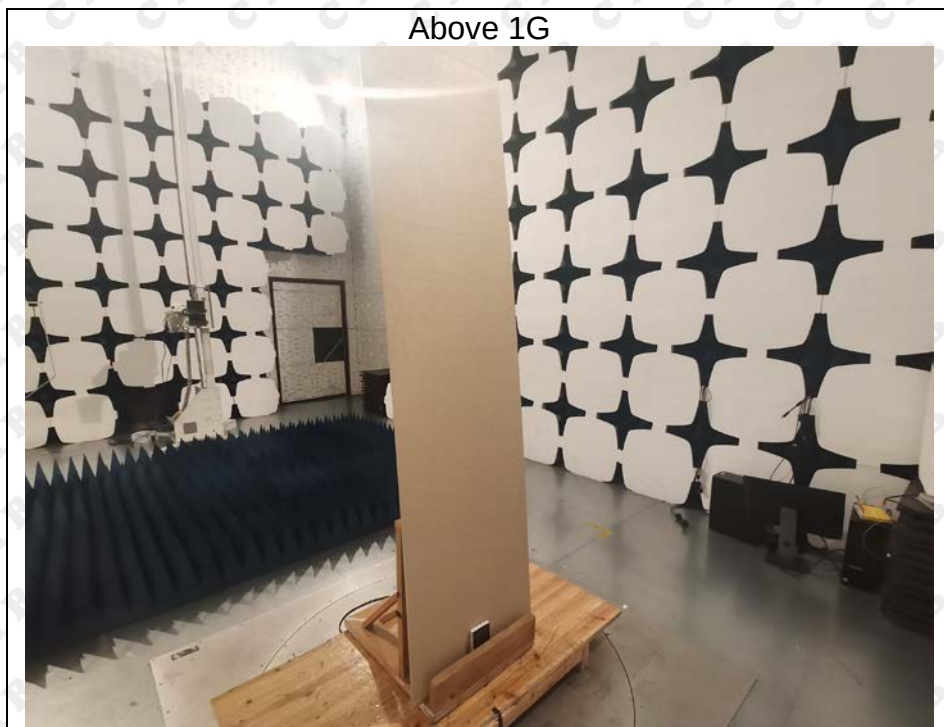
## 13. EUT PHOTOGRAPHS

EUT Photo 1



## 14. EUT TEST SETUP PHOTOGRAPHS

### Radiated Emission



## Conducted Emission



\*\*\*\*\* END OF REPORT \*\*\*\*\*