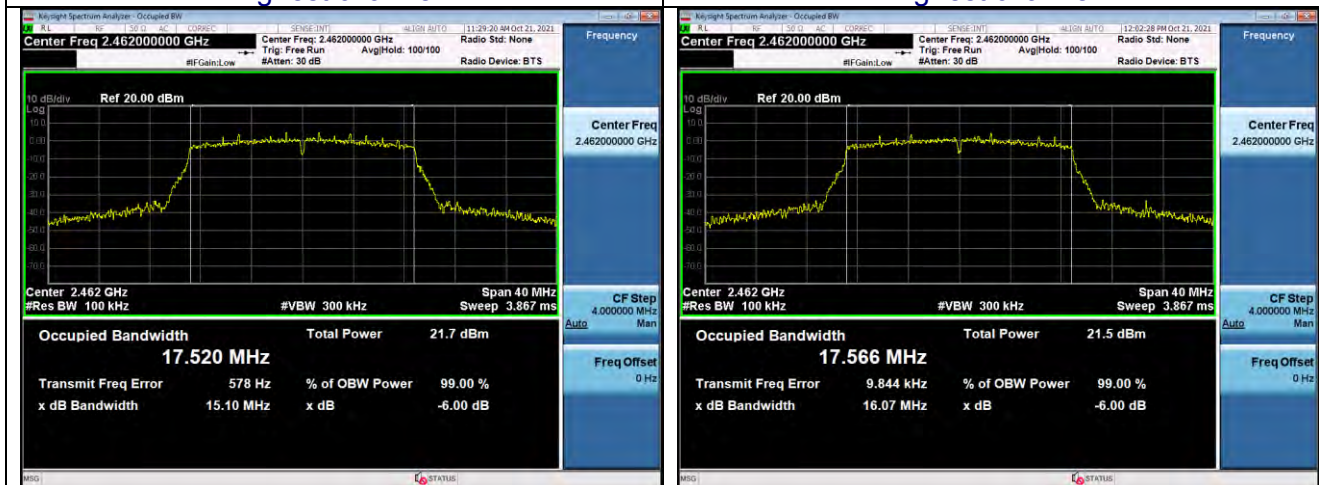
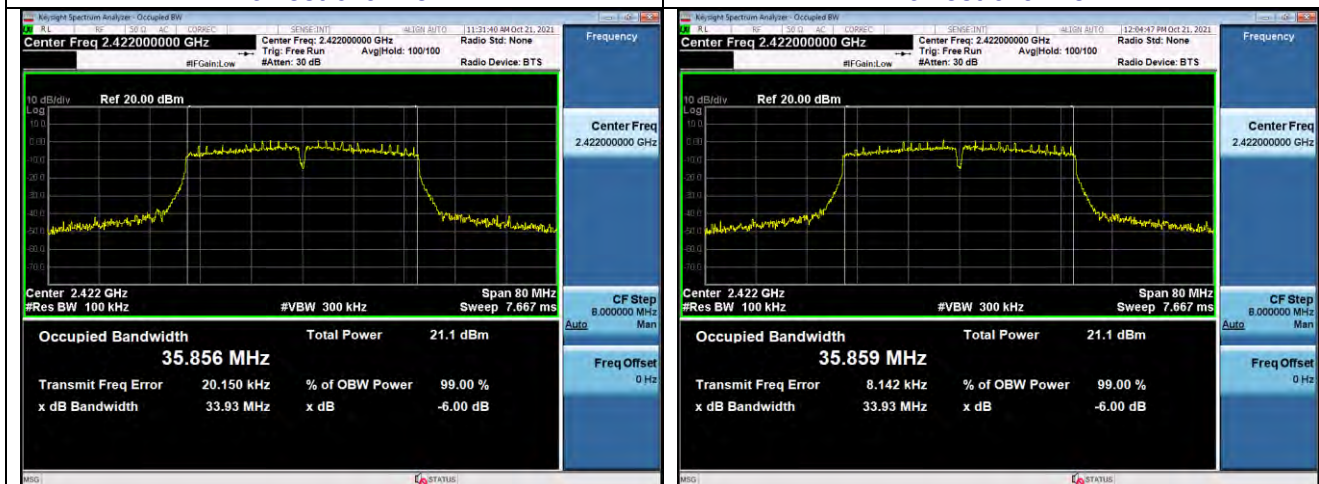




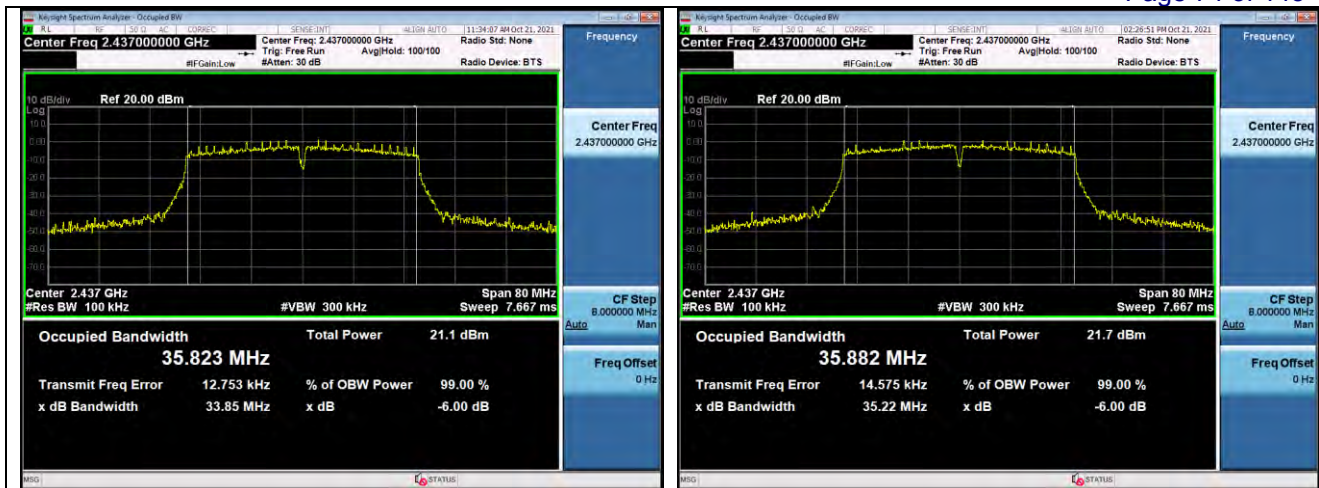
Highest channel

Highest channel

ANT1  
802.11n(HT40)  
Lowest channelANT2  
802.11n(HT40)  
Lowest channel

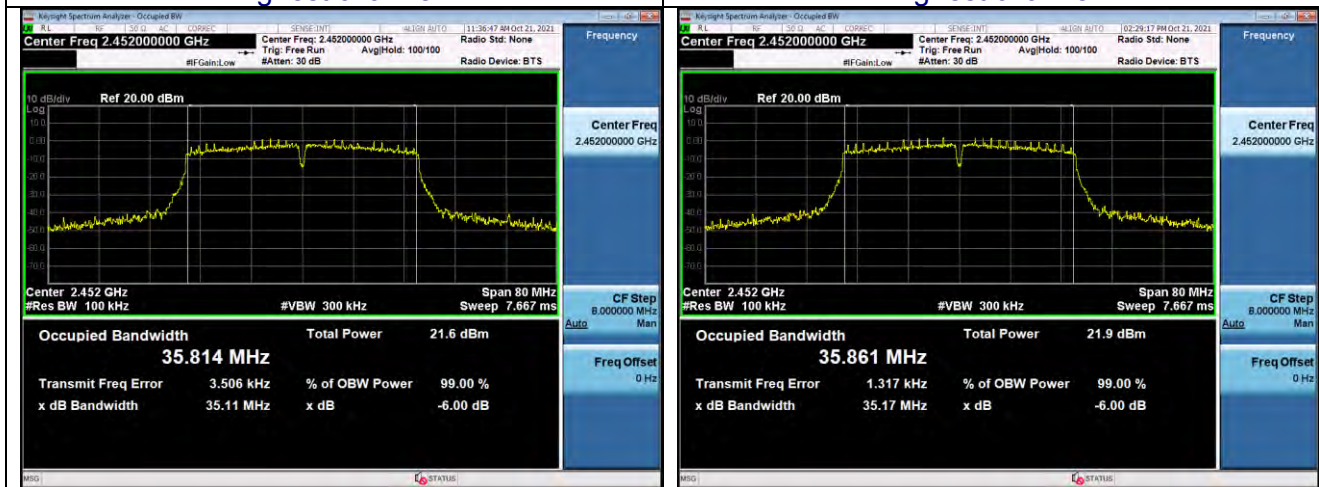
Middle channel

Middle channel



Highest channel

Highest channel



## 8. 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 :      | AC110V |

## Module A

| Test Channel      | Frequency | Maximum Peak Conducted Output Power (dBm) |           |       | LIMIT |
|-------------------|-----------|-------------------------------------------|-----------|-------|-------|
|                   | (MHz)     | Antenna 1                                 | Antenna 2 | MIMO  | dBm   |
| TX 802.11b Mode   |           |                                           |           |       |       |
| CH01              | 2412      | 16.35                                     | 16.69     | /     | 30    |
| CH06              | 2437      | 15.17                                     | 16.65     | /     | 30    |
| CH11              | 2462      | 16.56                                     | 16.07     | /     | 30    |
| TX 802.11g Mode   |           |                                           |           |       |       |
| CH01              | 2412      | 13.57                                     | 15.06     | /     | 30    |
| CH06              | 2437      | 14.62                                     | 15.45     | /     | 30    |
| CH11              | 2462      | 14.31                                     | 15.37     | /     | 30    |
| TX 802.11n20 Mode |           |                                           |           |       |       |
| CH01              | 2412      | 13.93                                     | 14.28     | 17.12 | 27.99 |
| CH06              | 2437      | 14.27                                     | 13.59     | 16.95 | 27.99 |
| CH11              | 2462      | 14.14                                     | 14.15     | 17.16 | 27.99 |
| TX 802.11n40 Mode |           |                                           |           |       |       |
| CH03              | 2422      | 11.94                                     | 11.97     | 14.97 | 27.99 |
| CH06              | 2437      | 12.43                                     | 12.38     | 15.42 | 27.99 |
| CH09              | 2452      | 12.34                                     | 12.34     | 15.35 | 27.99 |

Note: This product supports antenna 1 and antenna 2 launch, but only support 802.11 n for MIMO mode, not support 802.11 b and 802.11 g for MIMO mode.

## Module B

| Test Channel    | Frequency | Maximum Peak Conducted Output Power (dBm) |           |      | LIMIT |
|-----------------|-----------|-------------------------------------------|-----------|------|-------|
|                 | (MHz)     | Antenna 1                                 | Antenna 2 | MIMO | dBm   |
| TX 802.11b Mode |           |                                           |           |      |       |
| CH01            | 2412      | 17.12                                     | 17.62     | /    | 30    |
| CH06            | 2437      | 17.98                                     | 17.50     | /    | 30    |
| CH11            | 2462      | 17.97                                     | 17.26     | /    | 30    |
| TX 802.11g Mode |           |                                           |           |      |       |
| CH01            | 2412      | 15.31                                     | 15.34     | /    | 30    |

|                   |      |       |       |       |       |
|-------------------|------|-------|-------|-------|-------|
| CH06              | 2437 | 15.20 | 15.26 | /     | 30    |
| CH11              | 2462 | 15.11 | 15.19 | /     | 30    |
| TX 802.11n20 Mode |      |       |       |       |       |
| CH01              | 2412 | 15.21 | 15.20 | 18.22 | 27.99 |
| CH06              | 2437 | 15.12 | 15.08 | 18.11 | 27.99 |
| CH11              | 2462 | 15.10 | 15.03 | 18.08 | 27.99 |
| TX 802.11n40 Mode |      |       |       |       |       |
| CH03              | 2422 | 13.92 | 13.94 | 16.94 | 27.99 |
| CH06              | 2437 | 13.94 | 14.70 | 17.35 | 27.99 |
| CH09              | 2452 | 14.42 | 14.72 | 17.58 | 27.99 |

Note: This product supports antenna 1 and antenna 2 launch, but only support 802.11 n for MIMO mode, not support 802.11 b and 802.11 g for MIMO mode.

$$\text{POWER(MIMO)} = \text{LIMIT} - (8.01 - 6) = 30 - 2.01 = 27.99$$

## 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 is 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:

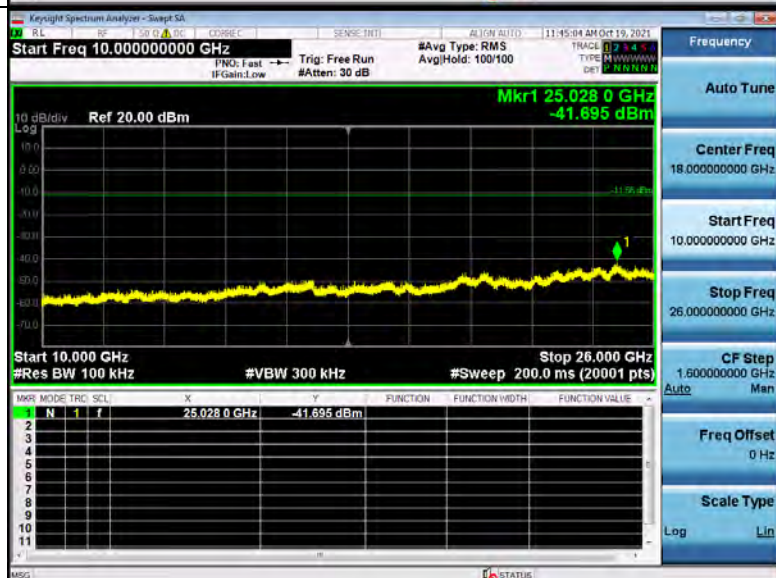
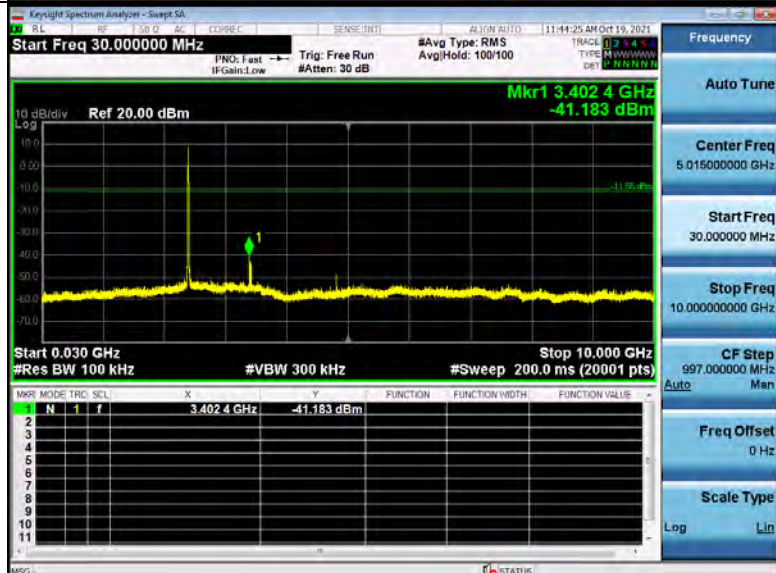
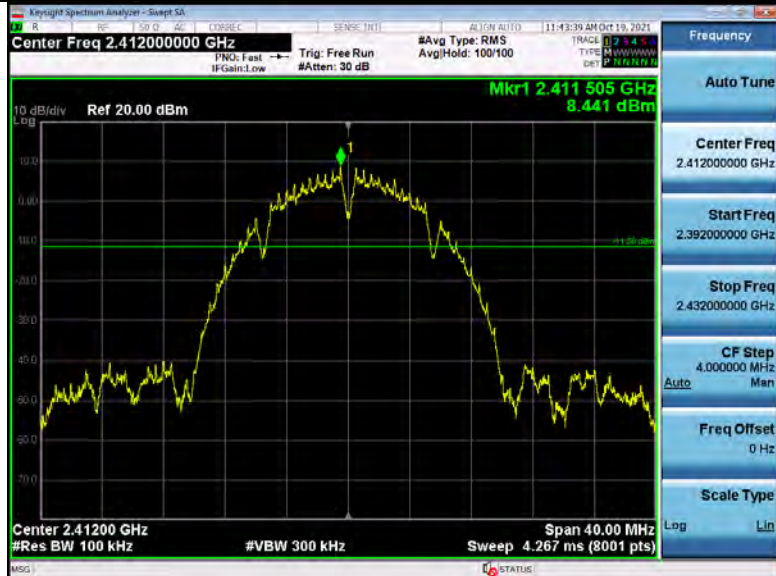
Module A

ANT1

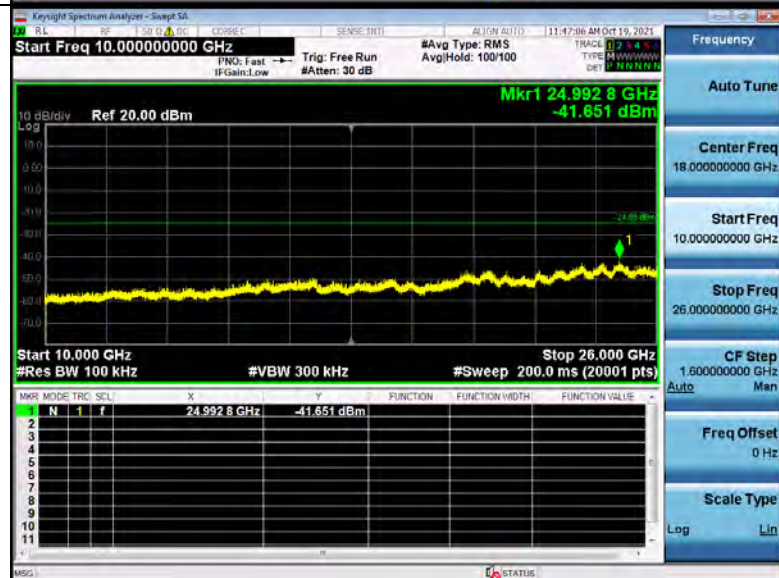
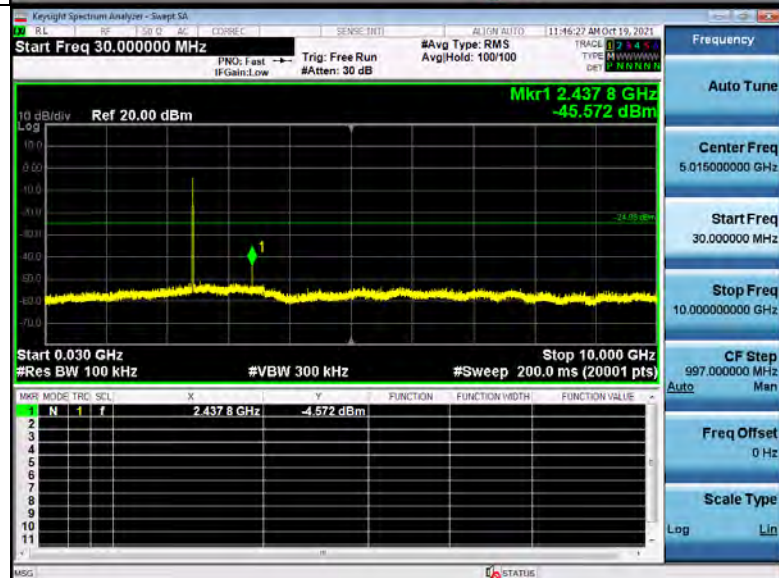
802.11b Modulation

### Spurious emission

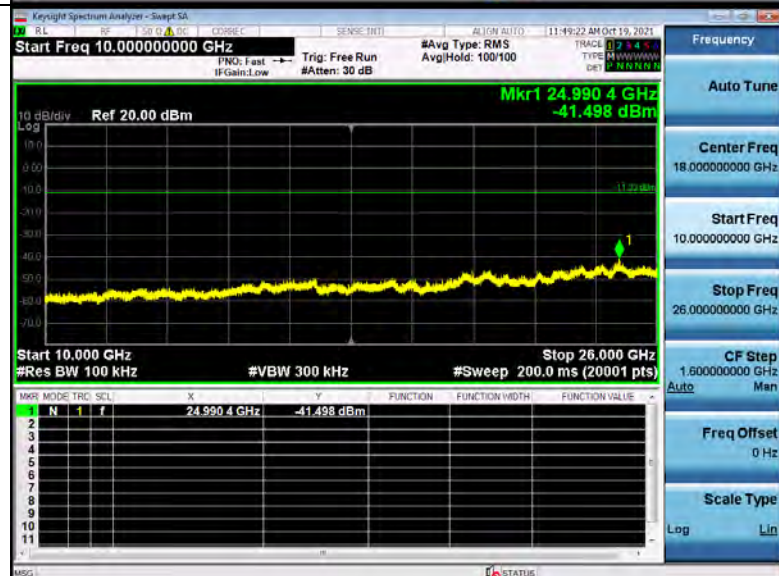
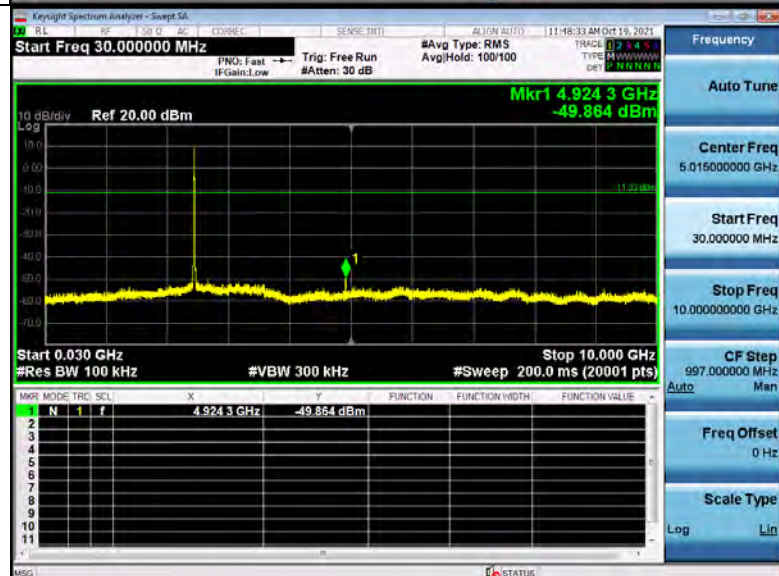
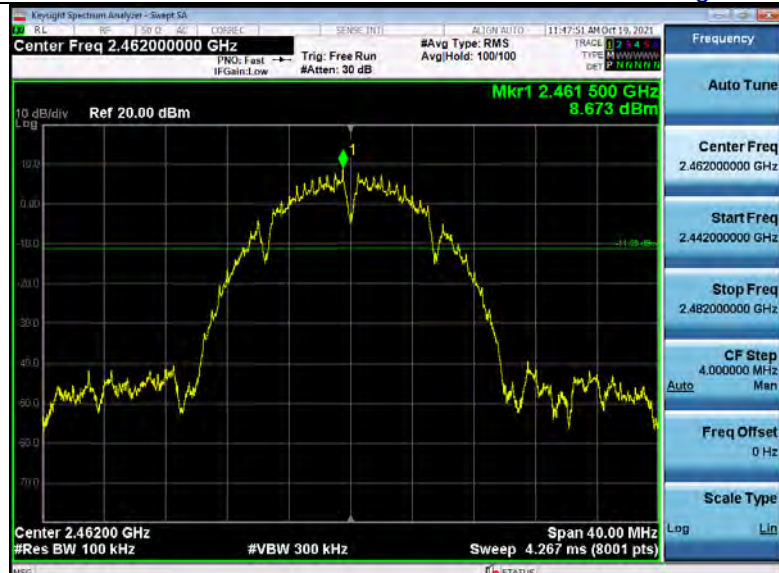
Low Channel



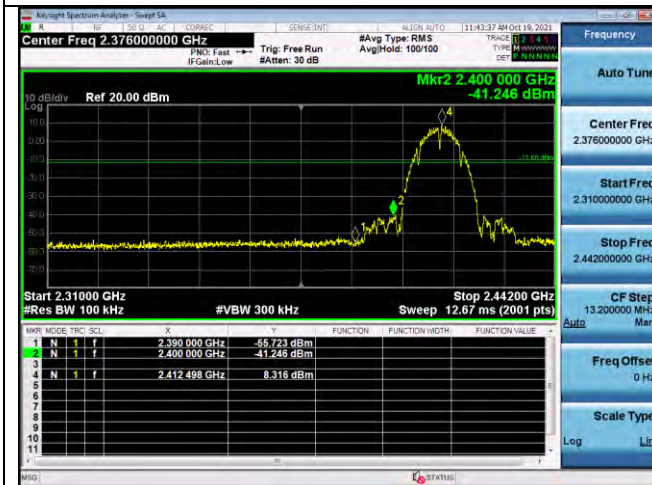
Middle Channel



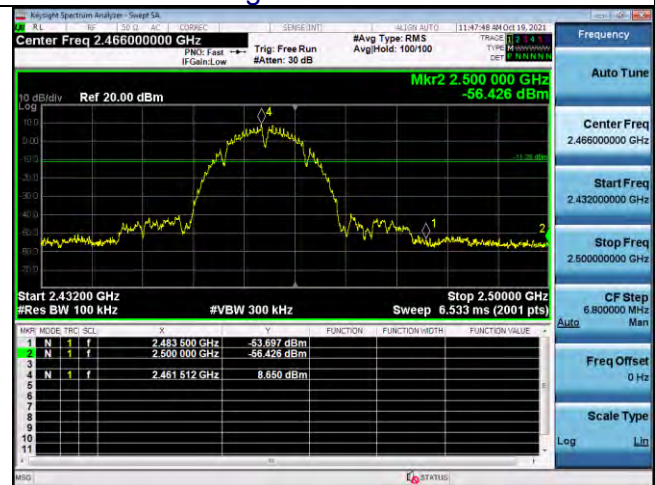
High Channel



Lowest Channel



Highest Channel



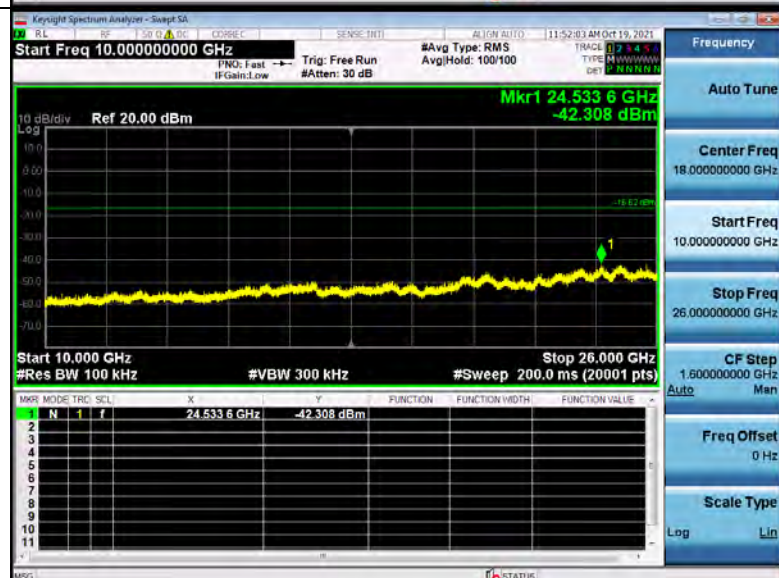
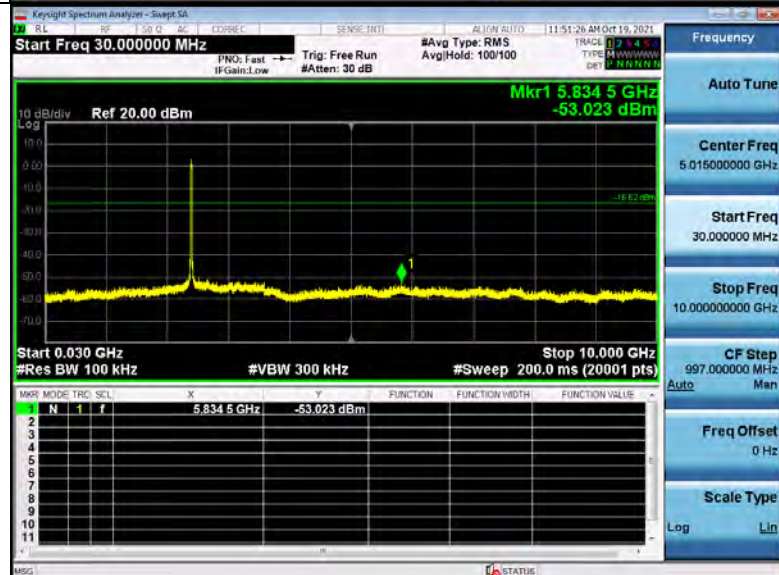
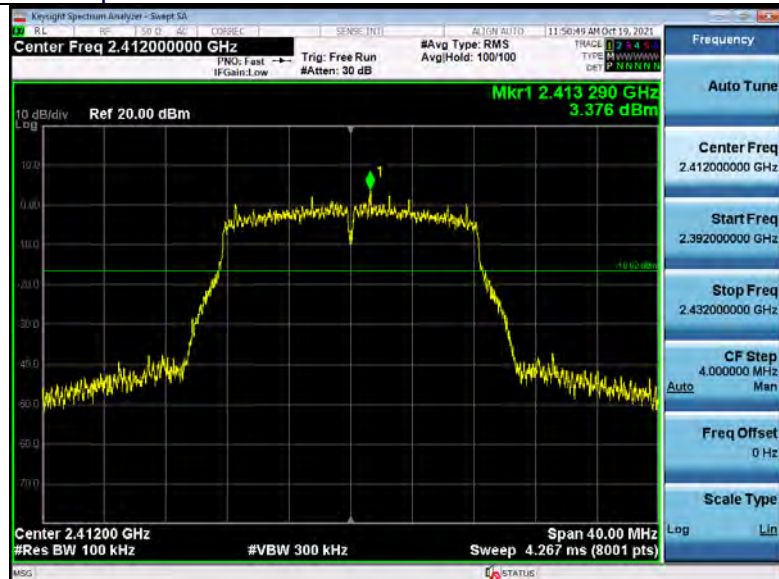
Left Band Edge

Right Band Edge

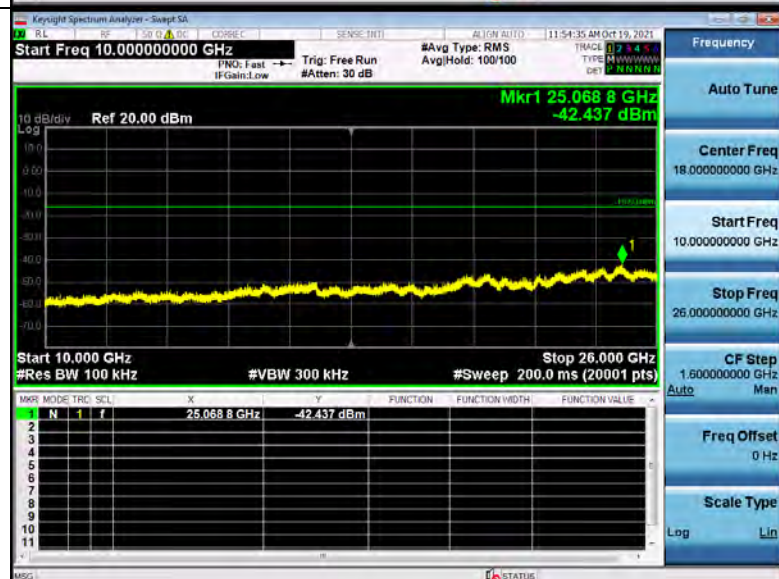
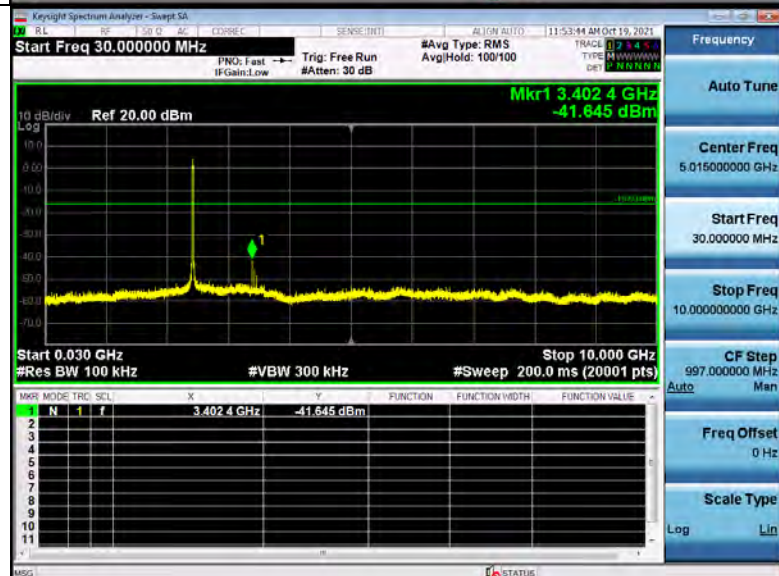
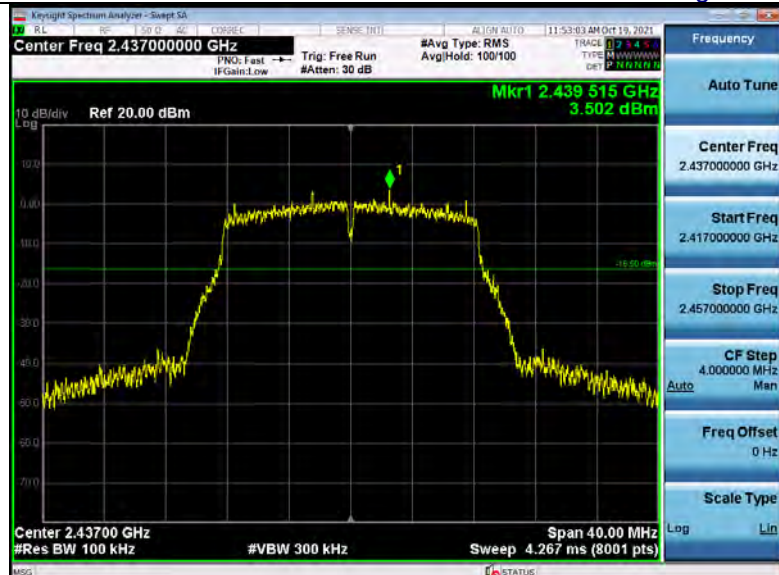
## 802.11g Modulation

### Spurious emission

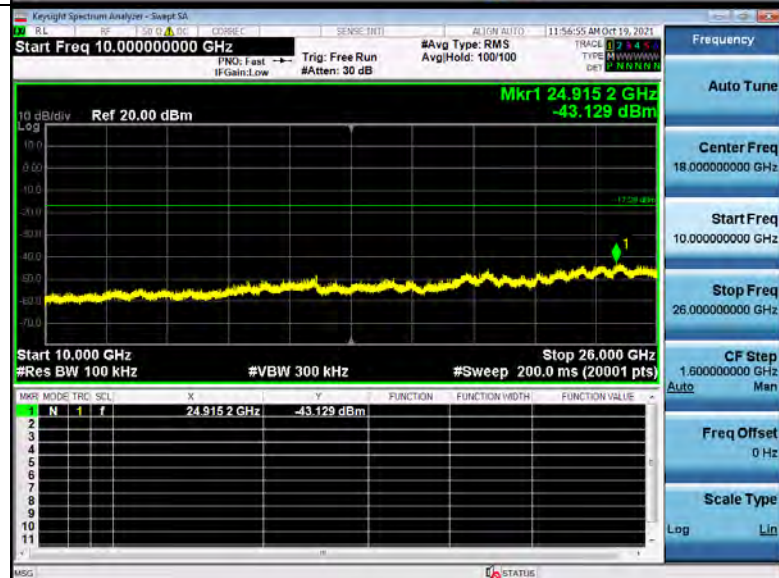
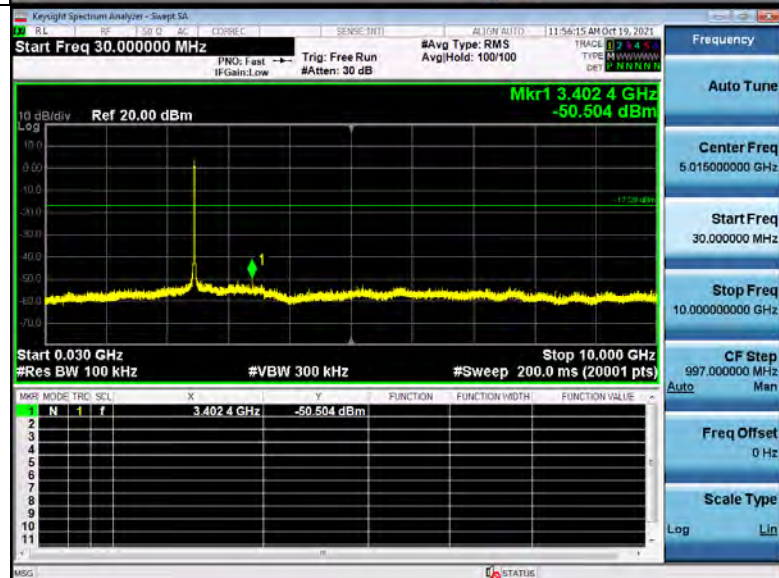
Low Channel



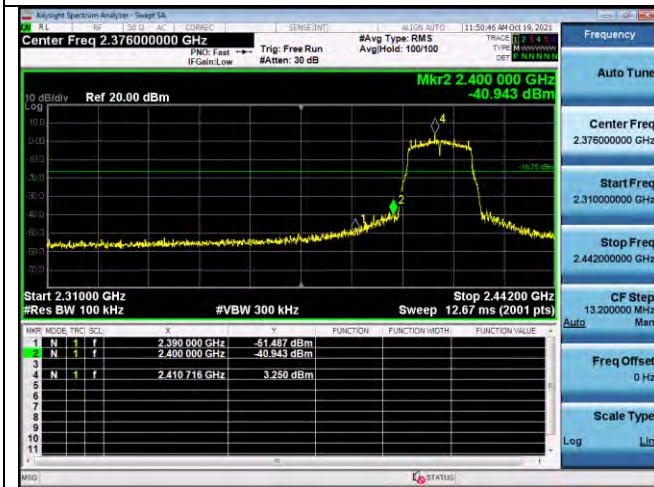
Middle Channel



High Channel

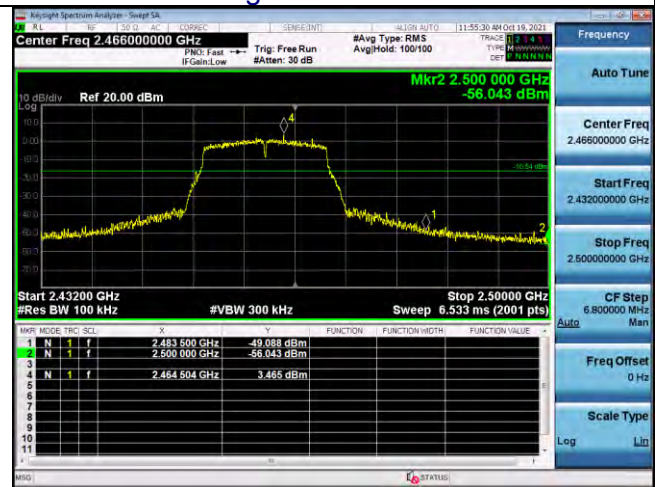


Lowest Channel



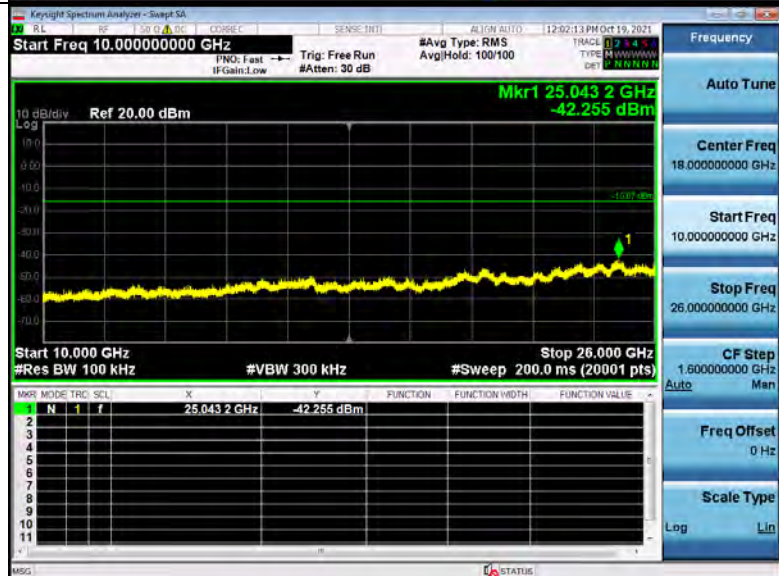
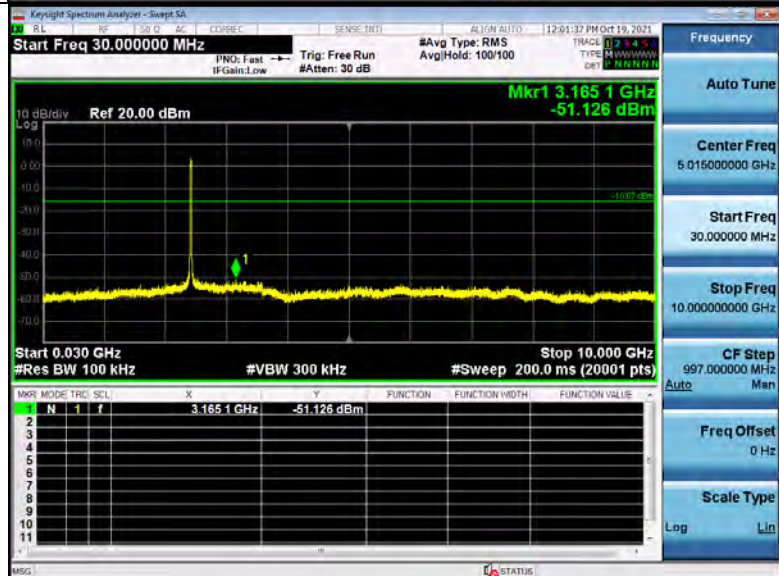
Left Band Edge

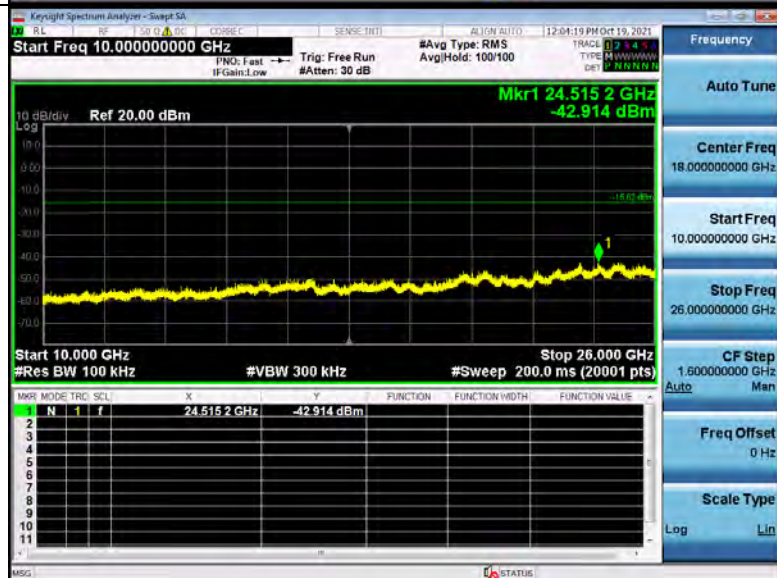
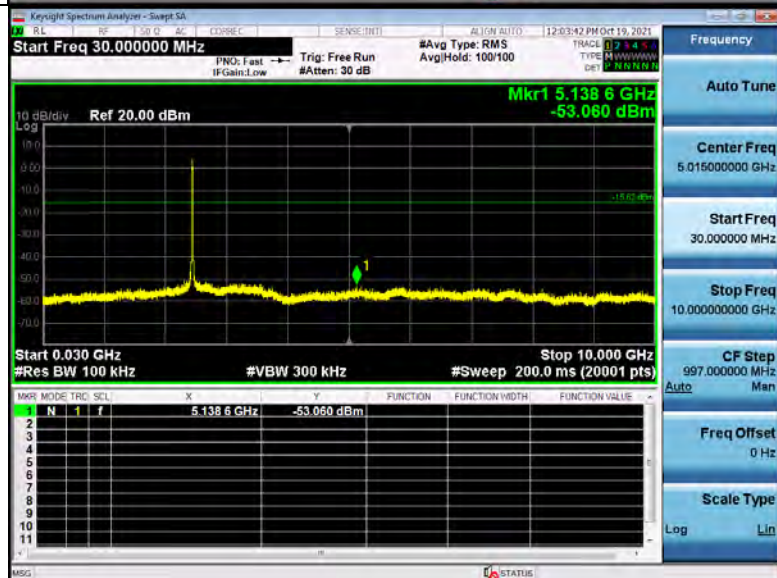
Highest Channel



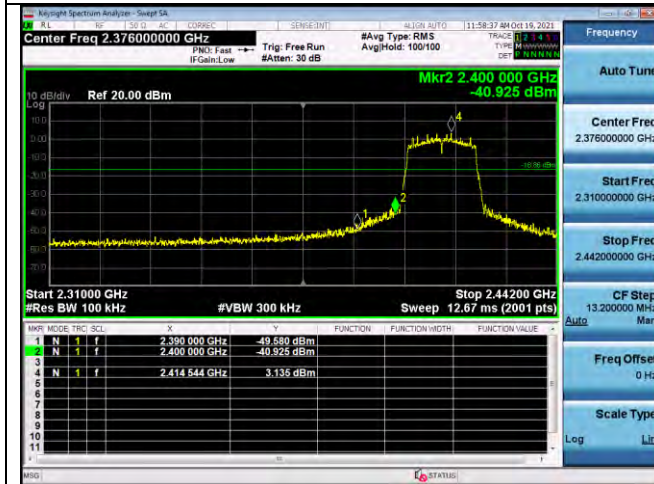
Right Band Edge



[illegible]

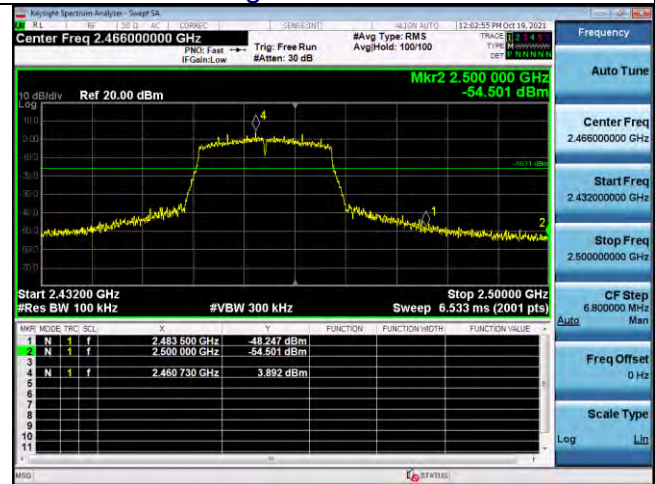
[illegible]

Lowest Channel



Left Band Edge

Highest Channel

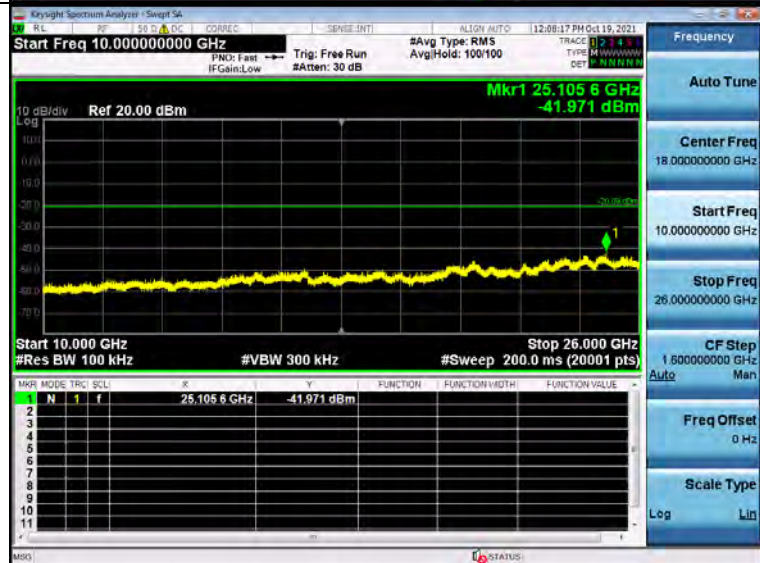
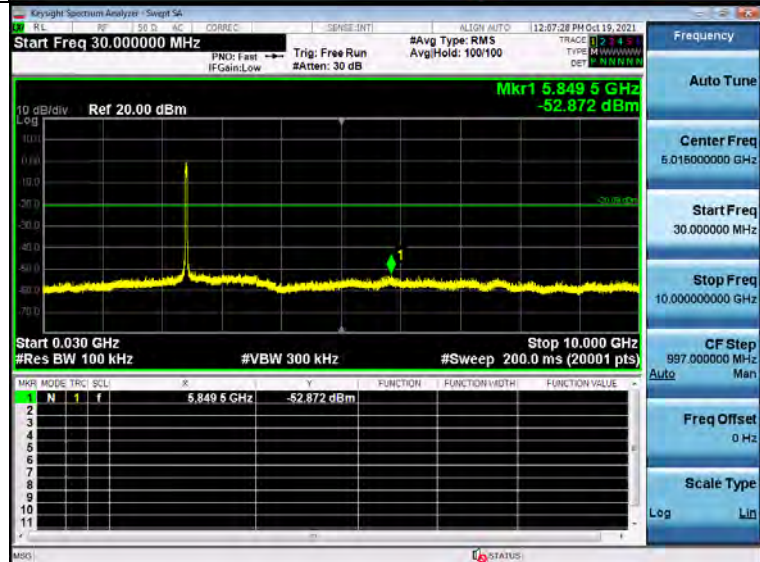


Right Band Edge

802.11n40 Modulation

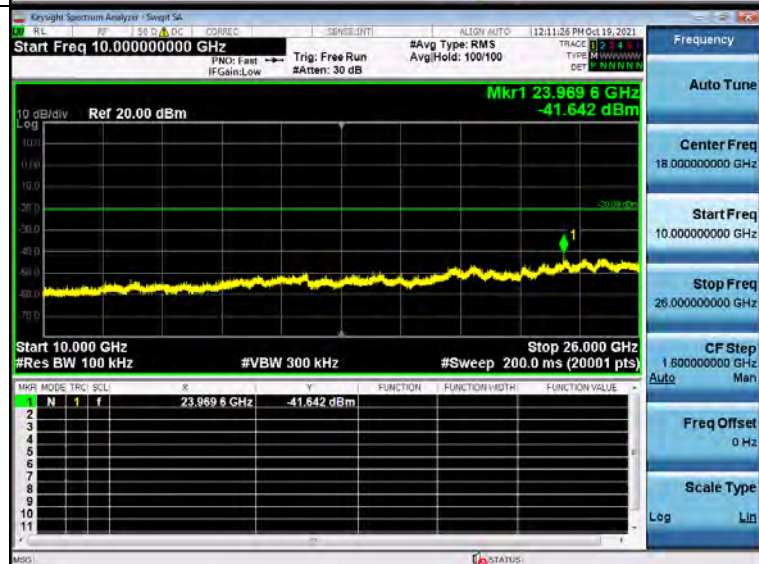
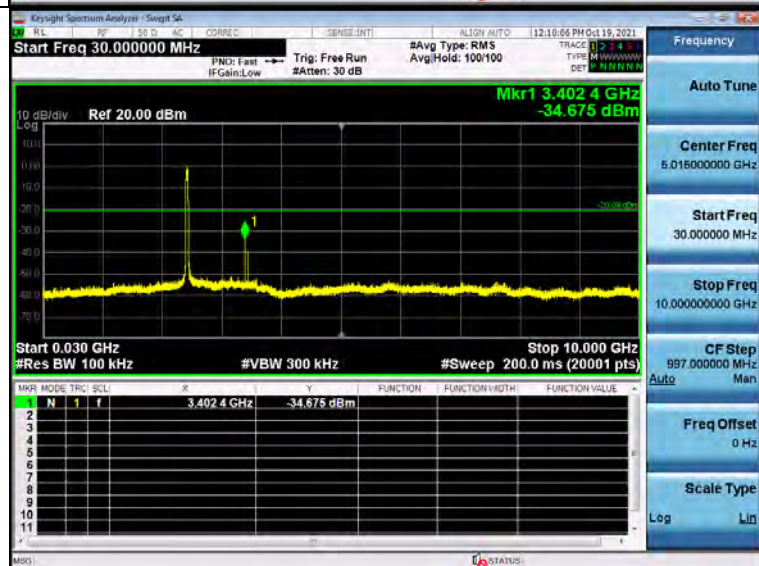
Spurious emission

Low Channel





## Middle Channel



Keysight Spectrum Analyzer - Sweet 5A

Center Freq 2.45200000 GHz

10 dB/div Ref 20.00 dBm

Log

Mkr1 2.45575 GHz -0.447 dBm

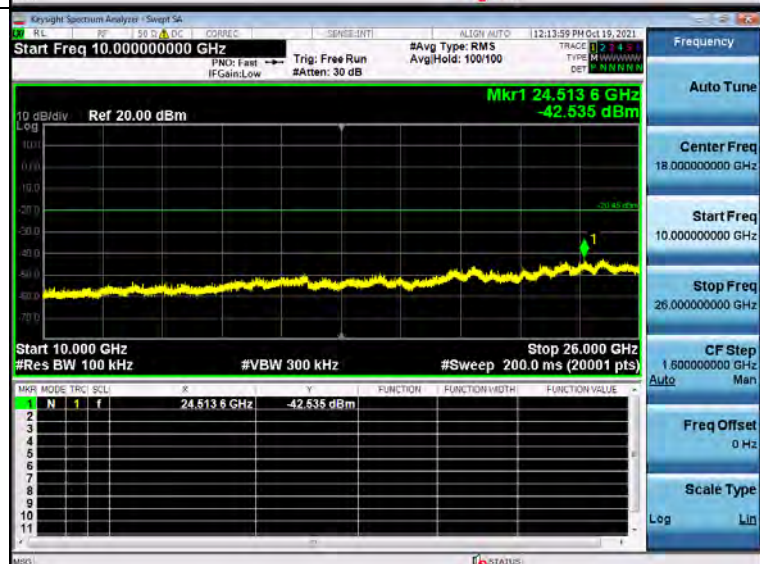
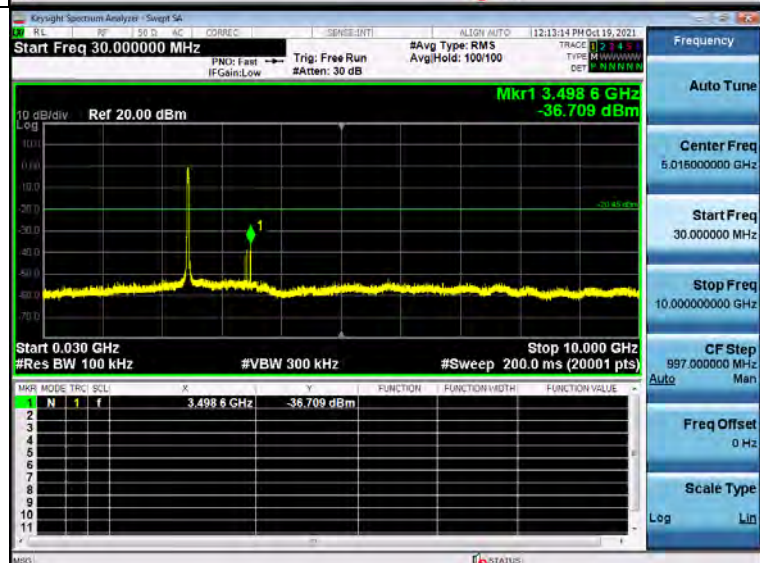
Center 2.45200 GHz

Res BW 100 kHz

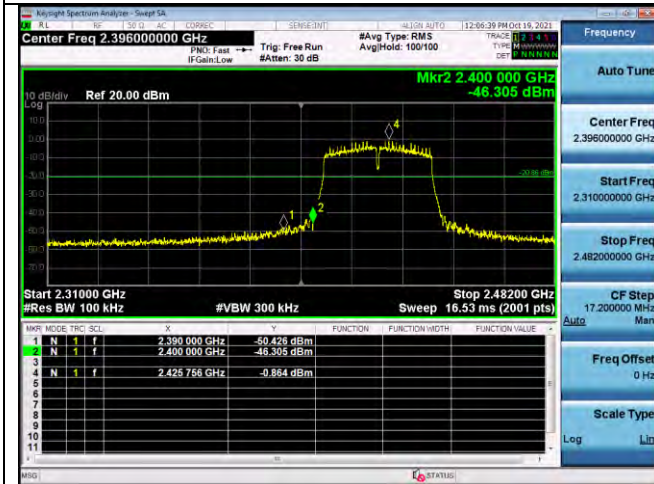
Span 80.00 MHz

Sweep 8.000 ms (8001 pts)

STATUS

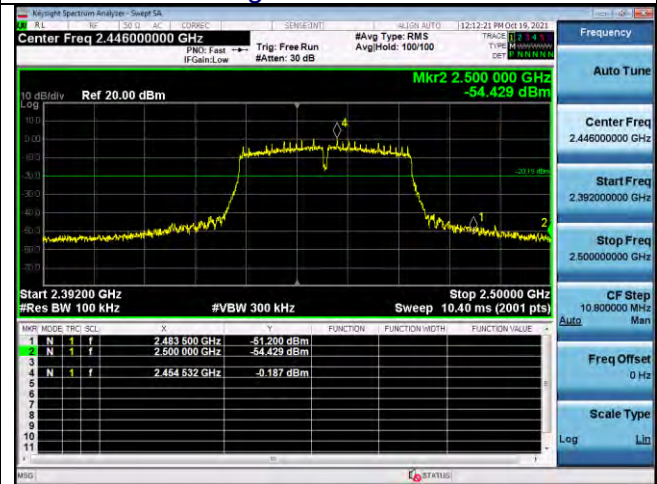


Lowest Channel



Left Band Edge

Highest Channel



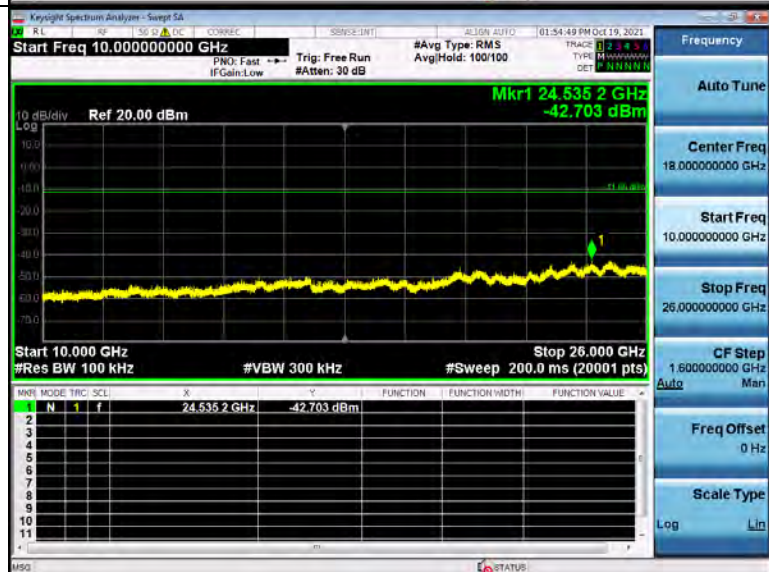
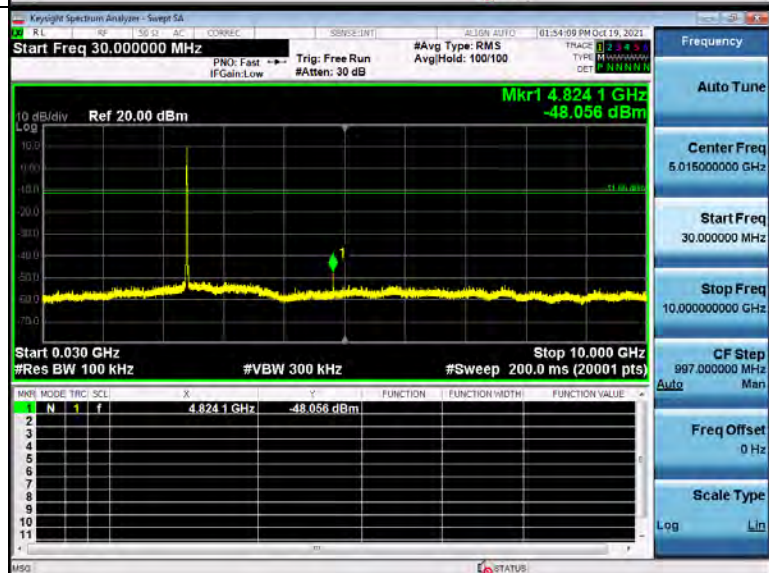
Right Band Edge

ANT2

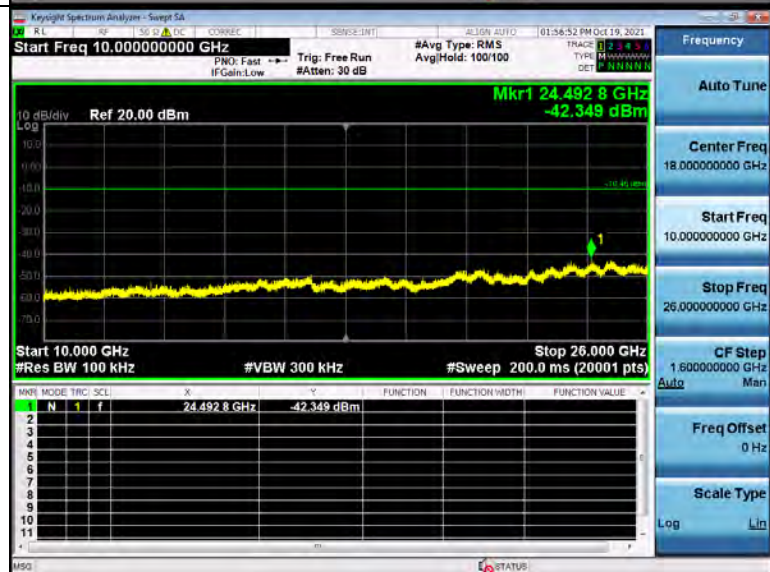
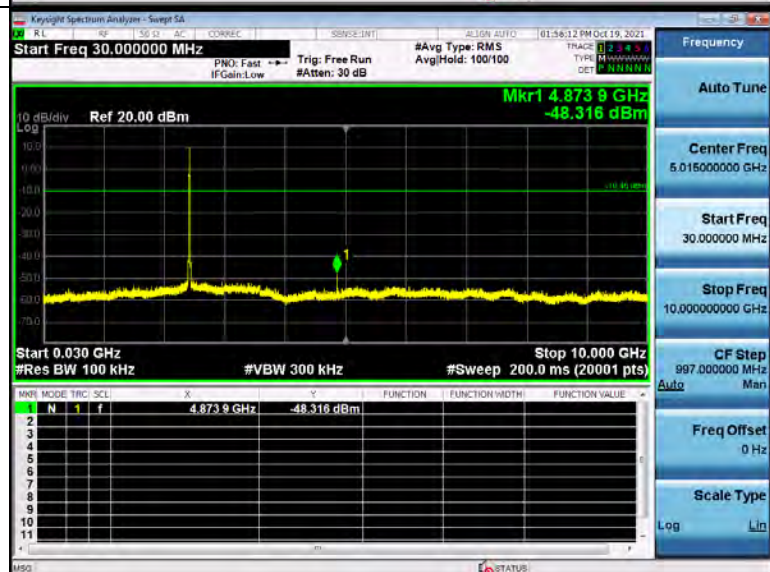
802.11b Modulation

Spurious emission

Low Channel



Middle Channel



Keysight Spectrum Analyzer - Script SA

Center Freq 2.46200000 GHz

10 dB/Div Ref 20.00 dBm

Center 2.46200 GHz

Span 40.00 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 4.267 ms (8001 pts)

Mkr1 2.462 995 GHz -5.547 dBm

Frequency

Auto Tune

Center Freq 2.46200000 GHz

Start Freq 2.442000000 GHz

Stop Freq 2.482000000 GHz

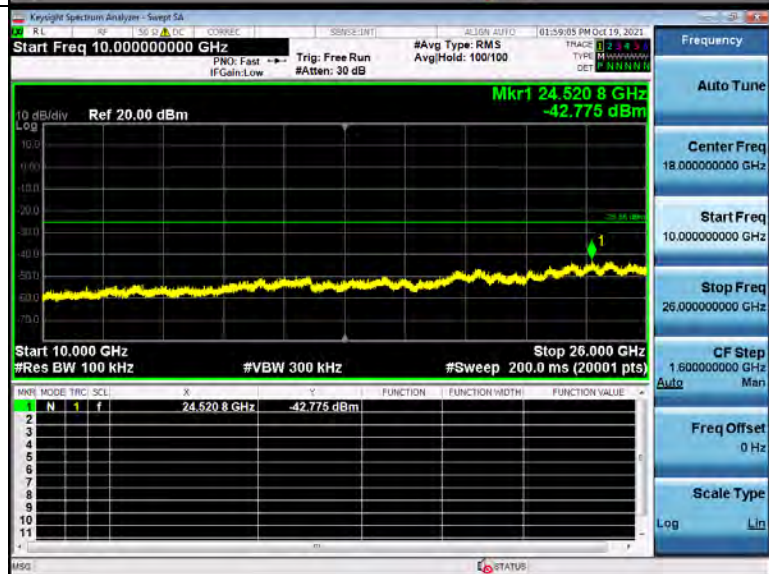
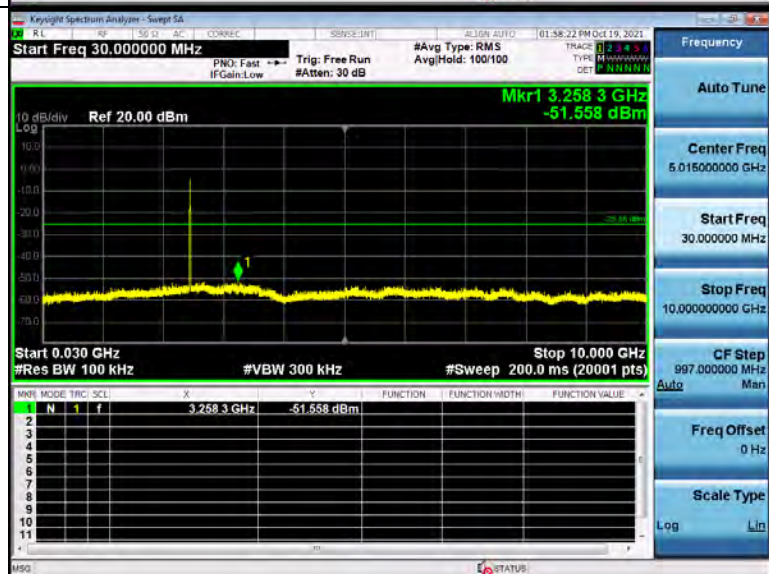
CF Step 4.000000 MHz

Auto

Freq Offset 0 Hz

Scale Type

Log

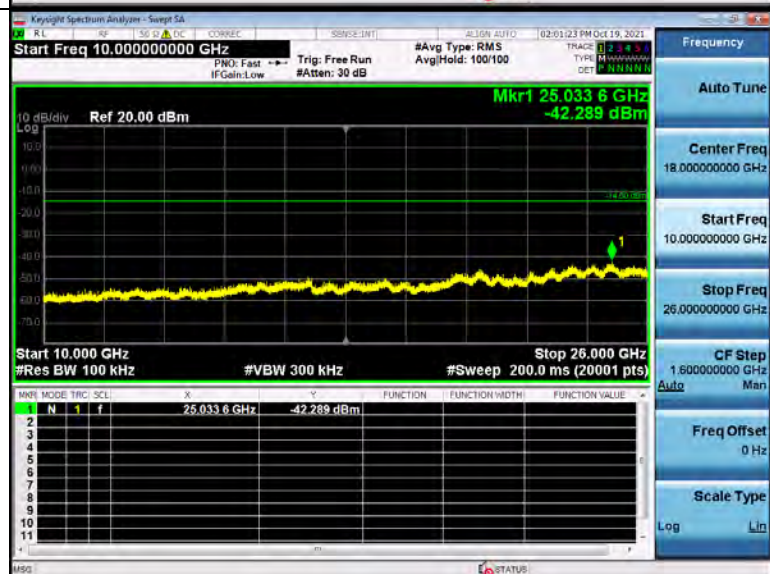
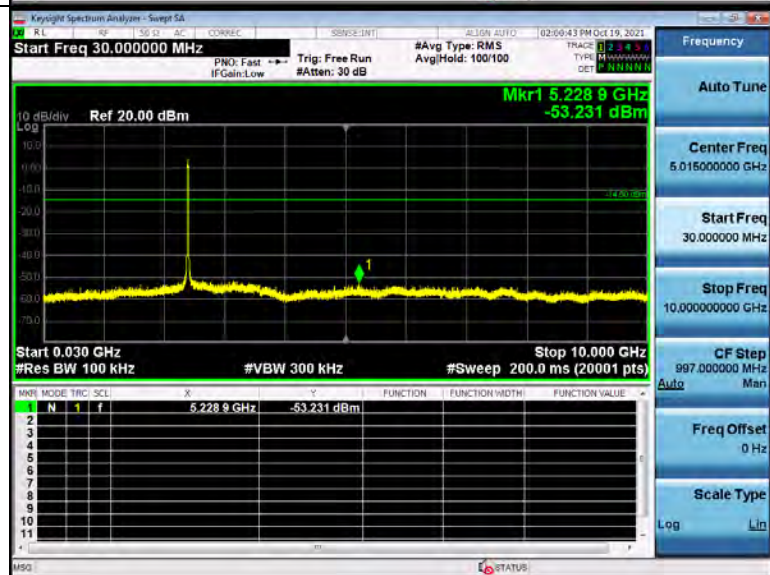




802.11g Modulation

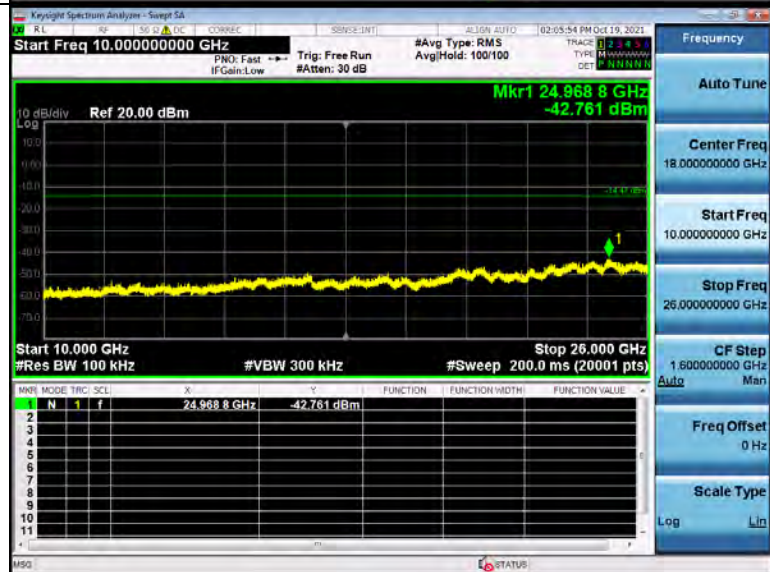
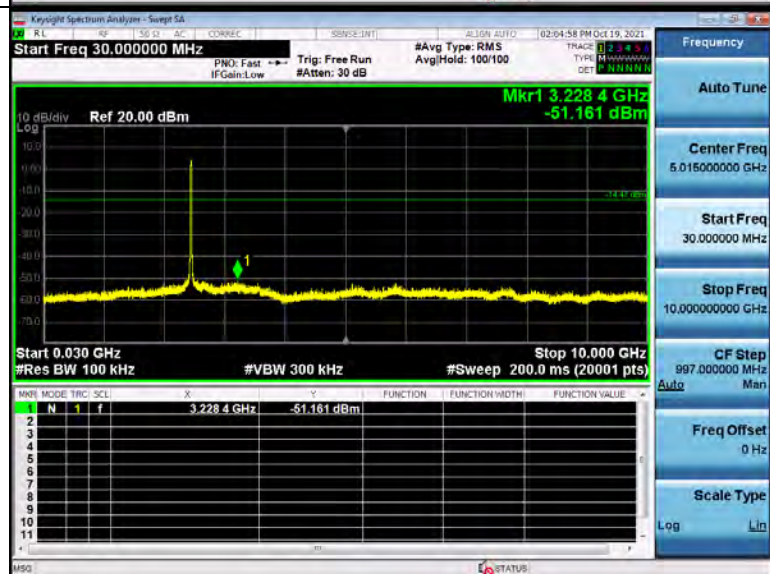
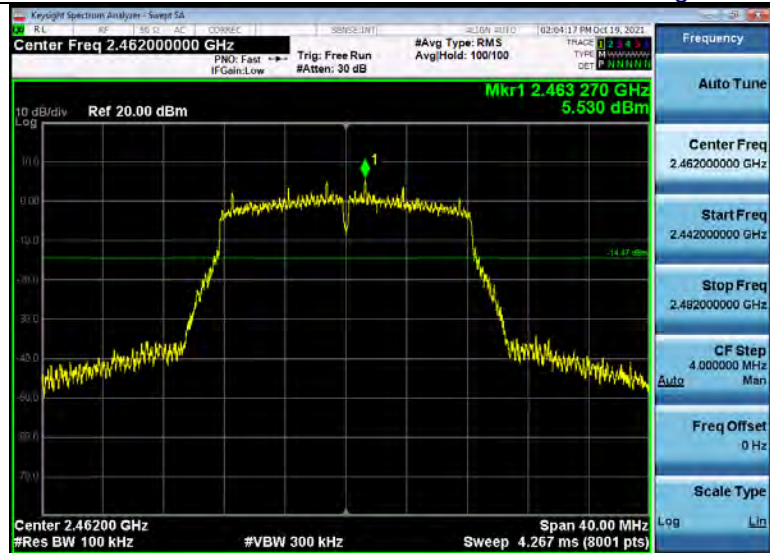
Spurious emission

Low Channel

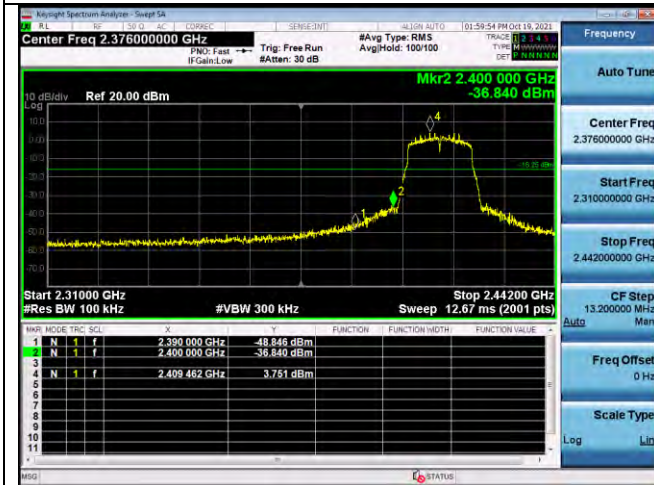




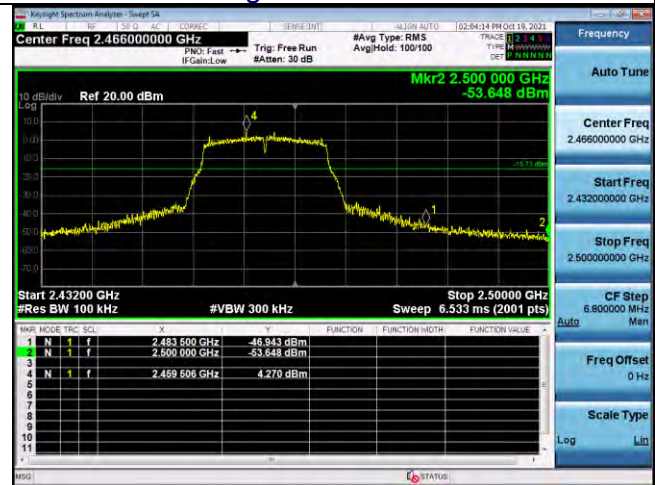
High Channel



Lowest Channel



Highest Channel



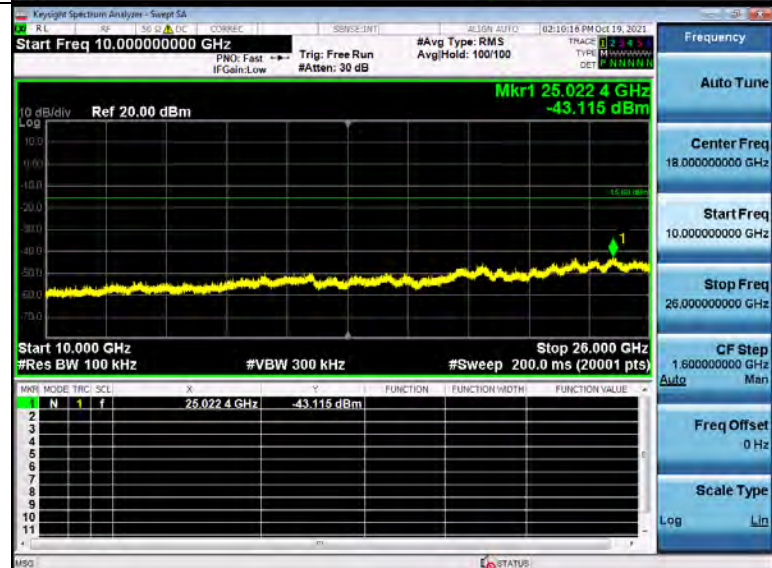
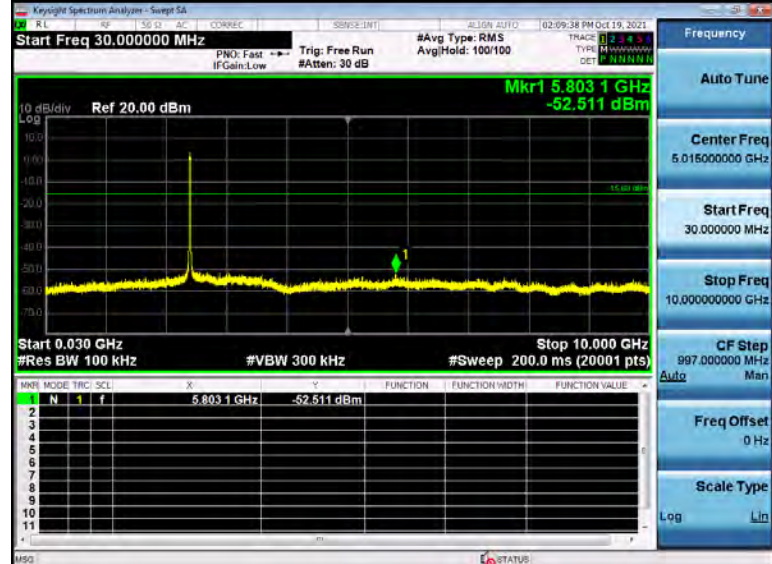
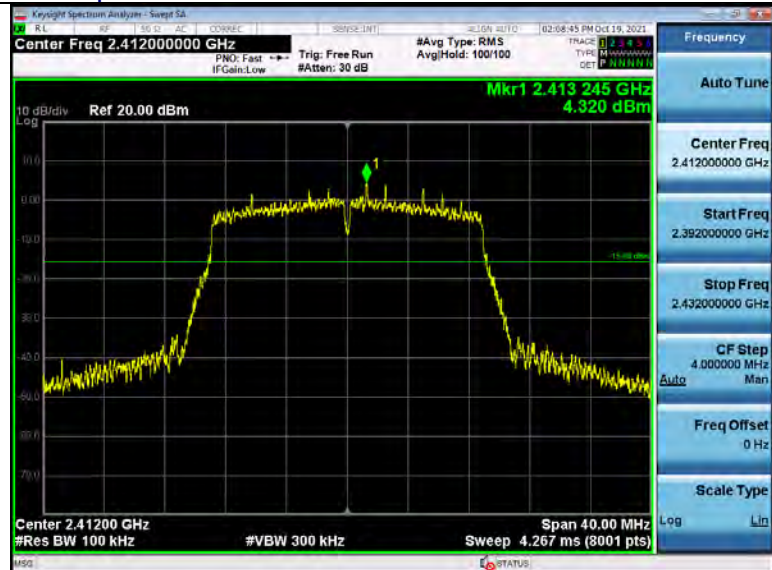
Left Band Edge

Right Band Edge

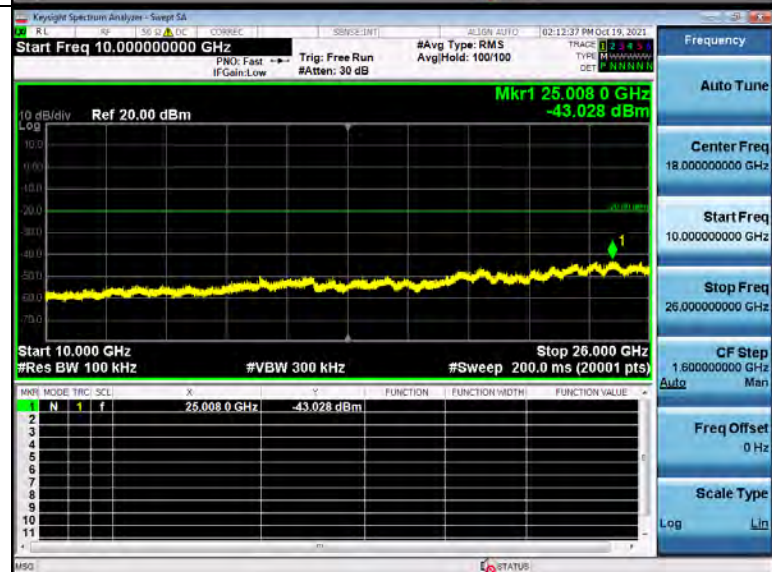
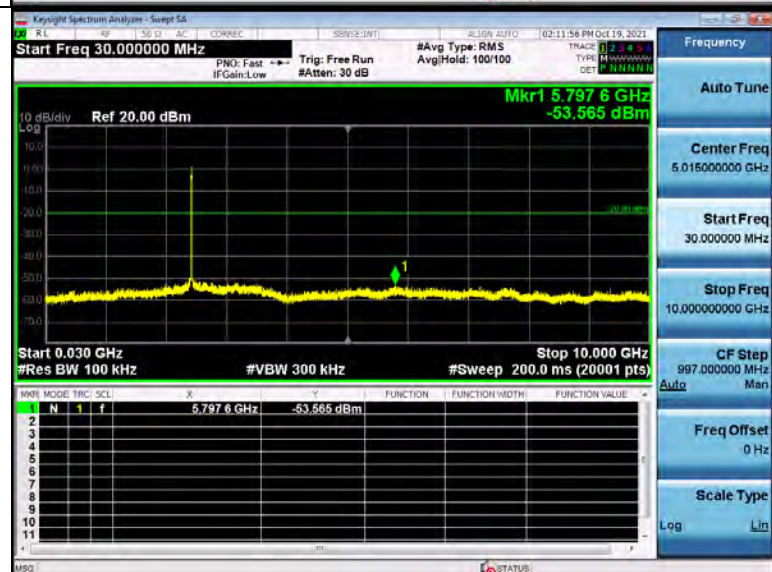
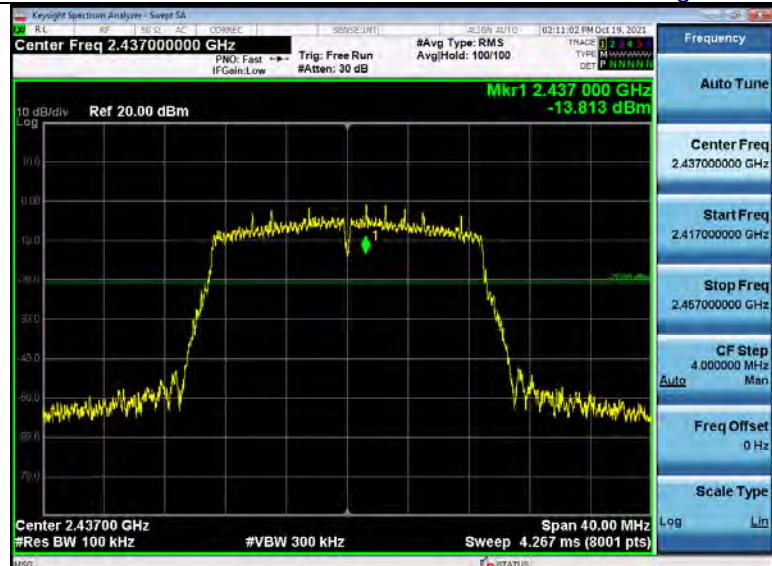
## 802.11n20 Modulation

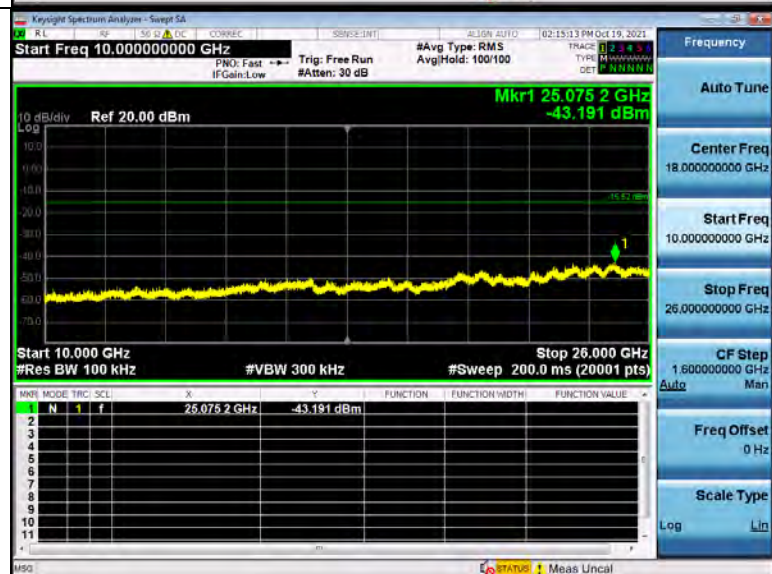
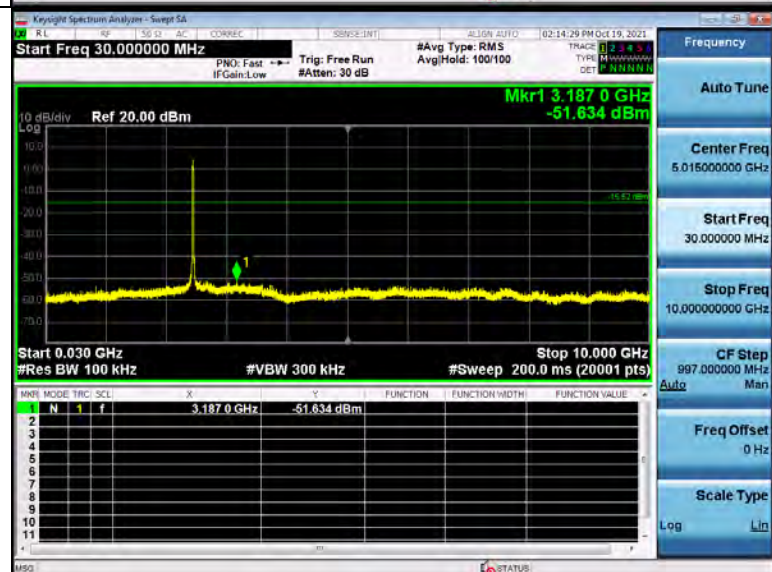
### Spurious emission

### Low Channel

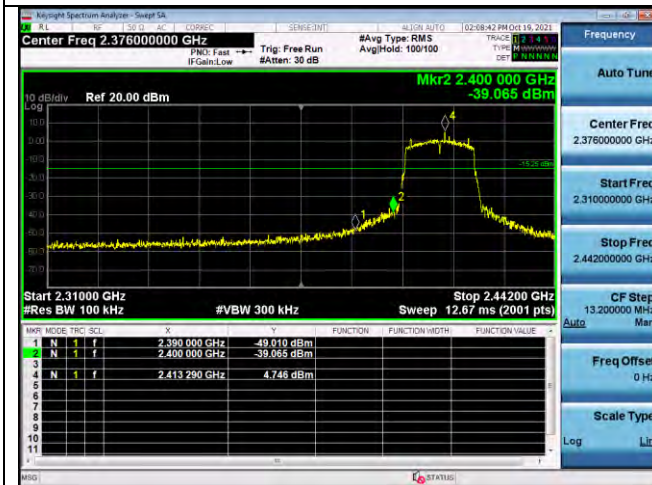


Middle Channel

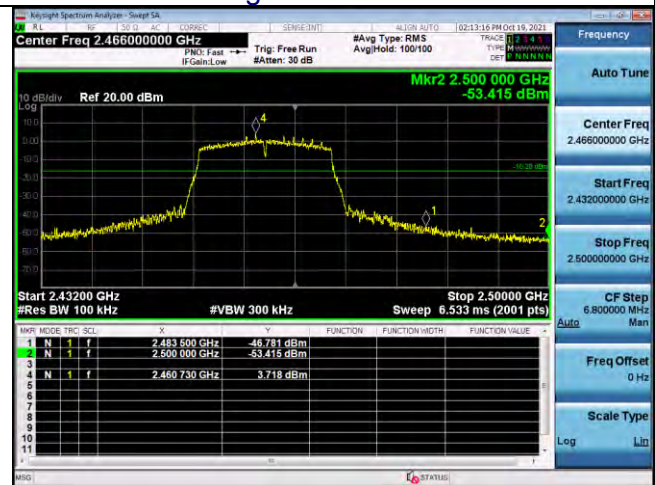




Lowest Channel



Highest Channel



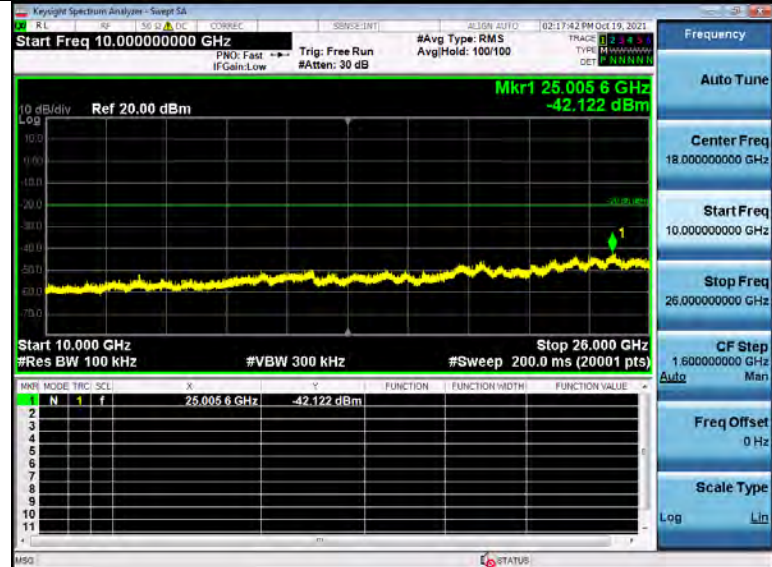
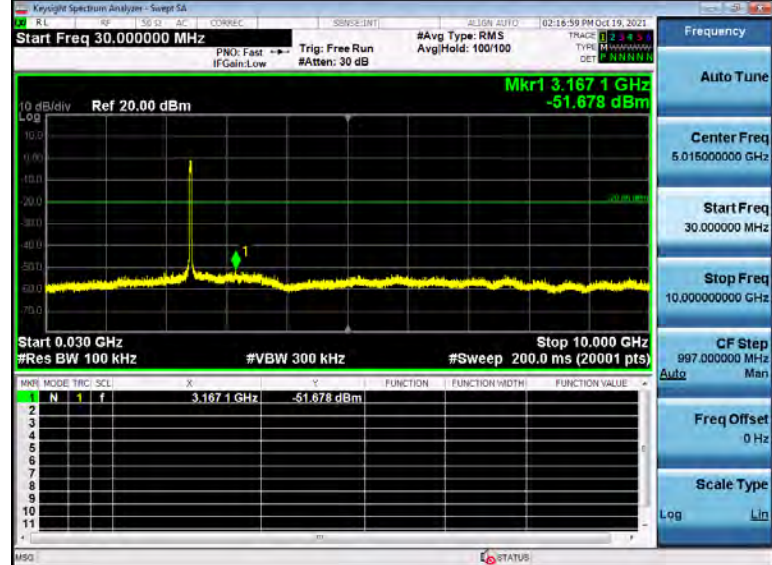
Left Band Edge

Right Band Edge

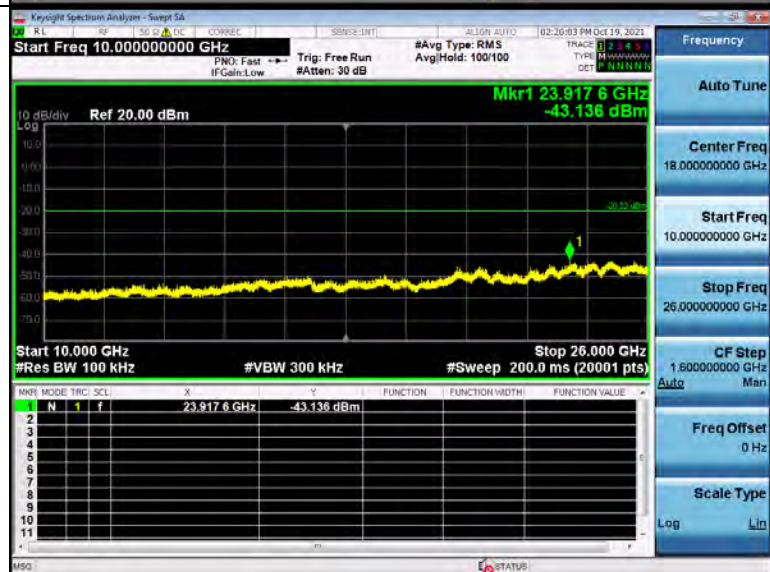
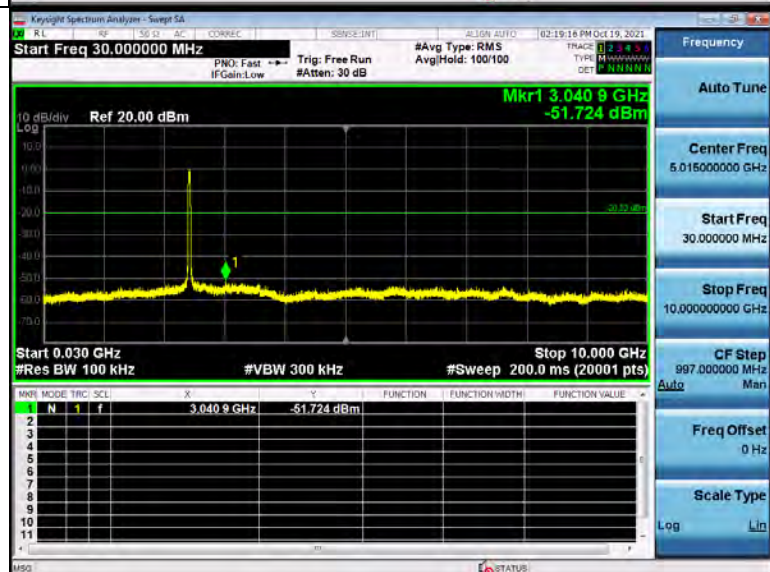
# 802.11n40 Modulation

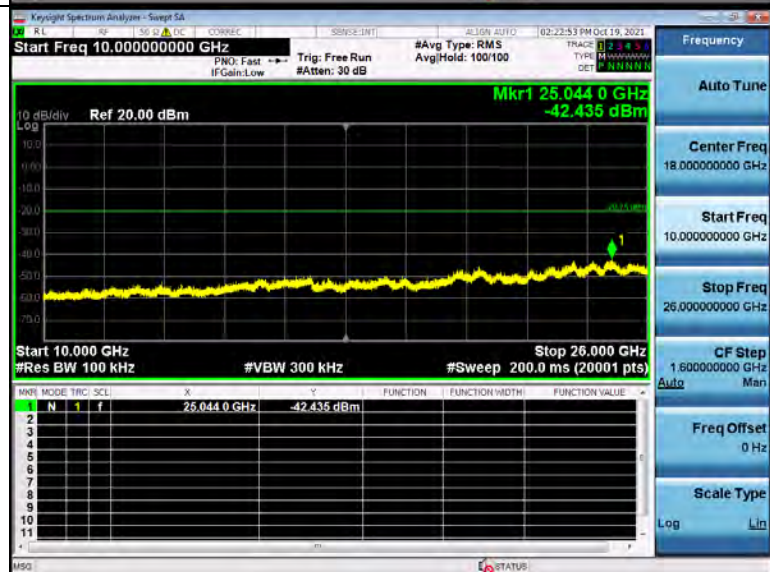
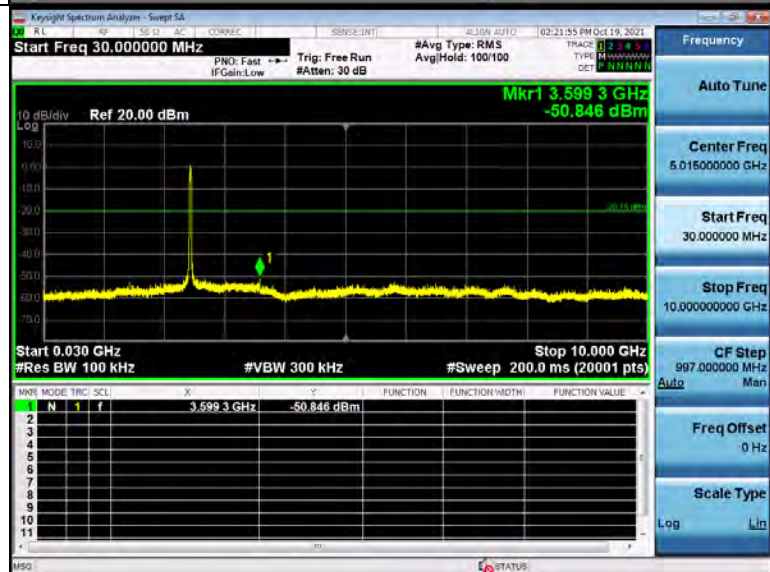
## Spurious emission

## Low Channel

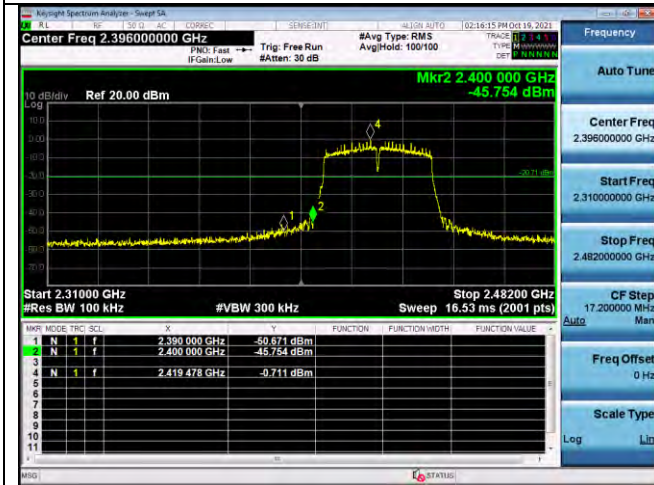


Middle Channel



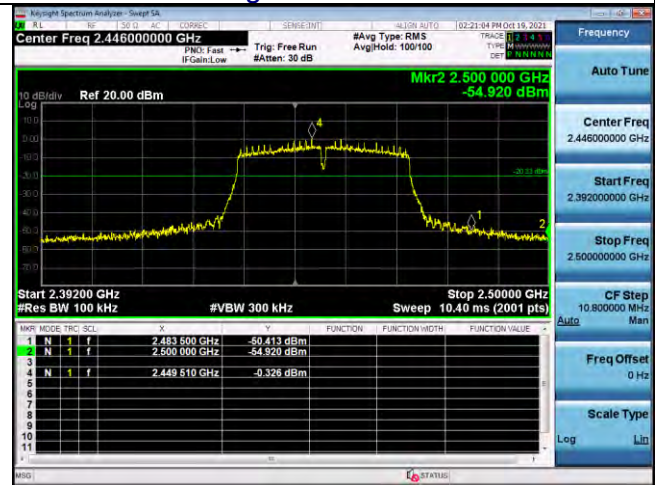
[illegible]

Lowest Channel

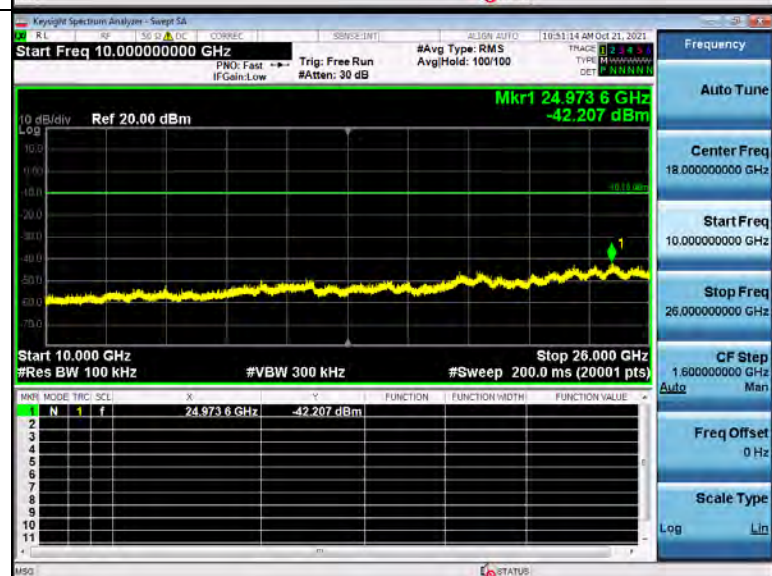


Left Band Edge

Highest Channel



Right Band Edge



Keysight Spectrum Analyzer - Setup SA

Center Freq 2.437000000 GHz

10 dB/Div Ref 20.00 dBm

Log

Center 2.43700 GHz

Res BW 100 kHz

Span 40.00 MHz

Sweep 4.267 ms (8001 pts)

Log

Auto Tune

Center Freq 2.437000000 GHz

Start Freq 2.417000000 GHz

Stop Freq 2.467000000 GHz

CF Step 4.000000 MHz

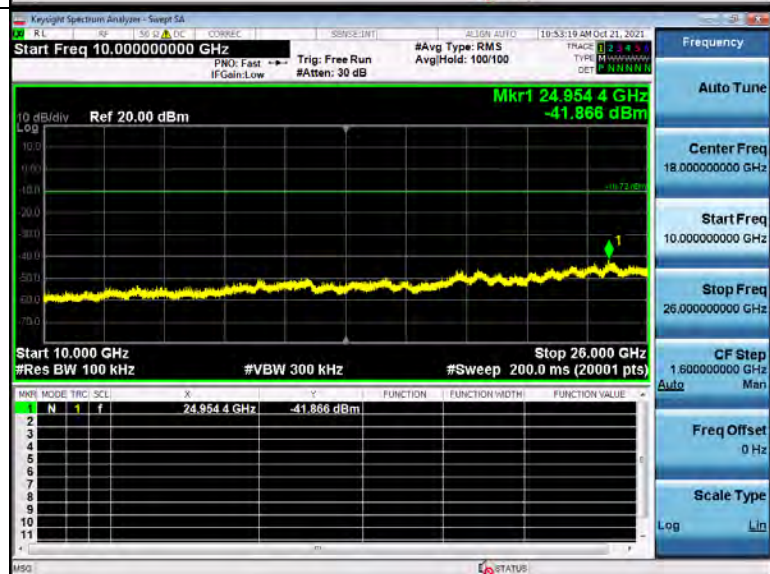
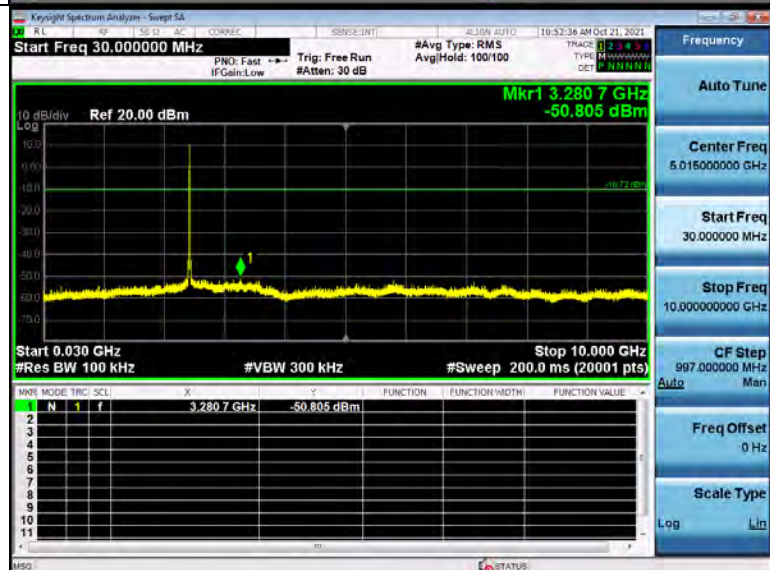
Auto Man

Freq Offset 0 Hz

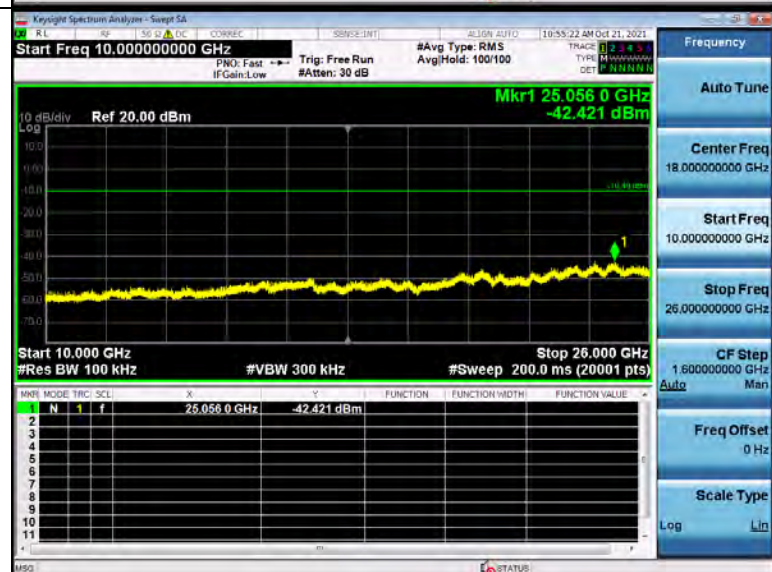
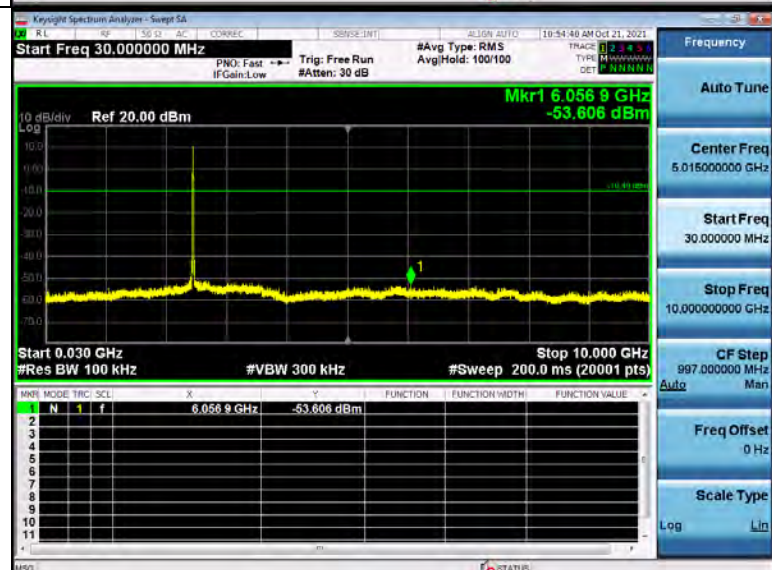
Scale Type

Log Lin

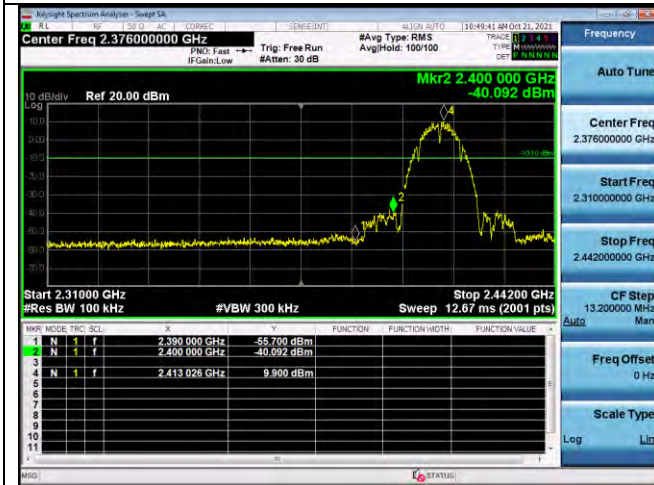
STATUS



High Channel

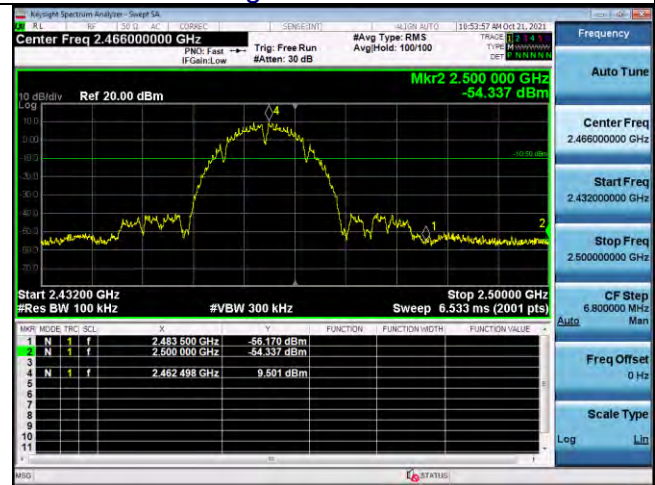


Lowest Channel



Left Band Edge

Highest Channel

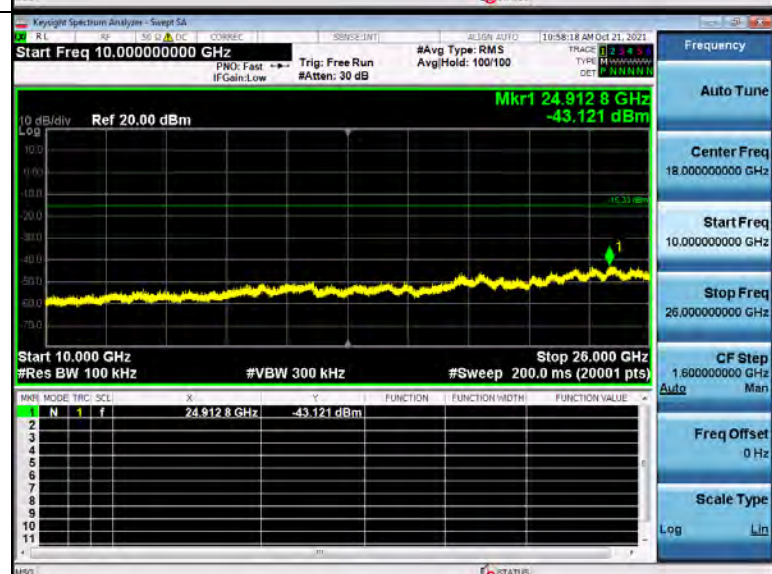
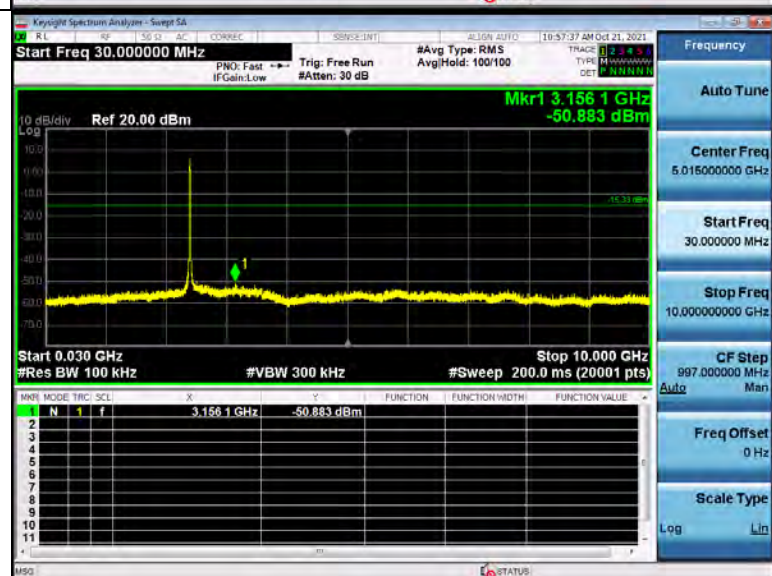
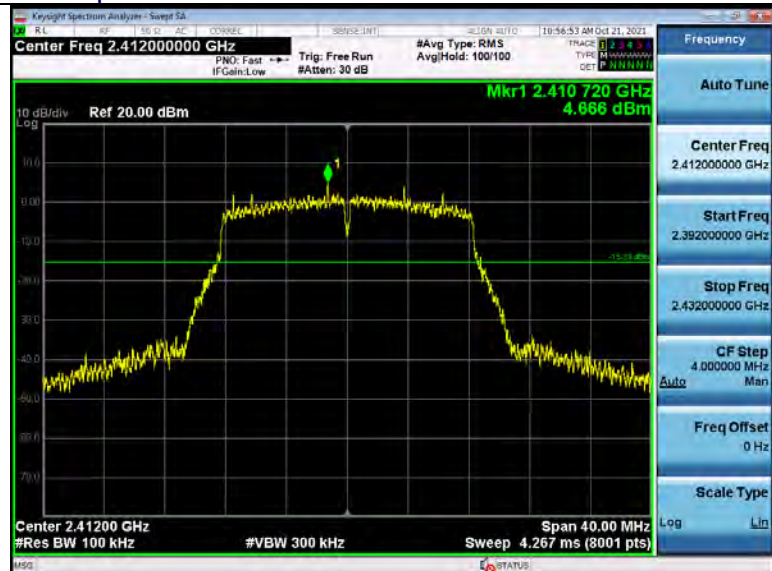


Right Band Edge

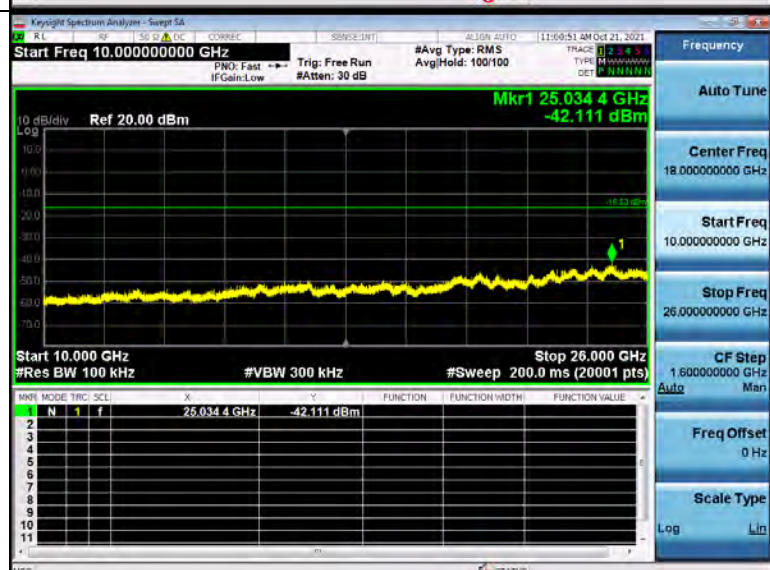
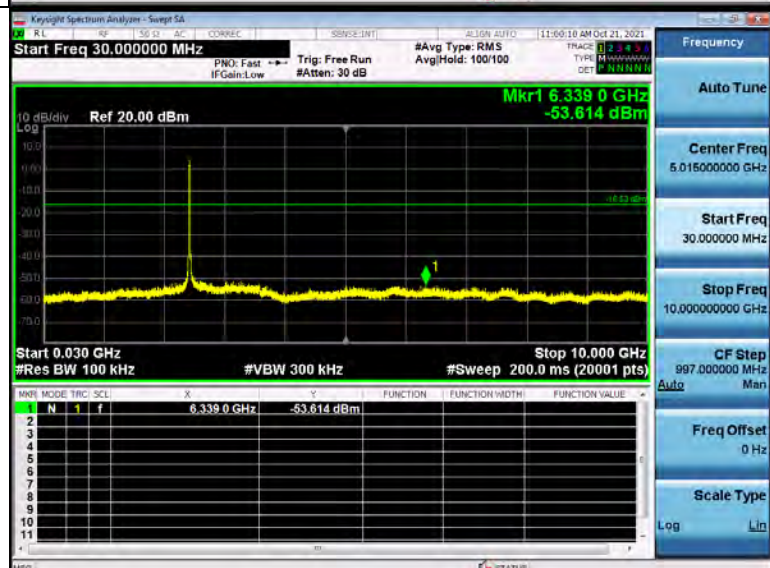
## 802.11g Modulation

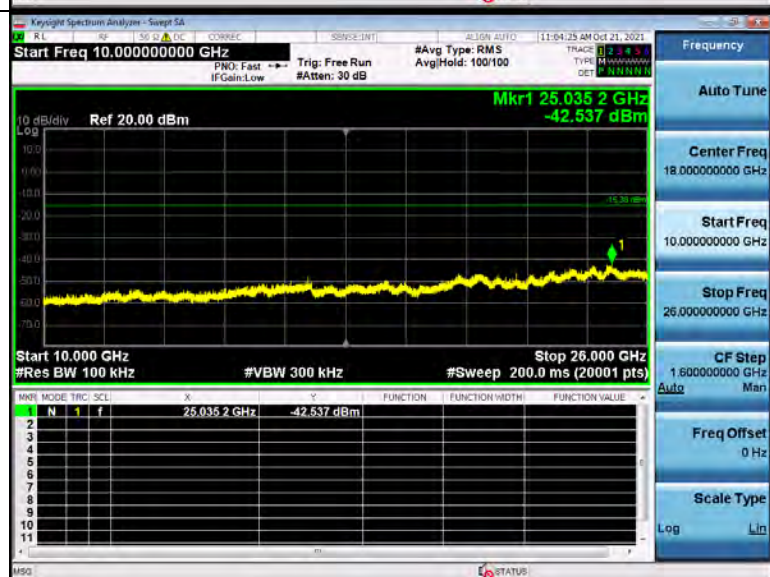
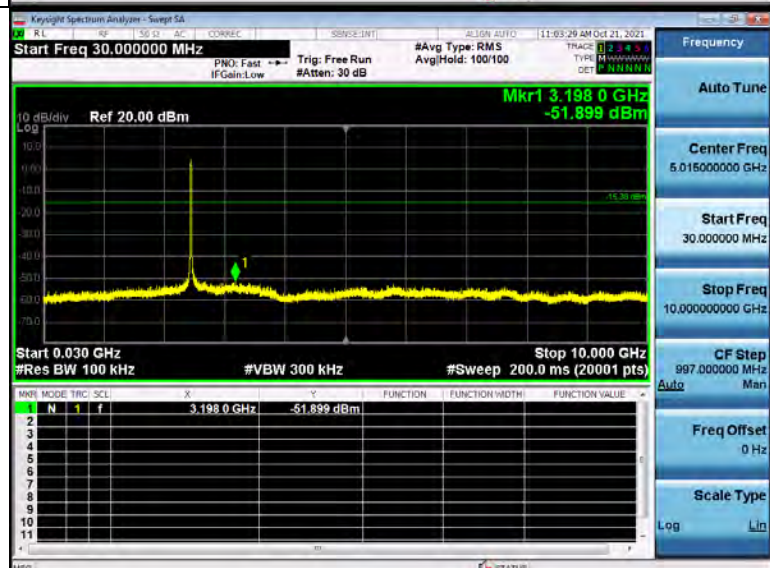
### Spurious emission

Low Channel

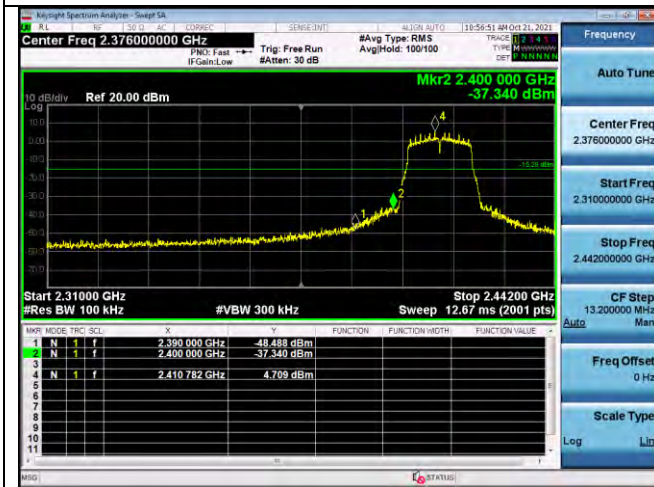


Middle Channel



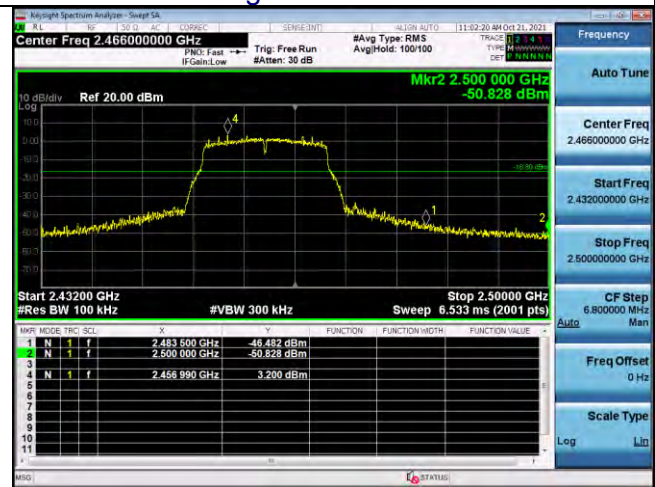
[illegible]

Lowest Channel



Left Band Edge

Highest Channel

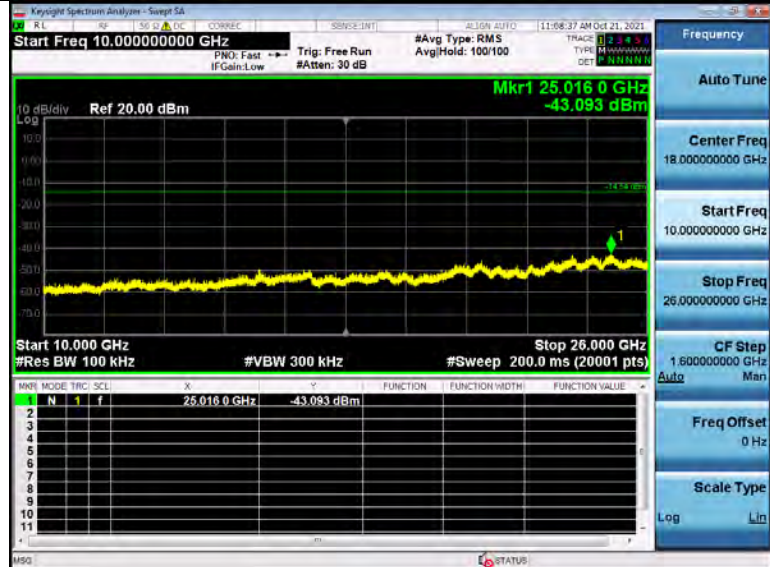
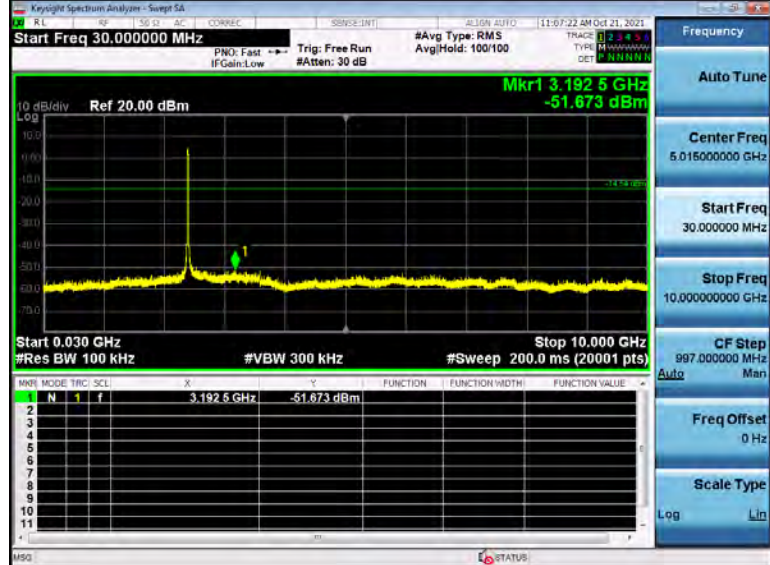
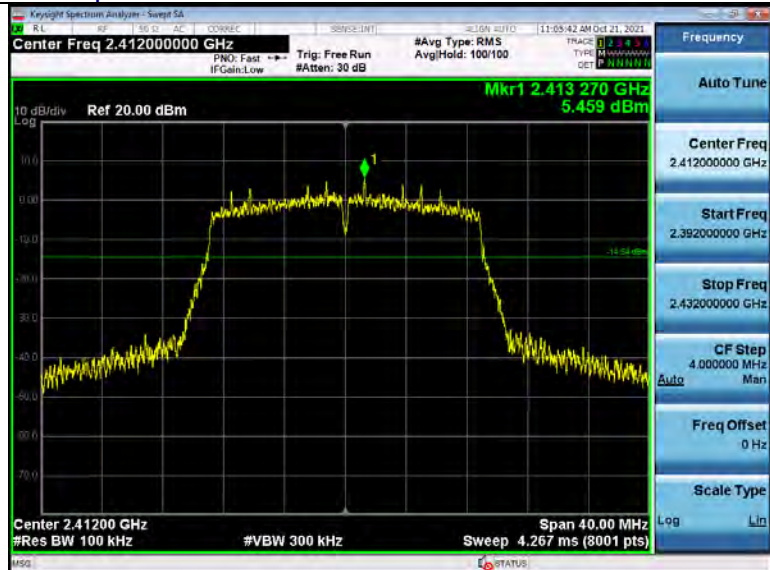


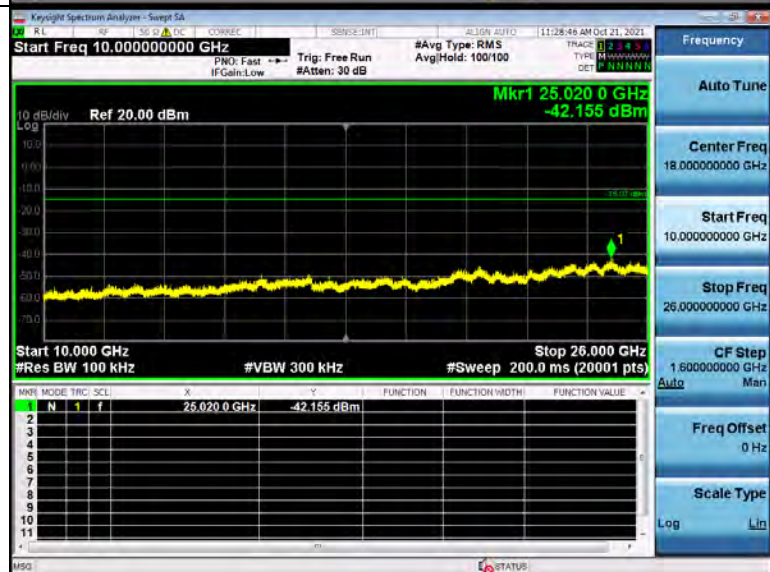
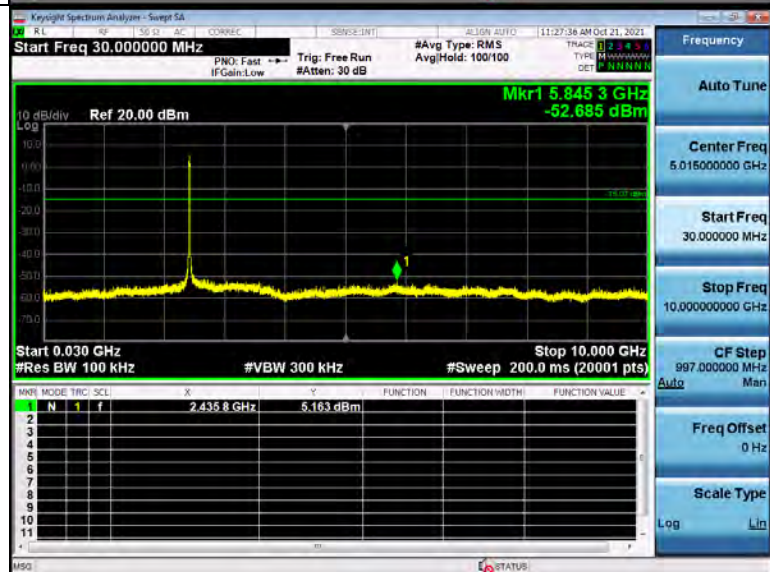
Right Band Edge

802.11n20 Modulation

Spurious emission

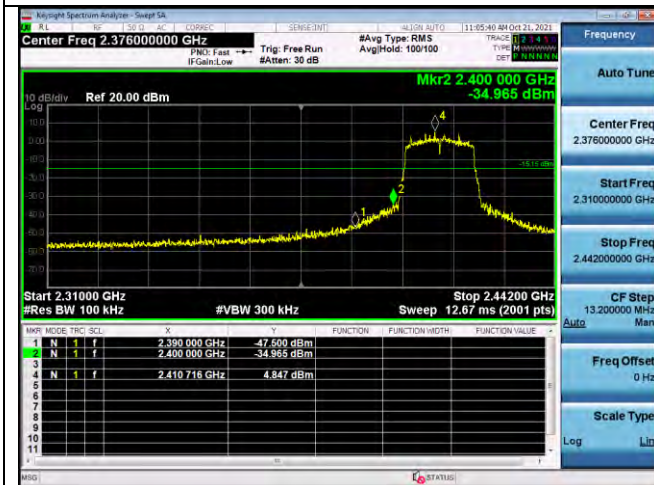
Low Channel



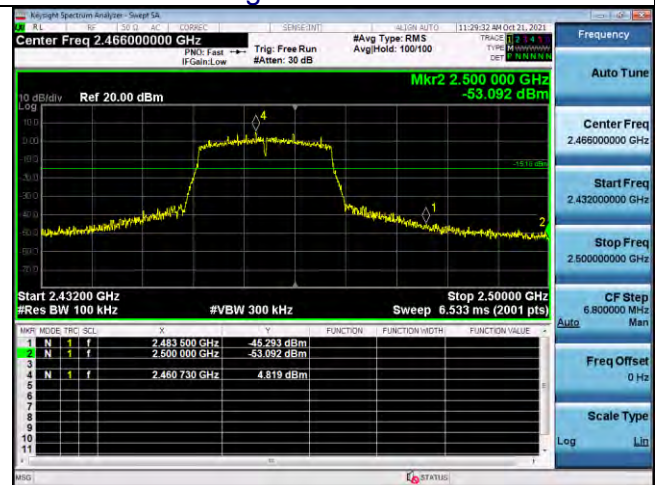
[illegible]



Lowest Channel



Highest Channel



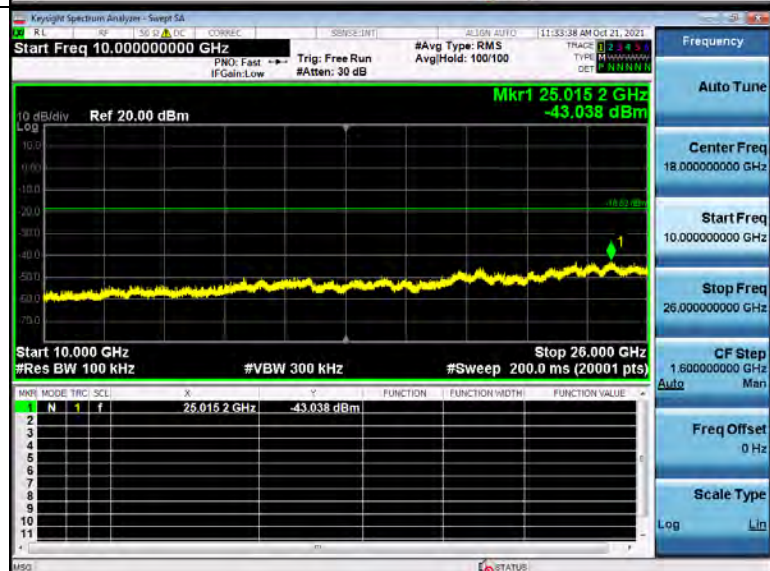
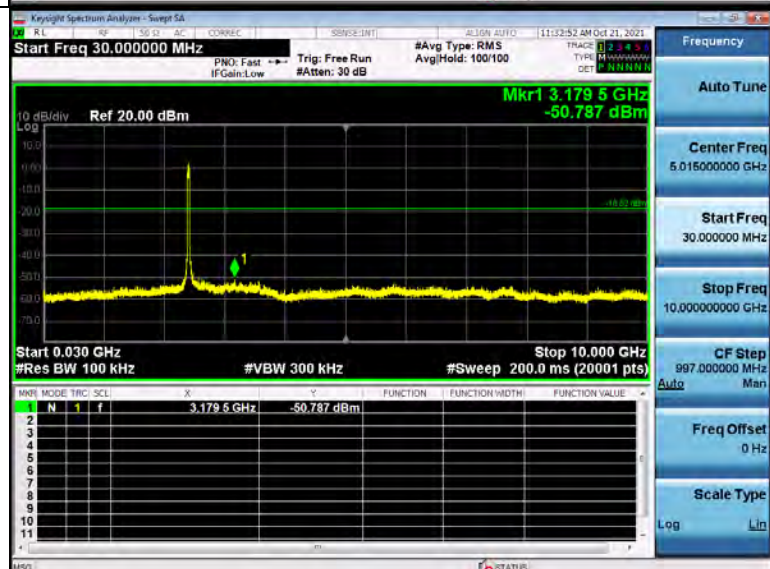
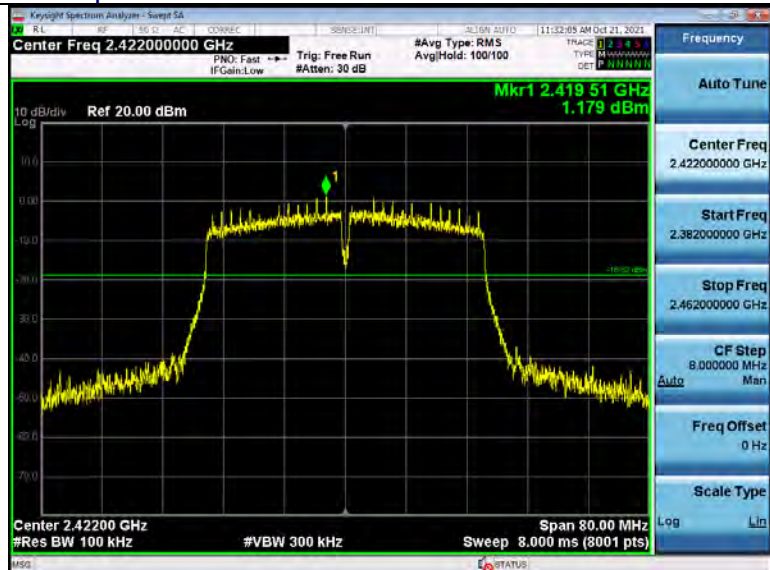
Left Band Edge

Right Band Edge

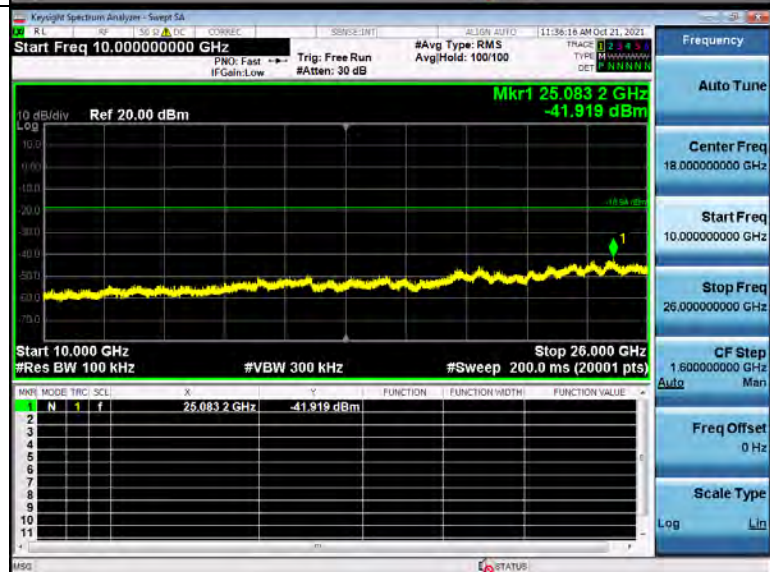
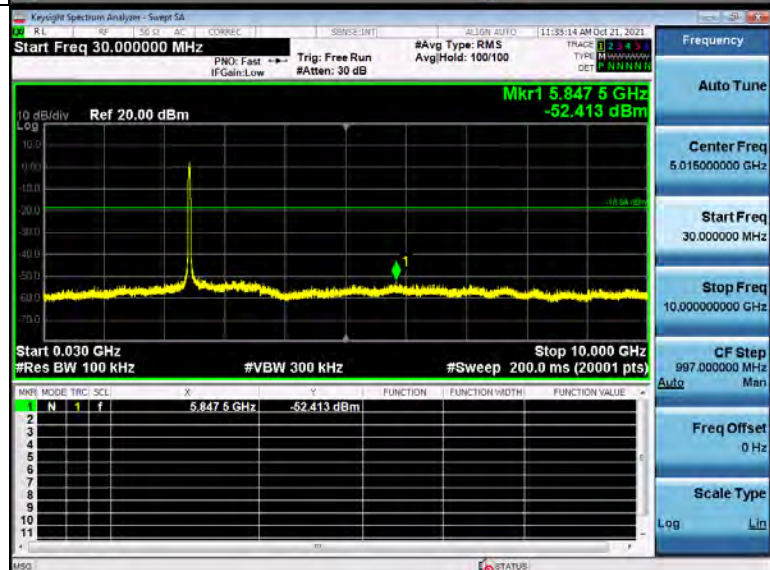
## 802.11n40 Modulation

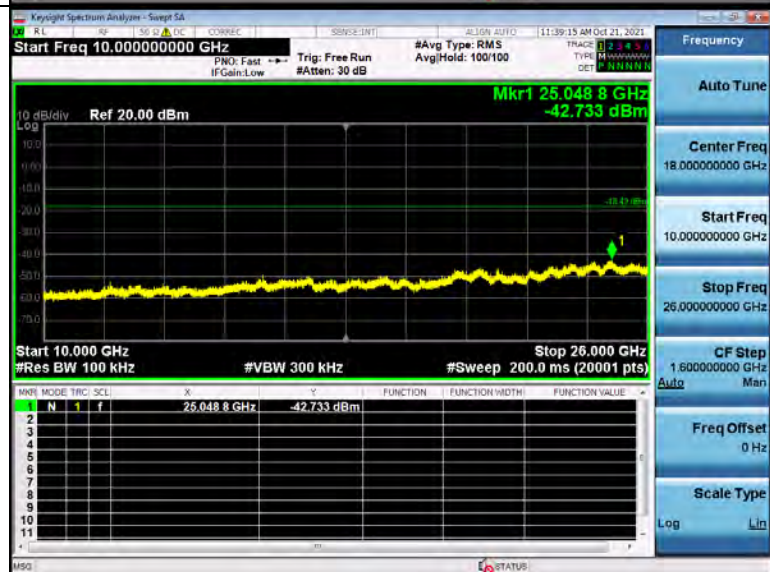
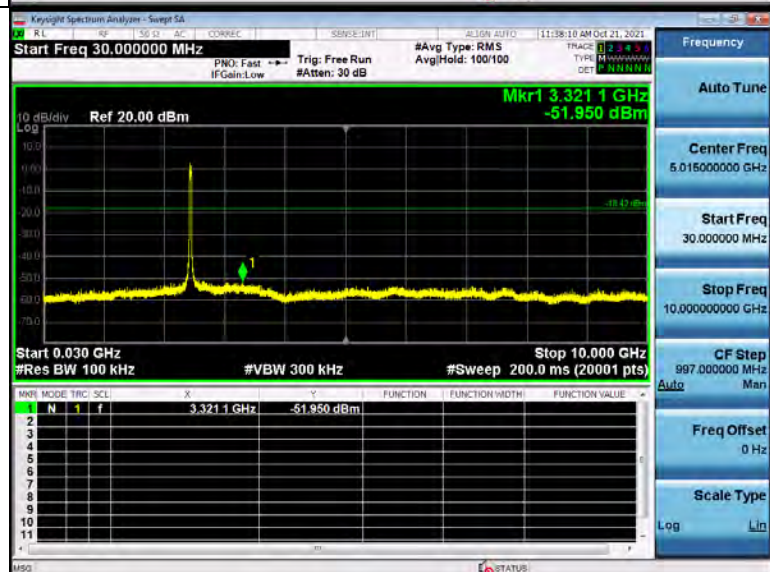
### Spurious emission

Low Channel

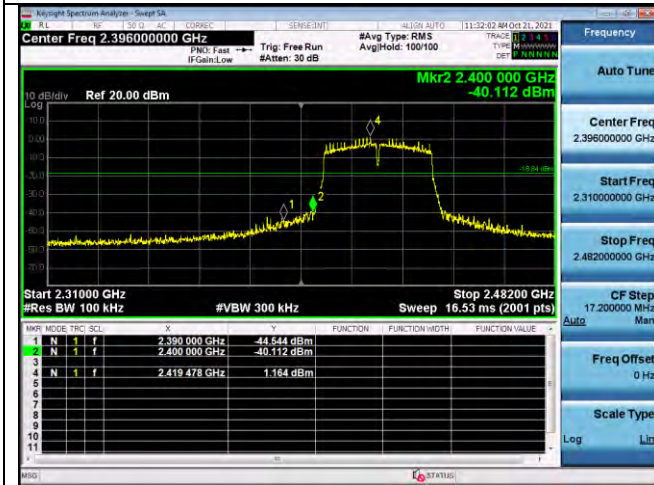


The screenshot displays a Keysight Spectrum Analyzer interface. The main display area shows a signal trace with a prominent peak at 2.43700000 GHz, labeled 'Mkr1 2.440 75 GHz 1.057 dBm'. The trace is yellow, and the background is black. The y-axis is labeled '10 dB/Div' and 'Log', and the x-axis is labeled 'Ref 20.00 dBm'. The top status bar shows 'Center Freq 2.437000000 GHz', 'Span 80.00 MHz', 'Sweep 8.000 ms (8001 pts)', and 'Resolution BW 100 kHz'. The right side of the interface features a vertical menu with buttons for 'Frequency', 'Auto Tune', 'Center Freq', 'Start Freq', 'Stop Freq', 'CF Step', 'Auto', 'Freq Offset', 'Scale Type', 'Log', and 'Lin'. The bottom status bar shows 'Center 2.43700 GHz', 'Res BW 100 kHz', 'VBW 300 kHz', and 'Span 80.00 MHz'.



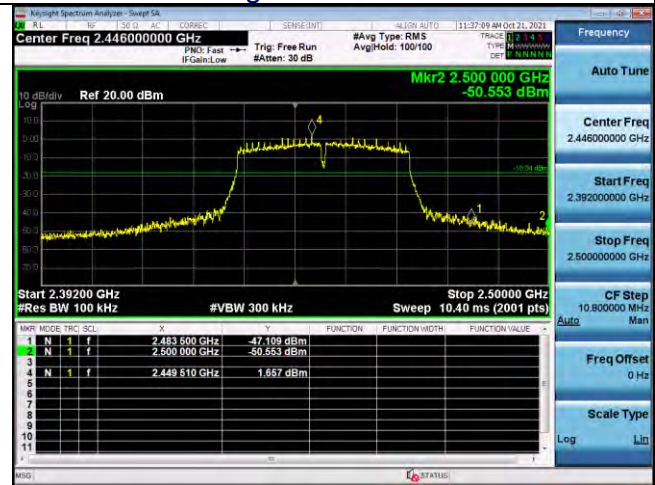
[illegible]

Lowest Channel



Left Band Edge

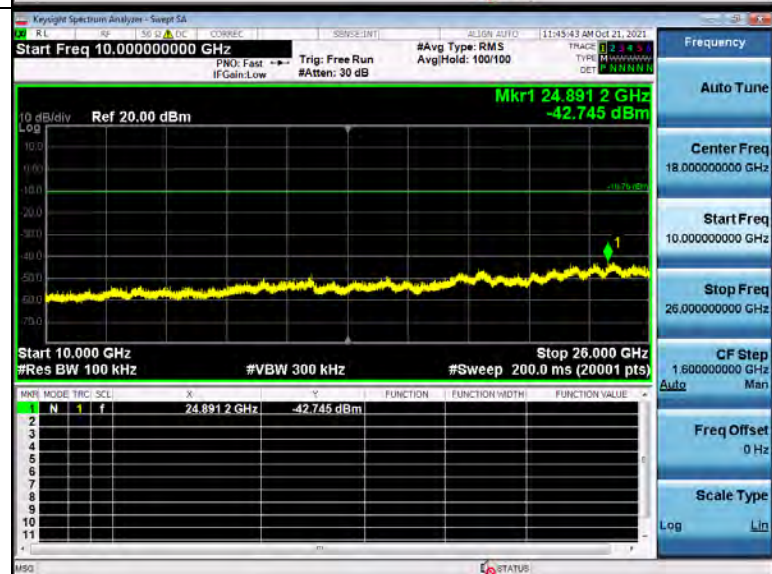
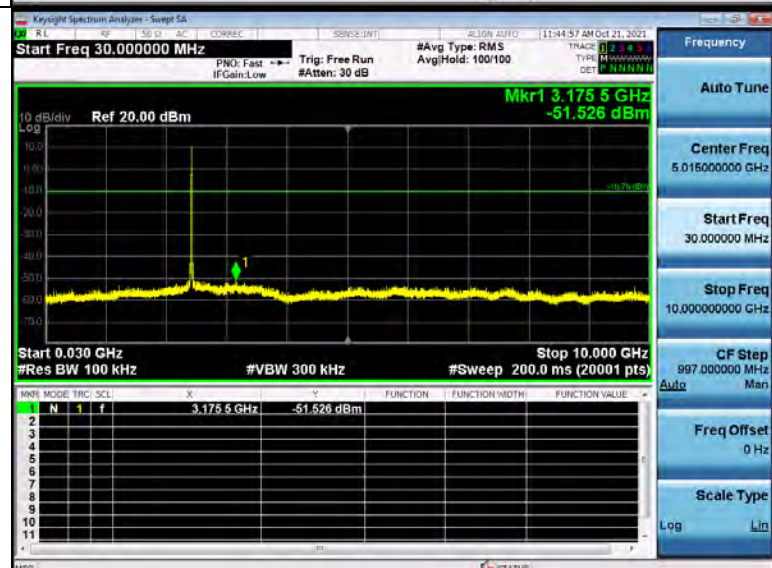
Highest Channel



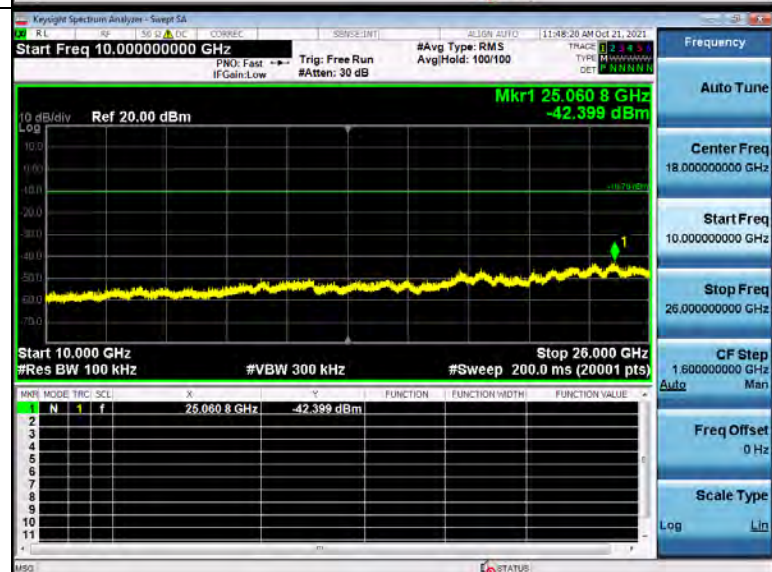
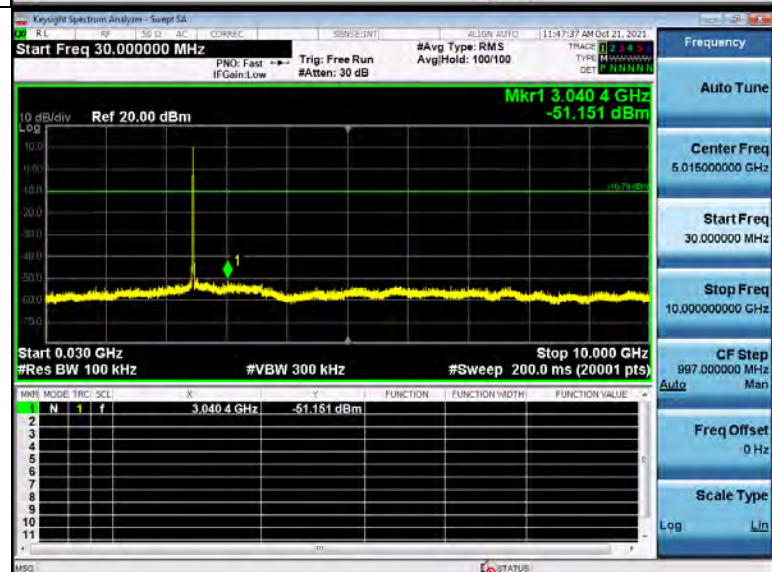
Right Band Edge



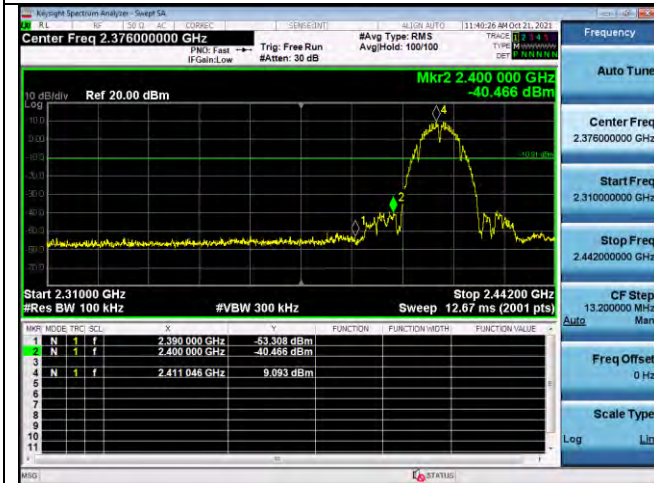
Middle Channel



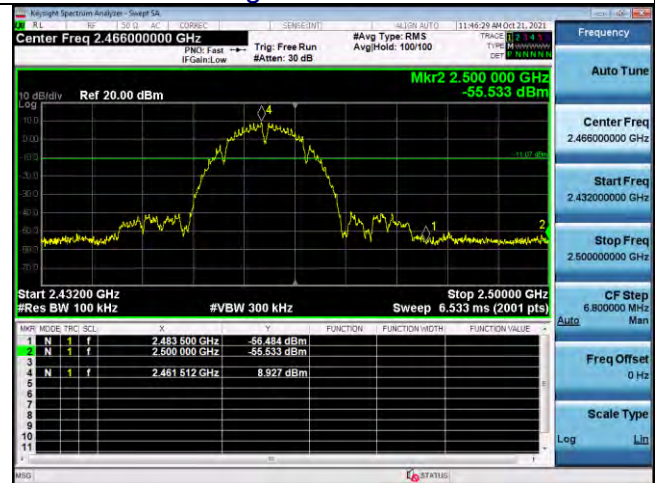
High Channel



Lowest Channel



Highest Channel



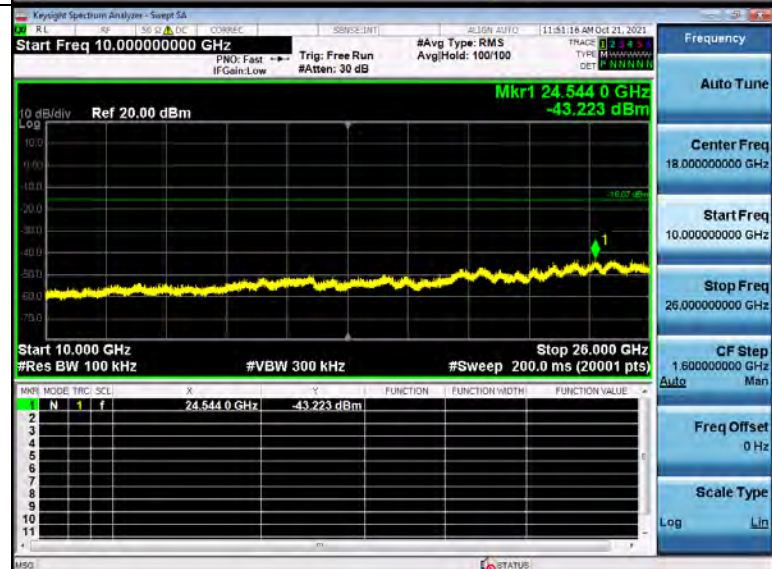
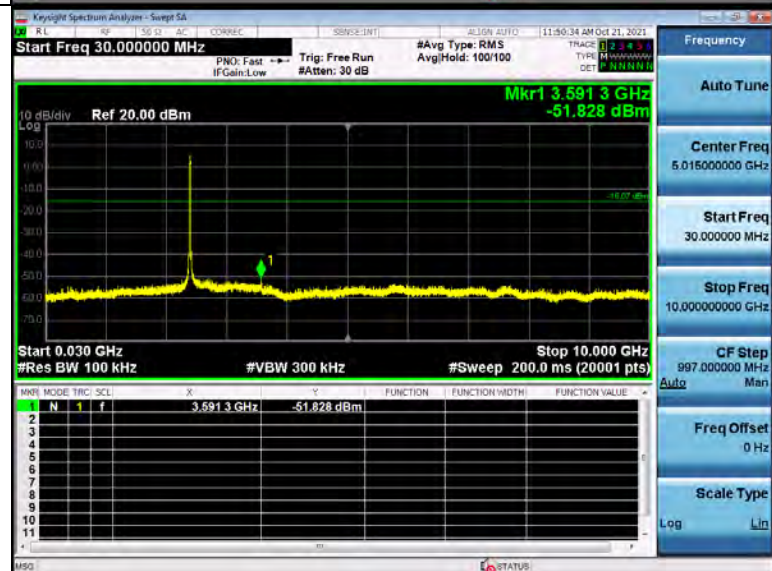
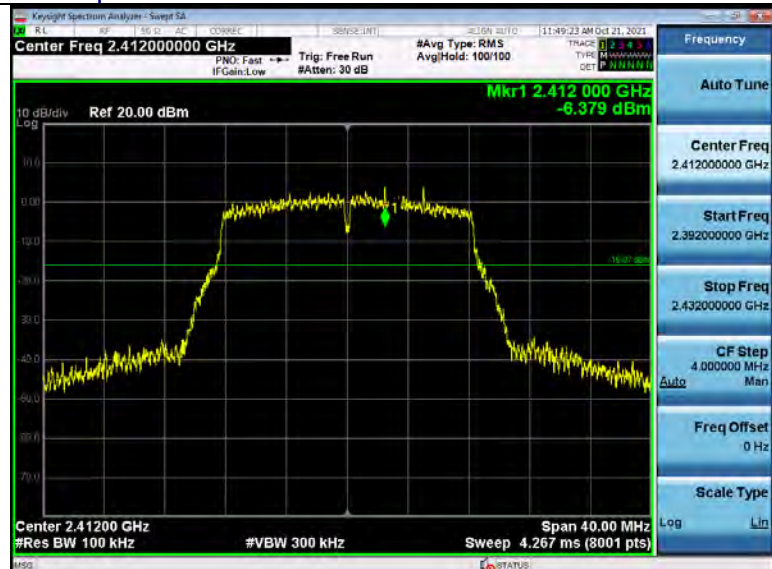
Left Band Edge

Right Band Edge

## 802.11g Modulation

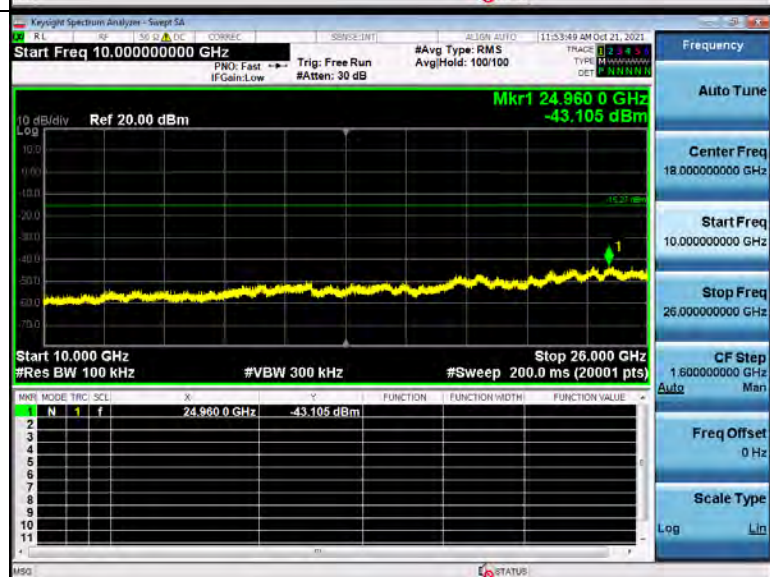
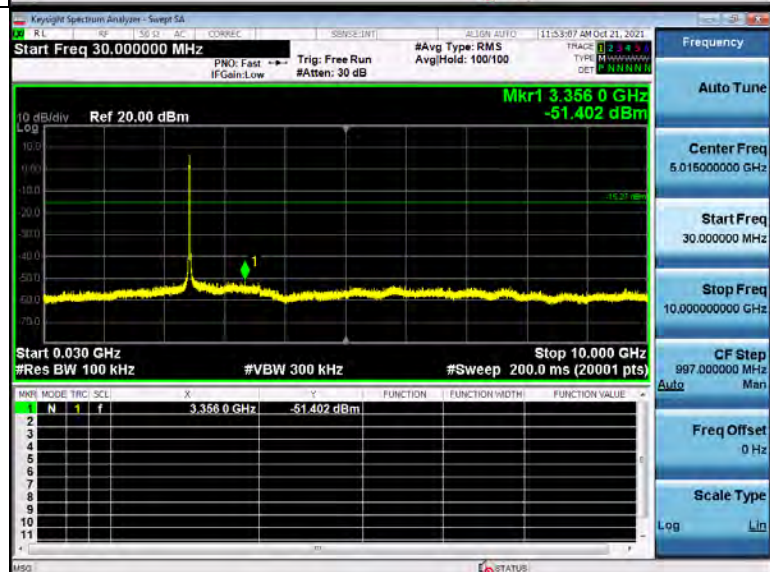
### Spurious emission

### Low Channel

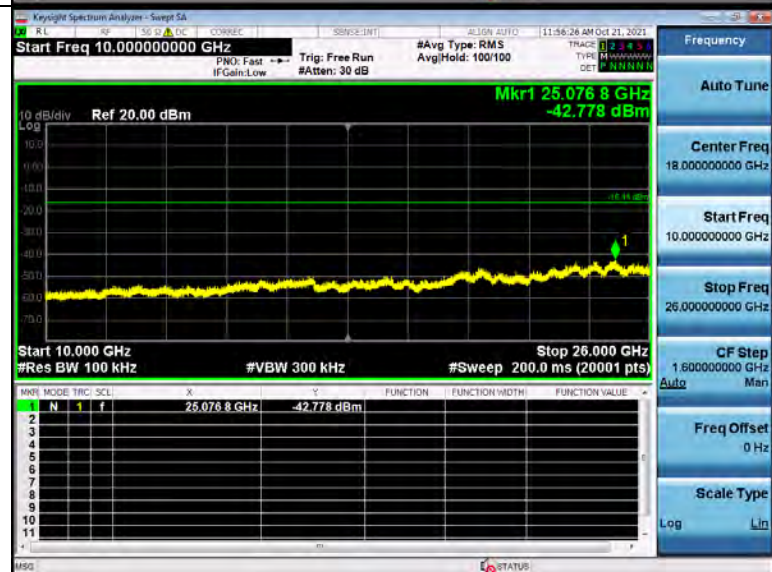
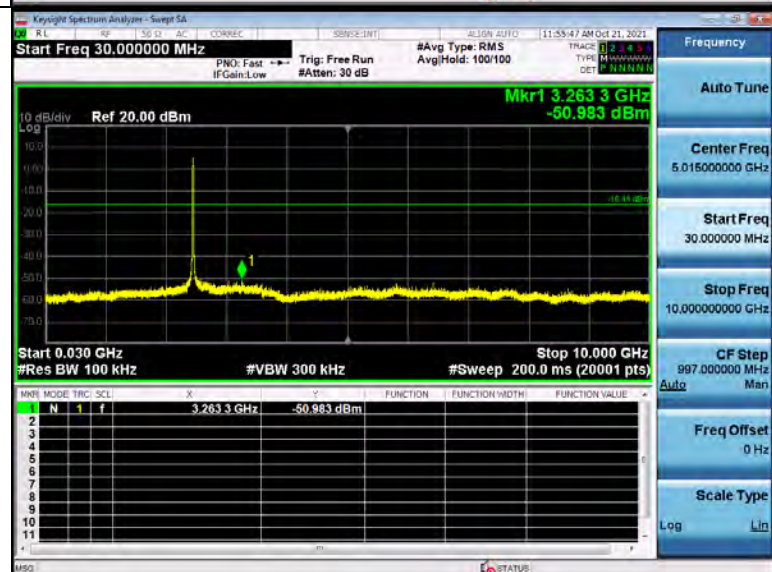
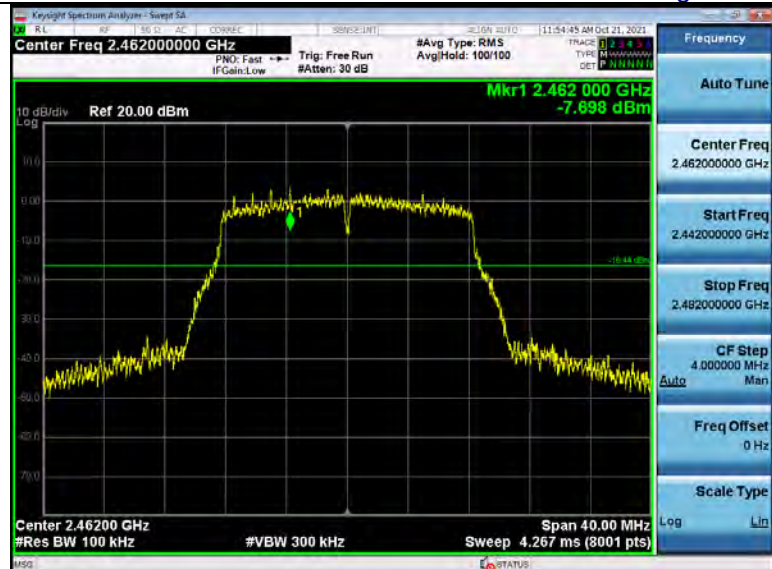


Keysight Spectrum Analyzer - Setup SA

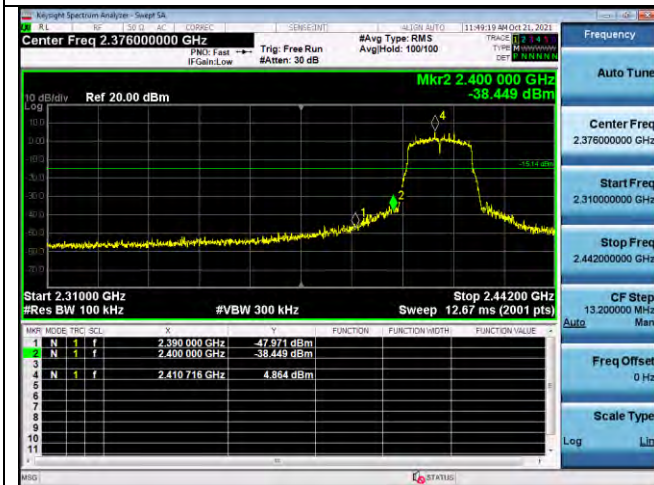
RL 50 150 250 350 450 550 650 750 850 950 1050 1150 1250 1350 1450 1550 1650 1750 1850 1950 2050 2150 2250 2350 2450 2550 2650 2750 2850 2950 3050 3150 3250 3350 3450 3550 3650 3750 3850 3950 4050 4150 4250 4350 4450 4550 4650 4750 4850 4950 5050 5150 5250 5350 5450 5550 5650 5750 5850 5950 6050 6150 6250 6350 6450 6550 6650 6750 6850 6950 7050 7150 7250 7350 7450 7550 7650 7750 7850 7950 8050 8150 8250 8350 8450 8550 8650 8750 8850 8950 9050 9150 9250 9350 9450 9550 9650 9750 9850 9950 10050 10150 10250 10350 10450 10550 10650 10750 10850 10950 11050 11150 11250 11350 11450 11550 11650 11750 11850 11950 12050 12150 12250 12350 12450 12550 12650 12750 12850 12950 13050 13150 13250 13350 13450 13550 13650 13750 13850 13950 14050 14150 14250 14350 14450 14550 14650 14750 14850 14950 15050 15150 15250 15350 15450 15550 15650 15750 15850 15950 16050 16150 16250 16350 16450 16550 16650 16750 16850 16950 17050 17150 17250 17350 17450 17550 17650 17750 17850 17950 18050 18150 18250 18350 18450 18550 18650 18750 18850 18950 19050 19150 19250 19350 19450 19550 19650 19750 19850 19950 20050 20150 20250 20350 20450 20550 20650 20750 20850 20950 21050 21150 21250 21350 21450 21550 21650 21750 21850 21950 22050 22150 22250 22350 22450 22550 22650 22750 22850 22950 23050 23150 23250 23350 23450 23550 23650 23750 23850 23950 24050 24150 24250 24350 24450 24550 24650 24750 24850 24950 25050 25150 25250 25350 25450 25550 25650 25750 25850 25950 26050 26150 26250 26350 26450 26550 26650 26750 26850 26950 27050 27150 27250 27350 27450 27550 27650 27750 27850 27950 28050 28150 28250 28350 28450 28550 28650 28750 28850 28950 29050 29150 29250 29350 29450 29550 29650 29750 29850 29950 30050 30150 30250 30350 30450 30550 30650 30750 30850 30950 31050 31150 31250 31350 31450 31550 31650 31750 31850 31950 32050 32150 32250 32350 32450 32550 32650 32750 32850 32950 33050 33150 33250 33350 33450 33550 33650 33750 33850 33950 34050 34150 34250 34350 34450 34550 34650 34750 34850 34950 35050 35150 35250 35350 35450 35550 35650 35750 35850 35950 36050 36150 36250 36350 36450 36550 36650 36750 36850 36950 37050 37150 37250 37350 37450 37550 37650 37750 37850 37950 38050 38150 38250 38350 38450 38550 38650 38750 38850 38950 39050 39150 39250 39350 39450 39550 39650 39750 39850 39950 40050 40150 40250 40350 40450 40550 40650 40750 40850 40950 41050 41150 41250 41350 41450 41550 41650 41750 41850 41950 42050 42150 42250 42350 42450 42550 42650 42750 42850 42950 43050 43150 43250 43350 43450 43550 43650 43750 43850 43950 44050 44150 44250 44350 44450 44550 44650 44750 44850 44950 45050 45150 45250 45350 45450 45550 45650 45750 45850 45950 46050 46150 46250 46350 46450 46550 46650 46750 46850 46950 47050 47150 47250 47350 47450 47550 47650 47750 47850 47950 48050 48150 48250 48350 48450 48550 48650 48750 48850 48950 49050 49150 49250 49350 49450 49550 49650 49750 49850 49950 50050 50150 50250 50350 50450 50550 50650 50750 50850 50950 51050 51150 51250 51350 51450 51550 51650 51750 51850 51950 52050 52150 52250 52350 52450 52550 52650 52750 52850 52950 53050 53150 53250 53350 53450 53550 53650 53750 53850 53950 54050 54150 54250 54350 54450 54550 54650 54750 54850 54950 55050 55150 55250 55350 55450 55550 55650 55750 55850 55950 56050 56150 56250 56350 56450 56550 56650 56750 56850 56950 57050 57150 57250 57350 57450 57550 57650 57750 57850 57950 58050 58150 58250 58350 58450 58550 58650 58750 58850 58950 59050 59150 59250 59350 59450 59550 59650 59750 59850 59950 60050 60150 60250 60350 60450 60550 60650 60750 60850 60950 61050 61150 61250 61350 61450 61550 61650 61750 61850 61950 62050 62150 62250 62350 62450 62550 62650 62750 62850 62950 63050 63150 63250 63350 63450 63550 63650 63750 63850 63950 64050 64150 64250 64350 64450 64550 64650 64750 64850 64950 65050 65150 65250 65350 65450 65550 65650 65750 65850 65950 66050 66150 66250 66350 66450 66550 66650 66750 66850 66950 67050 67150 67250 67350 67450 67550 67650 67750 67850 67950 68050 68150 68250 68350 68450 68550 68650 68750



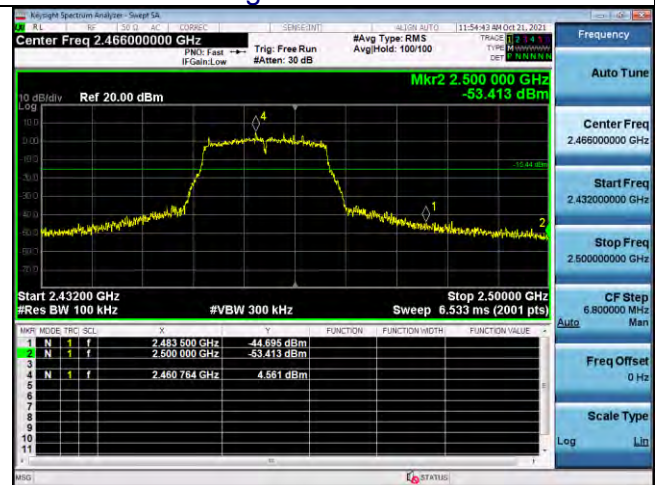
High Channel



Lowest Channel



Highest Channel



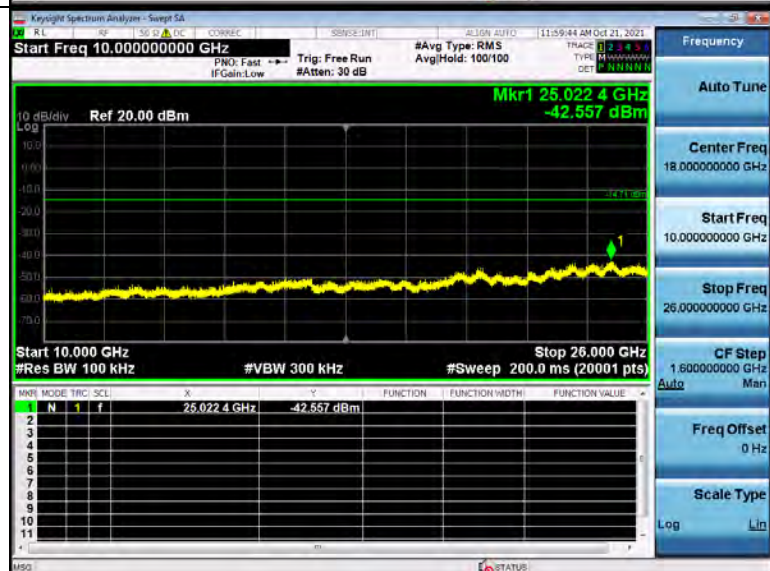
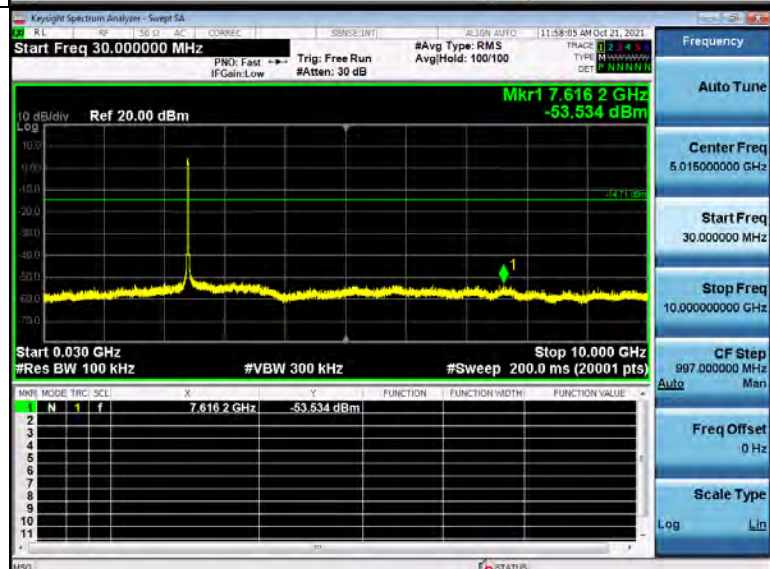
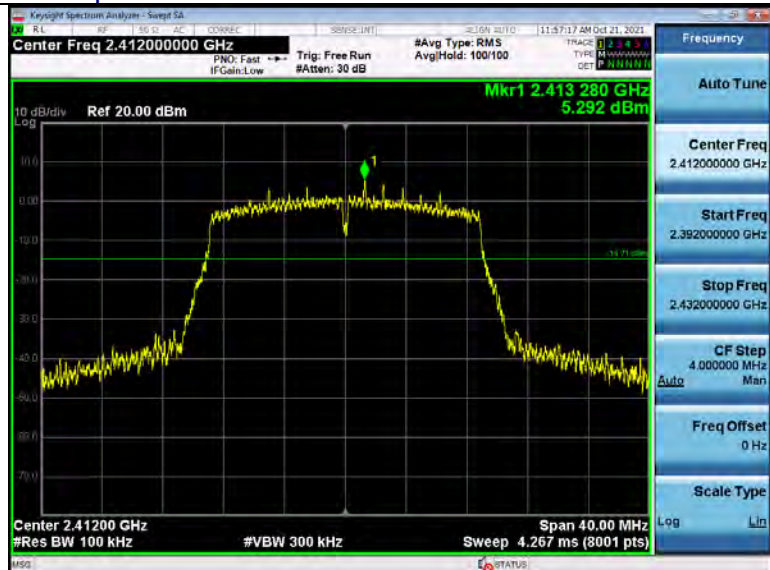
Left Band Edge

Right Band Edge

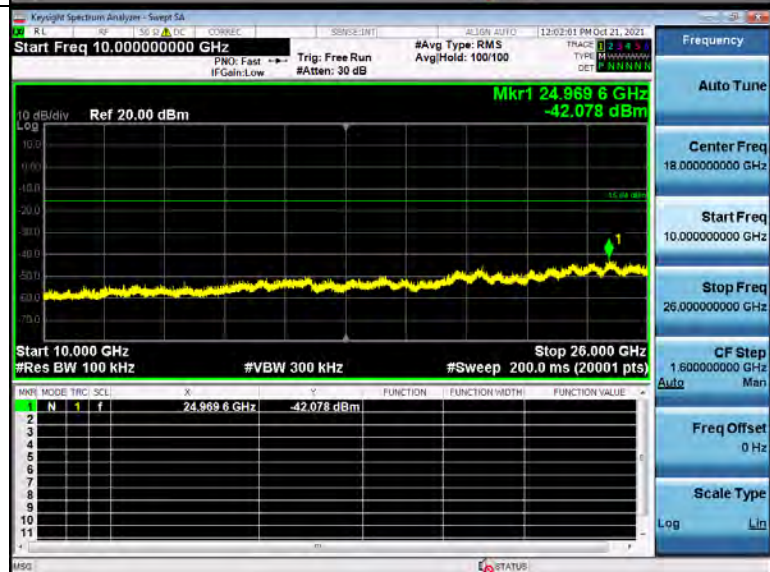
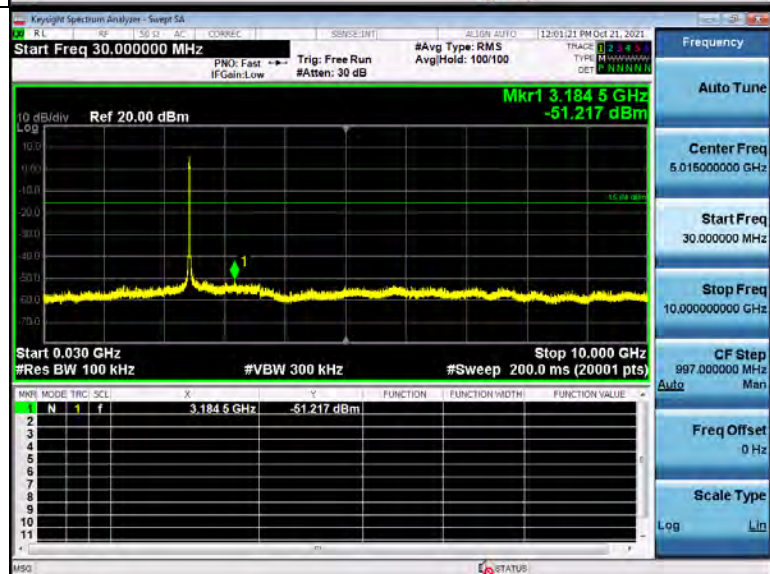
## 802.11n20 Modulation

### Spurious emission

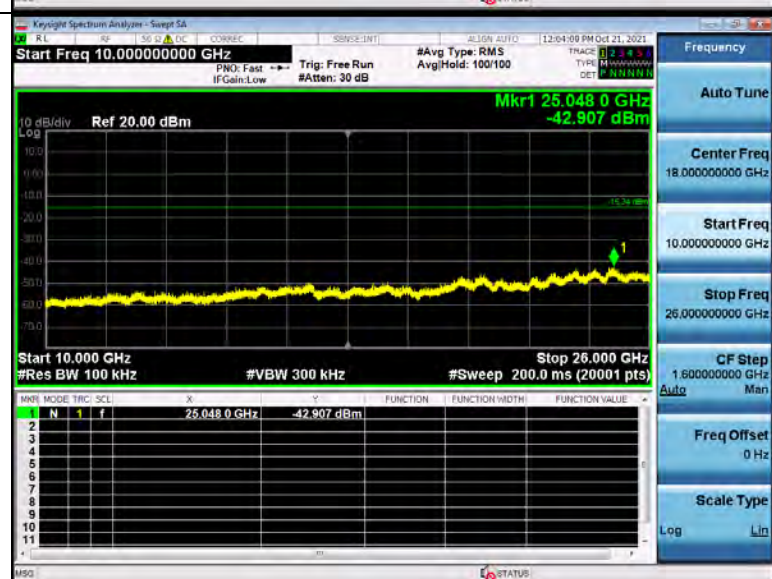
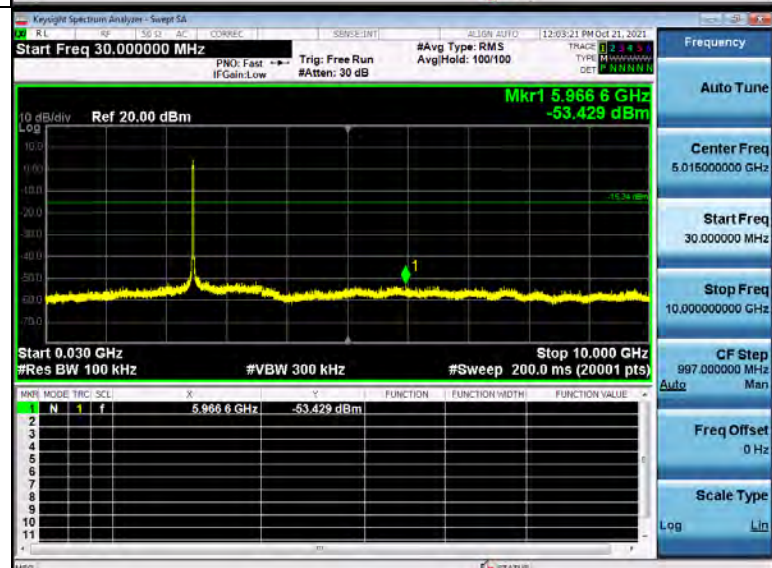
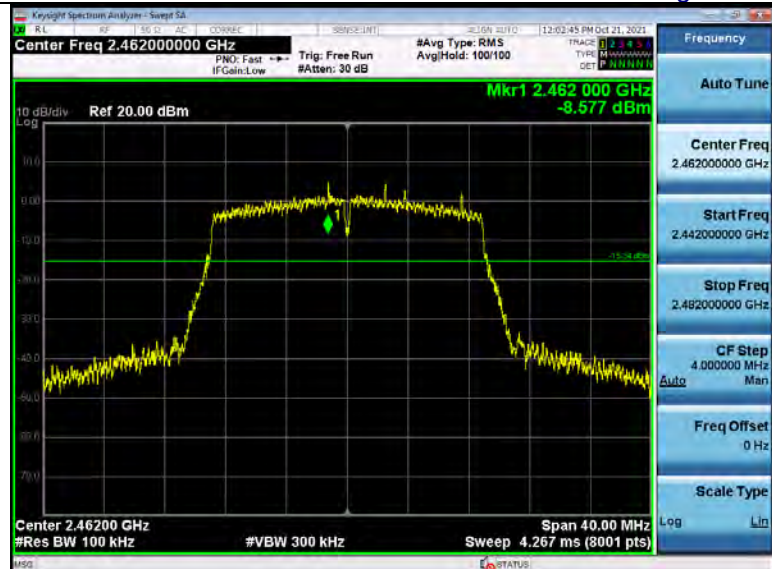
Low Channel



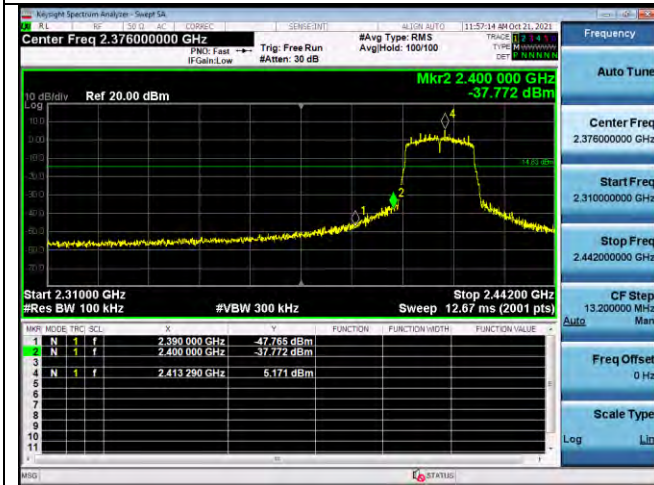
Middle Channel



High Channel

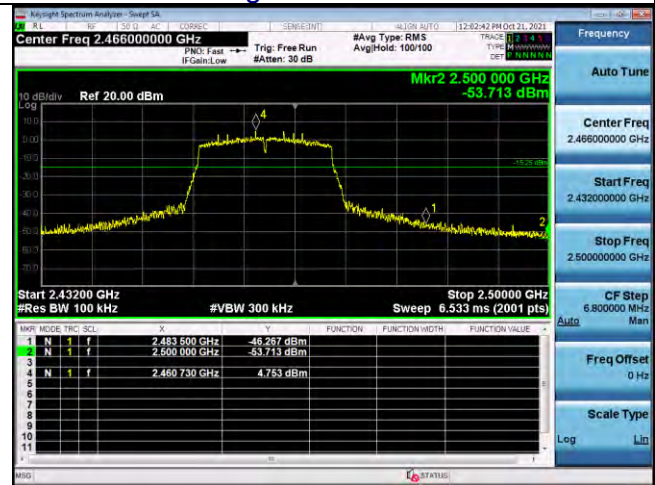


Lowest Channel



Left Band Edge

Highest Channel

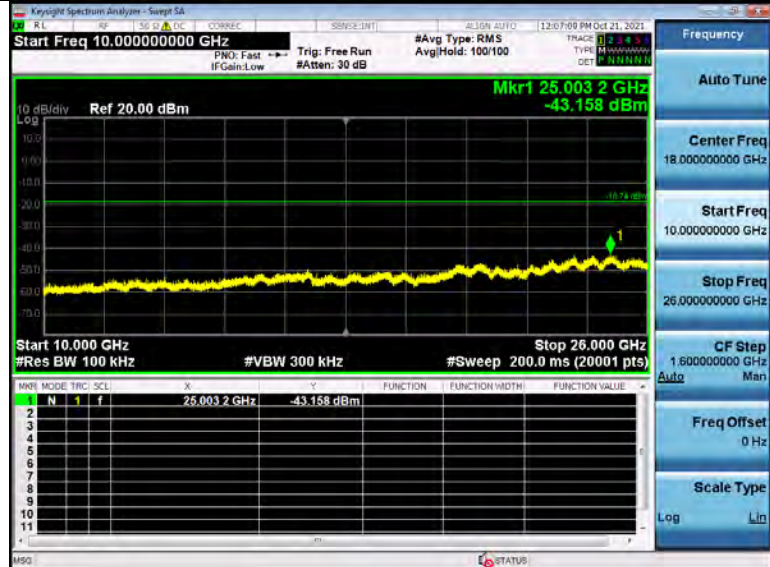
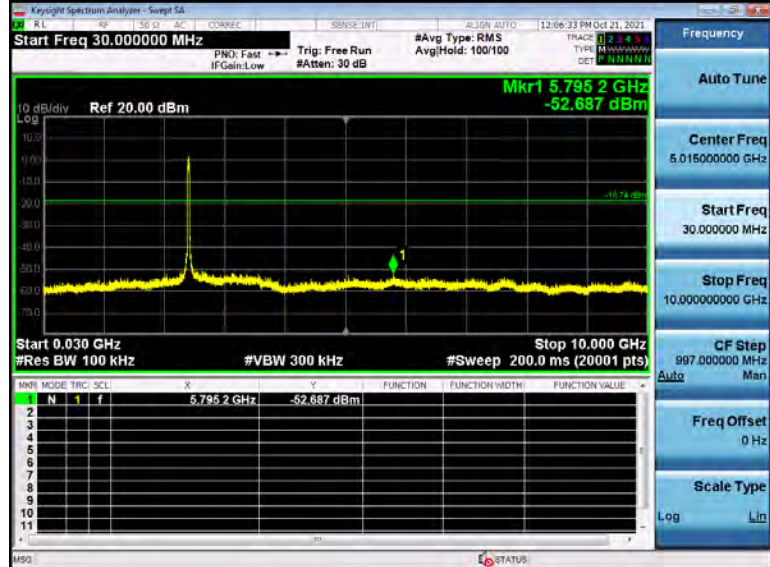
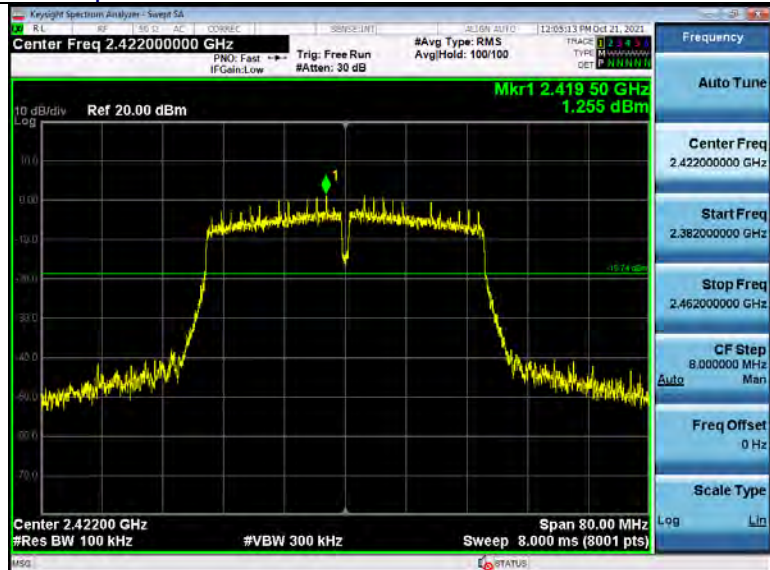


Right Band Edge

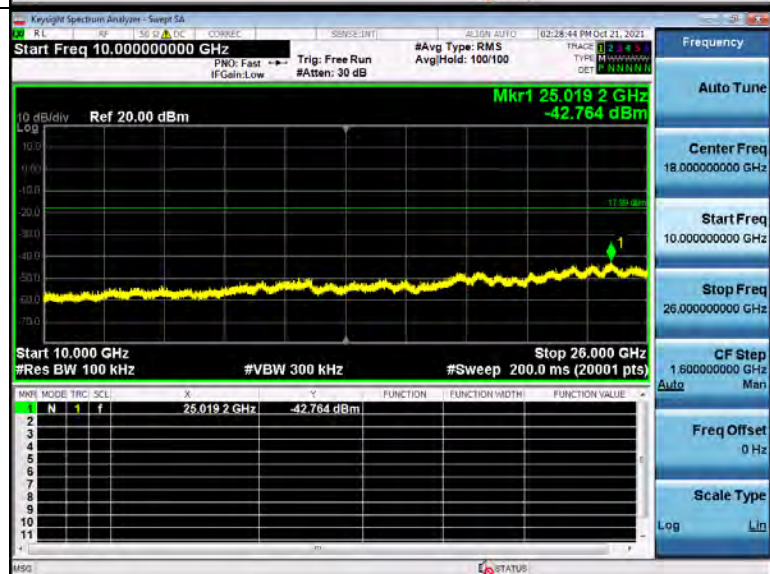
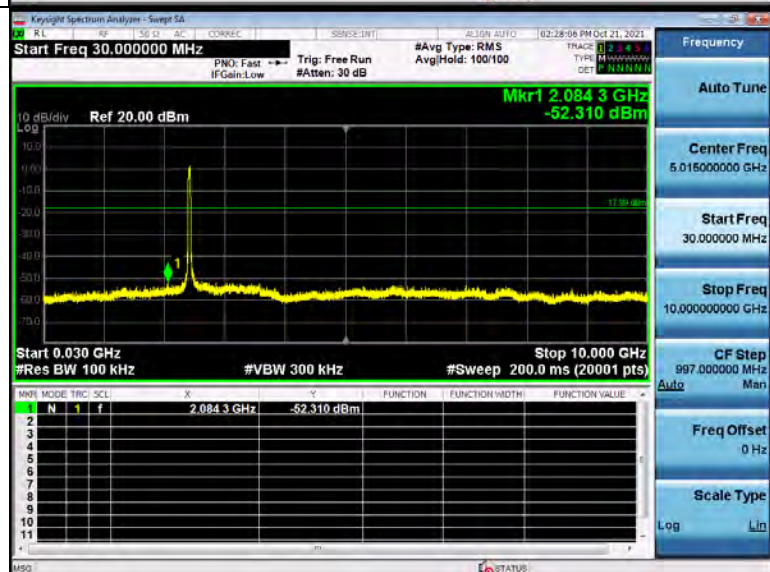
802.11n40 Modulation

Spurious emission

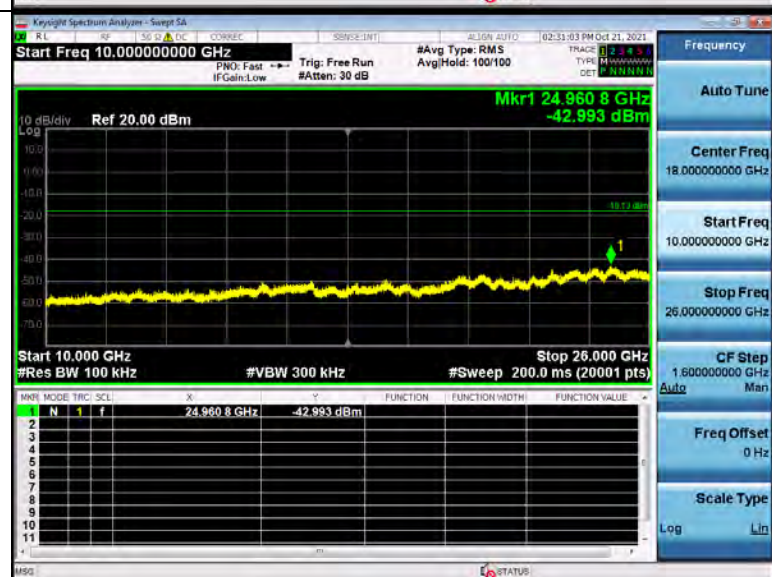
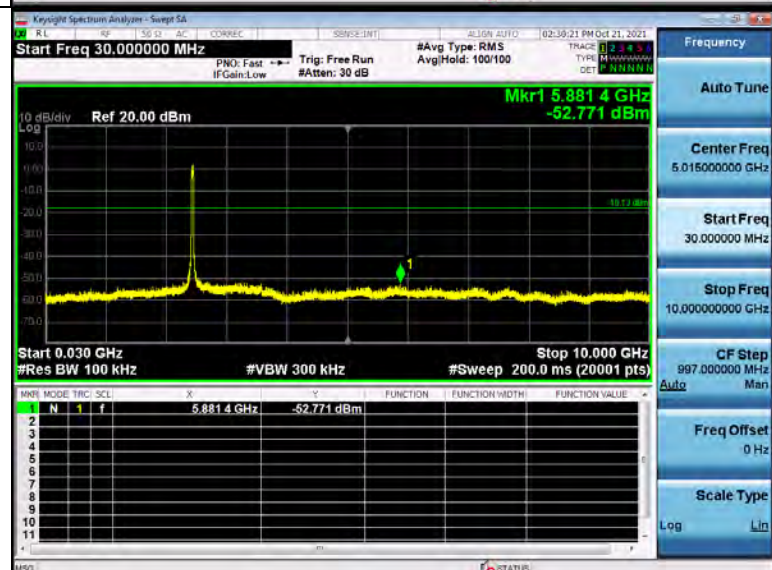
Low Channel



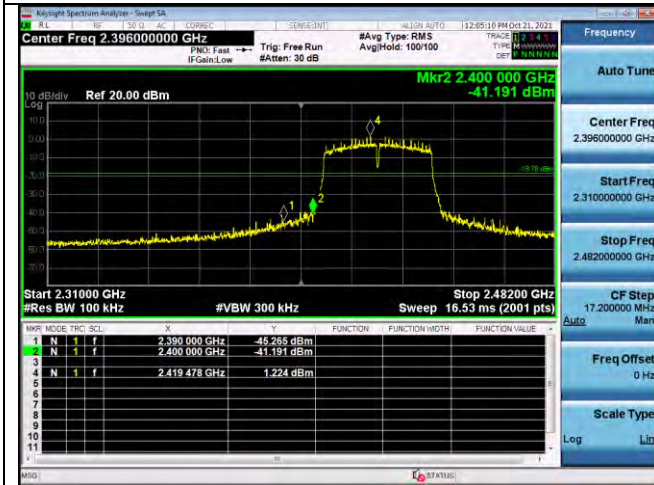
Middle Channel



High Channel

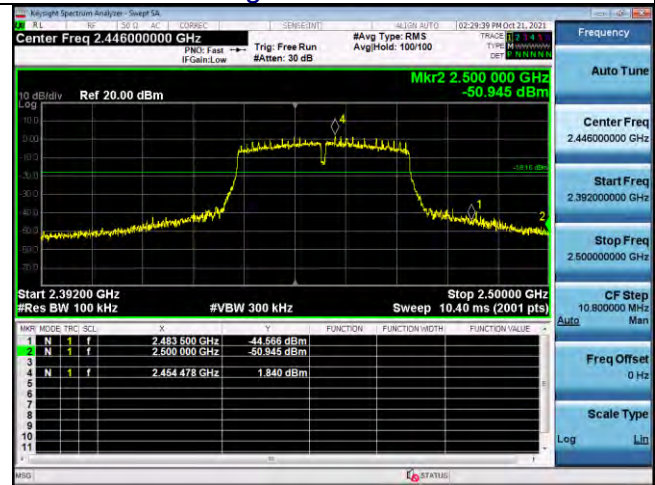


Lowest Channel



Left Band Edge

Highest Channel



Right Band Edge

## 10. ANTENNA REQUIREMENT

Standard requirement:

FCC Part15 C Section 15.203 /247(c)

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, 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.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

### Antenna Connected Construction

The antenna used in this product is a Glue stick antenna, and the best case gain of the antenna is antenna port 1:5dBi and Antenna port 2:5dBi.

EUT Antenna:

ANT for Module A

ANT for Module B

ANT for BT/BLE



## 11. TEST SETUP PHOTO

Please refer to test setup file

## 12. EUT CONSTRUCTIONAL DETAILS

Reference to the external photos file and internal photos file for details.

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