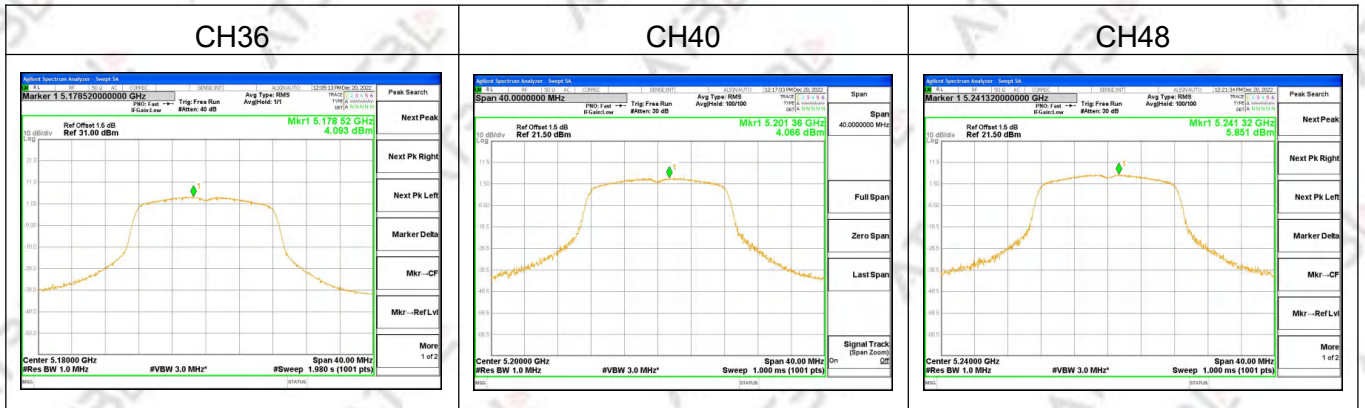
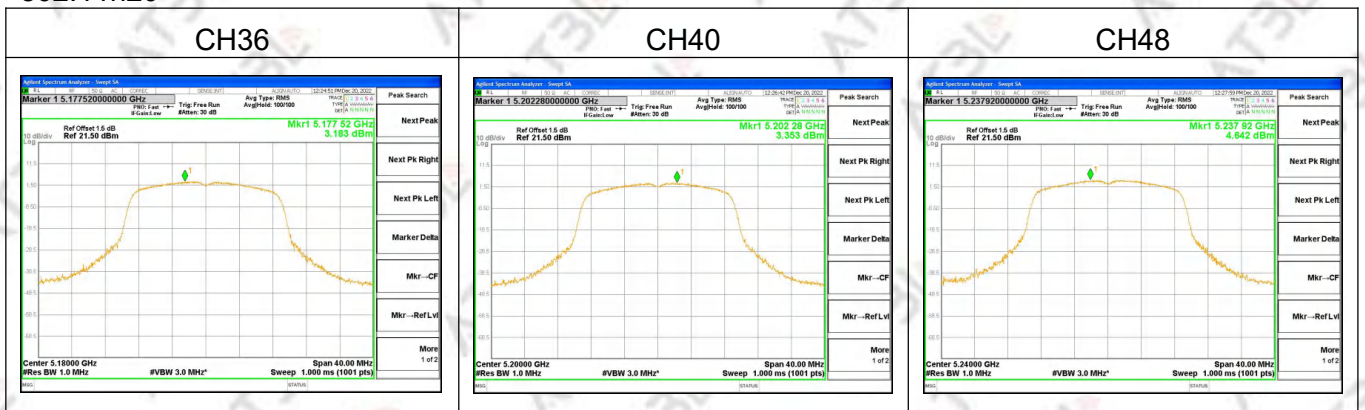


## 5150MHz-5250MHz

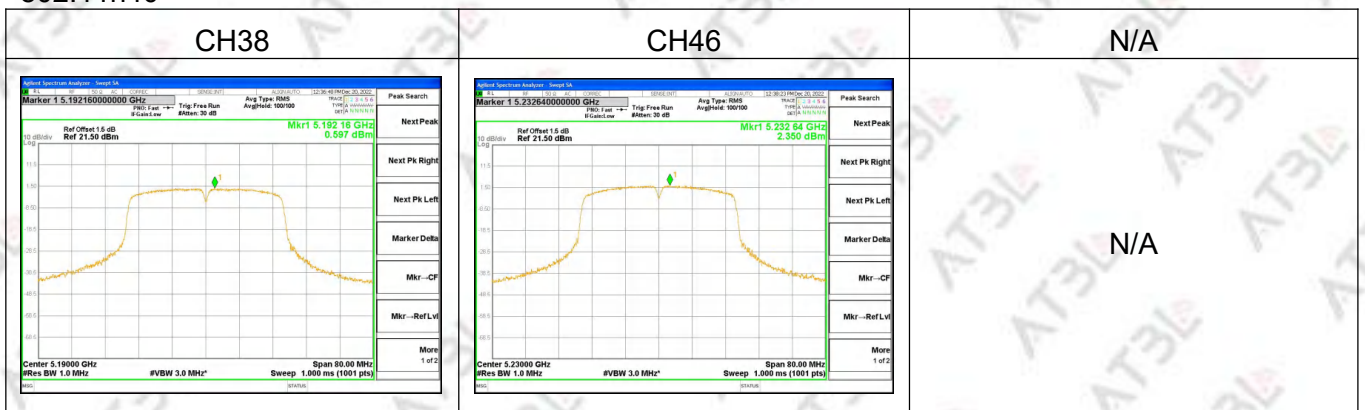
802.11a



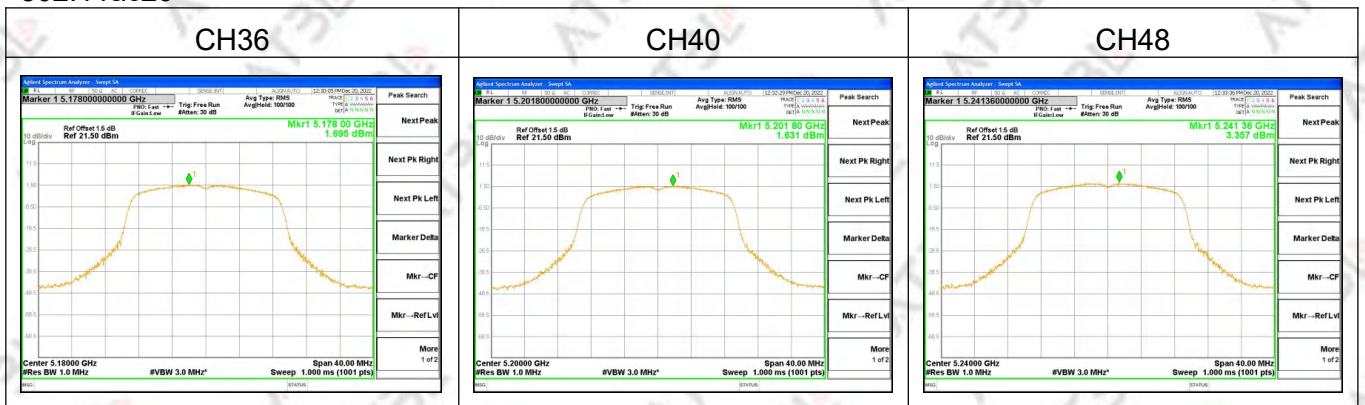
802.11n20



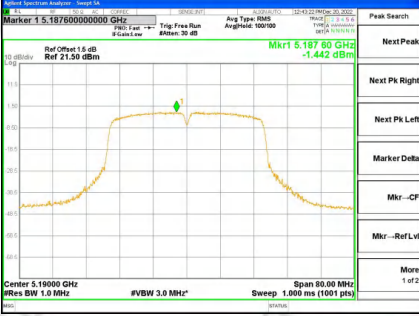
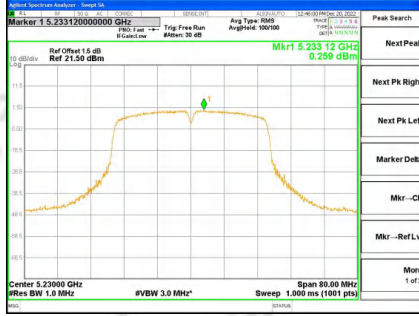
802.11n40



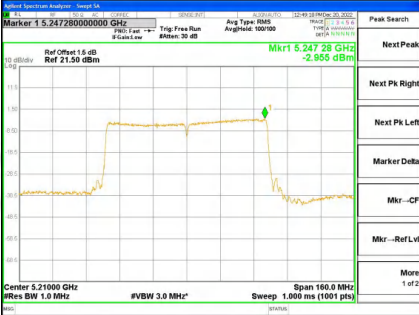
802.11ac20



802.11ac40

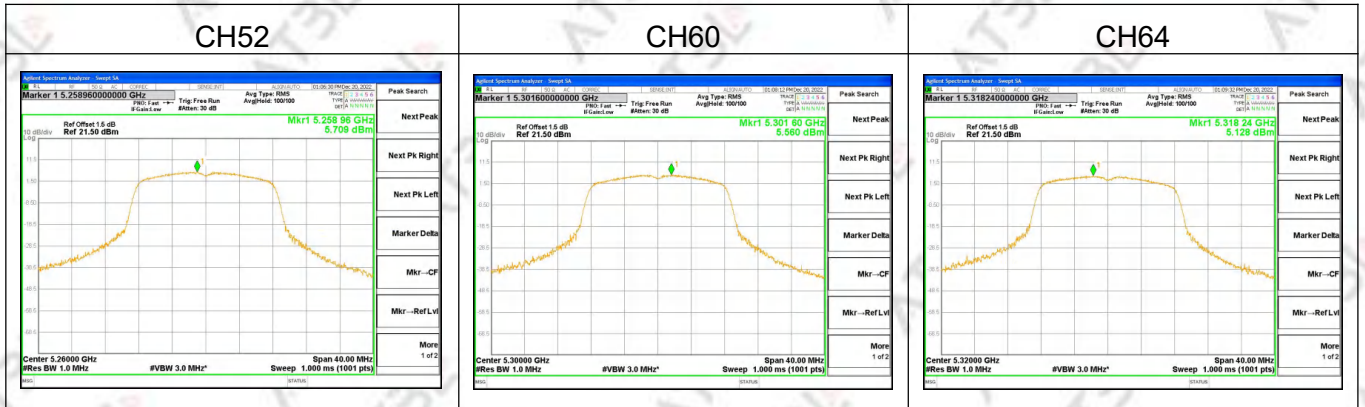
| CH38                                                                                                                                                                                           | CH46                                                                                                                                                                                           | N/A |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
|  <p>Marker 1 5.187600000 GHz<br/>Ref Offset 1.5 dB<br/>Ref 21.50 dBm<br/>Mkr1 5.187 60 GHz<br/>-1.442 dBm</p> |  <p>Marker 1 5.233120000 GHz<br/>Ref Offset 1.5 dB<br/>Ref 21.50 dBm<br/>Mkr1 5.233 12 GHz<br/>0.259 dBm</p> | N/A |

802.11ac80

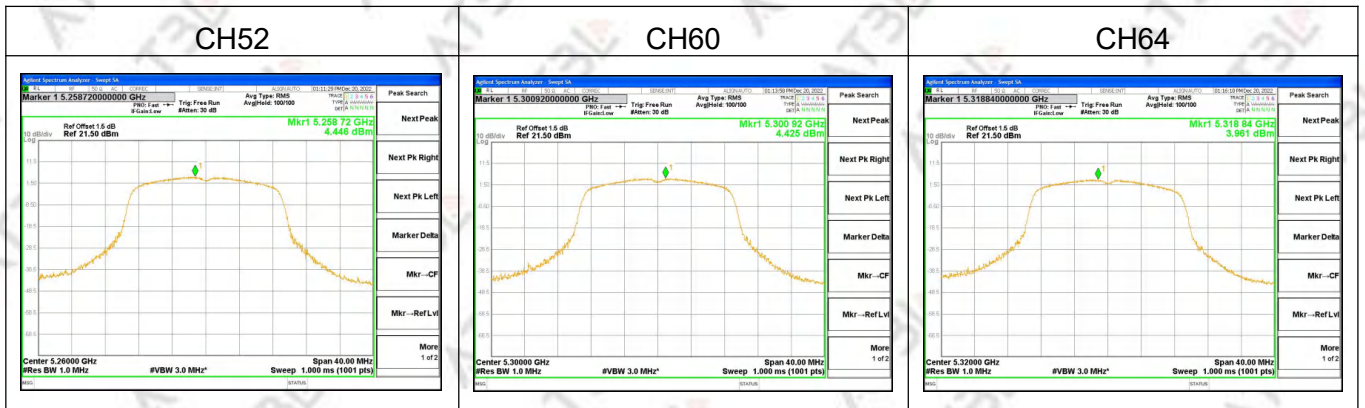
| CH42                                                                                                                                                                                            | N/A | N/A |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
|  <p>Marker 1 5.247280000 GHz<br/>Ref Offset 1.5 dB<br/>Ref 21.50 dBm<br/>Mkr1 5.247 28 GHz<br/>-2.805 dBm</p> | N/A | N/A |

5250MHz-5350MHz

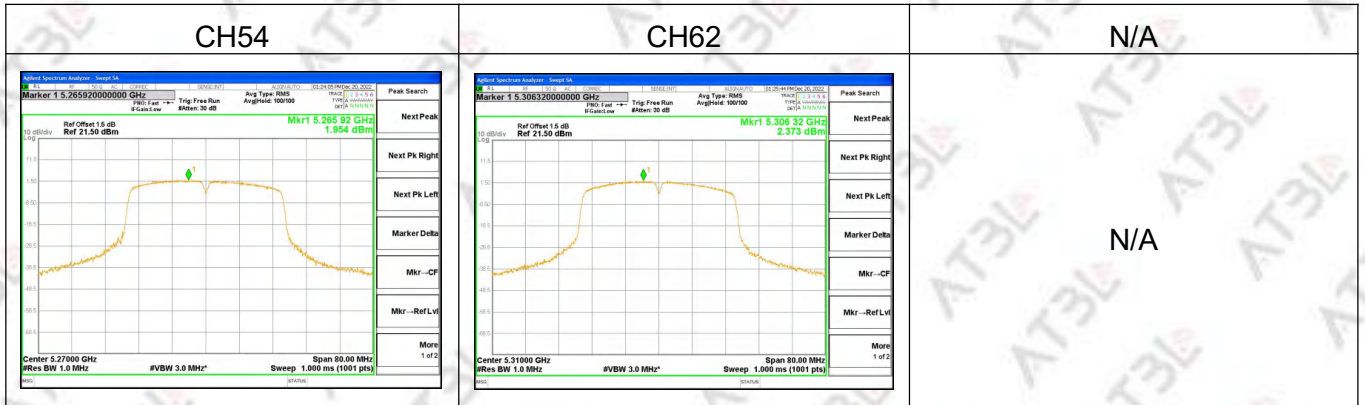
802.11a



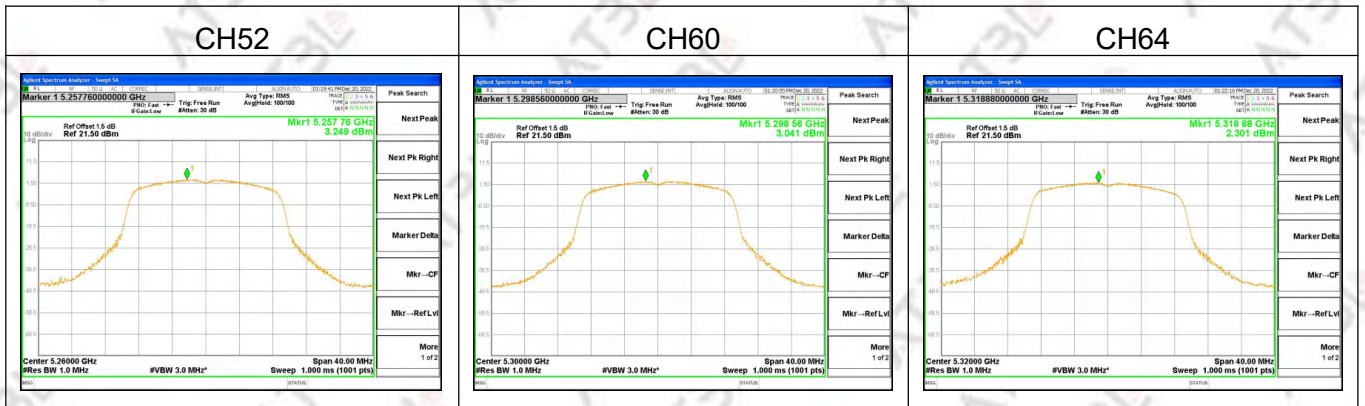
802.11n20



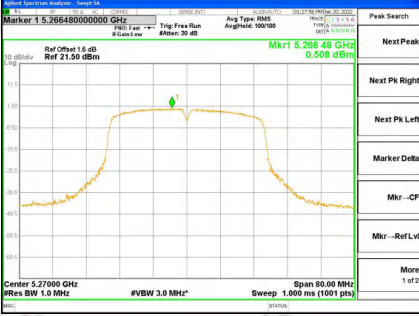
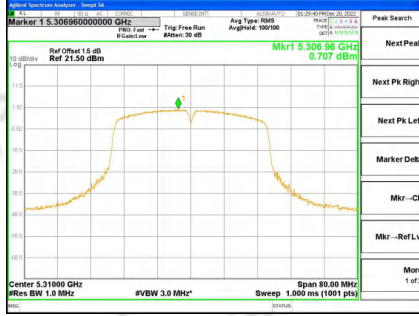
802.11n40



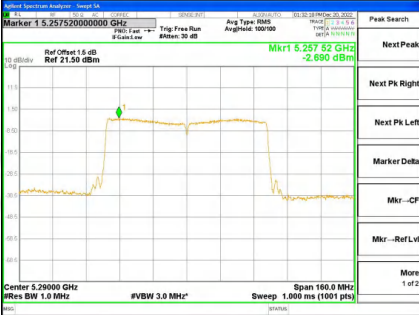
802.11ac20



802.11ac40

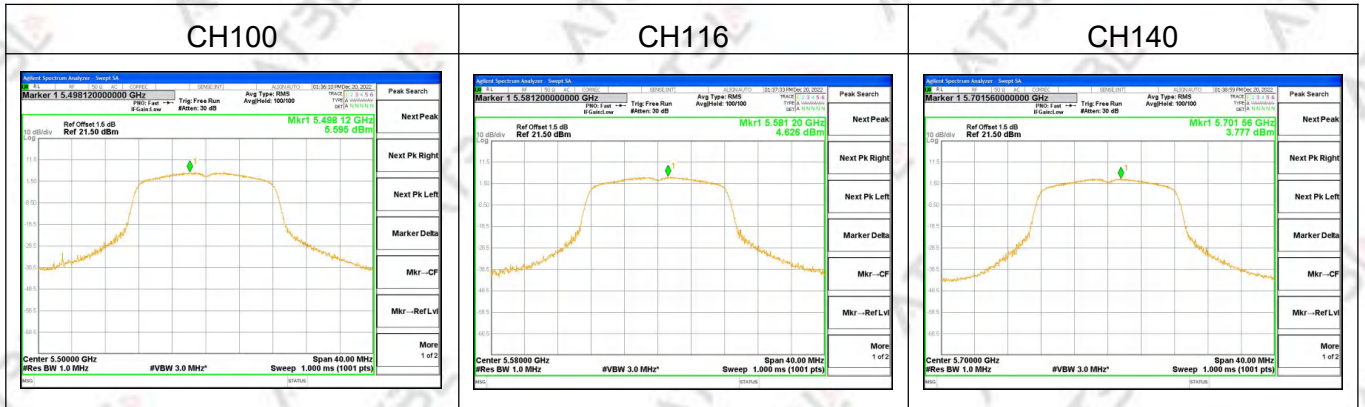
| CH54                                                                              | CH62                                                                               | N/A |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----|
|  |  | N/A |

802.11ac80

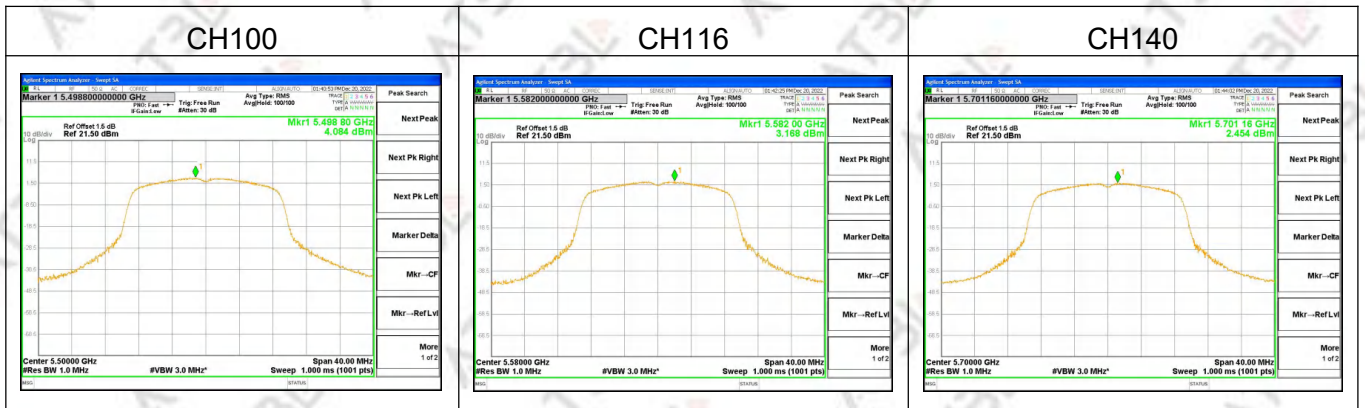
| CH58                                                                               | N/A | N/A |
|------------------------------------------------------------------------------------|-----|-----|
|  | N/A | N/A |

5470MHz-5725MHz

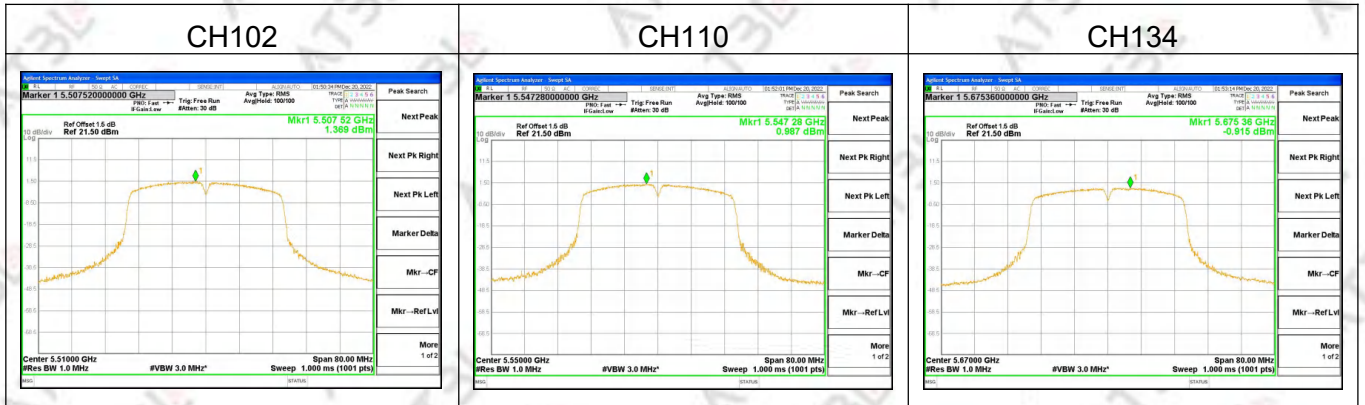
802.11a



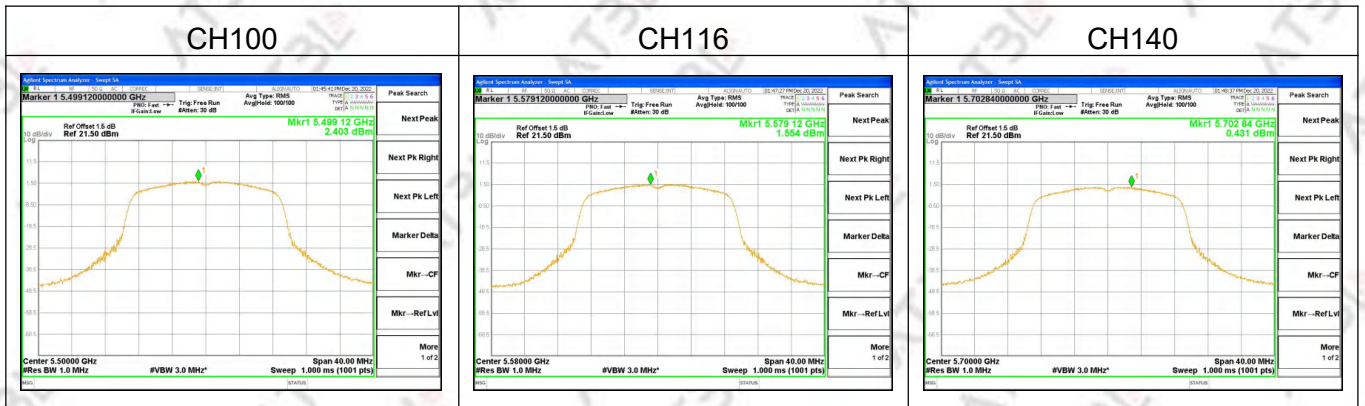
802.11n20



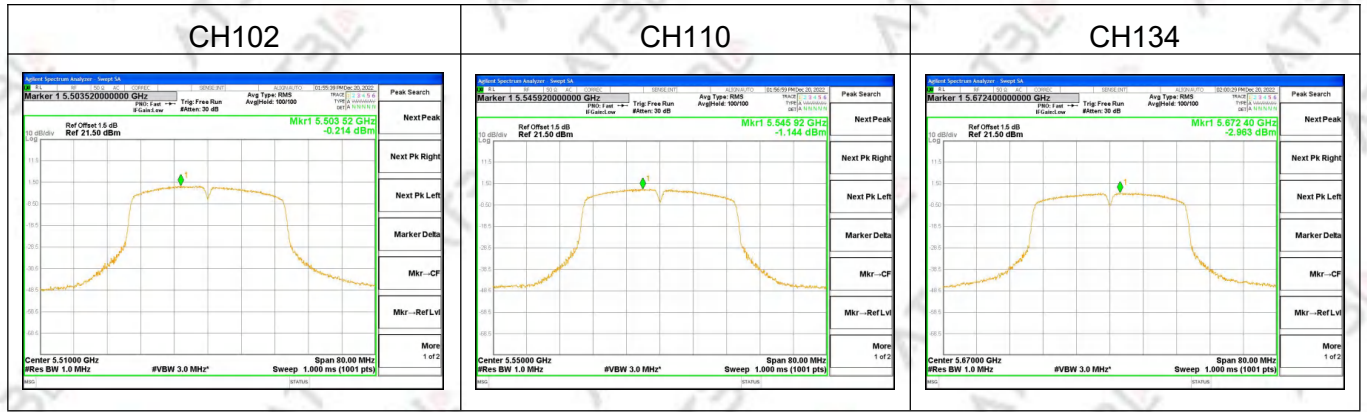
802.11n40



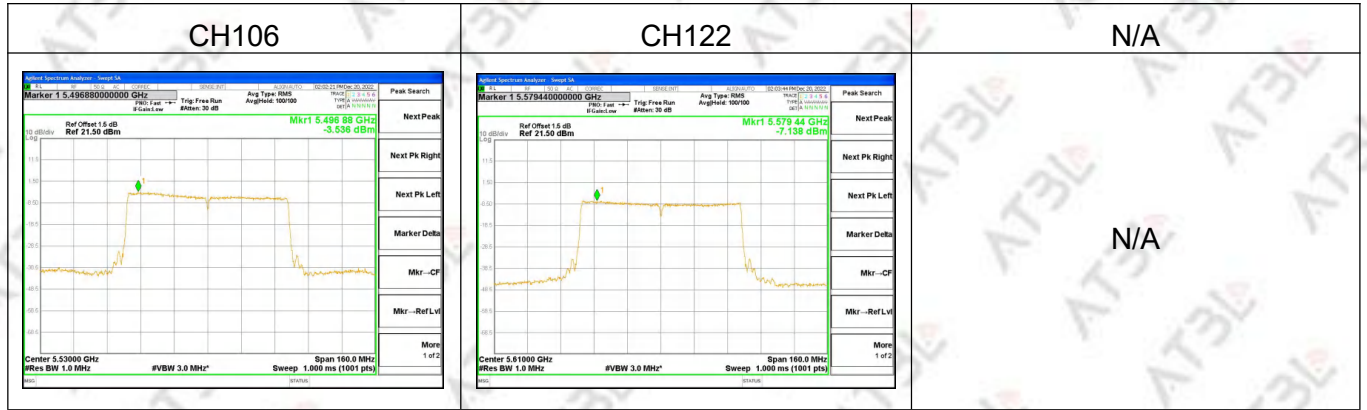
802.11ac20



802.11ac40

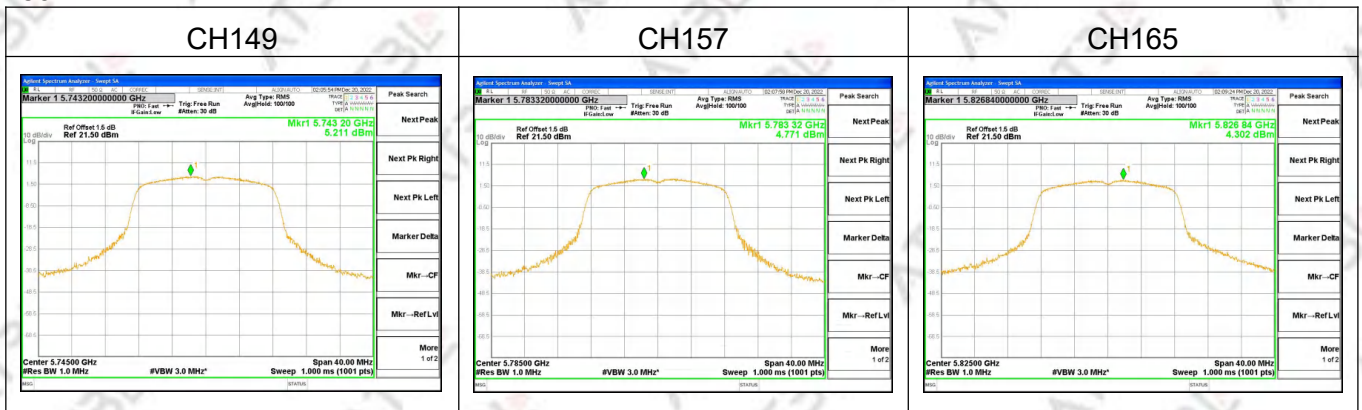


802.11ac80

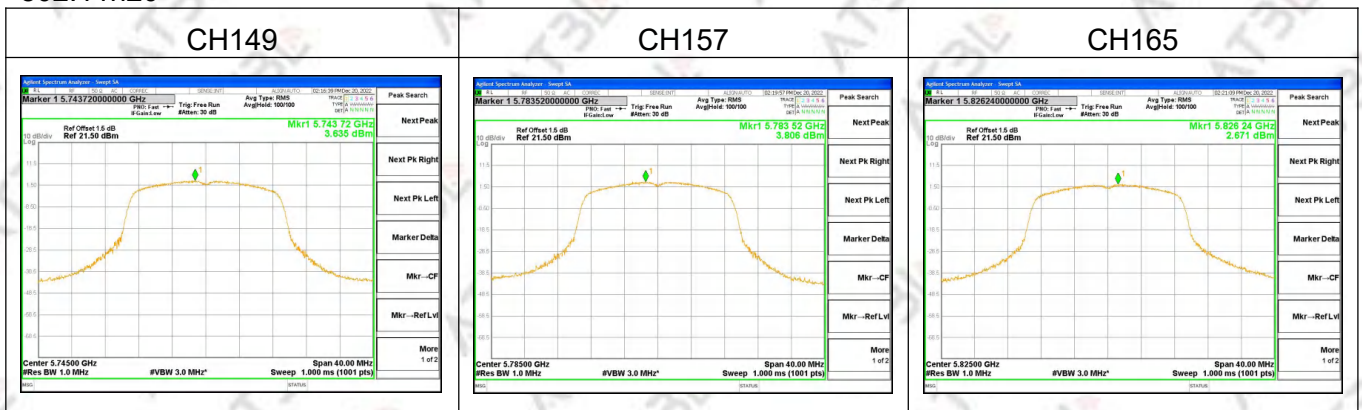


## 5725MHz-5850MHz

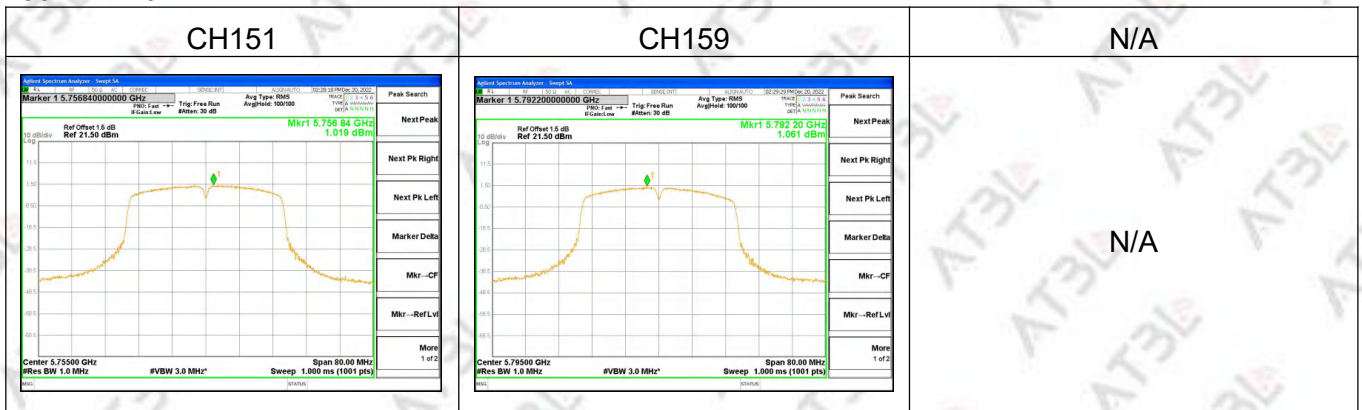
802.11a



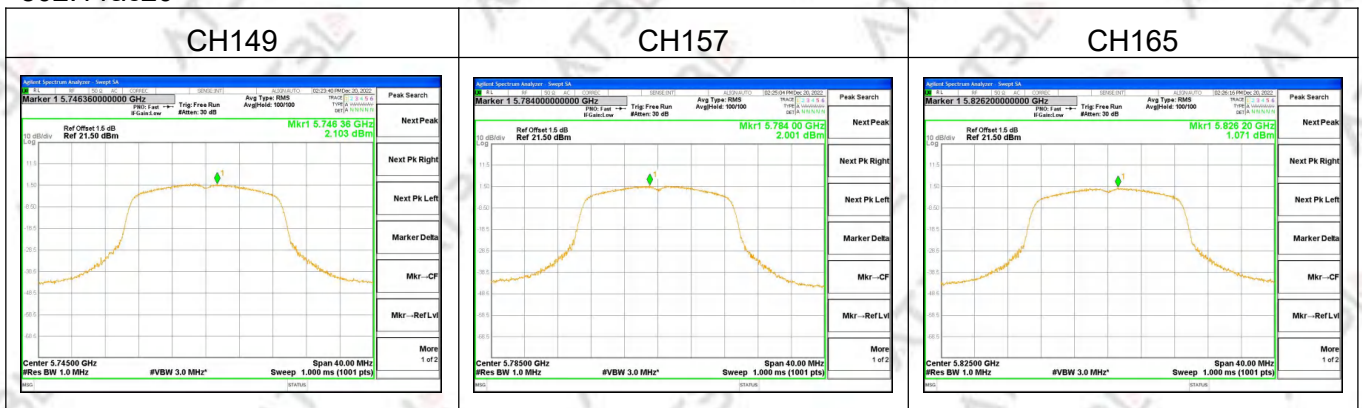
802.11n20



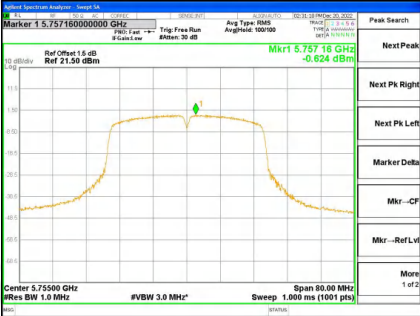
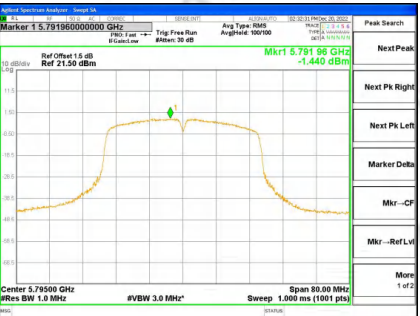
802.11n40



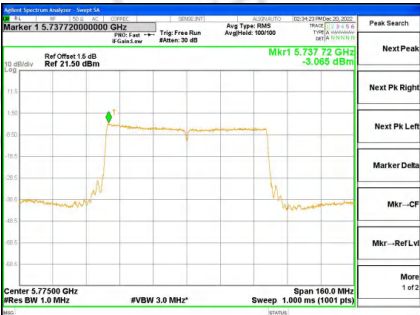
802.11ac20



802.11ac40

| CH151                                                                             | CH159                                                                              | N/A        |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------|
|  |  | <p>N/A</p> |

802.11ac80

| CH155                                                                              | N/A        | N/A        |
|------------------------------------------------------------------------------------|------------|------------|
|  | <p>N/A</p> | <p>N/A</p> |

## 5. BANDWIDTH MEASUREMENT

### 5.1. EMISSION BANDWIDTH (EBW) 26 BANDWIDTH

See list of measuring instruments of this test report.

#### 5.1.1. TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW  $\geq$  RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

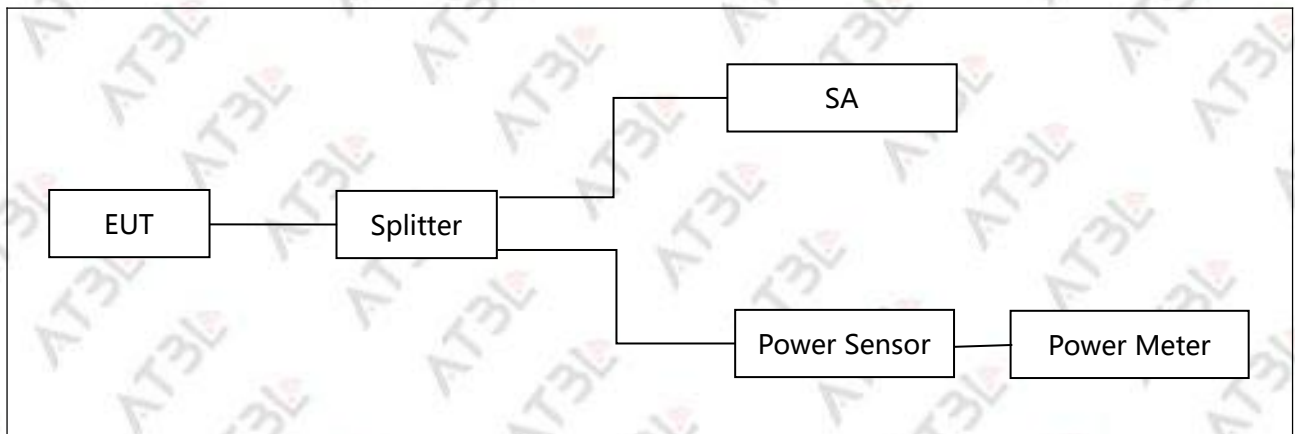
Note:

Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

#### 5.1.2. DEVIATION FROM STANDARD

No deviation.

#### 5.1.3. TEST SETUP



#### 5.1.4. EUT OPERATION CONDITIONS

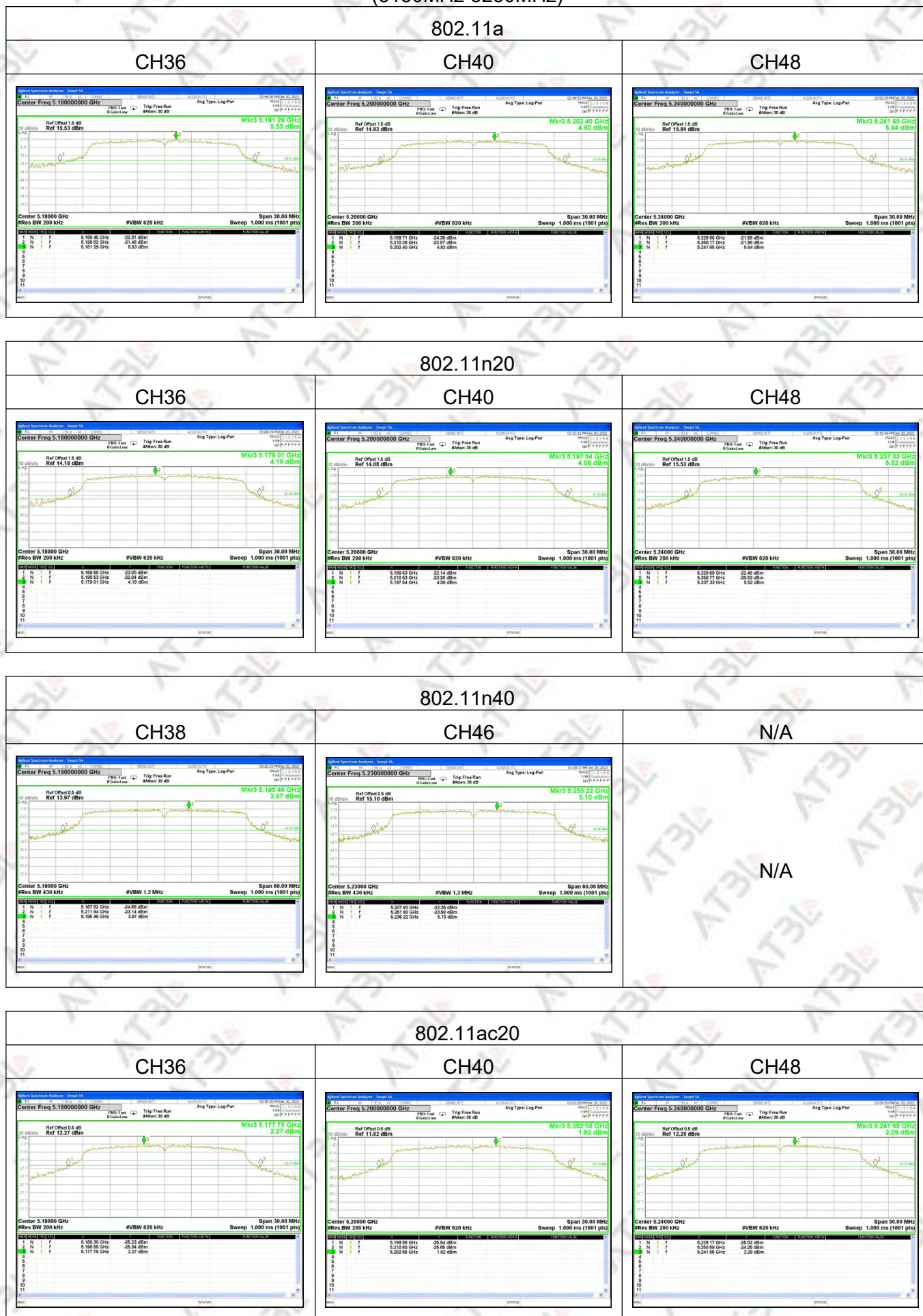
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

### 5.1.5. TEST RESULTS

| Mode      | CH. | Freq.(MHz) | 26 dB BW(MHz) |
|-----------|-----|------------|---------------|
| 802.11a   | 36  | 5180       | 21.570        |
|           | 40  | 5200       | 20.550        |
|           | 48  | 5240       | 20.520        |
|           | 52  | 5260       | 20.400        |
|           | 60  | 5300       | 20.160        |
|           | 64  | 5320       | 20.820        |
|           | 100 | 5500       | 20.640        |
|           | 116 | 5580       | 20.850        |
|           | 140 | 5700       | 20.160        |
|           | 149 | 5745       | 20.460        |
|           | 157 | 5785       | 20.640        |
|           | 165 | 5825       | 20.970        |
| 802.11n20 | 36  | 5180       | 20.970        |
|           | 40  | 5200       | 21.000        |
|           | 48  | 5240       | 21.180        |
|           | 52  | 5260       | 20.940        |
|           | 60  | 5300       | 21.060        |
|           | 64  | 5320       | 20.820        |
|           | 100 | 5500       | 20.640        |
|           | 116 | 5580       | 20.910        |
|           | 140 | 5700       | 20.880        |
|           | 149 | 5745       | 20.760        |
|           | 157 | 5785       | 20.430        |
|           | 165 | 5825       | 21.450        |
| 802.11n40 | 38  | 5190       | 44.220        |
|           | 46  | 5230       | 43.800        |
|           | 54  | 5270       | 43.080        |
|           | 62  | 5310       | 42.780        |
|           | 102 | 5510       | 42.600        |
|           | 110 | 5550       | 42.000        |
|           | 134 | 5670       | 42.900        |
|           | 151 | 5755       | 42.840        |
|           | 159 | 5795       | 41.760        |

| Mode       | CH. | Freq.(MHz) | 26 dB BW(MHz) |
|------------|-----|------------|---------------|
| 802.11ac20 | 36  | 5180       | 21.270        |
|            | 40  | 5200       | 21.240        |
|            | 48  | 5240       | 21.420        |
|            | 52  | 5260       | 20.760        |
|            | 60  | 5300       | 20.730        |
|            | 64  | 5320       | 21.000        |
|            | 100 | 5500       | 21.000        |
|            | 116 | 5580       | 20.910        |
|            | 140 | 5700       | 21.000        |
|            | 149 | 5745       | 21.090        |
|            | 157 | 5785       | 21.150        |
|            | 165 | 5825       | 20.970        |
| 802.11ac40 | 38  | 5190       | 43.860        |
|            | 46  | 5230       | 42.840        |
|            | 54  | 5270       | 42.900        |
|            | 62  | 5310       | 42.240        |
|            | 102 | 5510       | 43.200        |
|            | 110 | 5550       | 43.440        |
|            | 134 | 5670       | 43.560        |
|            | 151 | 5755       | 42.600        |
|            | 159 | 5795       | 43.080        |
| 802.11ac80 | 42  | 5210       | 81.840        |
|            | 58  | 5290       | 94.080        |
|            | 106 | 5530       | 85.200        |
|            | 122 | 5610       | 82.200        |
|            | 155 | 5775       | 90.600        |

(5150MHz-5250MHz)

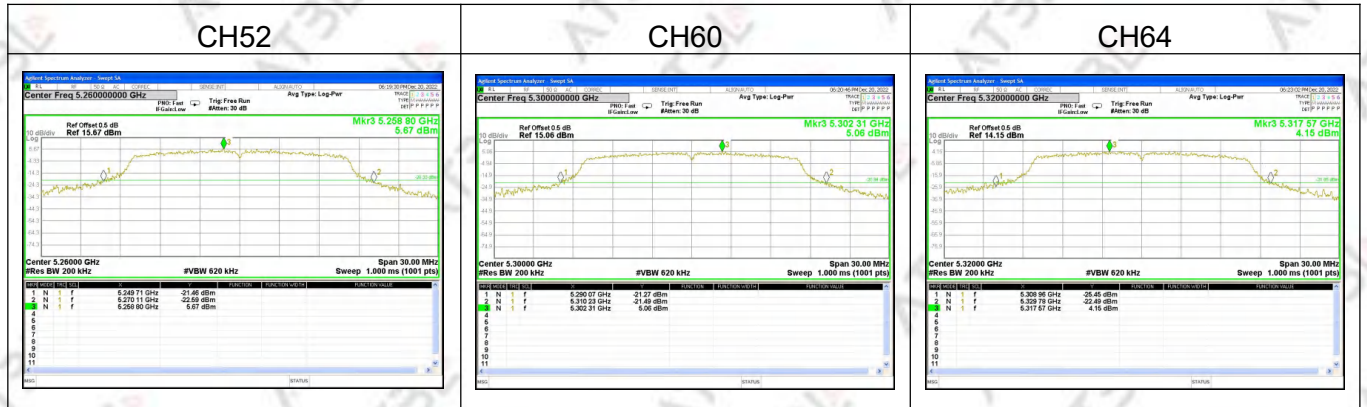


| 802.11ac40                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                              |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| CH38                                                                                                                                                                                                                                                                                                       | CH46                                                                                                                                                                                                                                                                                                         | N/A |
|  <p>Center Freq 5.190000000 GHz<br/>Ref Offset 0.5 dB<br/>Ref 12.27 dBm<br/>Mkr3 5.1928 GHz<br/>2.27 dBm<br/>Center 5.19000 GHz<br/>#VBW 1.3 MHz<br/>Span 60.00 MHz<br/>#Res BW 430 kHz<br/>Sweep 1.000 ms (1001 pts)</p> |  <p>Center Freq 5.230000000 GHz<br/>Ref Offset 0.5 dB<br/>Ref 13.17 dBm<br/>Mkr3 5.22304 GHz<br/>3.17 dBm<br/>Center 5.23000 GHz<br/>#VBW 1.3 MHz<br/>Span 60.00 MHz<br/>#Res BW 430 kHz<br/>Sweep 1.000 ms (1001 pts)</p> | N/A |

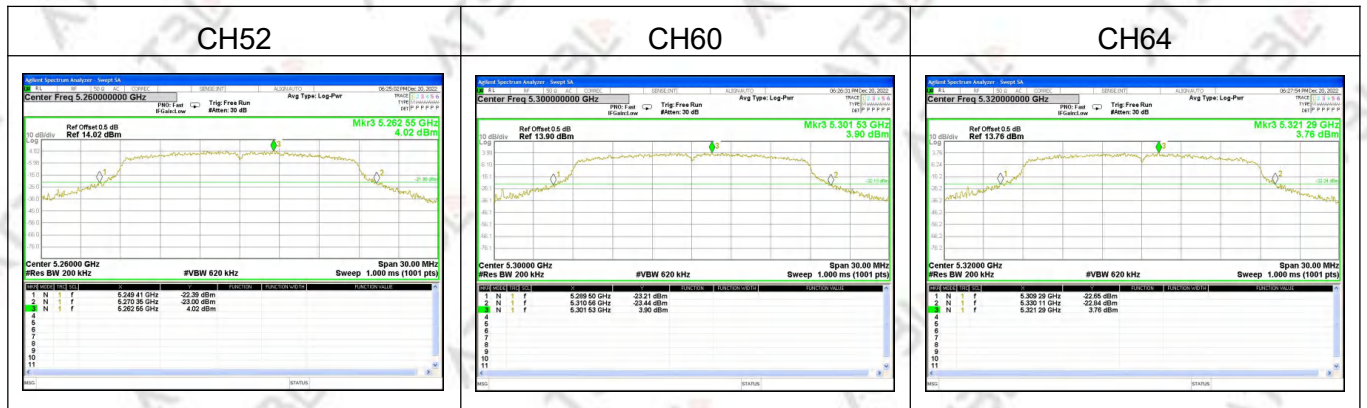
| 802.11ac80                                                                                                                                                                                                                                                                                                   |     |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| CH42                                                                                                                                                                                                                                                                                                         | N/A | N/A |
|  <p>Center Freq 5.210000000 GHz<br/>Ref Offset 0.5 dB<br/>Ref 14.68 dBm<br/>Mkr3 5.20880 GHz<br/>4.68 dBm<br/>Center 5.21000 GHz<br/>#VBW 2.7 MHz<br/>Span 120.0 MHz<br/>#Res BW 820 kHz<br/>Sweep 1.000 ms (1001 pts)</p> | N/A | N/A |

5250MHz-5350MHz

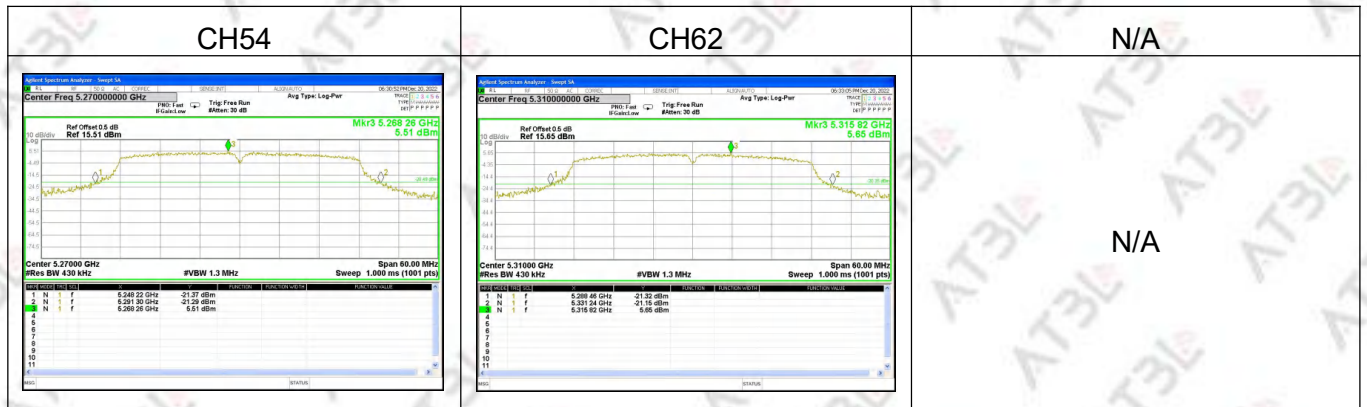
802.11a



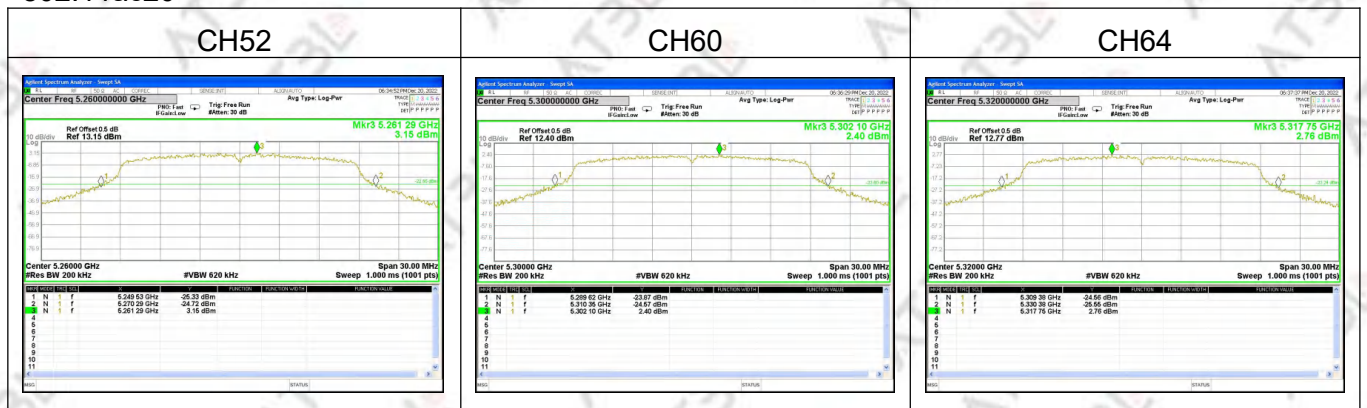
802.11n20



802.11n40



802.11ac20



802.11ac40

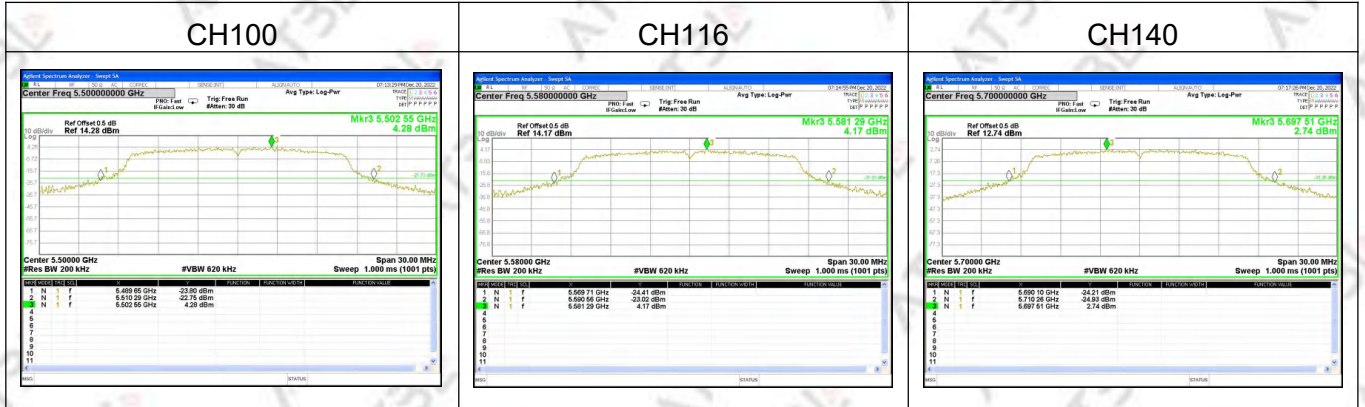
| CH54                                                                                                                                                                                                                                                                                                              | CH62                                                                                                                                                                                                                                                                                                               | N/A |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
|  <p>Center Freq 5.27000000 GHz</p> <p>Ref Offset 0.5 dB</p> <p>Mkr3 5.275 92 GHz</p> <p>3.77 dBm</p> <p>Center 5.27000 GHz</p> <p>#VBW 1.3 MHz</p> <p>Span 60.00 MHz</p> <p>#Res BW 430 kHz</p> <p>Sweep 1.000 ms (1001 pts)</p> |  <p>Center Freq 5.31000000 GHz</p> <p>Ref Offset 0.5 dB</p> <p>Mkr3 5.307 96 GHz</p> <p>4.00 dBm</p> <p>Center 5.31000 GHz</p> <p>#VBW 1.3 MHz</p> <p>Span 60.00 MHz</p> <p>#Res BW 430 kHz</p> <p>Sweep 1.000 ms (1001 pts)</p> | N/A |

802.11ac80

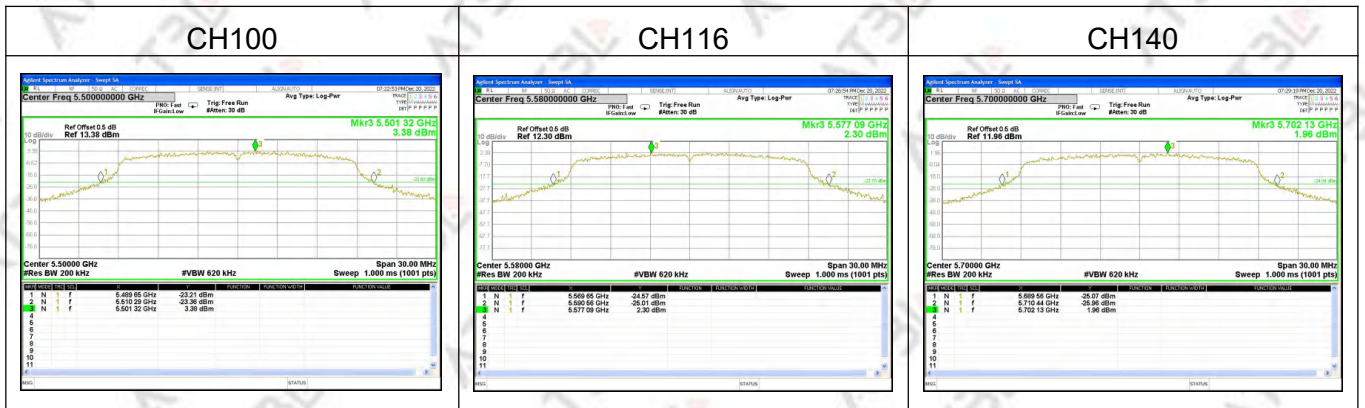
| CH58                                                                                                                                                                                                                                                                                                               | N/A | N/A |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
|  <p>Center Freq 5.29000000 GHz</p> <p>Ref Offset 0.5 dB</p> <p>Mkr3 5.297 96 GHz</p> <p>3.85 dBm</p> <p>Center 5.29000 GHz</p> <p>#VBW 2.7 MHz</p> <p>Span 120.0 MHz</p> <p>#Res BW 120 kHz</p> <p>Sweep 1.000 ms (1001 pts)</p> | N/A | N/A |

5470MHz-5725MHz

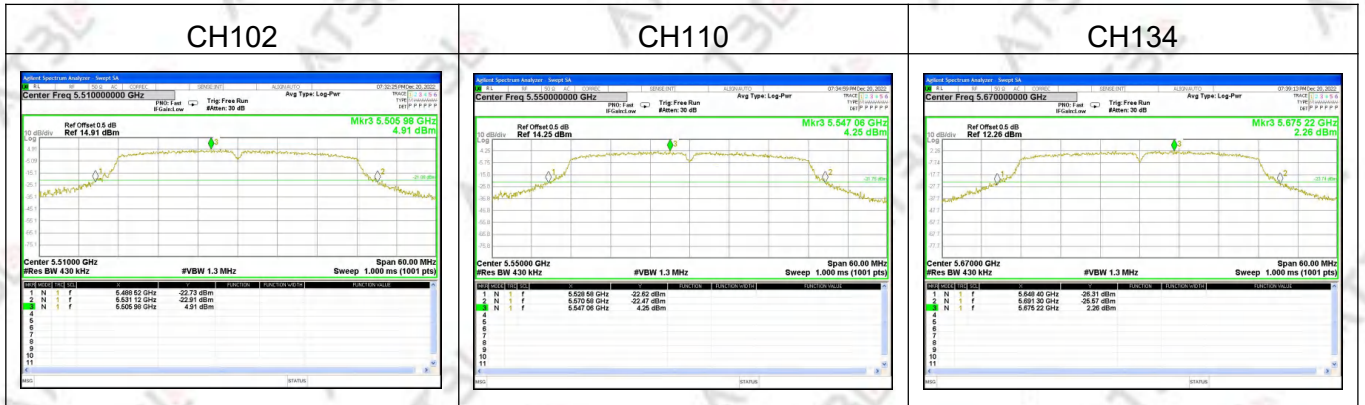
802.11a



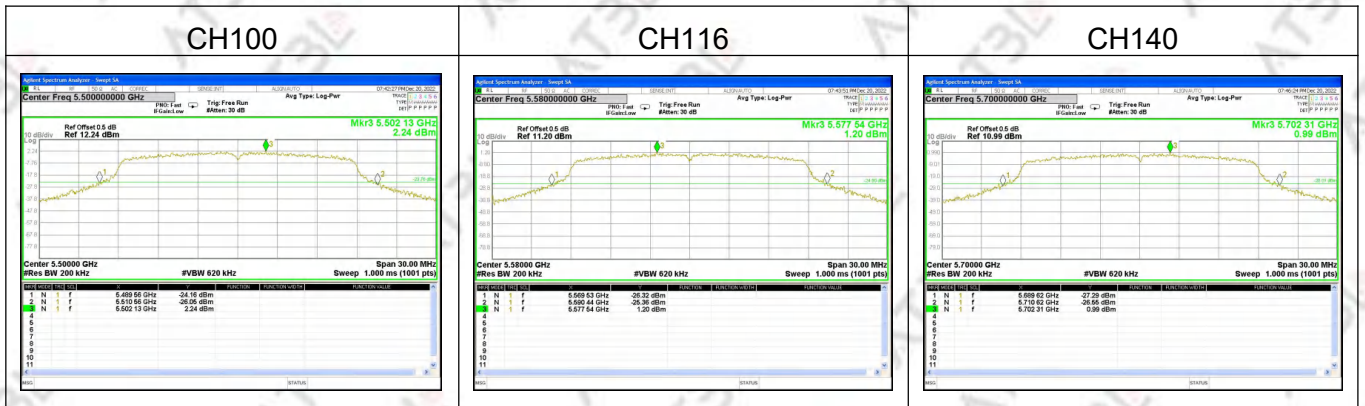
802.11n20



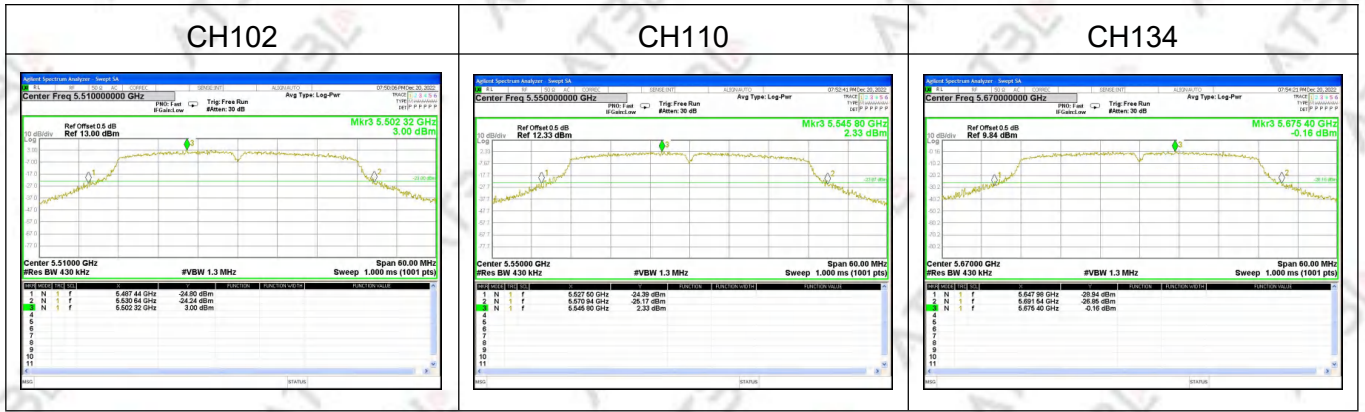
802.11n40



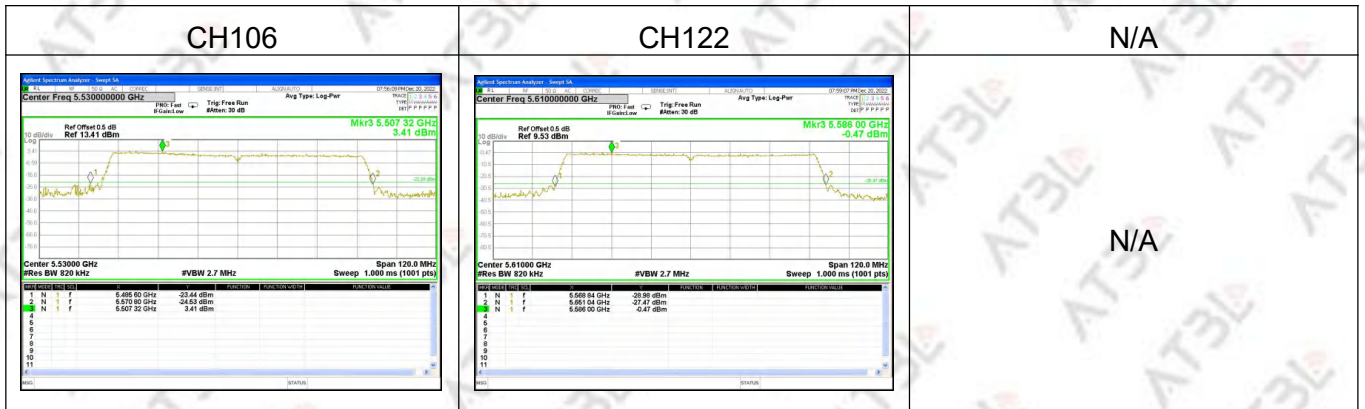
802.11ac20



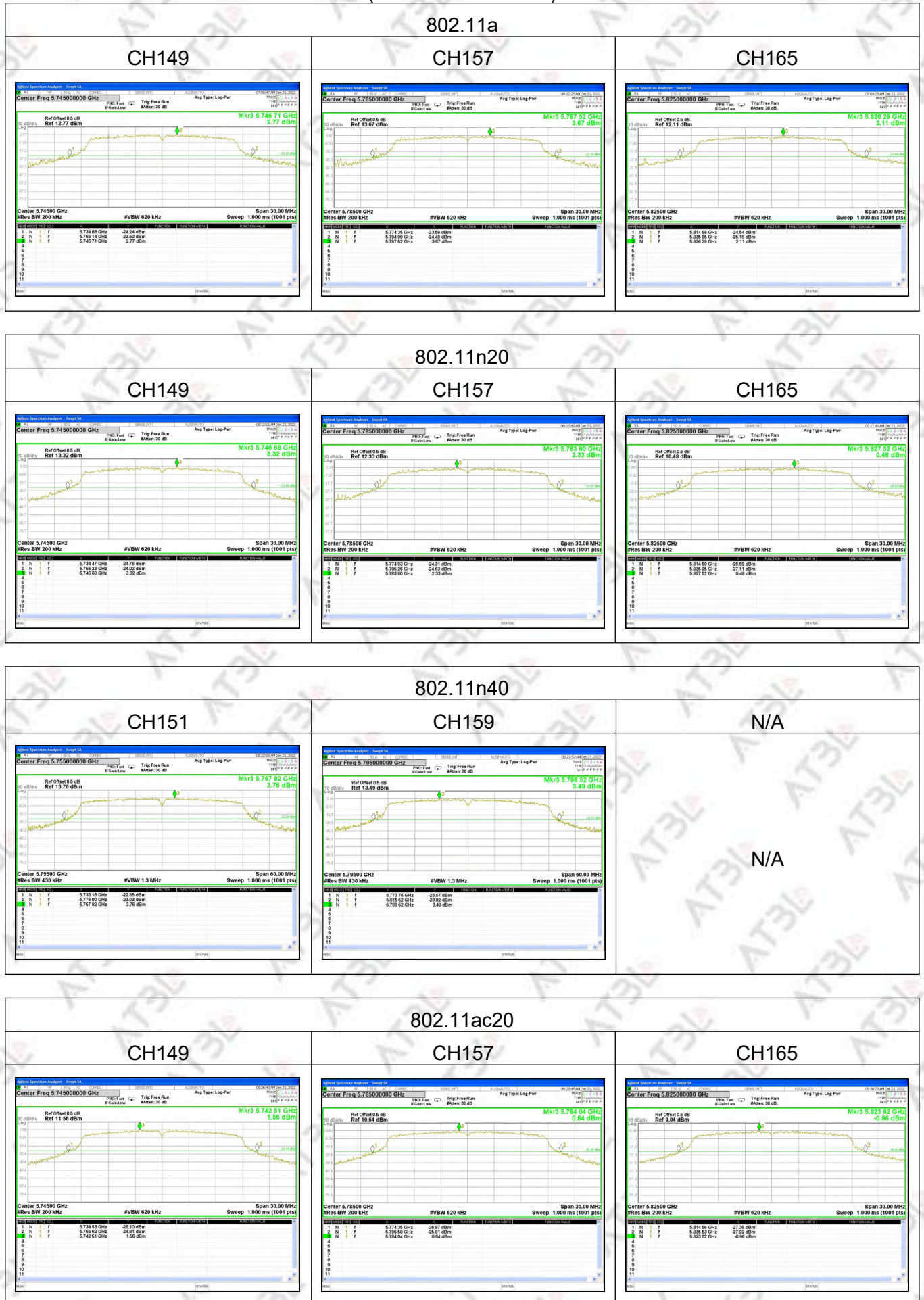
802.11ac40



802.11ac80



(5725MHz-5850MHz)



| 802.11ac40                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                              |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| CH151                                                                                                                                                                                                                                                                                                      | CH159                                                                                                                                                                                                                                                                                                        | N/A |
|  <p>Center Freq 5.75000000 GHz<br/>Ref Offset 0.5 dB<br/>Ref 12.38 dBm<br/>Mkr3 5.75218 GHz<br/>2.38 dBm<br/>Center 5.75000 GHz<br/>#Res BW 430 kHz<br/>#VBW 1.3 MHz<br/>Span 60.00 MHz<br/>Sweep 1.000 ms (1001 pts)</p> |  <p>Center Freq 5.795000000 GHz<br/>Ref Offset 0.5 dB<br/>Ref 11.45 dBm<br/>Mkr3 5.79356 GHz<br/>1.46 dBm<br/>Center 5.79500 GHz<br/>#Res BW 430 kHz<br/>#VBW 1.3 MHz<br/>Span 60.00 MHz<br/>Sweep 1.000 ms (1001 pts)</p> | N/A |

| 802.11ac80                                                                                                                                                                                                                                                                                                    |     |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| CH155                                                                                                                                                                                                                                                                                                         | N/A | N/A |
|  <p>Center Freq 5.775000000 GHz<br/>Ref Offset 0.5 dB<br/>Ref 11.84 dBm<br/>Mkr3 5.79886 GHz<br/>1.84 dBm<br/>Center 5.77500 GHz<br/>#Res BW 820 kHz<br/>#VBW 2.7 MHz<br/>Span 120.00 MHz<br/>Sweep 1.000 ms (1001 pts)</p> | N/A | N/A |

## 5.2. OCCUPIED BANDWIDTH(99%)

The following procedure shall be used for measuring (99 %) power bandwidth:

### 5.2.1. TEST PROCEDURE

The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.

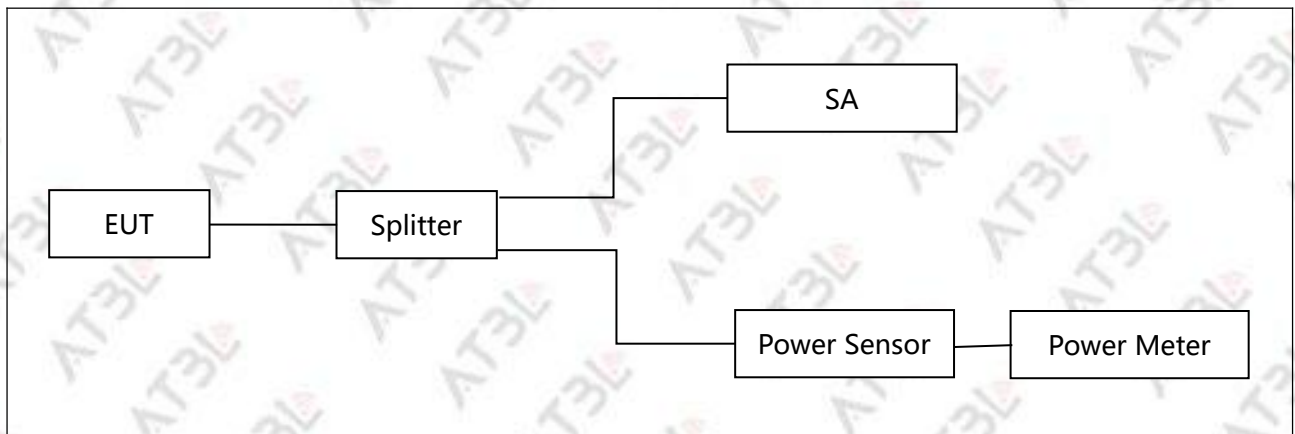
The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW  $\geq 3 \cdot$  RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

### 5.2.2. DEVIATION FROM STANDARD

No deviation.

### 5.2.3. TEST SETUP



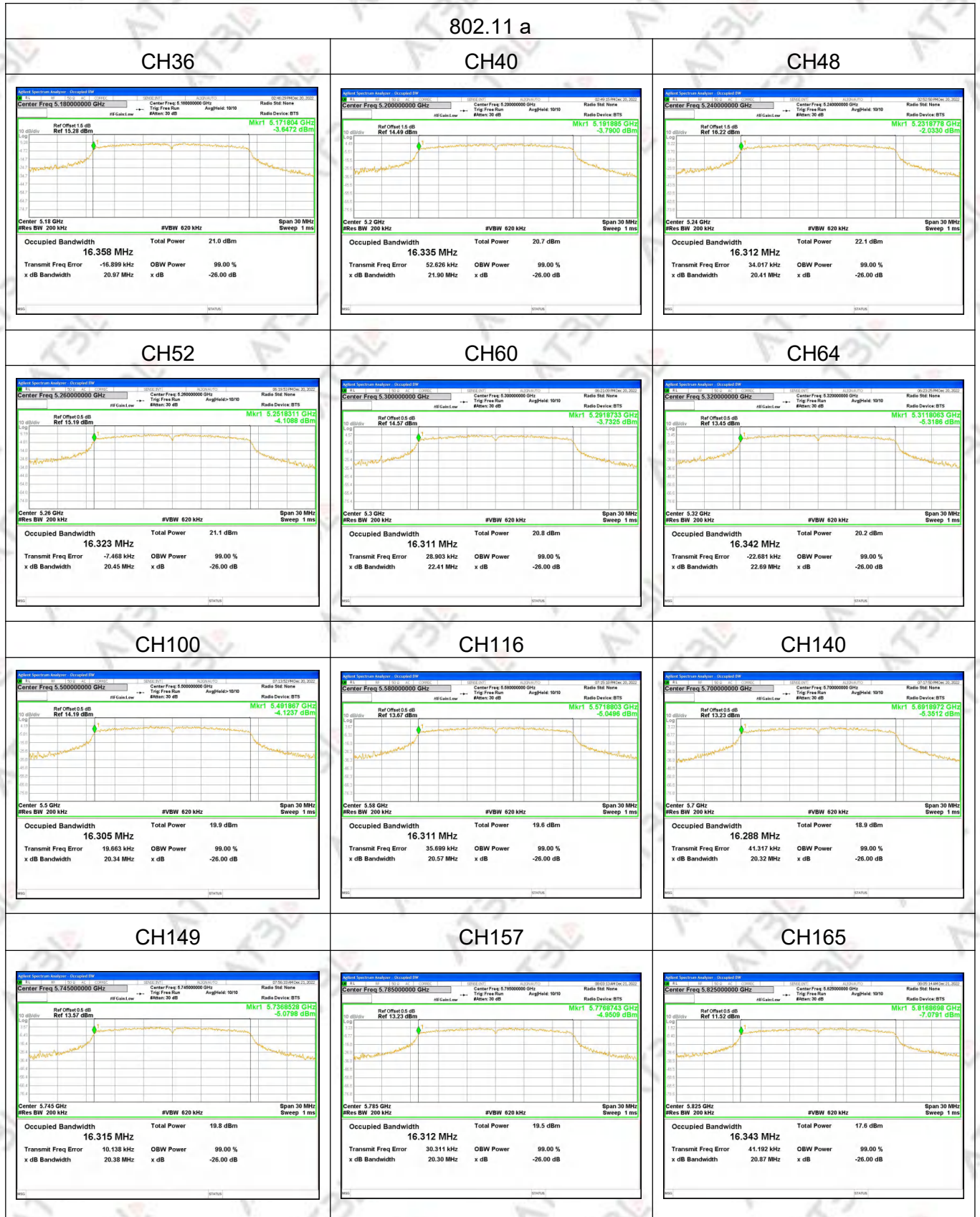
### 5.2.4. EUT OPERATION CONDITIONS

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.

### 5.2.5. TEST RESULTS

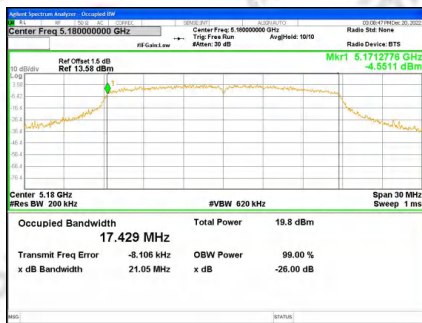
| Mode      | CH. | Freq.(MHz) | 99% OBW(MHz) |
|-----------|-----|------------|--------------|
| 802.11a   | 36  | 5180       | 16.358       |
|           | 40  | 5200       | 16.335       |
|           | 48  | 5240       | 16.312       |
|           | 52  | 5260       | 16.323       |
|           | 60  | 5300       | 16.311       |
|           | 64  | 5320       | 16.342       |
|           | 100 | 5500       | 16.305       |
|           | 116 | 5580       | 16.311       |
|           | 140 | 5700       | 16.288       |
|           | 149 | 5745       | 16.315       |
|           | 157 | 5785       | 16.312       |
|           | 165 | 5825       | 16.343       |
| 802.11n20 | 36  | 5180       | 17.429       |
|           | 40  | 5200       | 17.425       |
|           | 48  | 5240       | 17.426       |
|           | 52  | 5260       | 17.382       |
|           | 60  | 5300       | 17.405       |
|           | 64  | 5320       | 17.407       |
|           | 100 | 5500       | 17.379       |
|           | 116 | 5580       | 17.416       |
|           | 140 | 5700       | 17.391       |
|           | 149 | 5745       | 17.380       |
|           | 157 | 5785       | 17.395       |
|           | 165 | 5825       | 17.404       |
| 802.11n40 | 38  | 5190       | 36.111       |
|           | 46  | 5230       | 35.972       |
|           | 54  | 5270       | 36.003       |
|           | 62  | 5310       | 35.828       |
|           | 102 | 5510       | 35.810       |
|           | 110 | 5550       | 35.852       |
|           | 134 | 5670       | 35.933       |
|           | 151 | 5755       | 35.872       |
|           | 159 | 5795       | 35.745       |

| Mode       | CH. | Freq.(MHz) | 99% OBW(MHz) |
|------------|-----|------------|--------------|
| 802.11ac20 | 36  | 5180       | 17.427       |
|            | 40  | 5200       | 17.416       |
|            | 48  | 5240       | 17.404       |
|            | 52  | 5260       | 17.370       |
|            | 60  | 5300       | 17.395       |
|            | 64  | 5320       | 17.399       |
|            | 100 | 5500       | 17.367       |
|            | 116 | 5580       | 17.406       |
|            | 140 | 5700       | 17.383       |
|            | 149 | 5745       | 17.381       |
|            | 157 | 5785       | 17.374       |
|            | 165 | 5825       | 17.416       |
| 802.11ac40 | 38  | 5190       | 36.101       |
|            | 46  | 5230       | 35.968       |
|            | 54  | 5270       | 36.002       |
|            | 62  | 5310       | 35.846       |
|            | 102 | 5510       | 35.827       |
|            | 110 | 5550       | 35.848       |
|            | 134 | 5670       | 35.939       |
|            | 151 | 5755       | 35.882       |
|            | 159 | 5795       | 35.734       |
| 802.11ac80 | 42  | 5210       | 76.343       |
|            | 58  | 5290       | 76.150       |
|            | 106 | 5530       | 76.208       |
|            | 122 | 5610       | 76.383       |
|            | 155 | 5775       | 76.340       |

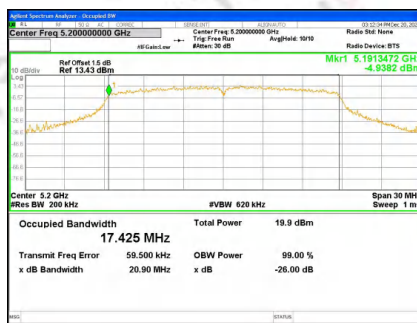


## 802.11 n20

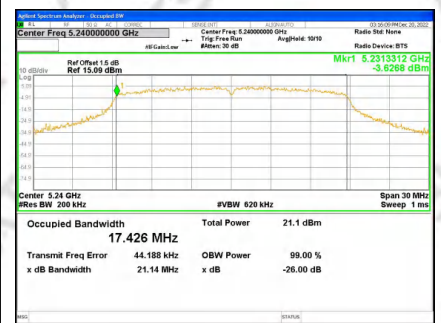
## CH36



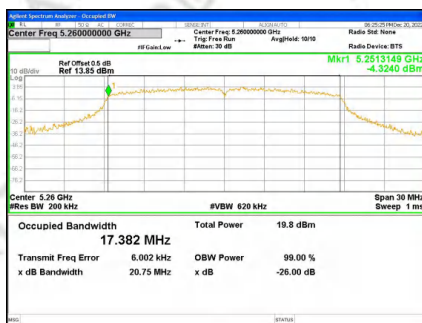
## CH40



## CH48



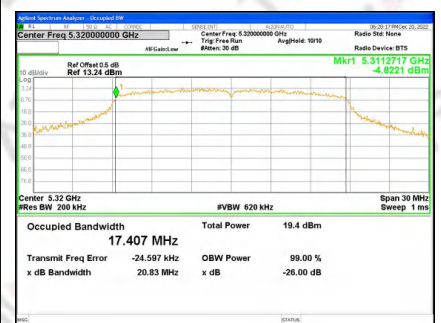
## CH52



## CH60



## CH64



## CH100



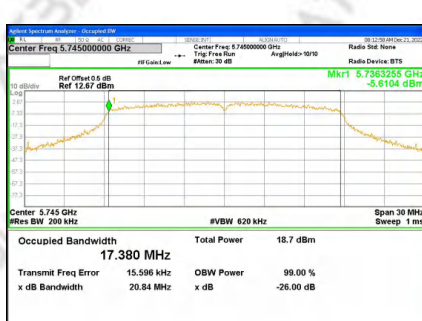
## CH116



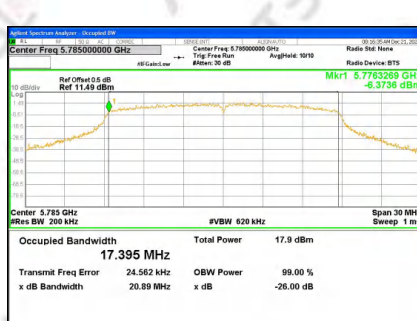
## CH140



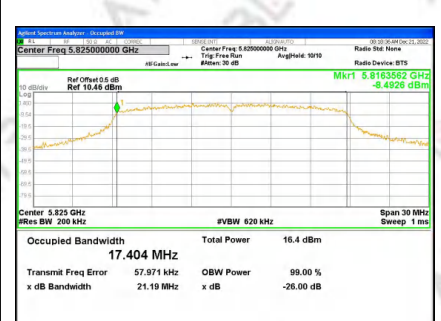
## CH149



## CH157

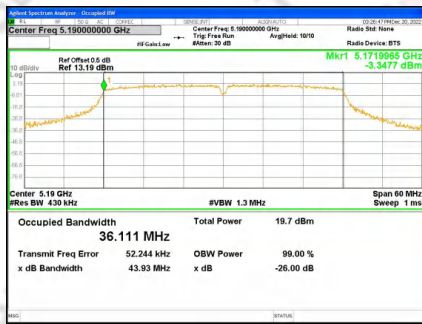


## CH165

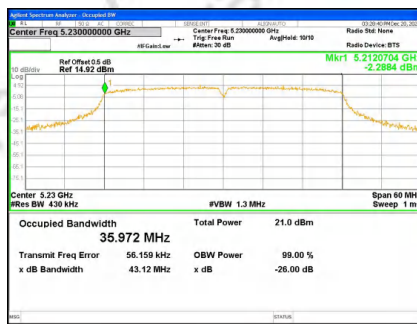


802.11 n40

CH38



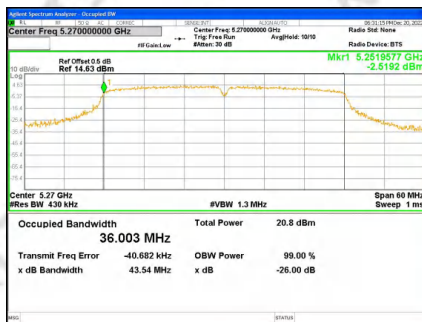
CH46



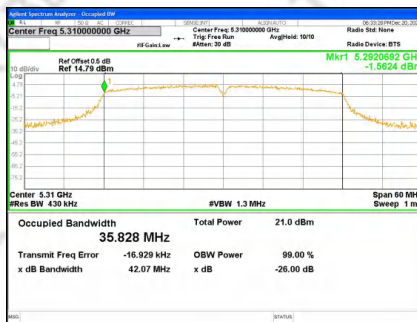
N/A

N/A

CH54



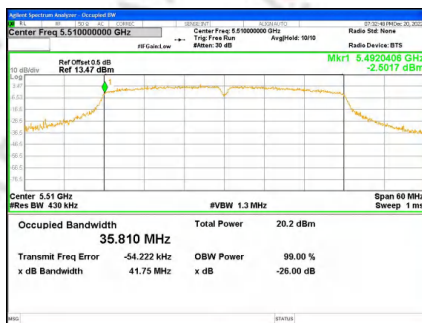
CH62



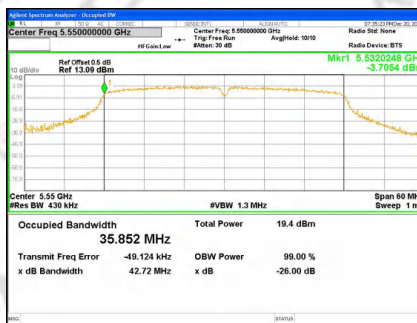
N/A

N/A

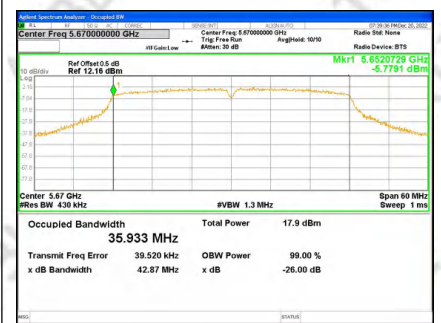
CH102



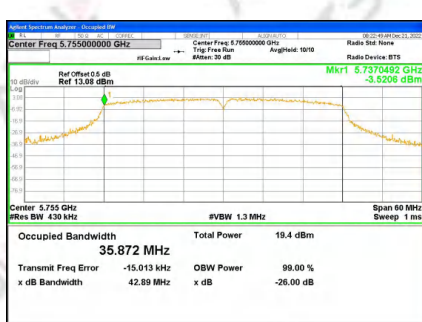
CH110



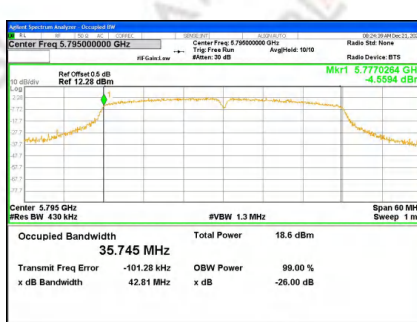
CH134



CH151

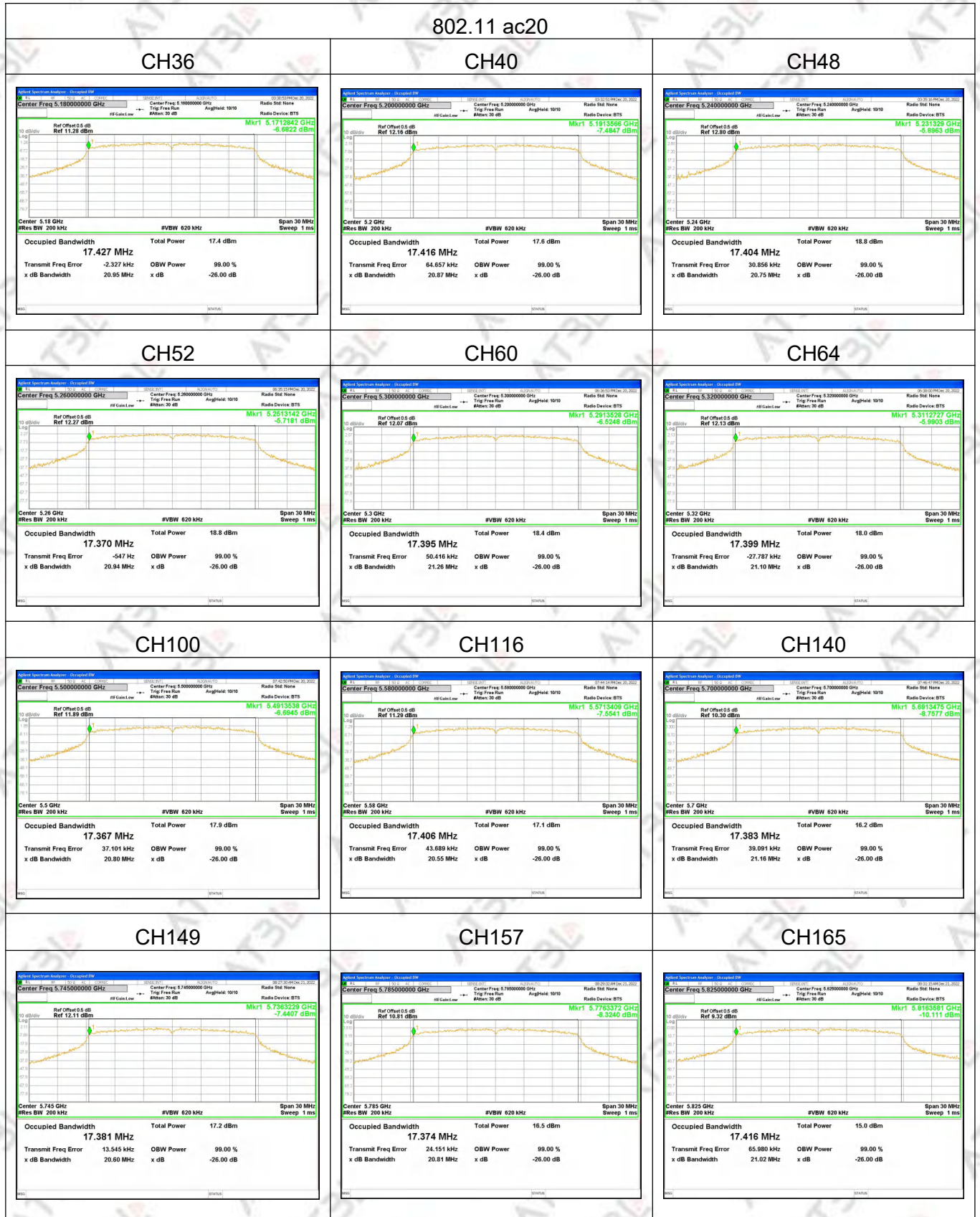


CH159



N/A

N/A



| 802.11 ac40                                                                                                                           |                                                                                                                                       |                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| CH38                                                                                                                                  | CH46                                                                                                                                  | N/A                                                                                                                                   |
| <p>Center Freq: 5.190000000 GHz<br/>Res BW: 430 kHz<br/>Span: 60 MHz<br/>Occupied Bandwidth: 36.101 MHz<br/>Total Power: 17.9 dBm</p> | <p>Center Freq: 5.230000000 GHz<br/>Res BW: 430 kHz<br/>Span: 60 MHz<br/>Occupied Bandwidth: 35.968 MHz<br/>Total Power: 19.2 dBm</p> | N/A                                                                                                                                   |
| CH54                                                                                                                                  | CH62                                                                                                                                  | N/A                                                                                                                                   |
| <p>Center Freq: 5.270000000 GHz<br/>Res BW: 430 kHz<br/>Span: 60 MHz<br/>Occupied Bandwidth: 36.002 MHz<br/>Total Power: 19.1 dBm</p> | <p>Center Freq: 5.310000000 GHz<br/>Res BW: 430 kHz<br/>Span: 60 MHz<br/>Occupied Bandwidth: 35.846 MHz<br/>Total Power: 19.2 dBm</p> | N/A                                                                                                                                   |
| CH102                                                                                                                                 | CH110                                                                                                                                 | CH134                                                                                                                                 |
| <p>Center Freq: 5.510000000 GHz<br/>Res BW: 430 kHz<br/>Span: 60 MHz<br/>Occupied Bandwidth: 35.827 MHz<br/>Total Power: 18.2 dBm</p> | <p>Center Freq: 5.550000000 GHz<br/>Res BW: 430 kHz<br/>Span: 60 MHz<br/>Occupied Bandwidth: 35.848 MHz<br/>Total Power: 17.6 dBm</p> | <p>Center Freq: 5.670000000 GHz<br/>Res BW: 430 kHz<br/>Span: 60 MHz<br/>Occupied Bandwidth: 35.939 MHz<br/>Total Power: 15.9 dBm</p> |
| CH151                                                                                                                                 | CH159                                                                                                                                 | N/A                                                                                                                                   |
| <p>Center Freq: 5.755000000 GHz<br/>Res BW: 430 kHz<br/>Span: 60 MHz<br/>Occupied Bandwidth: 35.882 MHz<br/>Total Power: 17.8 dBm</p> | <p>Center Freq: 5.795000000 GHz<br/>Res BW: 430 kHz<br/>Span: 60 MHz<br/>Occupied Bandwidth: 35.734 MHz<br/>Total Power: 16.9 dBm</p> | N/A                                                                                                                                   |



### 5.3. MINIMUM EMISSION BANDWIDTH(6 dB)

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 kHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

#### 5.3.1. TEST PROCEDURE

The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.

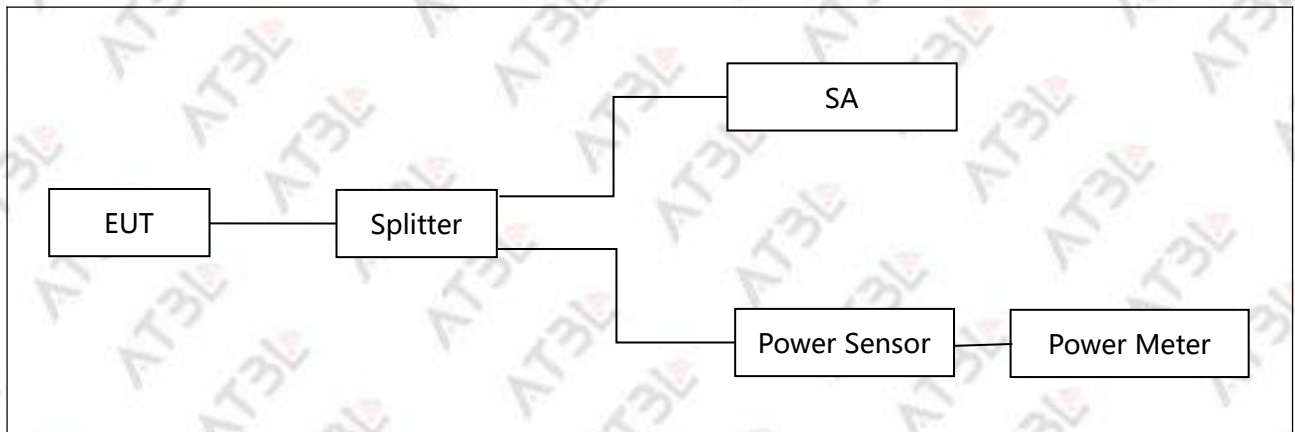
- Set RBW = 100 kHz.
- Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.

g) 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.

#### 5.3.2. DEVIATION FROM STANDARD

No deviation.

#### 5.3.3. TEST SETUP

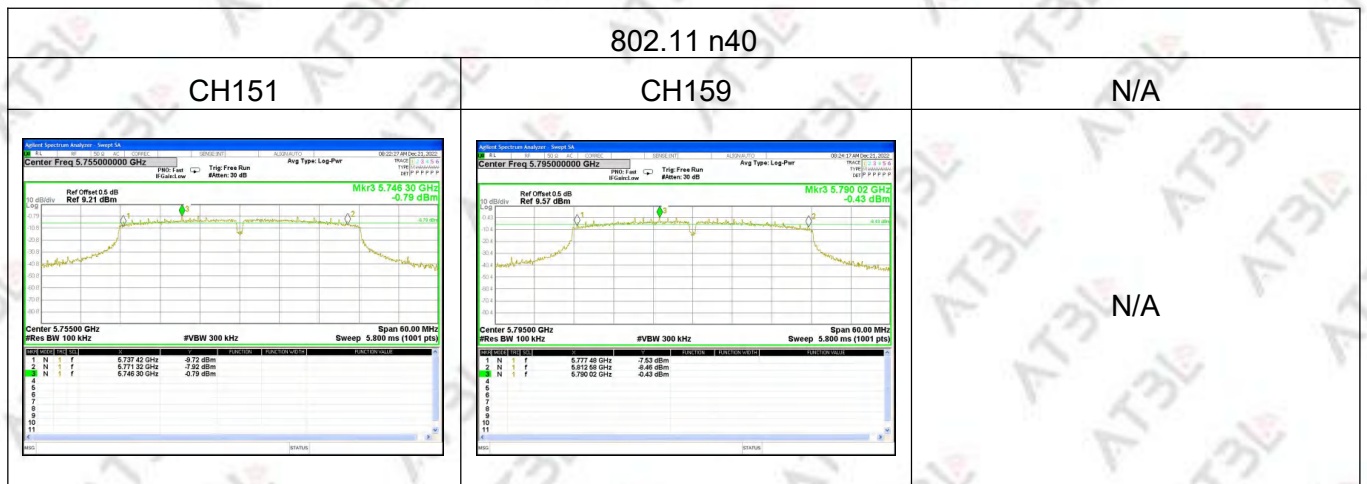
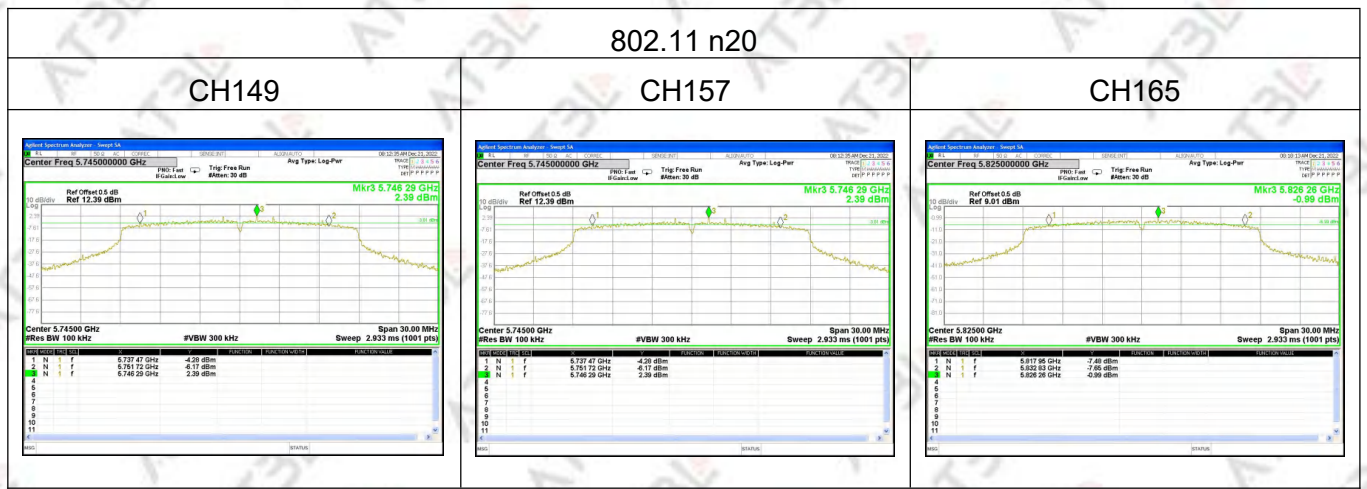
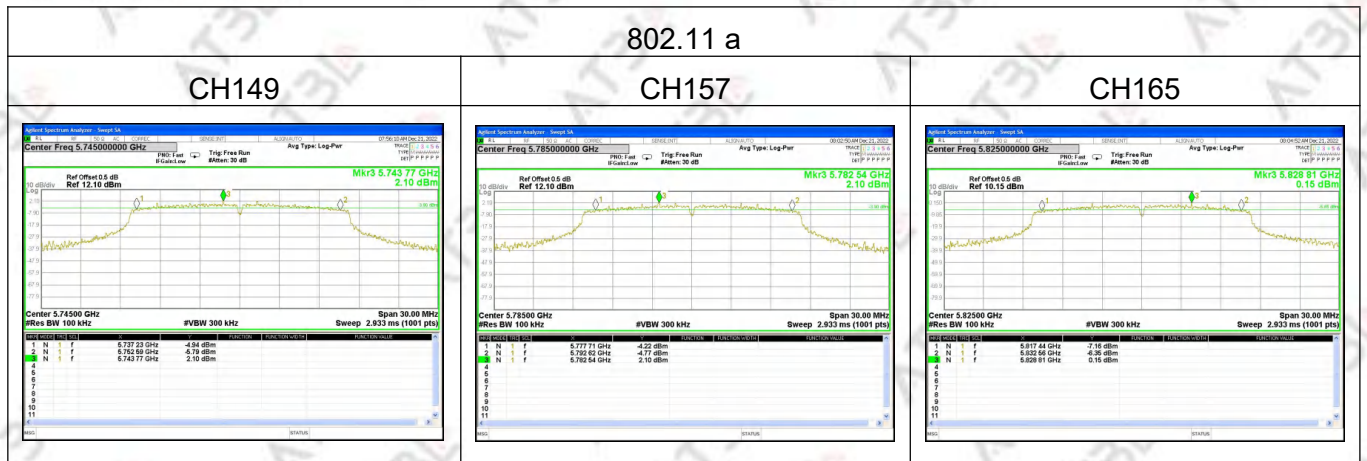


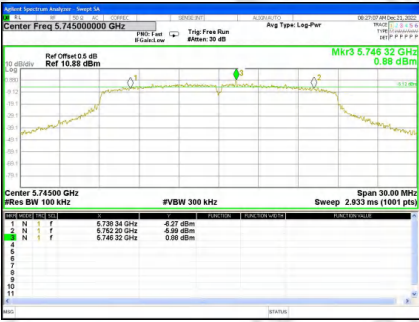
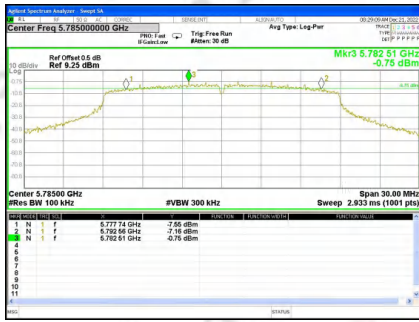
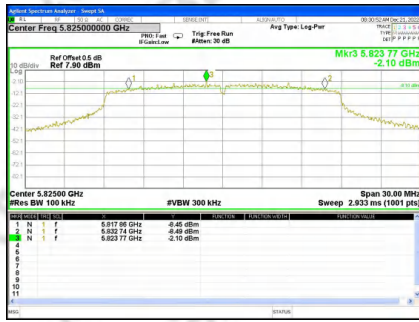
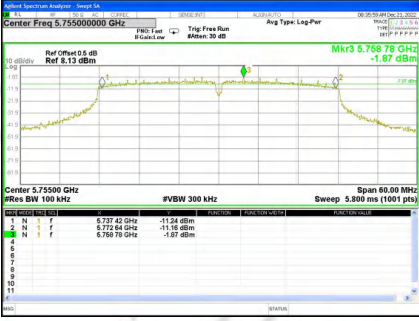
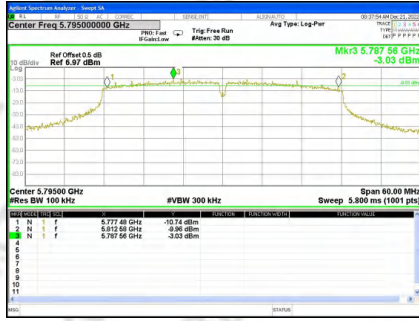
#### 5.3.4. EUT OPERATION CONDITIONS

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.

### 5.3.5. TESTRESULTS

| Mode       | CH. | Freq.(MHz) | 6 dB BW(MHz) | Limit(MHz) | Result |
|------------|-----|------------|--------------|------------|--------|
| 802.11a20  | 149 | 5745       | 15.36        | 0.5        | PASS   |
|            | 157 | 5785       | 14.91        | 0.5        | PASS   |
|            | 165 | 5825       | 15.12        | 0.5        | PASS   |
| 802.11n20  | 149 | 5745       | 16.25        | 0.5        | PASS   |
|            | 157 | 5785       | 13.53        | 0.5        | PASS   |
|            | 165 | 5825       | 14.88        | 0.5        | PASS   |
| 802.11n40  | 151 | 5755       | 33.90        | 0.5        | PASS   |
|            | 159 | 5795       | 35.10        | 0.5        | PASS   |
| 802.11ac20 | 149 | 5745       | 13.86        | 0.5        | PASS   |
|            | 157 | 5785       | 14.82        | 0.5        | PASS   |
|            | 165 | 5825       | 14.88        | 0.5        | PASS   |
| 802.11ac40 | 151 | 5755       | 35.22        | 0.5        | PASS   |
|            | 159 | 5795       | 35.10        | 0.5        | PASS   |
| 802.11ac80 | 155 | 5775       | 75.96        | 0.5        | PASS   |



| 802.11 ac20                                                                                                                                                                                                                      |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CH149                                                                                                                                                                                                                            | CH157                                                                                                                                                                                                                            | CH165                                                                                                                                                                                                                            |
|  <p>Center Freq 5.745000000 GHz<br/>#Res BW 100 kHz<br/>#VBW 300 kHz<br/>Sweep 2.933 ms (1001 pts)</p> <p>Mkr3 5.746 32 GHz<br/>0.88 dBm</p>    |  <p>Center Freq 5.785000000 GHz<br/>#Res BW 100 kHz<br/>#VBW 300 kHz<br/>Sweep 2.933 ms (1001 pts)</p> <p>Mkr3 5.782 51 GHz<br/>-0.75 dBm</p>  |  <p>Center Freq 5.825000000 GHz<br/>#Res BW 100 kHz<br/>#VBW 300 kHz<br/>Sweep 2.933 ms (1001 pts)</p> <p>Mkr3 5.823 77 GHz<br/>-2.10 dBm</p> |
| 802.11 ac40                                                                                                                                                                                                                      |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                  |
| CH151                                                                                                                                                                                                                            | CH159                                                                                                                                                                                                                            | N/A                                                                                                                                                                                                                              |
|  <p>Center Freq 5.755000000 GHz<br/>#Res BW 100 kHz<br/>#VBW 300 kHz<br/>Sweep 5.866 ms (1001 pts)</p> <p>Mkr3 5.758 78 GHz<br/>-1.87 dBm</p>  |  <p>Center Freq 5.785000000 GHz<br/>#Res BW 100 kHz<br/>#VBW 300 kHz<br/>Sweep 5.866 ms (1001 pts)</p> <p>Mkr3 5.787 58 GHz<br/>-3.03 dBm</p> | N/A                                                                                                                                                                                                                              |
| 802.11 ac80                                                                                                                                                                                                                      |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                  |
| CH155                                                                                                                                                                                                                            | N/A                                                                                                                                                                                                                              | N/A                                                                                                                                                                                                                              |
|  <p>Center Freq 5.775000000 GHz<br/>#Res BW 100 kHz<br/>#VBW 300 kHz<br/>Sweep 11.53 ms (1001 pts)</p> <p>Mkr3 5.738 78 GHz<br/>-3.92 dBm</p> | N/A                                                                                                                                                                                                                              | N/A                                                                                                                                                                                                                              |

Note : All modes have been tested, All TX Mode, the worst case

is(5725MHz-5850MHz)802.11a,802.11n20,802.11n40,802.11ac20,802.11ac40,802.11ac80, only show the worst case

## 6. MAXIMUM CONDUCTED OUTPUT POWER

### 6.1. LIMIT

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used.

| FCC Part15 (15.407) , Subpart E |                   |        |                       |        |
|---------------------------------|-------------------|--------|-----------------------|--------|
| Section                         | Test Item         | Limit  | Frequency Range (MHz) | Result |
| 15.407(a)                       | Peak Output Power | 1 watt | 5150-5250             | PASS   |
|                                 |                   | 1 watt | 5725-5850             |        |

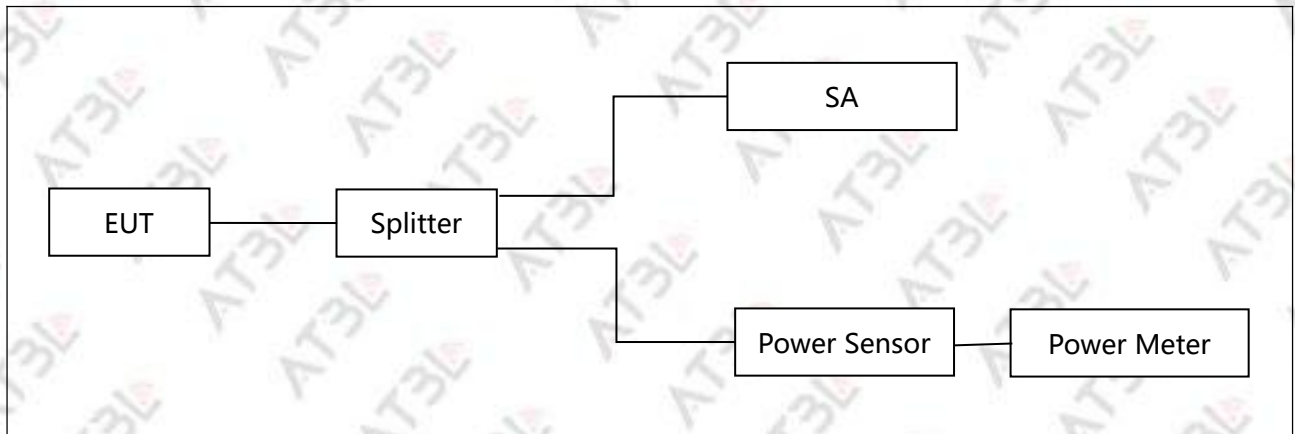
### 6.2. TEST PROCEDURE

The EUT was directly connected to the Power Sensor & PC

### 6.3. DEVIATION FROM STANDARD

No deviation.

### 6.4. TEST SETUP



### 6.5. EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 5 Unless otherwise a special operating condition is specified in the follows during the testing.

## 6.6. TEST RESULTS

### 802.11a

| CH. | Freq.<br>MHz | Ant. No. | Ant.<br>Gain<br>(dBi) | Duty<br>Factor<br>(dB) | Power<br>Reading<br>(dBm) | Conducted<br>Power<br>(dBm) | Limit<br>(dBm) | Result |
|-----|--------------|----------|-----------------------|------------------------|---------------------------|-----------------------------|----------------|--------|
| 36  | 5180         | 0        | 2.62                  | 0.34                   | 20.39                     | 20.73                       | 30             | PASS   |
| 40  | 5200         | 0        | 2.62                  | 0.34                   | 21.30                     | 21.64                       | 30             | PASS   |
| 48  | 5240         | 0        | 2.62                  | 0.34                   | 22.47                     | 22.81                       | 30             | PASS   |
| 52  | 5260         | 0        | 2.62                  | 0.34                   | 23.48                     | 23.82                       | 30             | PASS   |
| 60  | 5300         | 0        | 2.62                  | 0.34                   | 22.75                     | 23.09                       | 30             | PASS   |
| 64  | 5320         | 0        | 2.62                  | 0.34                   | 22.48                     | 22.82                       | 30             | PASS   |
| 100 | 5500         | 0        | 2.62                  | 0.34                   | 17.55                     | 17.89                       | 30             | PASS   |
| 116 | 5580         | 0        | 2.62                  | 0.34                   | 20.56                     | 20.90                       | 30             | PASS   |
| 140 | 5700         | 0        | 2.62                  | 0.34                   | 17.41                     | 17.75                       | 30             | PASS   |
| 149 | 5745         | 0        | 2.62                  | 0.34                   | 18.79                     | 19.13                       | 30             | PASS   |
| 157 | 5785         | 0        | 2.62                  | 0.34                   | 19.26                     | 19.60                       | 30             | PASS   |
| 165 | 5825         | 0        | 2.62                  | 0.34                   | 20.19                     | 20.53                       | 30             | PASS   |

### 802.11n20

| CH. | Freq.<br>MHz | Ant. No. | Ant.<br>Gain<br>(dBi) | Duty<br>Factor<br>(dB) | Power<br>Reading<br>(dBm) | Conducted<br>Power<br>(dBm) | Limit<br>(dBm) | Result |
|-----|--------------|----------|-----------------------|------------------------|---------------------------|-----------------------------|----------------|--------|
| 36  | 5180         | 0        | 2.62                  | 0.07                   | 19.49                     | 19.56                       | 30             | PASS   |
| 40  | 5200         | 0        | 2.62                  | 0.07                   | 20.11                     | 20.18                       | 30             | PASS   |
| 48  | 5240         | 0        | 2.62                  | 0.07                   | 21.36                     | 21.43                       | 30             | PASS   |
| 52  | 5260         | 0        | 2.62                  | 0.07                   | 20.04                     | 20.11                       | 30             | PASS   |
| 60  | 5300         | 0        | 2.62                  | 0.07                   | 20.22                     | 20.29                       | 30             | PASS   |
| 64  | 5320         | 0        | 2.62                  | 0.07                   | 19.56                     | 19.63                       | 30             | PASS   |
| 100 | 5500         | 0        | 2.62                  | 0.07                   | 16.68                     | 16.75                       | 30             | PASS   |
| 116 | 5580         | 0        | 2.62                  | 0.07                   | 18.37                     | 18.44                       | 30             | PASS   |
| 140 | 5700         | 0        | 2.62                  | 0.07                   | 15.45                     | 15.52                       | 30             | PASS   |
| 149 | 5745         | 0        | 2.62                  | 0.07                   | 16.84                     | 16.91                       | 30             | PASS   |
| 157 | 5785         | 0        | 2.62                  | 0.07                   | 17.06                     | 17.13                       | 30             | PASS   |
| 165 | 5825         | 0        | 2.62                  | 0.07                   | 18.11                     | 18.18                       | 30             | PASS   |

## 802.11n40

| CH. | Freq.<br>MHz | Ant.<br>No. | Ant.<br>Gain<br>(dBi) | Duty<br>Factor<br>(dB) | Power<br>Reading<br>(dBm) | Conducted<br>Power<br>(dBm) | Limit<br>(dBm) | Result |
|-----|--------------|-------------|-----------------------|------------------------|---------------------------|-----------------------------|----------------|--------|
| 38  | 5190         | 0           | 2.62                  | 0.32                   | 20.56                     | 20.88                       | 30             | PASS   |
| 46  | 5230         | 0           | 2.62                  | 0.32                   | 21.85                     | 22.17                       | 30             | PASS   |
| 54  | 5270         | 0           | 2.62                  | 0.32                   | 20.49                     | 20.81                       | 30             | PASS   |
| 62  | 5310         | 0           | 2.62                  | 0.32                   | 20.81                     | 21.13                       | 30             | PASS   |
| 102 | 5510         | 0           | 2.62                  | 0.32                   | 19.69                     | 20.01                       | 30             | PASS   |
| 110 | 5550         | 0           | 2.62                  | 0.32                   | 19.03                     | 19.35                       | 30             | PASS   |
| 134 | 5670         | 0           | 2.62                  | 0.32                   | 17.81                     | 18.13                       | 30             | PASS   |
| 151 | 5755         | 0           | 2.62                  | 0.32                   | 18.49                     | 18.81                       | 30             | PASS   |
| 159 | 5795         | 0           | 2.62                  | 0.32                   | 17.31                     | 17.63                       | 30             | PASS   |

## 802.11ac20

| CH. | Freq.<br>MHz | Ant. No. | Ant.<br>Gain<br>(dBi) | Duty<br>Factor<br>(dB) | Power<br>Reading<br>(dBm) | Conducted<br>Power<br>(dBm) | Limit<br>(dBm) | Result |
|-----|--------------|----------|-----------------------|------------------------|---------------------------|-----------------------------|----------------|--------|
| 36  | 5180         | 0        | 2.62                  | 0.05                   | 18.32                     | 18.37                       | 30             | PASS   |
| 40  | 5200         | 0        | 2.62                  | 0.05                   | 18.75                     | 18.80                       | 30             | PASS   |
| 48  | 5240         | 0        | 2.62                  | 0.05                   | 20.07                     | 20.12                       | 30             | PASS   |
| 52  | 5260         | 0        | 2.62                  | 0.05                   | 20.16                     | 20.21                       | 30             | PASS   |
| 60  | 5300         | 0        | 2.62                  | 0.05                   | 19.96                     | 20.01                       | 30             | PASS   |
| 64  | 5320         | 0        | 2.62                  | 0.05                   | 19.03                     | 19.08                       | 30             | PASS   |
| 100 | 5500         | 0        | 2.62                  | 0.05                   | 15.08                     | 15.13                       | 30             | PASS   |
| 116 | 5580         | 0        | 2.62                  | 0.05                   | 16.78                     | 16.83                       | 30             | PASS   |
| 140 | 5700         | 0        | 2.62                  | 0.05                   | 14.03                     | 14.08                       | 30             | PASS   |
| 149 | 5745         | 0        | 2.62                  | 0.05                   | 14.67                     | 14.72                       | 30             | PASS   |
| 157 | 5785         | 0        | 2.62                  | 0.05                   | 16.65                     | 16.70                       | 30             | PASS   |
| 165 | 5825         | 0        | 2.62                  | 0.05                   | 16.06                     | 16.11                       | 30             | PASS   |

## 802.11ac40

| CH. | Freq.<br>MHz | Ant. No. | Ant.<br>Gain<br>(dBi) | Duty<br>Factor<br>(dB) | Power<br>Reading<br>(dBm) | Conducted<br>Power<br>(dBm) | Limit<br>(dBm) | Result |
|-----|--------------|----------|-----------------------|------------------------|---------------------------|-----------------------------|----------------|--------|
| 38  | 5190         | 0        | 2.62                  | 0.19                   | 18.45                     | 18.64                       | 30             | PASS   |
| 46  | 5230         | 0        | 2.62                  | 0.19                   | 21.46                     | 21.65                       | 30             | PASS   |
| 54  | 5270         | 0        | 2.62                  | 0.19                   | 19.31                     | 19.50                       | 30             | PASS   |
| 62  | 5310         | 0        | 2.62                  | 0.19                   | 19.35                     | 19.54                       | 30             | PASS   |
| 102 | 5510         | 0        | 2.62                  | 0.19                   | 16.03                     | 16.22                       | 30             | PASS   |
| 110 | 5550         | 0        | 2.62                  | 0.19                   | 16.75                     | 16.94                       | 30             | PASS   |
| 134 | 5670         | 0        | 2.62                  | 0.19                   | 15.53                     | 15.72                       | 30             | PASS   |
| 151 | 5755         | 0        | 2.62                  | 0.19                   | 15.81                     | 16.00                       | 30             | PASS   |
| 159 | 5795         | 0        | 2.62                  | 0.19                   | 16.35                     | 16.54                       | 30             | PASS   |

802.11ac80

| CH. | Freq.<br>MHz | Ant. No. | Ant.<br>Gain<br>(dBi) | Duty<br>Factor<br>(dB) | Power<br>Reading<br>(dBm) | Conducted<br>Power<br>(dBm) | Limit<br>(dBm) | Result |
|-----|--------------|----------|-----------------------|------------------------|---------------------------|-----------------------------|----------------|--------|
| 42  | 5210         | 0        | 2.62                  | 0.65                   | 20.38                     | 21.03                       | 30             | PASS   |
| 58  | 5290         | 0        | 2.62                  | 0.65                   | 20.20                     | 20.85                       | 30             | PASS   |
| 106 | 5530         | 0        | 2.62                  | 0.65                   | 17.97                     | 18.62                       | 30             | PASS   |
| 122 | 5610         | 0        | 2.62                  | 0.65                   | 17.60                     | 18.25                       | 30             | PASS   |
| 155 | 5775         | 0        | 2.62                  | 0.65                   | 17.41                     | 18.06                       | 30             | PASS   |

## **7. AUTOMATICALLY DISCONTINUE TRANSMISSION**

### **7.1. LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION**

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

### **7.2. TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION**

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission

## **8. ANTENNA REQUIREMENT**

### **8.1. STANDARD REQUIREMENT**

15.203 requirement: For intentional device, according to 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.

### **8.2. EUT ANTENNA**

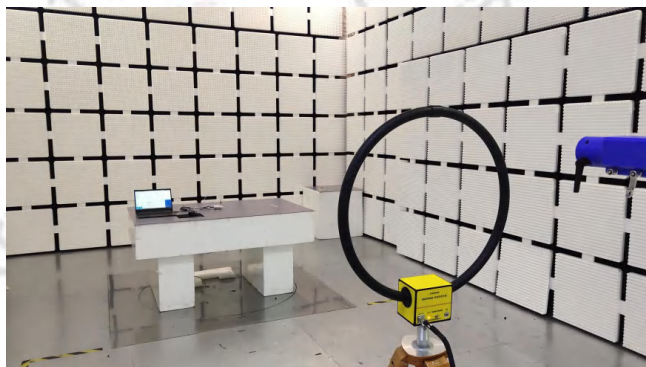
The EUT antenna is Chip Antenna. It comply with the standard requirement.

## 9. APPENDIX- PHOTOS OF TEST SETUP

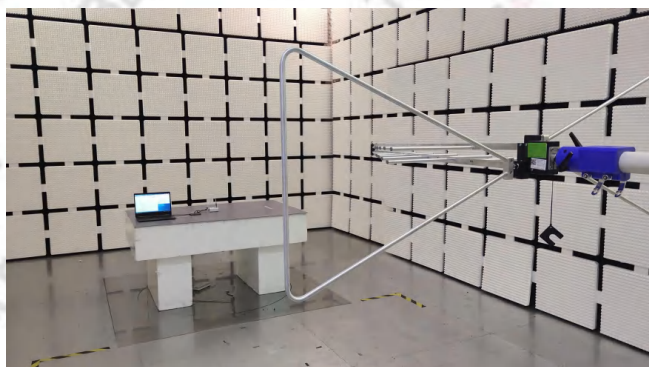
AC Power Line Conducted Emissions



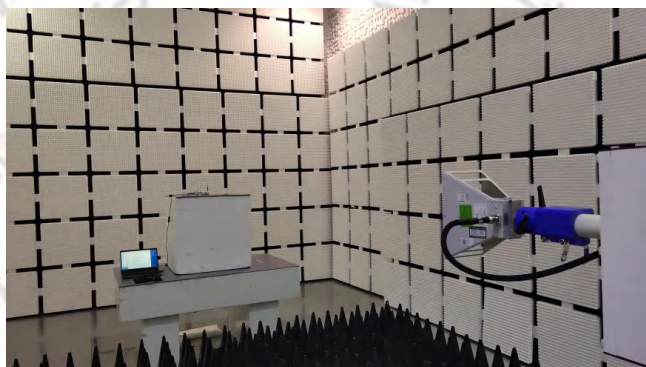
Radiated Emissions for 9kHz~30MHz



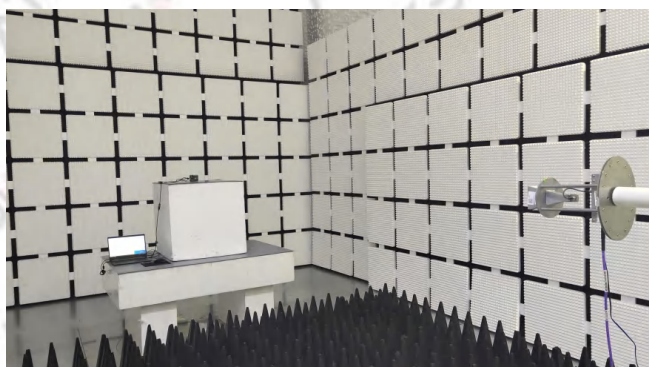
Radiated Emissions for 30MHz~1GHz



Radiated Emissions for 1GHz~18GHz



Radiated Emissions for above 18GHz



Conducted for RF



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