

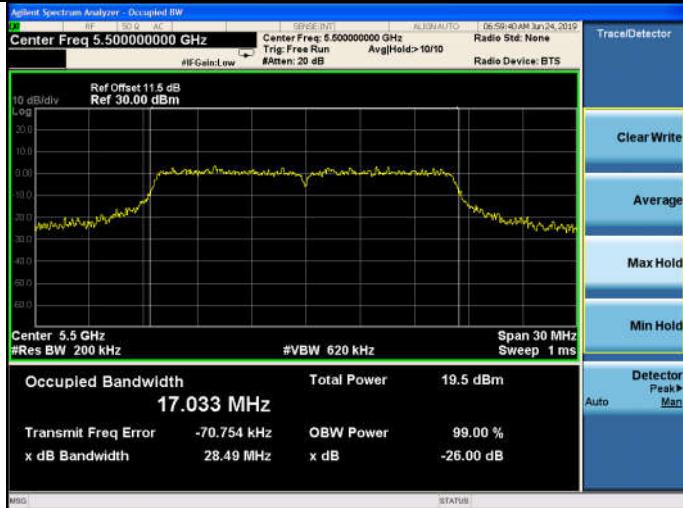
U-NII-2C Band:

ANT1

26dB bandwidth & 99% Occupied bandwidth

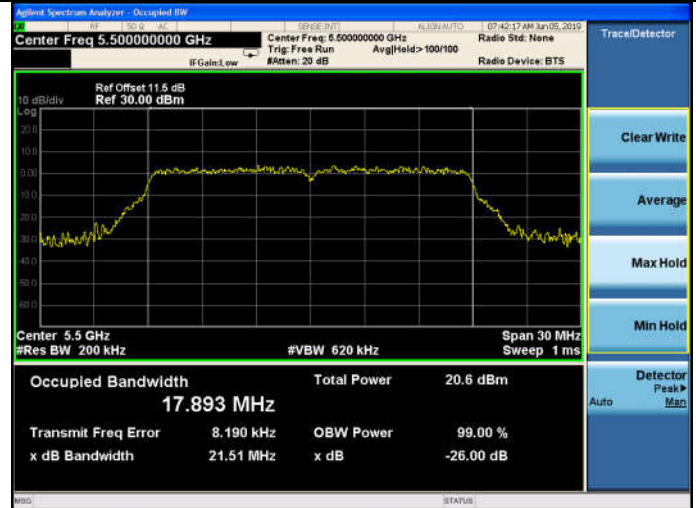
11a

5500MHz

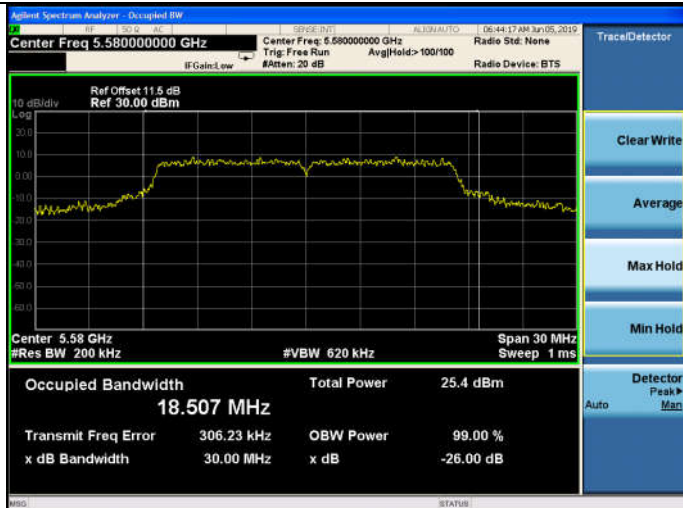


11n HT20

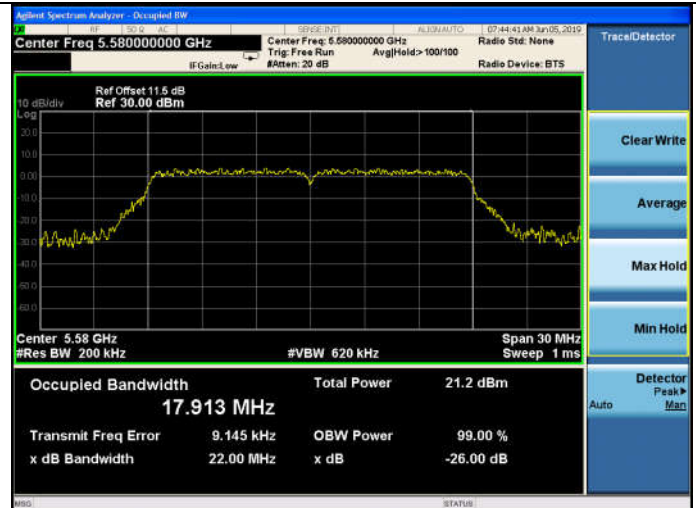
5500MHz



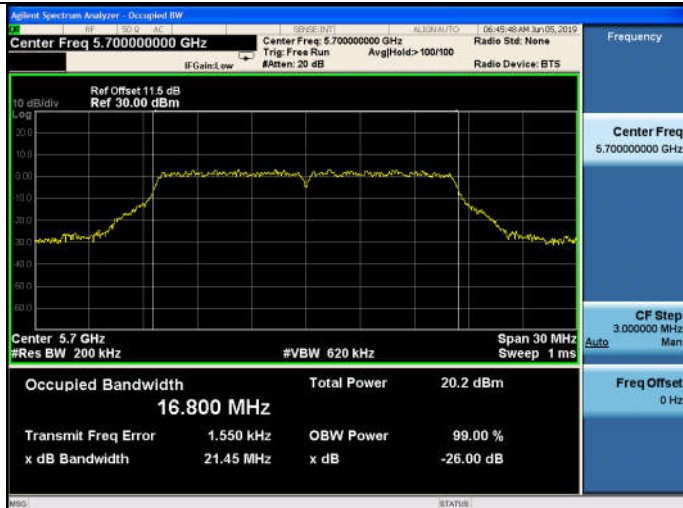
5580MHz



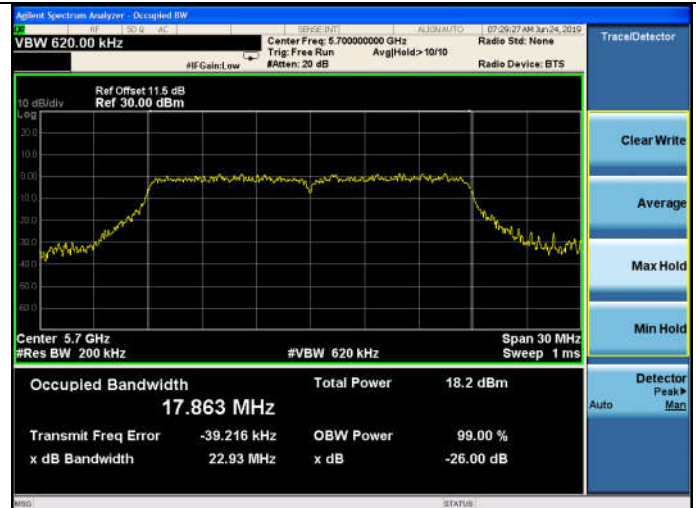
5580MHz



5700MHz

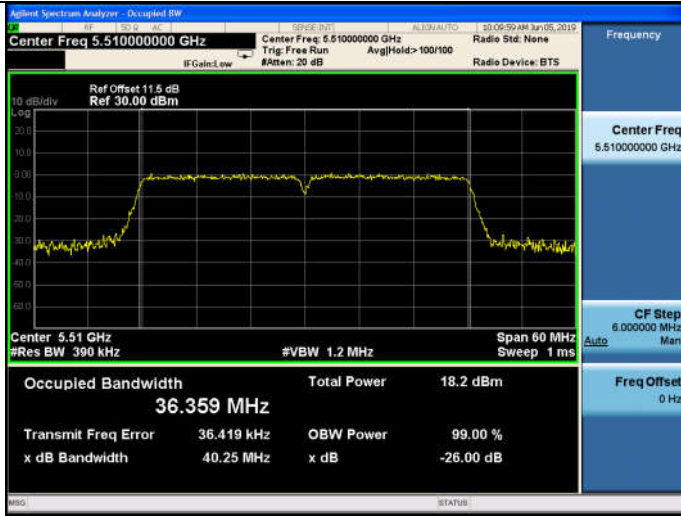


5700MHz

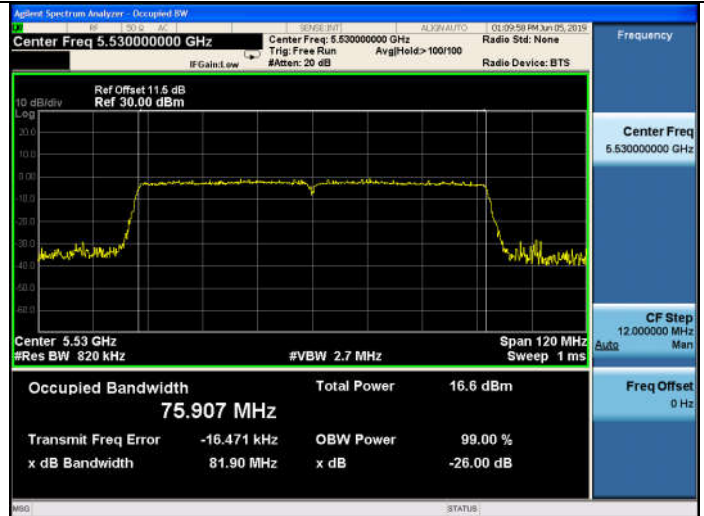


| | |
|--|---|
| <p>11n HT40 5510MHz</p> <p>Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.51000000 GHz #Res BW: 390 kHz #VBW: 1.2 MHz Span: 60 MHz Sweep: 1 ms</p> <p>Occupied Bandwidth: 36.397 MHz Total Power: 18.5 dBm</p> <p>Transmit Freq Error: 19.964 kHz x dB Bandwidth: 41.36 MHz</p> <p>OBW Power: 99.00 % x dB: -26.00 dB</p> | <p>11ac VHT20 5500MHz</p> <p>Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.50000000 GHz #Res BW: 200 kHz #VBW: 620 kHz Span: 30 MHz Sweep: 1 ms</p> <p>Occupied Bandwidth: 17.899 MHz Total Power: 20.6 dBm</p> <p>Transmit Freq Error: 8.489 kHz x dB Bandwidth: 21.68 MHz</p> <p>OBW Power: 99.00 % x dB: -26.00 dB</p> |
| <p>5590MHz</p> <p>Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.59000000 GHz #Res BW: 390 kHz #VBW: 1.2 MHz Span: 80 MHz Sweep: 1 ms</p> <p>Occupied Bandwidth: 36.513 MHz Total Power: 23.8 dBm</p> <p>Transmit Freq Error: 71.044 kHz x dB Bandwidth: 73.43 MHz</p> <p>OBW Power: 99.00 % x dB: -26.00 dB</p> | <p>5580MHz</p> <p>Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.58000000 GHz #Res BW: 200 kHz #VBW: 620 kHz Span: 30 MHz Sweep: 1 ms</p> <p>Occupied Bandwidth: 17.895 MHz Total Power: 21.1 dBm</p> <p>Transmit Freq Error: 7.447 kHz x dB Bandwidth: 21.69 MHz</p> <p>OBW Power: 99.00 % x dB: -26.00 dB</p> |
| <p>5670MHz</p> <p>Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.67000000 GHz #Res BW: 390 kHz #VBW: 1.2 MHz Span: 60 MHz Sweep: 1 ms</p> <p>Occupied Bandwidth: 36.229 MHz Total Power: 18.8 dBm</p> <p>Transmit Freq Error: -3.536 kHz x dB Bandwidth: 44.80 MHz</p> <p>OBW Power: 99.00 % x dB: -26.00 dB</p> | <p>5700MHz</p> <p>Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.70000000 GHz #Res BW: 200 kHz #VBW: 620 kHz Span: 30 MHz Sweep: 1 ms</p> <p>Occupied Bandwidth: 17.915 MHz Total Power: 19.1 dBm</p> <p>Transmit Freq Error: -20.622 kHz x dB Bandwidth: 21.77 MHz</p> <p>OBW Power: 99.00 % x dB: -26.00 dB</p> |

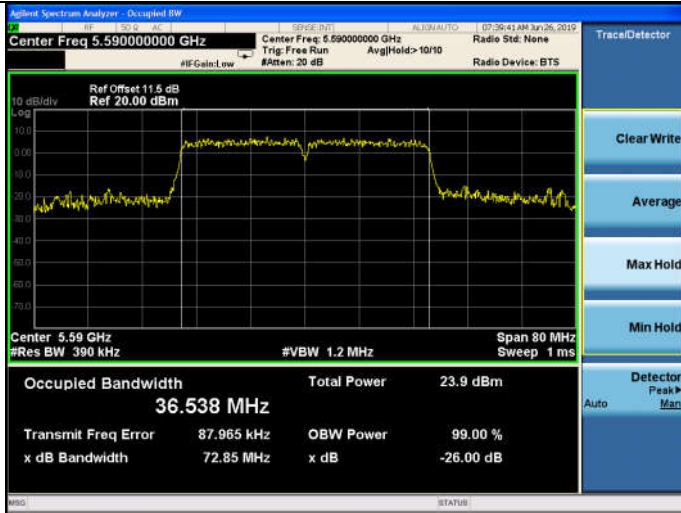
11ac VHT40
5510MHz



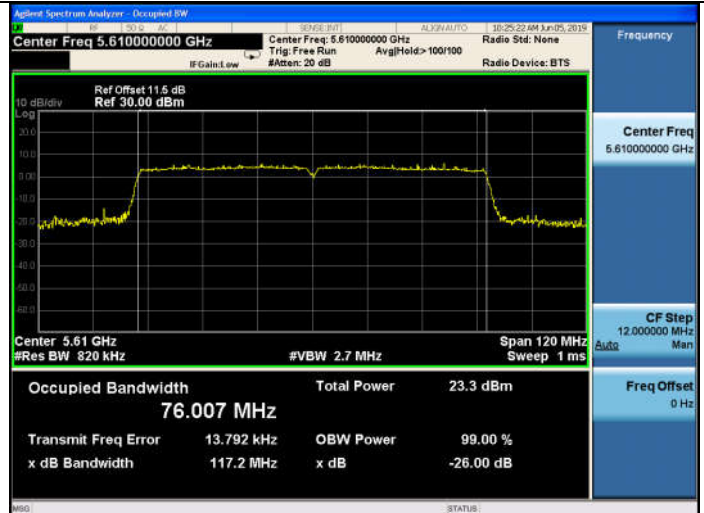
11ac VHT80
5530MHz



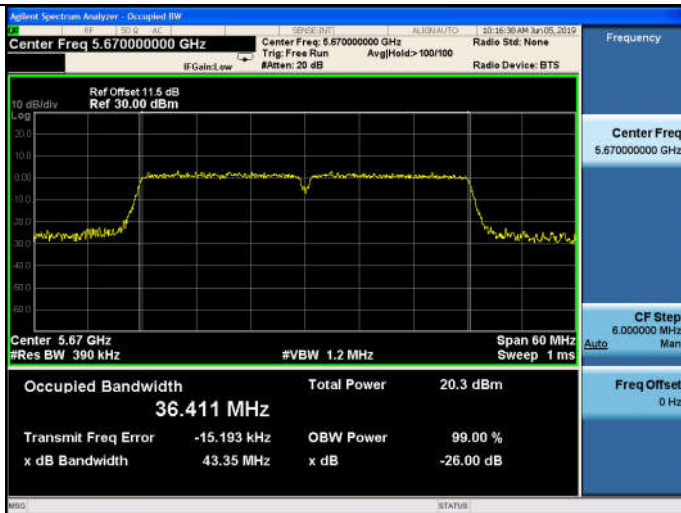
5590MHz



5610MHz



5670MHz



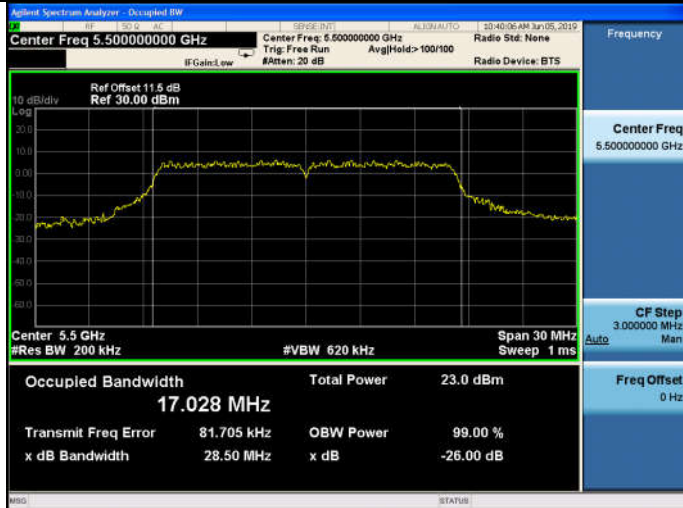
U-NII-2C Band:

ANT2

26dB bandwidth & 99% Occupied bandwidth

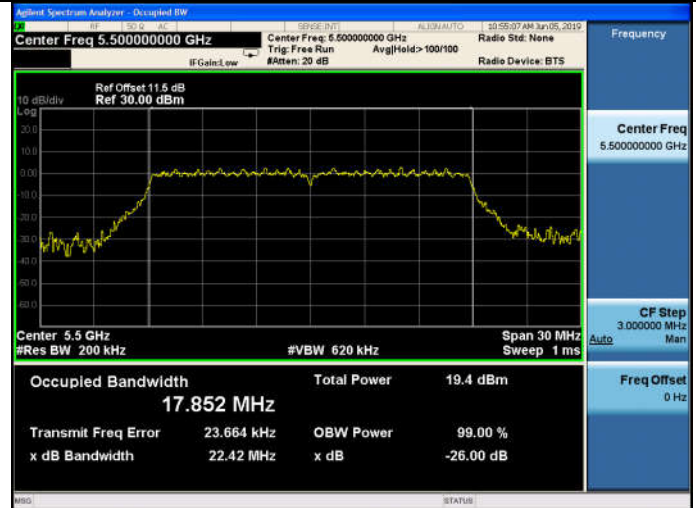
11a

5500MHz

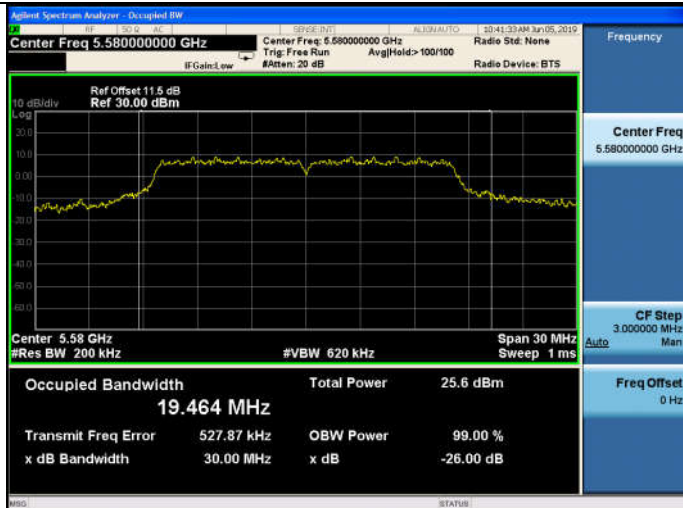


11n HT20

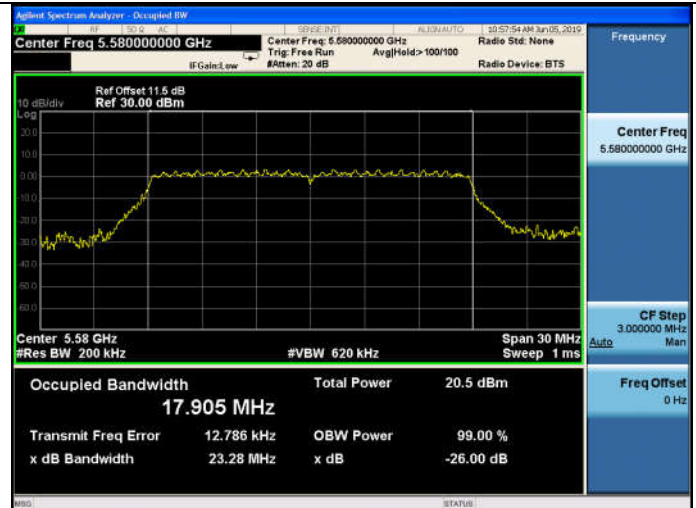
5500MHz



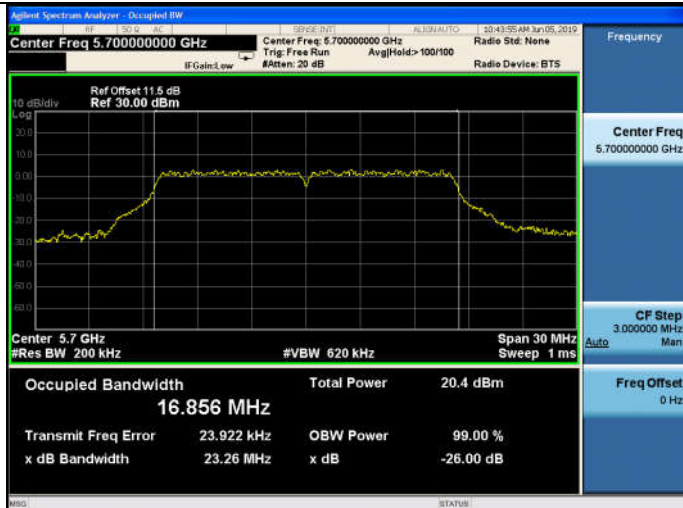
5580MHz



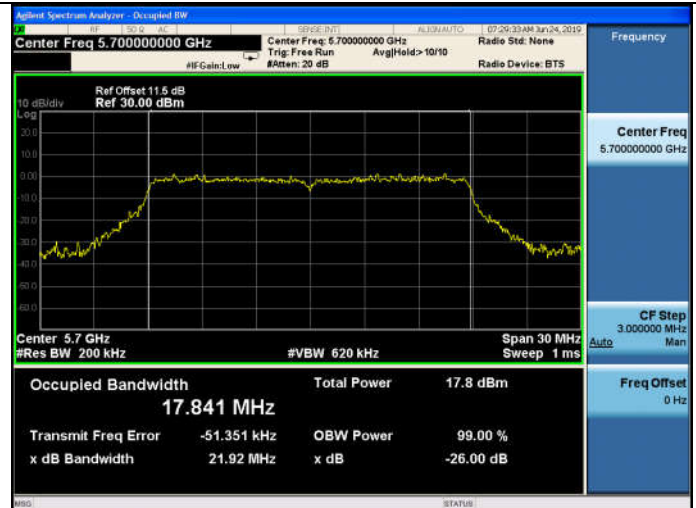
5580MHz



5700MHz

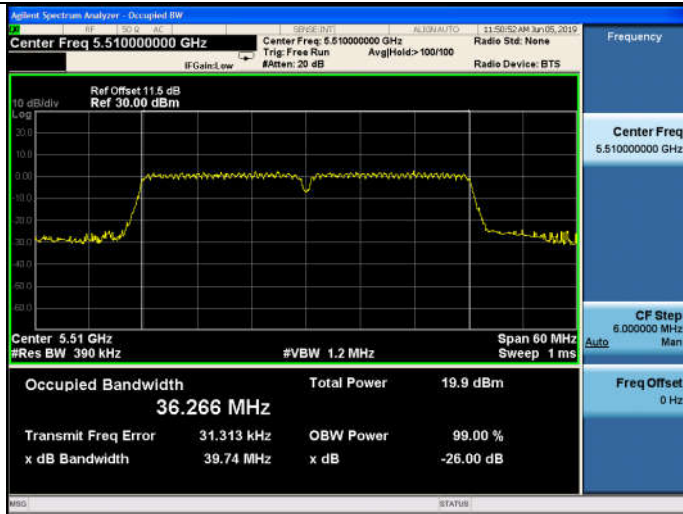


5700MHz



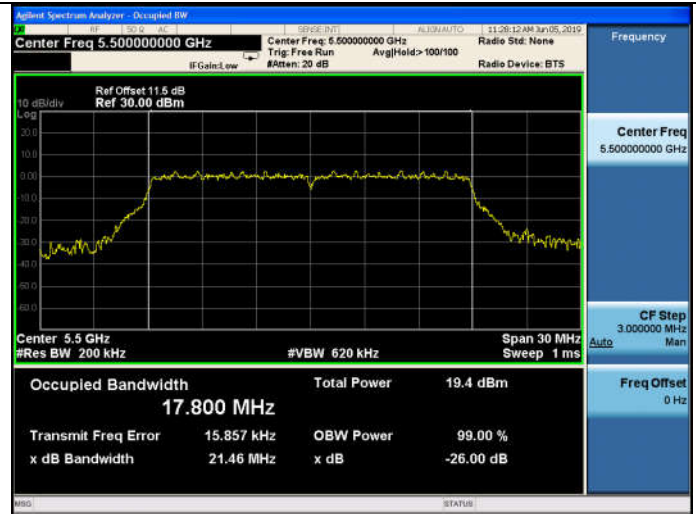
11n HT40

5510MHz

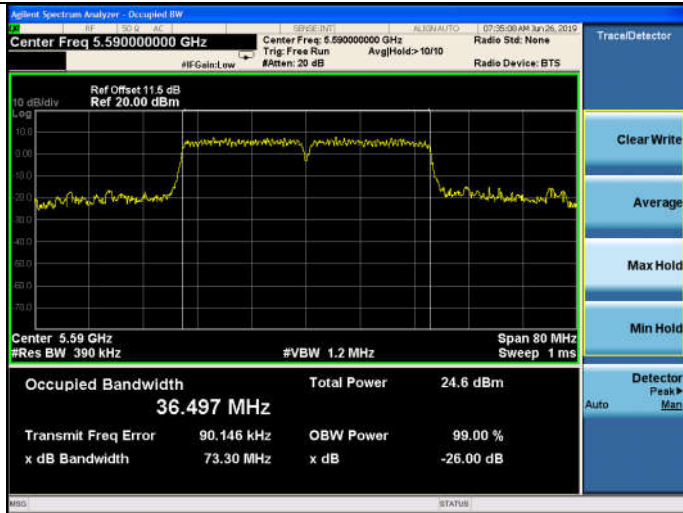


11ac VHT20

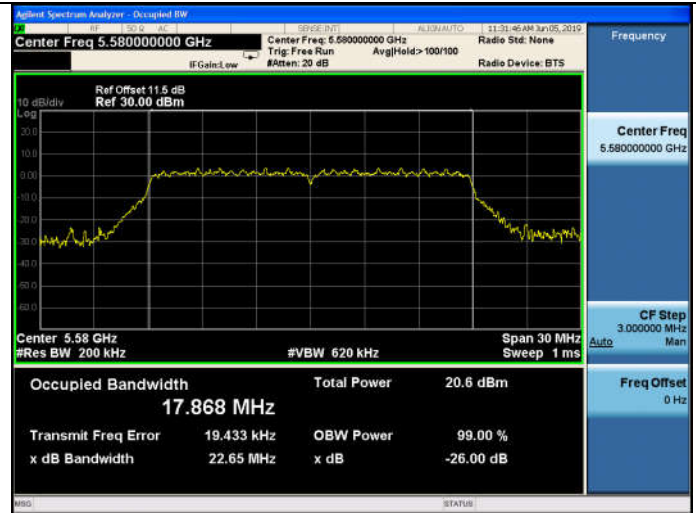
5500MHz



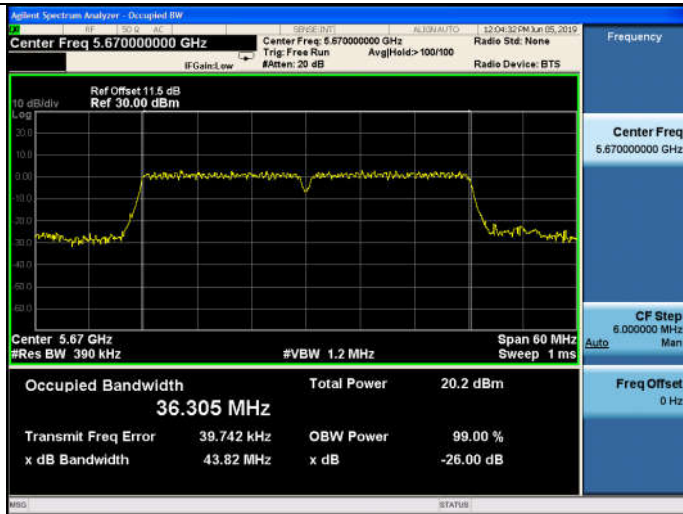
5590MHz



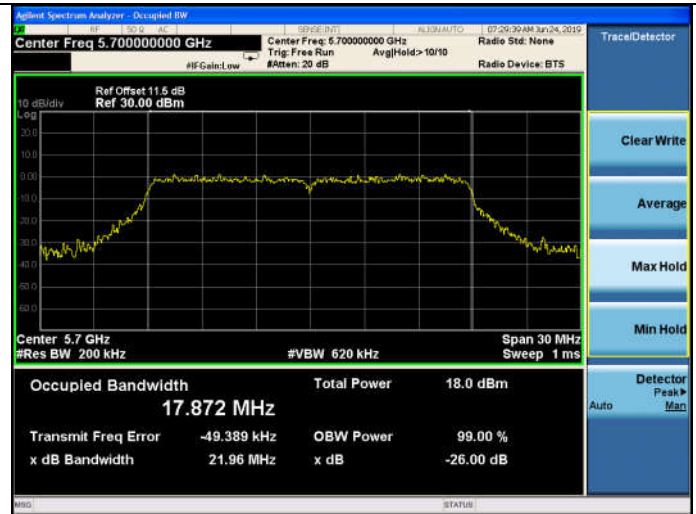
5580MHz



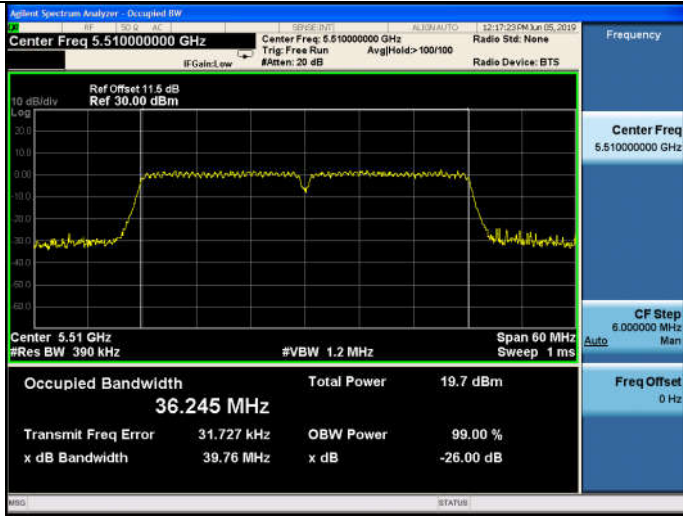
5670MHz



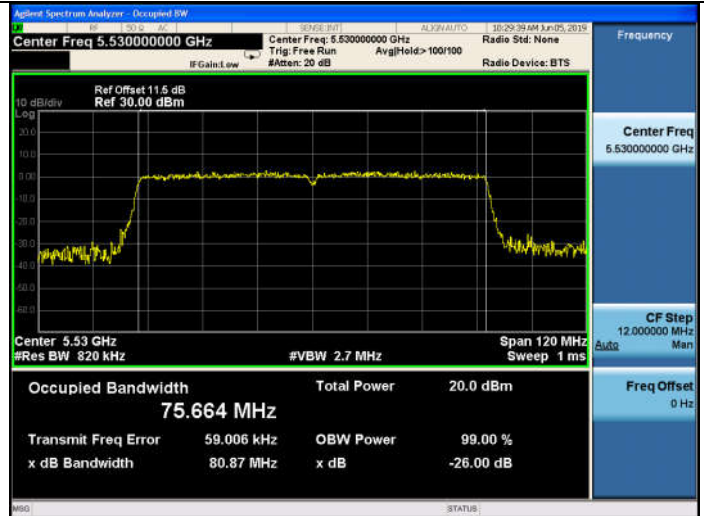
5700MHz



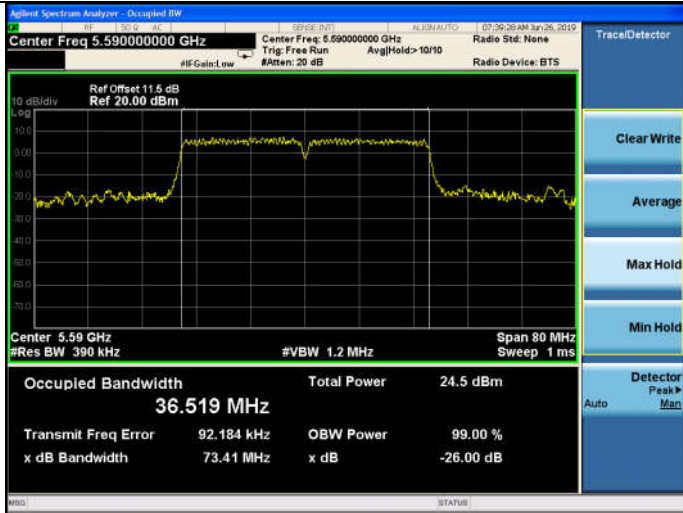
11ac VHT40
5510MHz



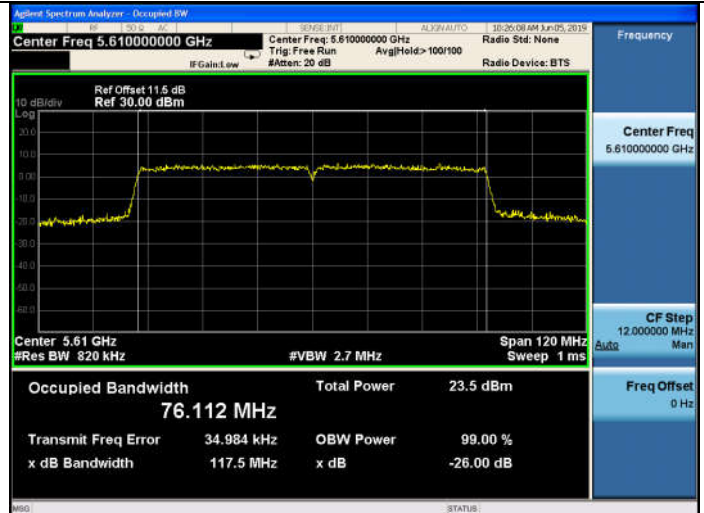
11ac VHT80
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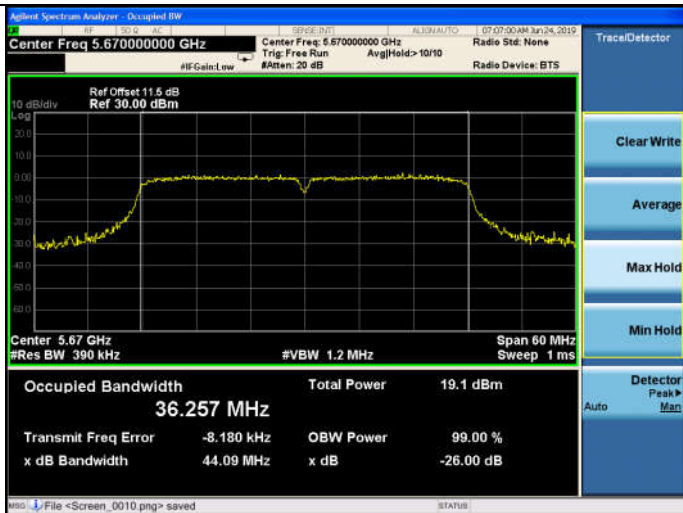
5590MHz



5610MHz



5670MHz



7. OUTPUT POWER TEST

7.1. Test Equipment

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-----------------|----------------|-----------------------|------------|-----------|---------------|
| 1. | Signal Analyzer | Rohode&Schwarz | FSV7 | 102493 | Oct.14,18 | 1 Year |
| 2. | Power meter | Anritsu | ML2487A | 6K00002472 | Oct.14,18 | 1 Year |
| 3. | Power sensor | Anritsu | MA2491A | 033005 | Oct.13,18 | 1 Year |
| 4. | Attenuator | Agilent | 8491B | MY39262165 | Oct.14,18 | 1 Year |
| 5. | RF Cable | EMCI | EMC102-K M-KM 3500 | 170702 | May.13,19 | 1 Year |

7.2. Limit

For the band 5.15–5.25 GHz.

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW(23.98dBm) provided the maximum antenna gain does not exceed 6 dBi.

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (23.98dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W(30dBm).

7.3. Test Procedure

1. Connected the EUT’s antenna port to measure device by 20dB attenuator.
2. Use the test method described in ANSI C63.10 clause 12.3 Method SA-1
 - 1) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
 - 2) Set RBW = 1 MHz.
 - 3) Set VBW ≥ 3 MHz.
 - 4) Number of points in sweep ≥ 2 × span / RBW.
 - 5) Sweep time = auto.
 - 6) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
 - 7) If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”
 - 8) Trace average at least 100 traces in power averaging (rms) mode.
 - 9) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

7.4. Test Results

U-NII-2A Band:

| | | |
|--------------------------|-------------------------|--------------------------|
| EUT: Complex Set-Top Box | | |
| M/N: P2571 | | |
| Test date: 2019-05-22~23 | Pressure: 102.1±1.0 kpa | Humidity: 51.1±3.0% |
| Tested by: Lynn | Test site: RF site | Temperature: 22.8±0.6 °C |

| Test Mode | Frequency (MHz) | Maximum Conducted output power (dBm) | | | | | | Limit (dBm) | |
|------------------|-----------------|--------------------------------------|-------|-----------------------|-------|-------|-------|-------------|-------|
| | | ANT1 | ANT2 | Duty Cycle Correction | ANT1 | ANT2 | Total | ANT1 | ANT2 |
| 11a | 5260 | 19.29 | 17.86 | 0.27 | 19.56 | 18.13 | N/A | 23.89 | 23.05 |
| | 5300 | 18.51 | 17.89 | 0.27 | 18.78 | 18.16 | N/A | | |
| | 5320 | 15.20 | 15.25 | 0.27 | 15.47 | 15.52 | N/A | | |
| 11n HT20 | 5260 | 15.32 | 15.36 | 0.28 | 15.60 | 15.64 | 18.63 | 20.45 | |
| | 5300 | 15.14 | 15.07 | 0.28 | 15.42 | 15.35 | 18.40 | | |
| | 5320 | 14.33 | 14.21 | 0.28 | 14.61 | 14.49 | 17.56 | | |
| 11n HT40 | 5270 | 16.34 | 15.91 | 0.56 | 16.90 | 16.47 | 19.70 | 20.45 | |
| | 5310 | 12.04 | 11.47 | 0.56 | 12.60 | 12.03 | 15.33 | | |
| 11ac VHT20 | 5260 | 15.01 | 15.05 | 0.28 | 15.29 | 15.33 | 18.32 | 20.45 | |
| | 5300 | 14.89 | 15.16 | 0.28 | 15.17 | 15.44 | 18.32 | | |
| | 5320 | 14.11 | 14.26 | 0.28 | 14.39 | 14.54 | 17.48 | | |
| 11ac VHT40 | 5270 | 16.49 | 15.91 | 0.56 | 17.05 | 16.47 | 19.78 | 20.45 | |
| | 5310 | 11.54 | 10.80 | 0.56 | 12.1 | 11.36 | 14.76 | | |
| 11ac VHT80 | 5290 | 10.79 | 10.24 | 1.05 | 11.84 | 11.29 | 14.58 | 20.45 | |
| Conclusion: PASS | | | | | | | | | |

Notes:

- Antenna 1 Gain= 6.09dBi>6dBi;
 Antenna 2 Gain= 6.93dBi>6dBi;
 Directional Gain= $10 \log[(10^{6.09/20} + 10^{6.93/20})^2 / 2]$ dBi= 9.53dBi>6dBi.
- The transmit signals are correlated.

U-NII-2C Band:

| | | |
|--------------------------|-------------------------|--------------------------|
| EUT: Complex Set-Top Box | | |
| M/N: P2571 | | |
| Test date: 2019-05-23~28 | Pressure: 102.1±1.0 kpa | Humidity: 51.1±3.0% |
| Tested by: Lynn | Test site: RF site | Temperature: 22.8±0.6 °C |

| Test Mode | Frequency (MHz) | Maximum Conducted output power (dBm) | | | | | | Limit (dBm) | |
|------------|-----------------|--------------------------------------|-------|-----------------------|-------|-------|-------|-------------|-------|
| | | ANT1 | ANT2 | Duty Cycle Correction | ANT1 | ANT2 | Total | ANT1 | ANT2 |
| 11a | 5500 | 16.72 | 16.96 | 0.27 | 16.99 | 17.23 | N/A | 23.90 | 22.67 |
| | 5580 | 19.61 | 19.94 | 0.27 | 19.88 | 20.21 | N/A | | |
| | 5700 | 14.12 | 13.86 | 0.27 | 14.39 | 14.13 | N/A | | |
| 11n HT20 | 5500 | 13.65 | 13.67 | 0.28 | 13.93 | 13.95 | 16.95 | 20.25 | |
| | 5580 | 15.17 | 15.04 | 0.28 | 15.45 | 15.32 | 18.40 | | |
| | 5700 | 12.68 | 12.35 | 0.28 | 12.96 | 12.63 | 15.81 | | |
| 11n HT40 | 5510 | 11.07 | 10.51 | 0.56 | 11.63 | 11.07 | 14.37 | 20.25 | |
| | 5590 | 16.13 | 15.96 | 0.56 | 16.69 | 16.52 | 19.62 | | |
| | 5670 | 13.31 | 12.74 | 0.56 | 13.87 | 13.3 | 16.60 | | |
| 11ac VHT20 | 5500 | 13.43 | 13.58 | 0.28 | 13.71 | 13.86 | 16.80 | 20.25 | |
| | 5580 | 14.63 | 14.37 | 0.28 | 14.91 | 14.65 | 17.79 | | |
| | 5700 | 12.96 | 12.19 | 0.28 | 13.24 | 12.47 | 15.88 | | |
| 11ac VHT40 | 5510 | 11.23 | 10.87 | 0.56 | 11.79 | 11.43 | 14.62 | 20.25 | |
| | 5590 | 16.06 | 15.99 | 0.56 | 16.62 | 16.55 | 19.60 | | |
| | 5670 | 14.24 | 13.84 | 0.56 | 14.8 | 14.4 | 17.61 | | |
| 11ac VHT80 | 5530 | 11.75 | 11.16 | 1.05 | 12.8 | 12.21 | 15.53 | 20.25 | |
| | 5610 | 15.65 | 15.25 | 1.05 | 16.7 | 16.3 | 19.51 | | |

Conclusion: PASS

Notes:

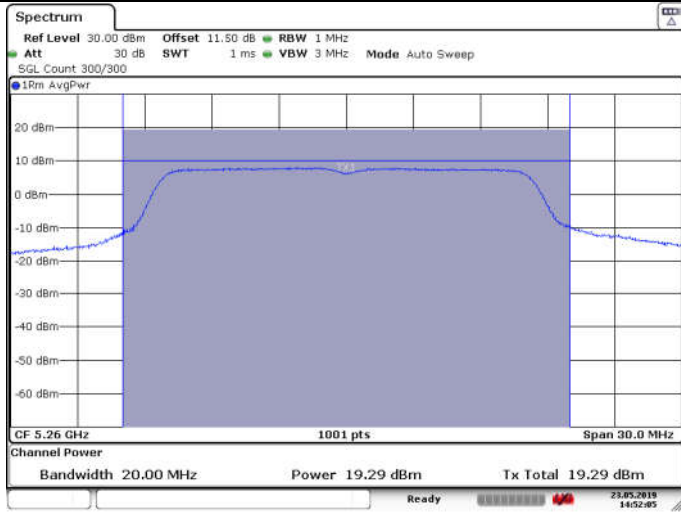
- Antenna 1 Gain= 6.08dBi>6dBi;
 Antenna 2 Gain= 7.31dBi>6dBi;
 Directional Gain= $10 \log[(10^{6.08/20} + 10^{7.31/20})^2 / 2]$ dBi= 9.73dBi>6dBi.
- The transmit signals are correlated.

U-NII-2A Band:

ANT1

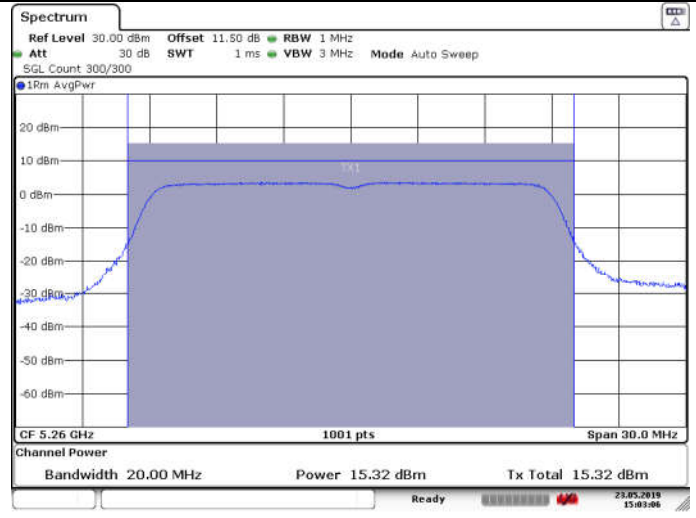
11a

5260MHz

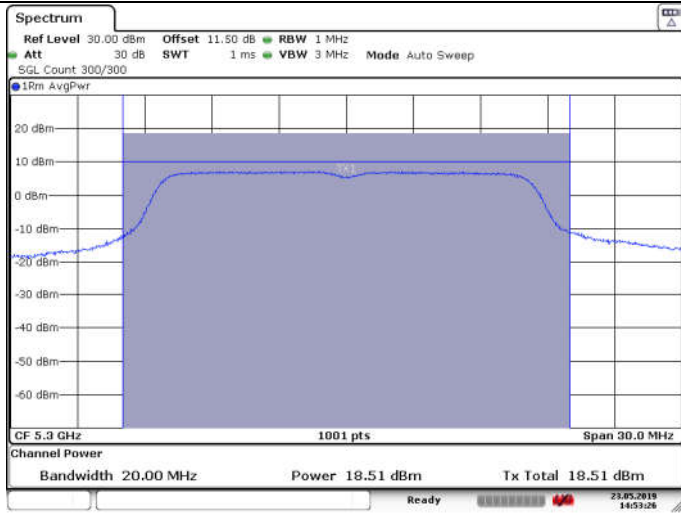


11n HT20

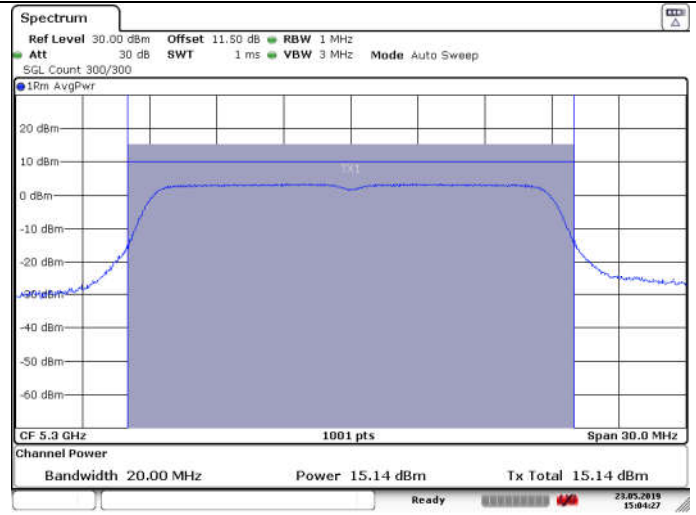
5260MHz



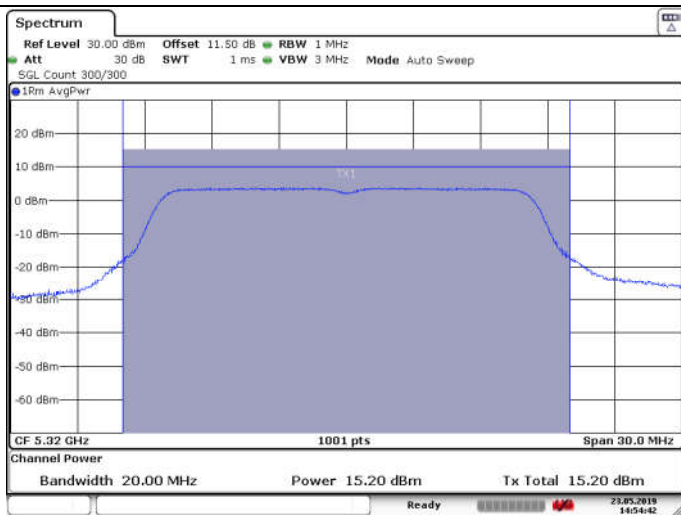
5300MHz



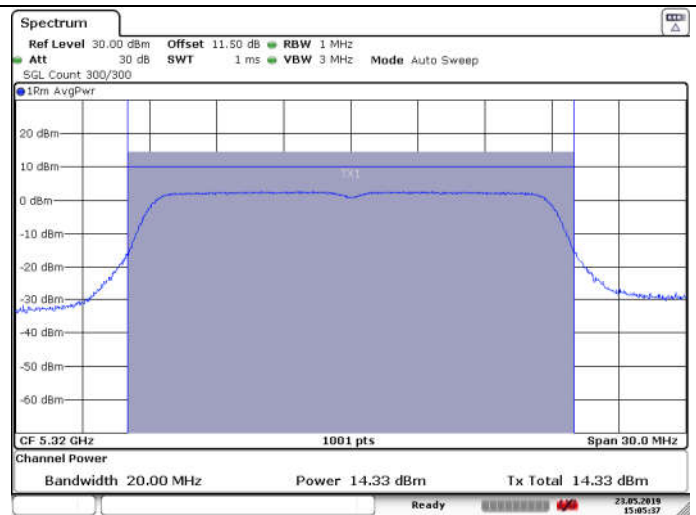
5300MHz



5320MHz

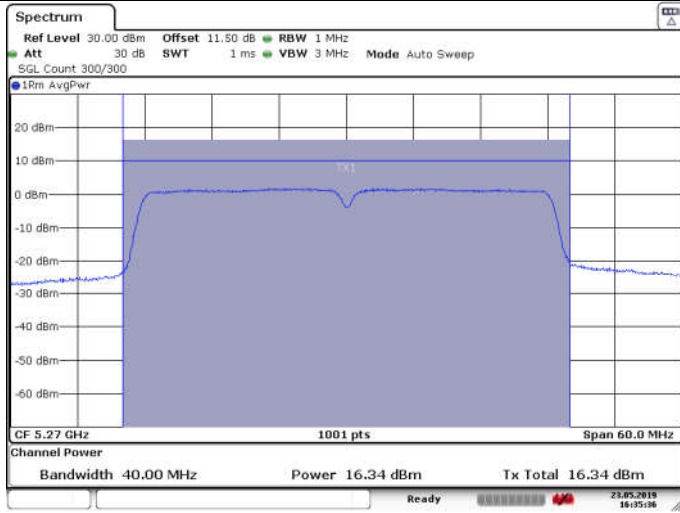


5320MHz



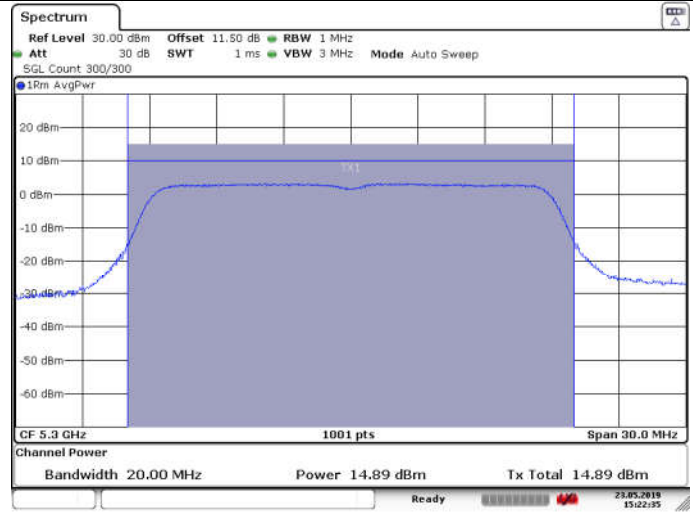
11n HT40

5270MHz



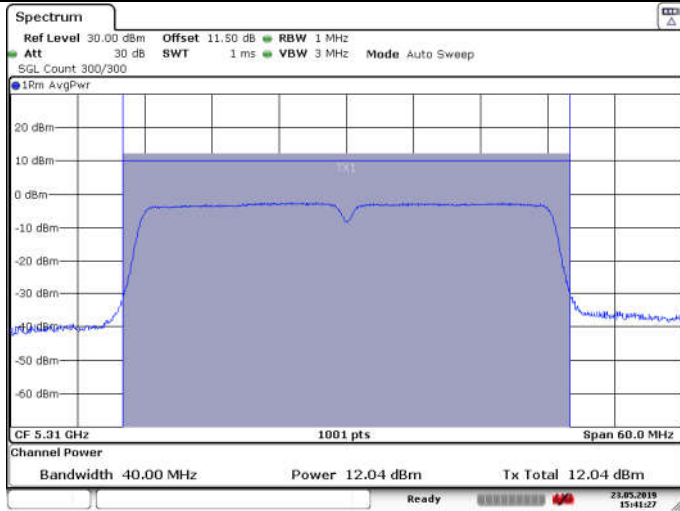
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5300MHz



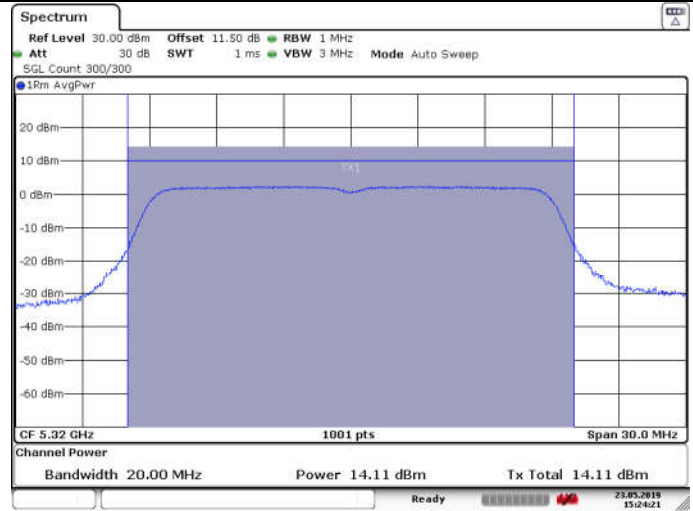
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5310MHz



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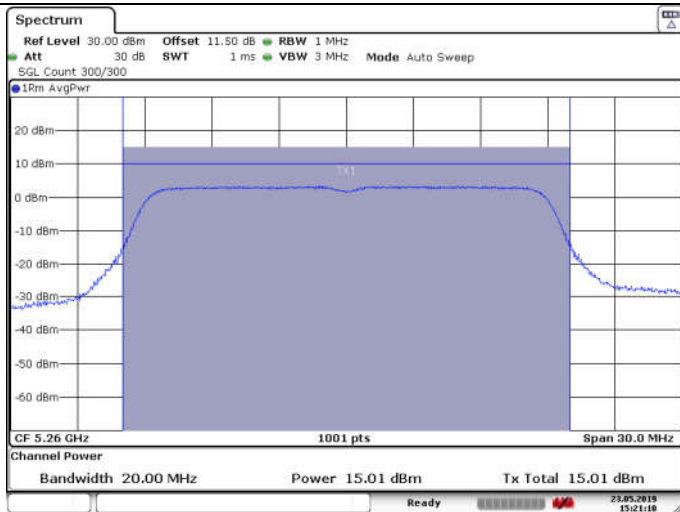
5320MHz



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11ac VHT20

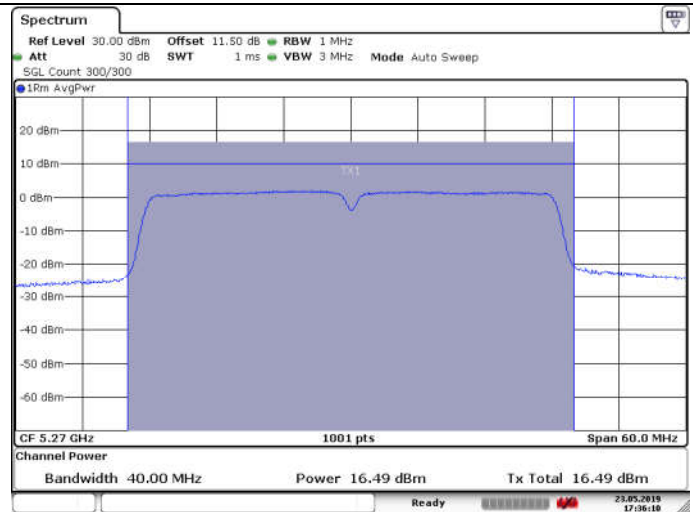
5260MHz



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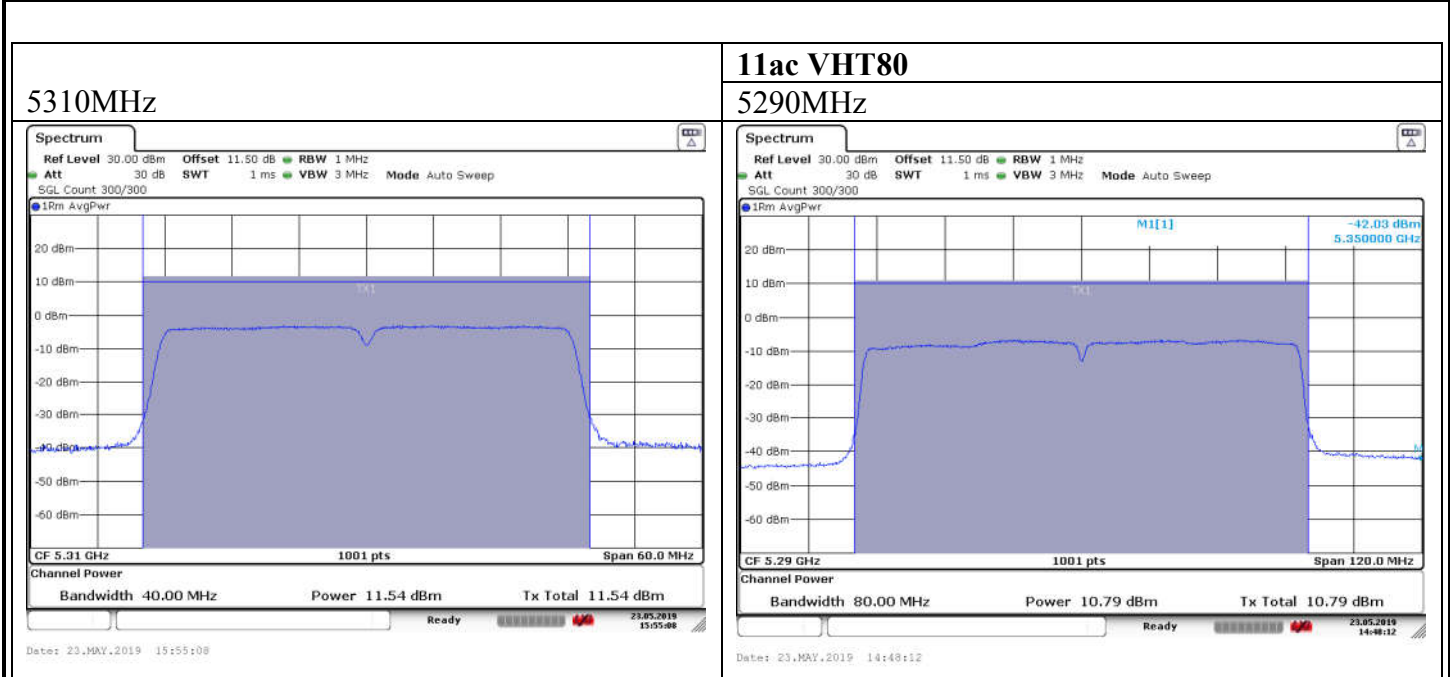
11ac VHT40

5270MHz



Date: 23.MAY.2019 17:36:11

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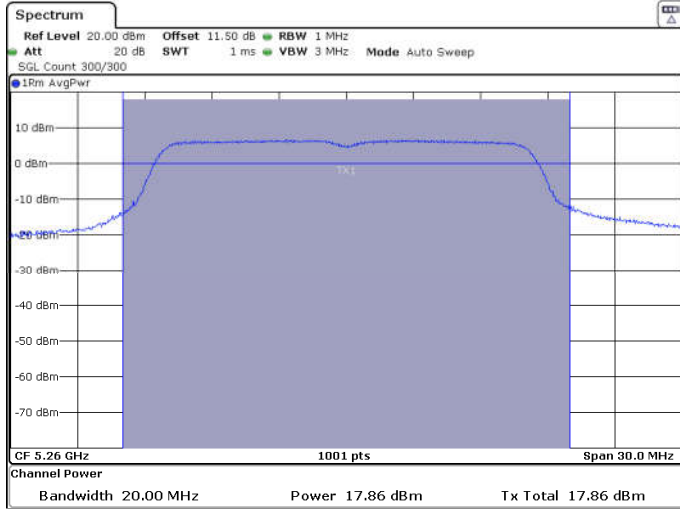


U-NII-2A Band:

ANT2

11a

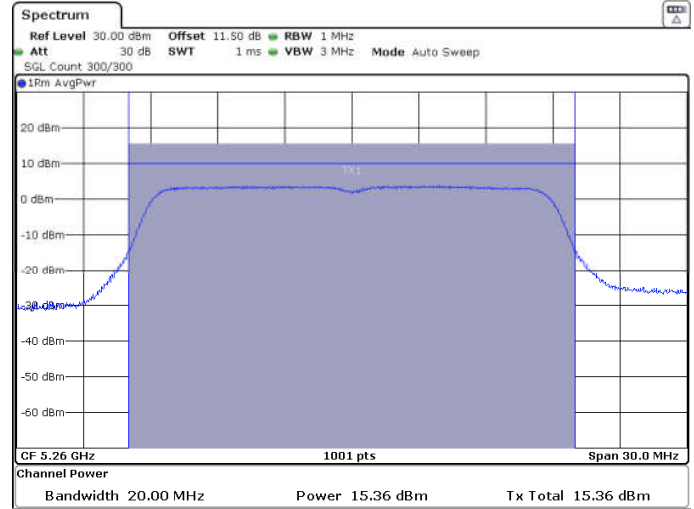
5260MHz



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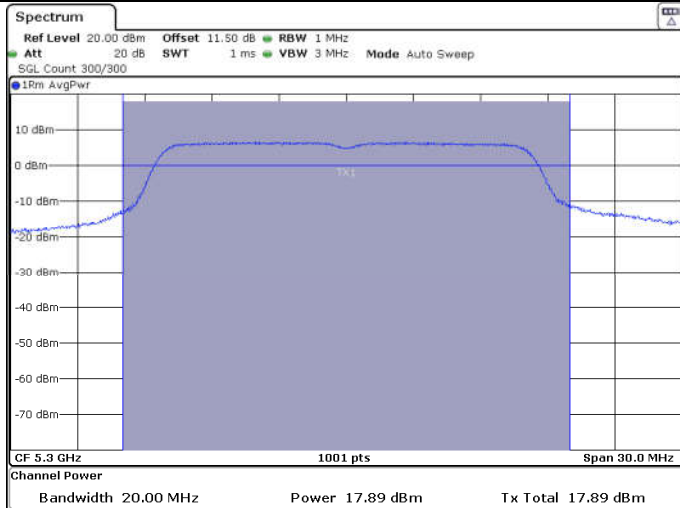
11n HT20

5260MHz



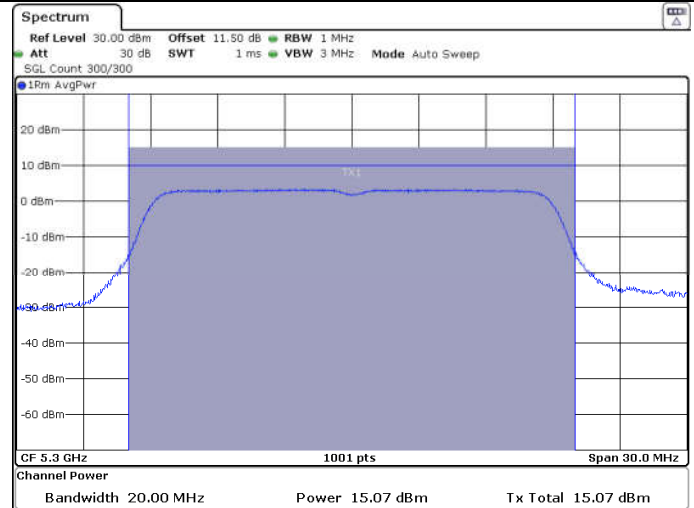
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5300MHz



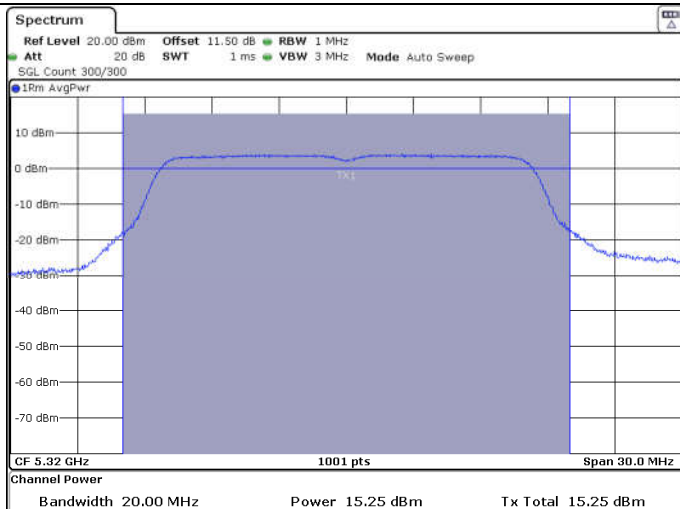
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5300MHz



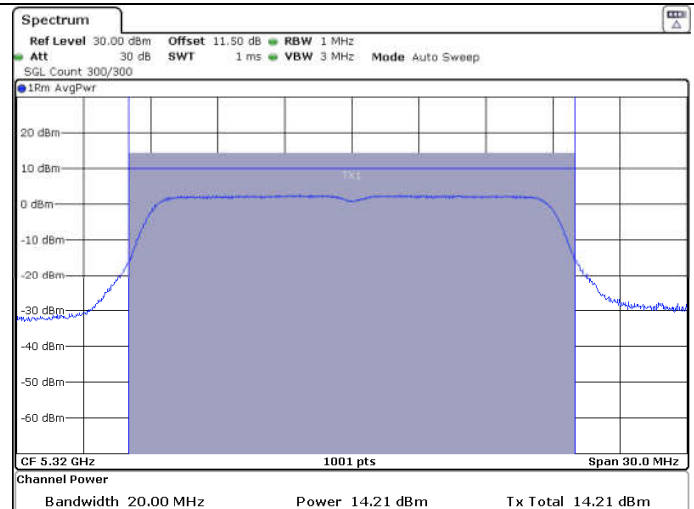
Date: 22.MAY.2019 10:19:42

5320MHz



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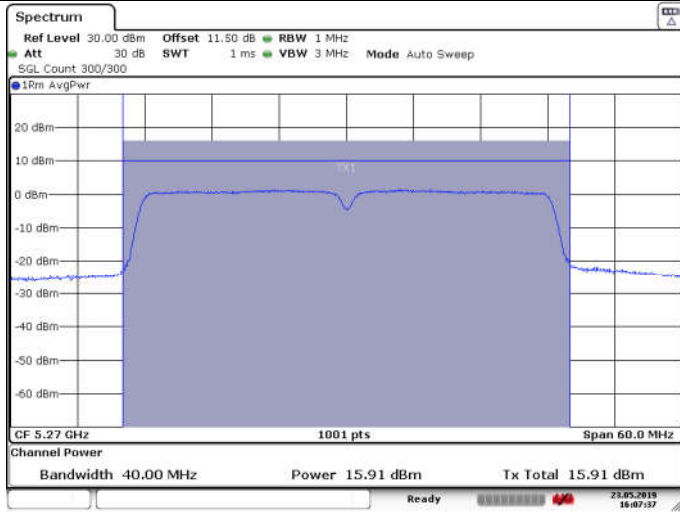
5320MHz



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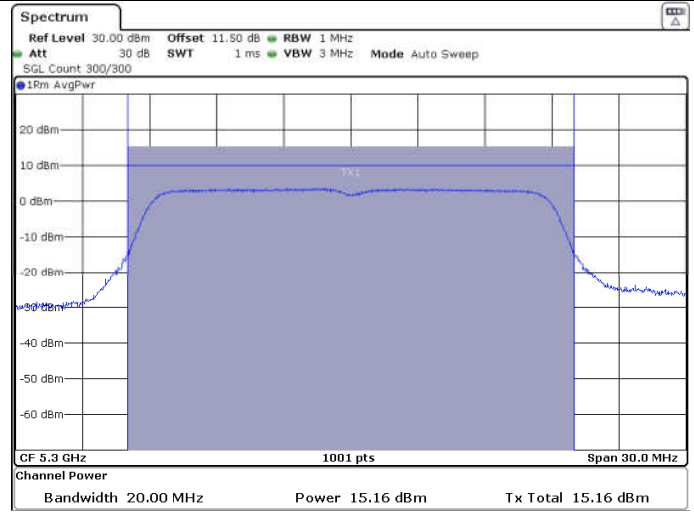
11n HT40

5270MHz



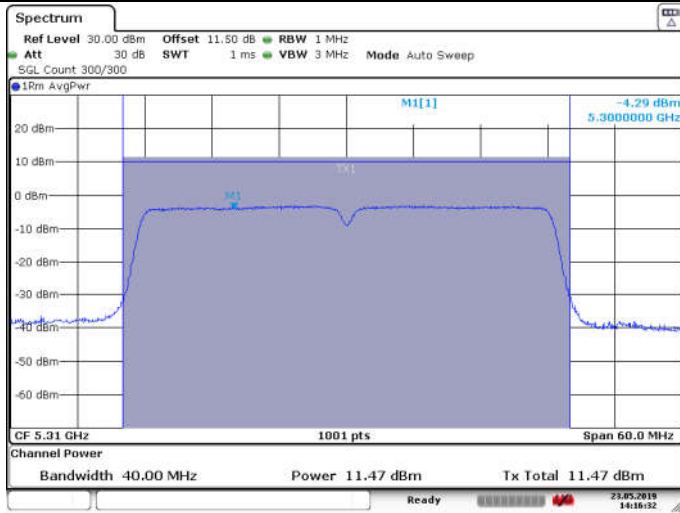
Date: 23.MAY.2019 16:07:37

5300MHz



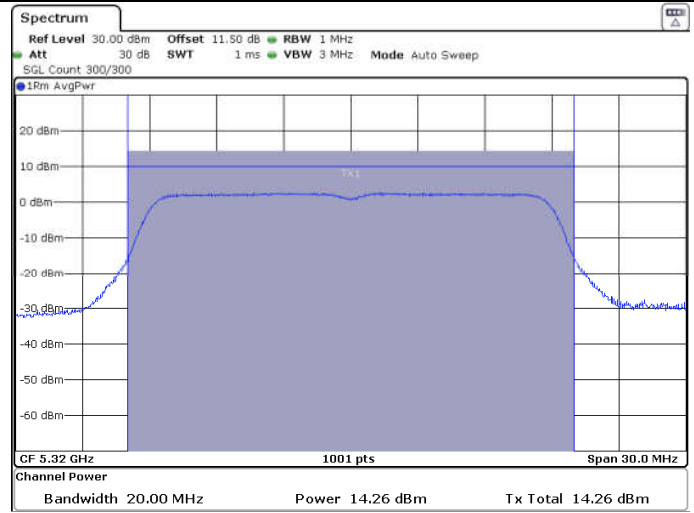
Date: 22.MAY.2019 10:56:15

5310MHz



Date: 23.MAY.2019 14:16:32

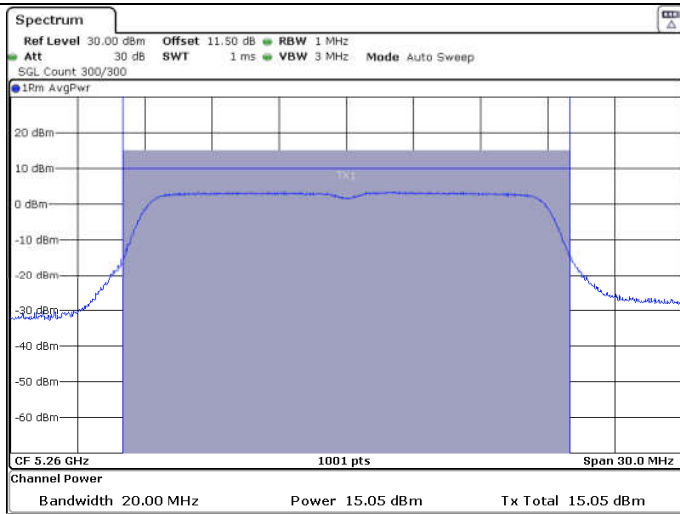
5320MHz



Date: 22.MAY.2019 10:57:25

11ac VHT20

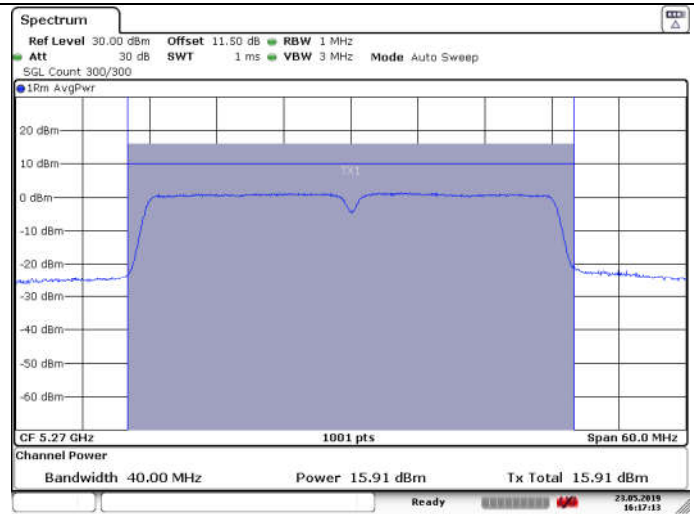
5260MHz



Date: 22.MAY.2019 10:55:02

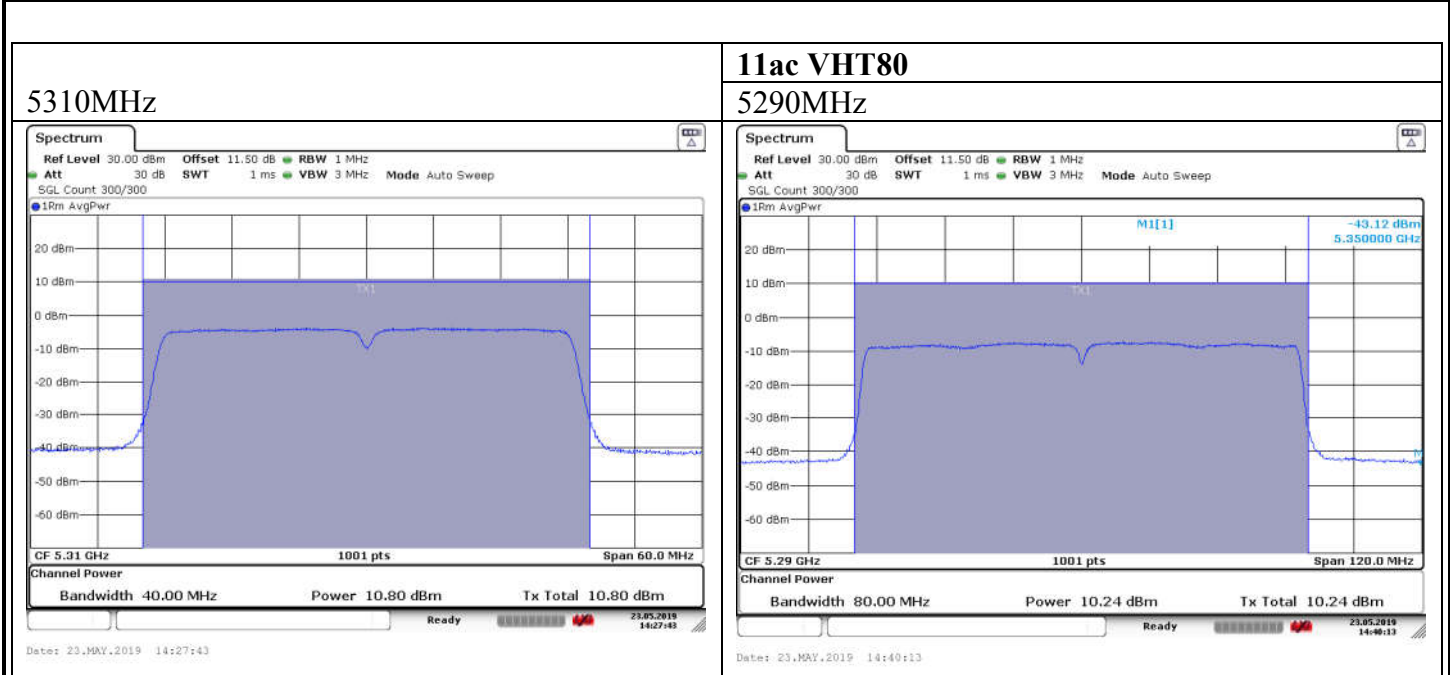
11ac VHT40

5270MHz



Date: 23.MAY.2019 16:17:13

FCC ID: VOB-P2571

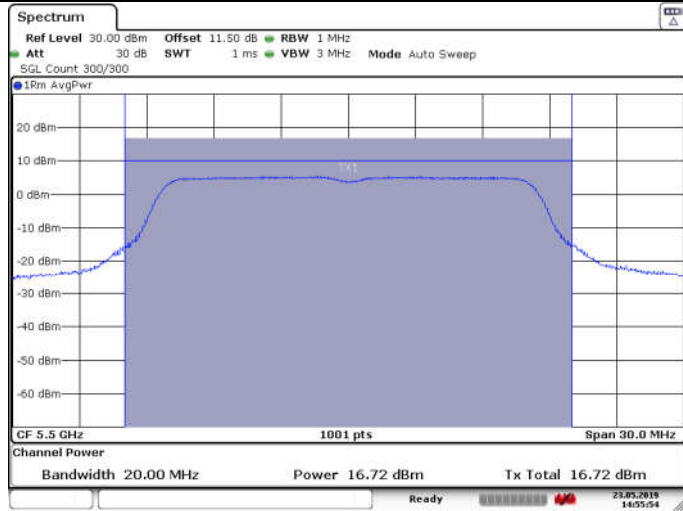


U-NII-2C Band:

ANT1

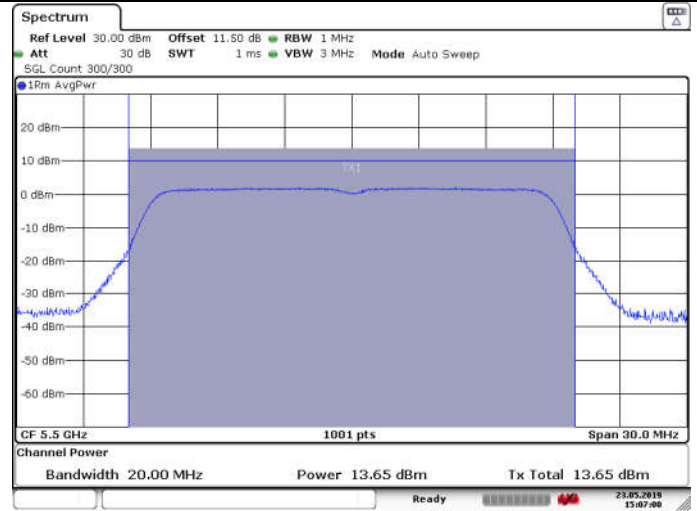
11a

5500MHz

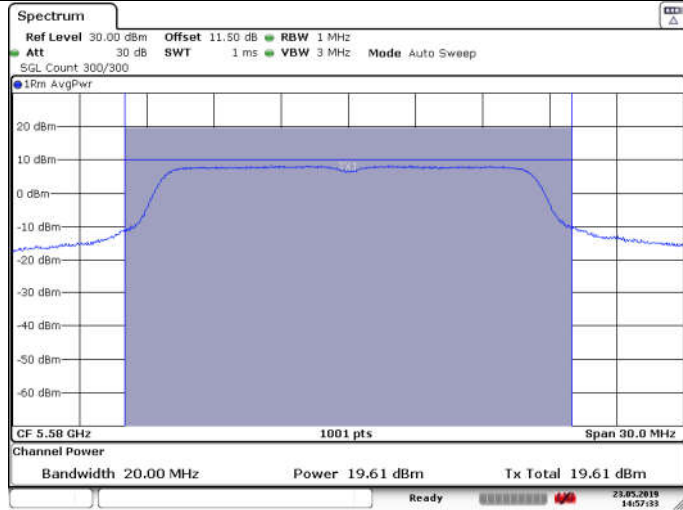


11n HT20

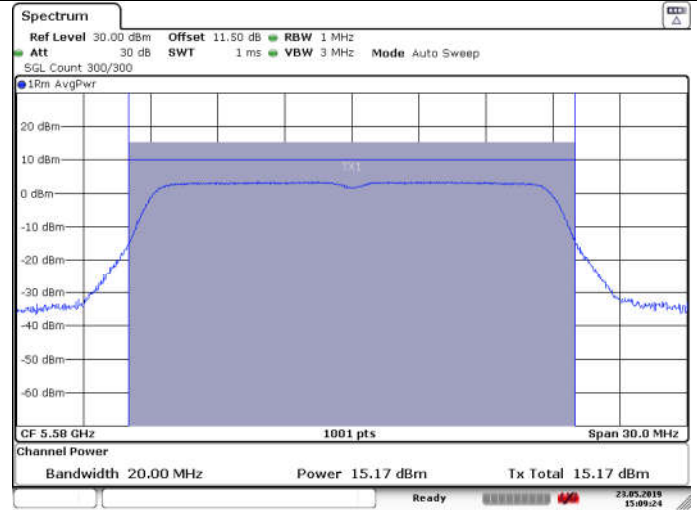
5500MHz



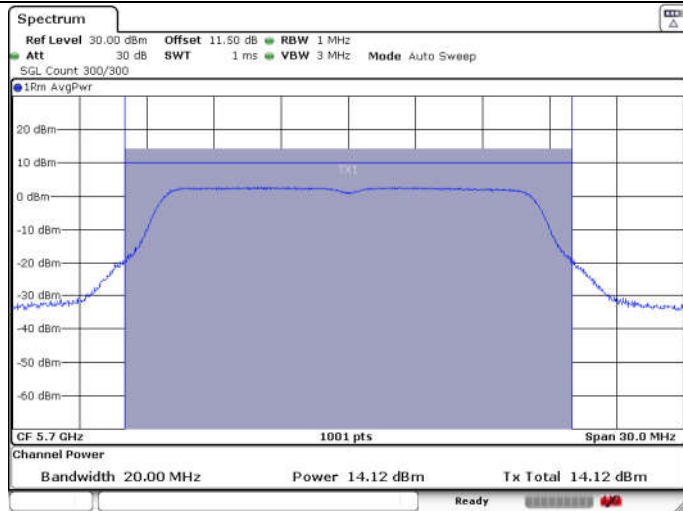
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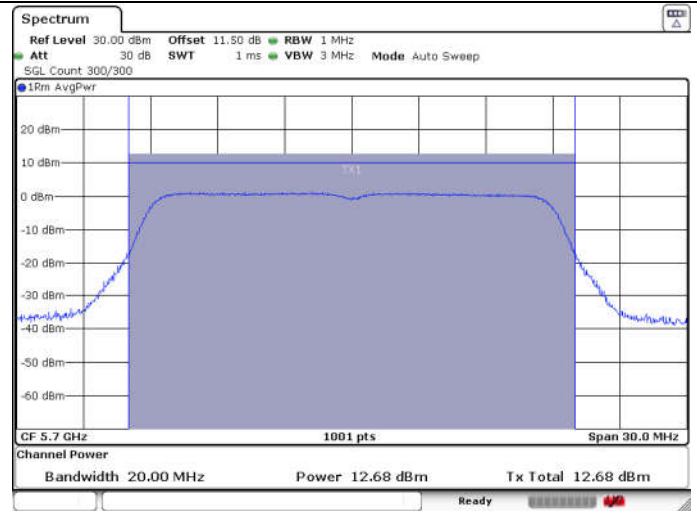
5580MHz

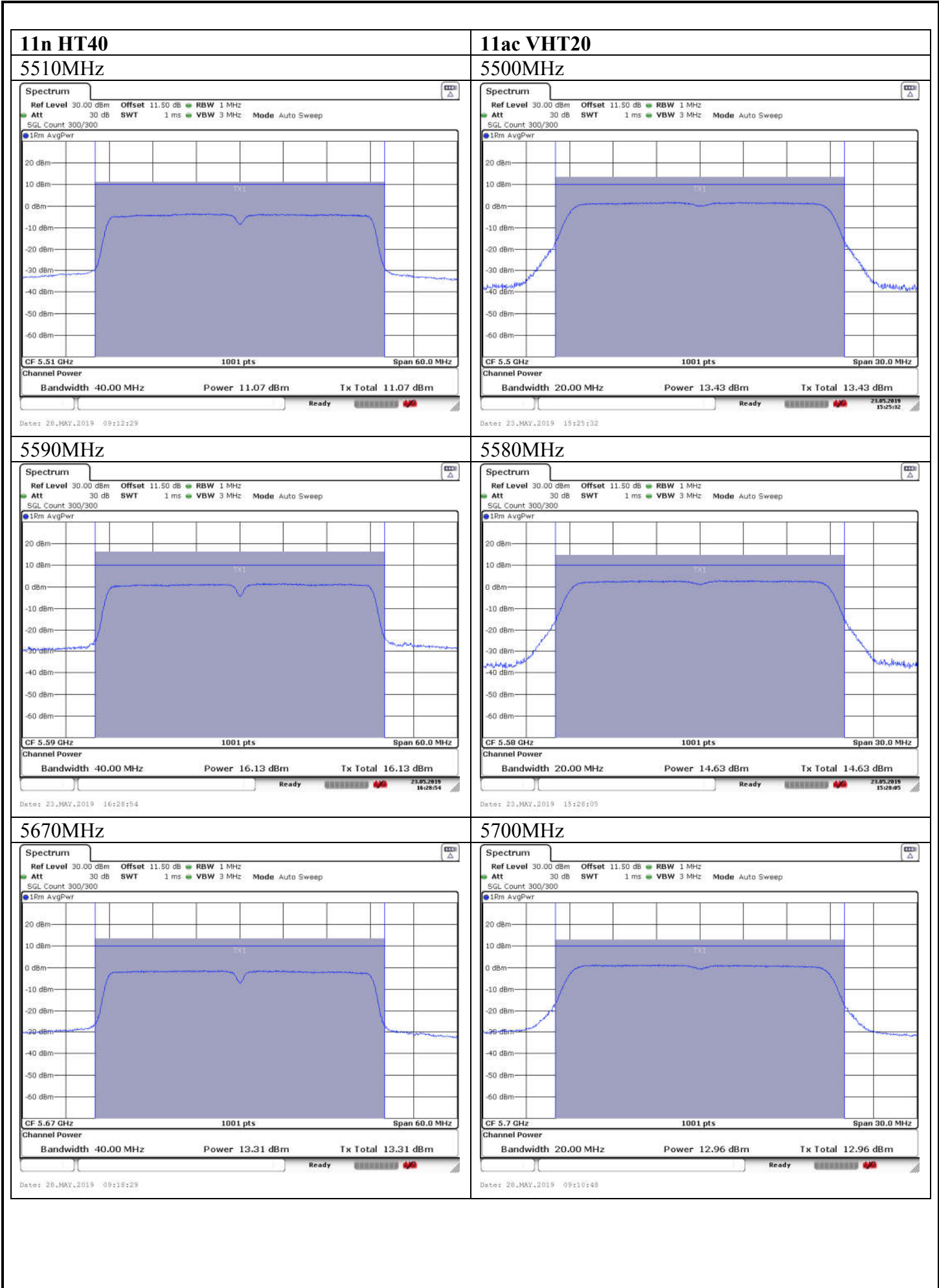


5700MHz

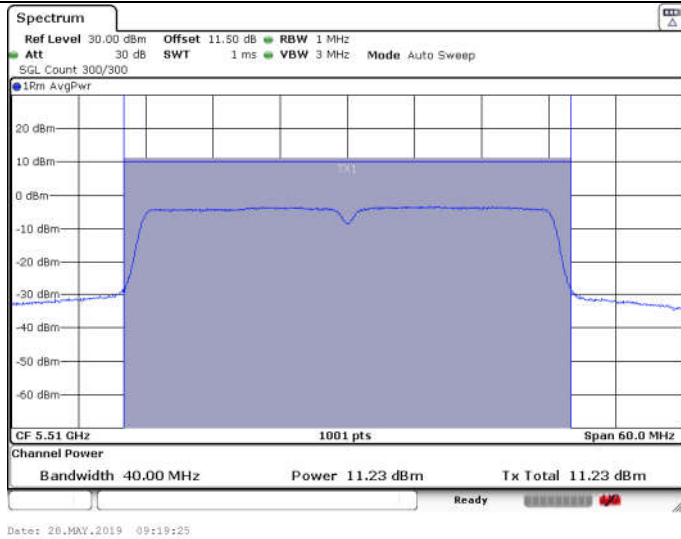


5700MHz

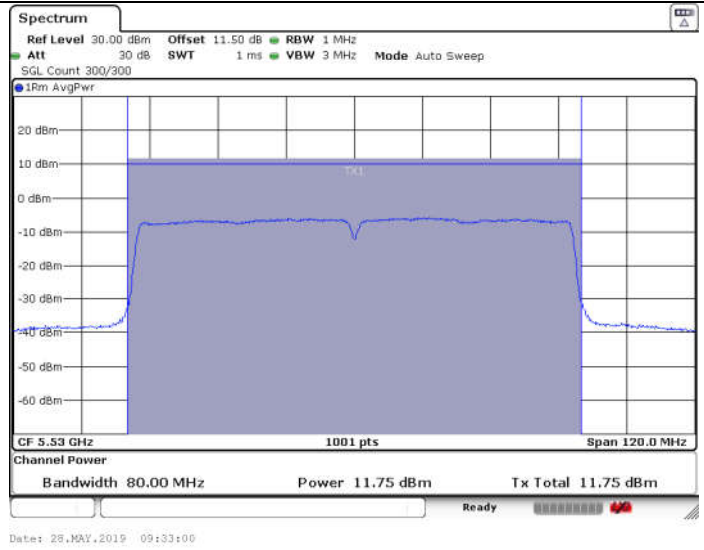




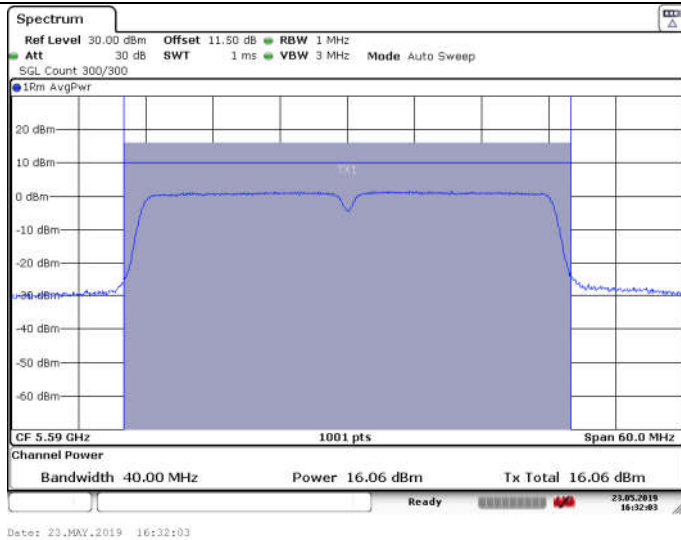
11ac VHT40
5510MHz



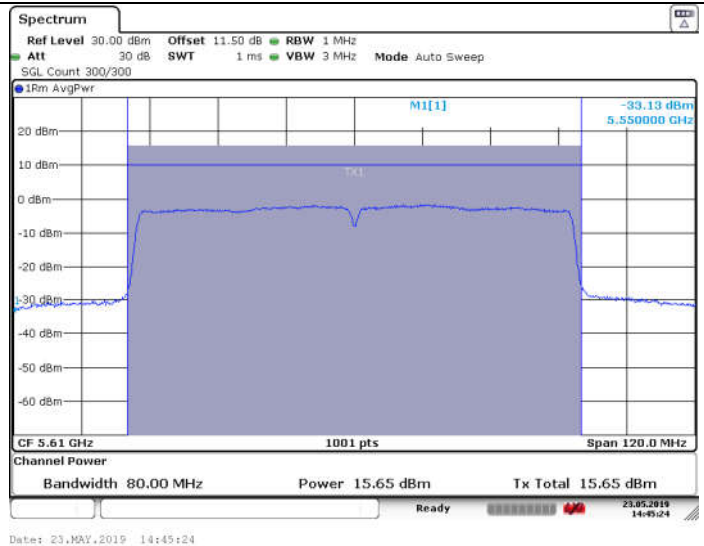
11ac VHT80
5530MHz



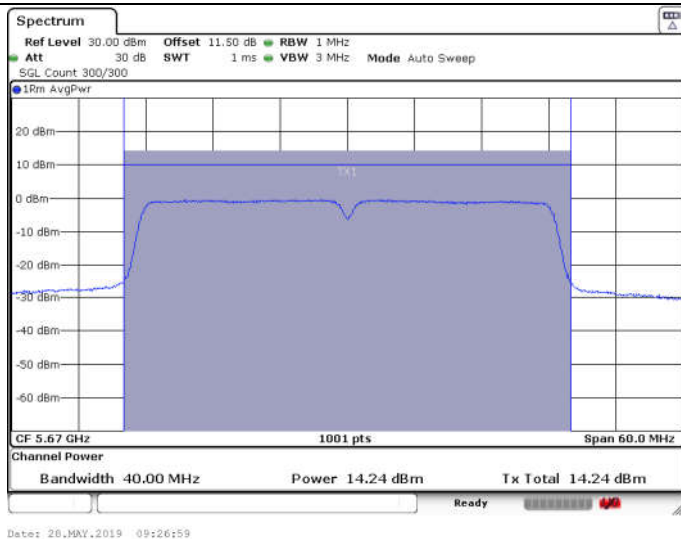
5590MHz



5610MHz



5670MHz

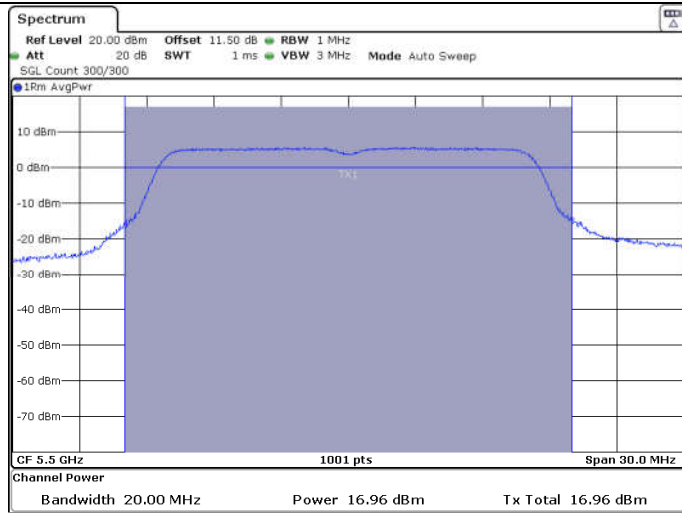


U-NII-2C Band:

ANT2

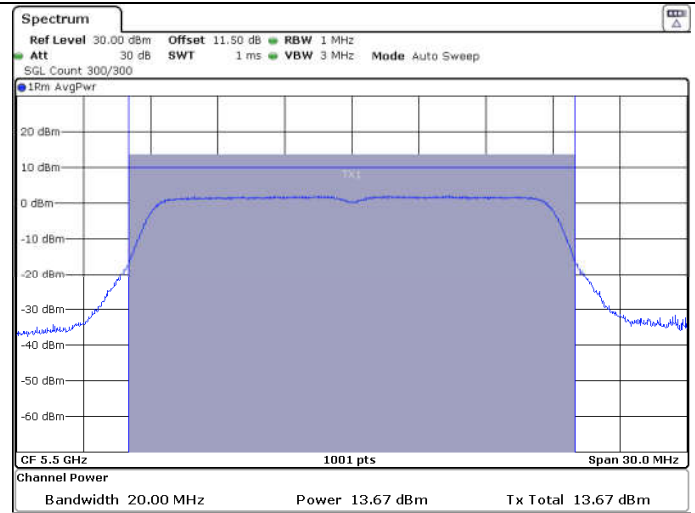
11a

5500MHz

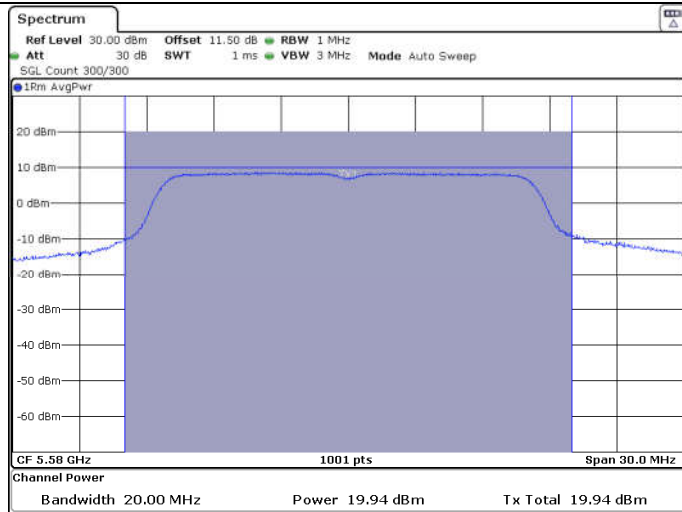


11n HT20

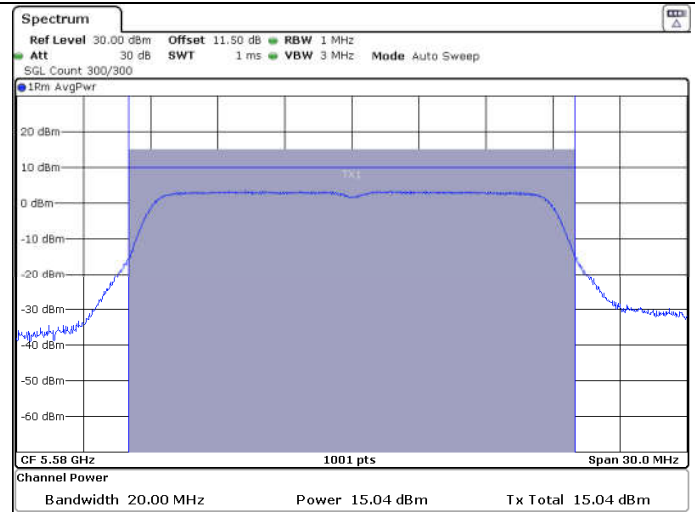
5500MHz



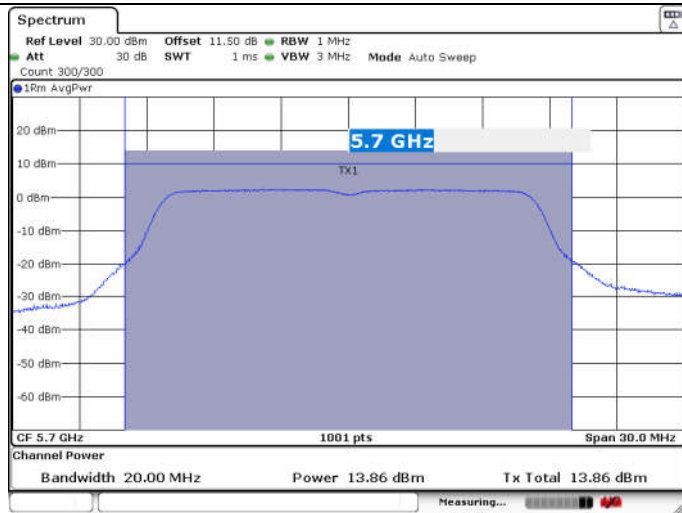
5580MHz



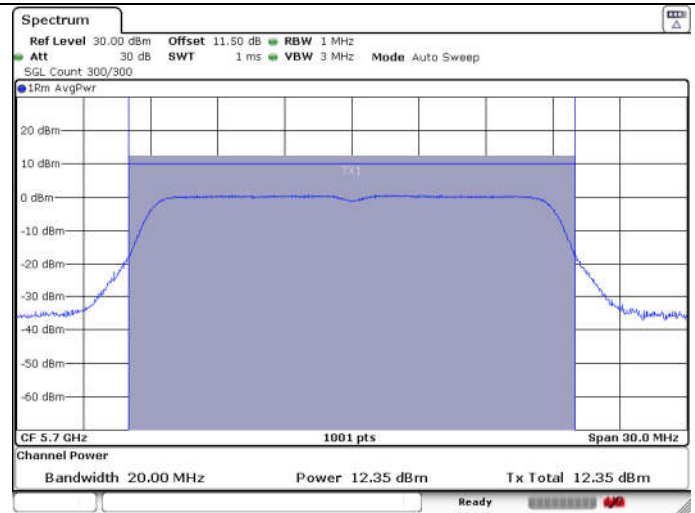
5580MHz

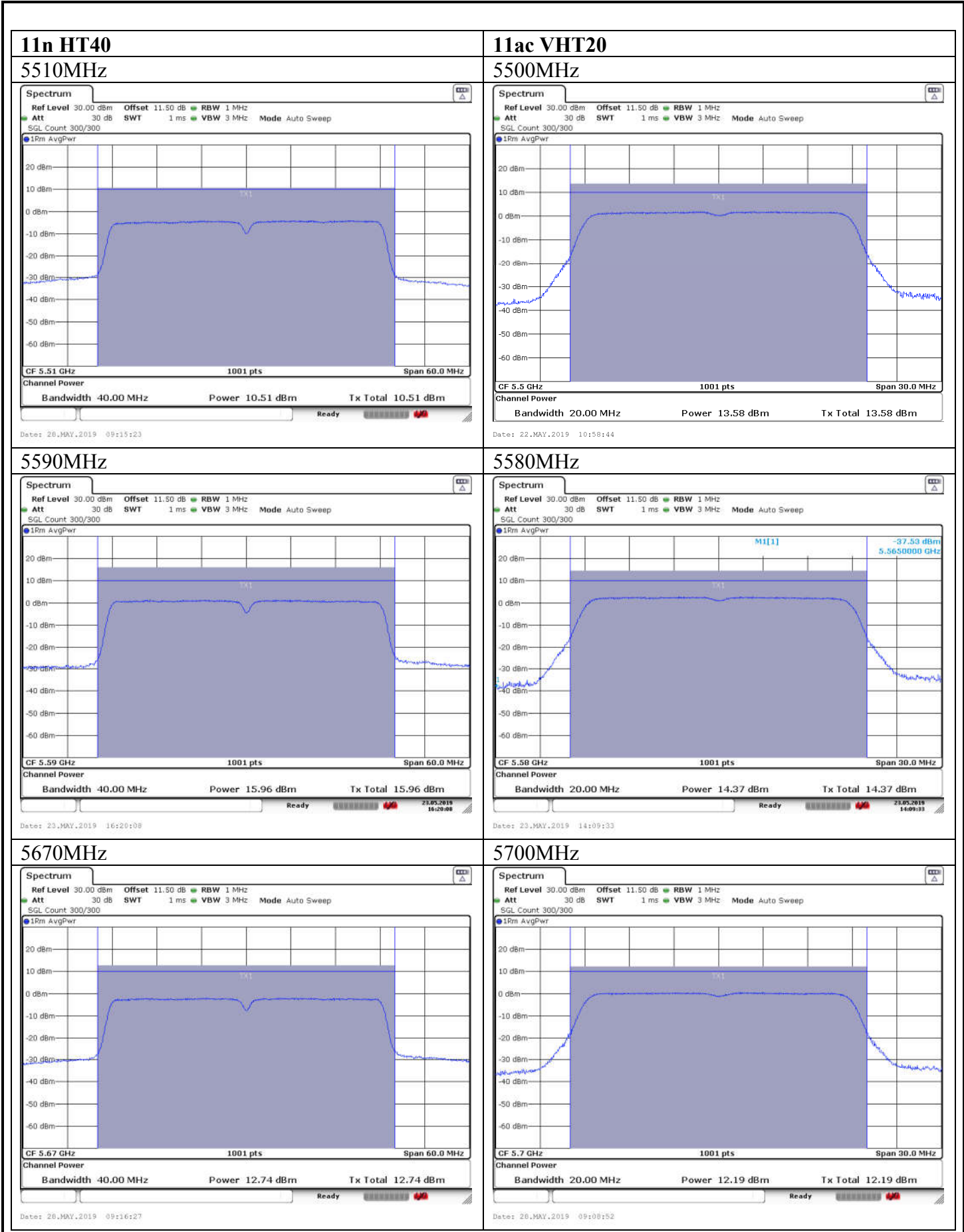


5700MHz

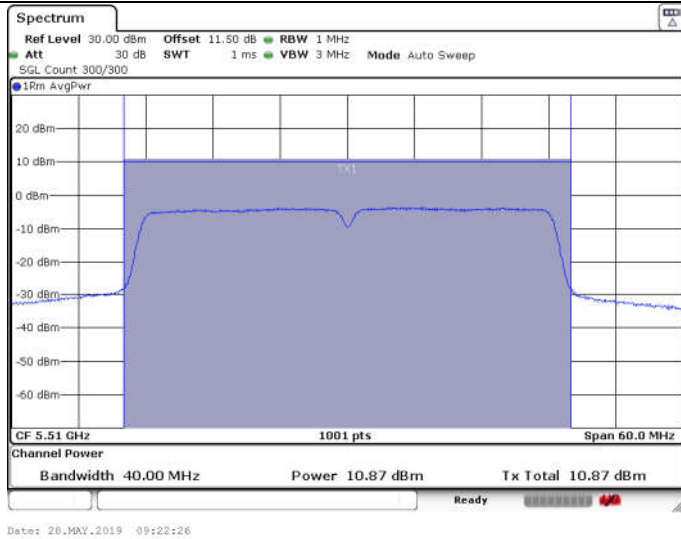


5700MHz

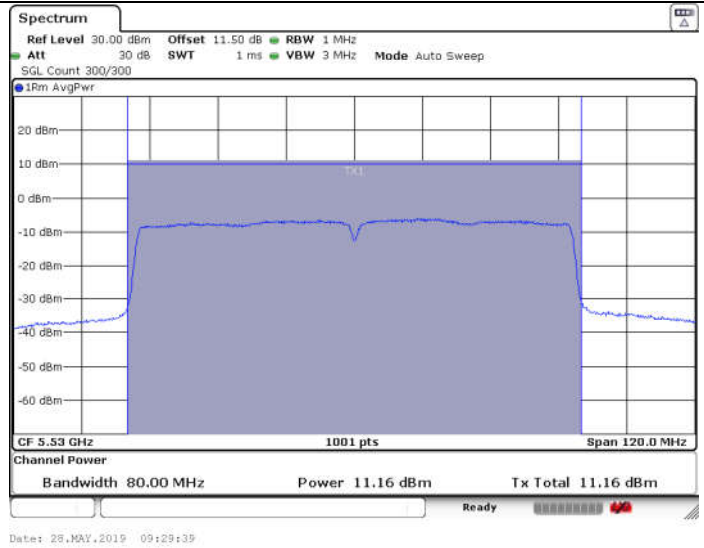




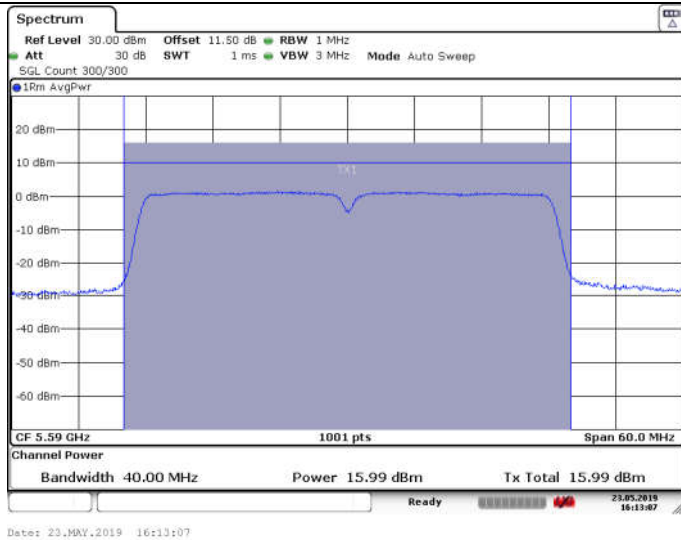
11ac VHT40
5510MHz



11ac VHT80
5530MHz



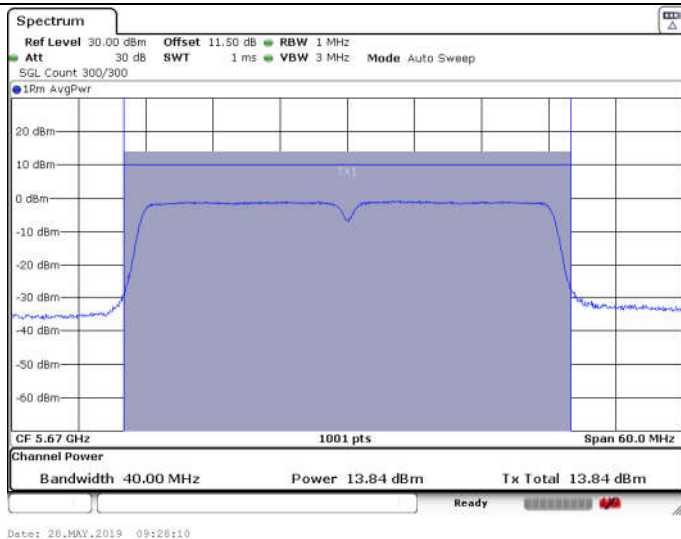
5590MHz



5610MHz



5670MHz



8. Equivalent Isotropic Radiated Power Test

8.1. Limit

Use the test method described in FCC Part 15.407(h) (1):

Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

8.2. Test Procedure

Use the test method described in ANSI C63.10 Annex G :

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator ,set the Spectrum Analyzer as below:

Span: Zero

RBW:100KHz

VBW:100KHz

Read out the duty cycle(X) of the transmitter and record as X

(2) The channel power measure function of spectrum Analyzer was used to measure out average output power of transmitter.

(3) Calculated e.i.r.p according to the formula: $\text{Read} + \text{Cable loss} + \text{Atten loss} + \text{Antenna Gain} + 10\log(1/x)$

(4) Repeated test at the lowest, the middle, and the highest frequency of the stated frequency range.

8.3. Test Results

U-NII-2A Band:

| | | |
|--------------------------|-------------------------|--------------------------|
| EUT: Complex Set-Top Box | | |
| M/N: P2571 | | |
| Test date: 2019-05-28 | Pressure: 102.1±1.0 kpa | Humidity: 51.1±3.0% |
| Tested by: Lynn | Test site: RF site | Temperature: 22.8±0.6 °C |

| Test Mode | Frequency (MHz) | E.I.R.P (dBm) | | | Limit (dBm) | |
|------------|-----------------|---------------|-------|-------|-------------|-------|
| | | ANT1 | ANT2 | Total | ANT1 | ANT2 |
| 11a | 5260 | 25.65 | 25.06 | N/A | 29.28 | 29.29 |
| | 5300 | 24.87 | 25.09 | N/A | | |
| | 5320 | 21.56 | 22.45 | N/A | | |
| 11n HT20 | 5260 | 21.69 | 22.57 | 25.16 | 29.53 | |
| | 5300 | 21.51 | 22.28 | 24.92 | | |
| | 5320 | 20.7 | 21.42 | 24.09 | | |
| 11n HT40 | 5270 | 22.99 | 23.40 | 26.21 | 30 | |
| | 5310 | 18.69 | 18.96 | 21.84 | | |
| 11ac VHT20 | 5260 | 21.38 | 22.26 | 24.85 | 29.53 | |
| | 5300 | 21.26 | 22.37 | 24.86 | | |
| | 5320 | 20.48 | 21.47 | 24.01 | | |
| 11ac VHT40 | 5270 | 23.14 | 23.40 | 26.28 | 30 | |
| | 5310 | 18.19 | 18.29 | 21.25 | | |
| 11ac VHT80 | 5290 | 17.93 | 18.22 | 21.09 | 30 | |

Conclusion: PASS

Note: For 11a/11n HT20/11ac VHT20 Mode
 Limit=17 dBm + 10 log B
 where B is the 99% emission bandwidth in megahertz.

For 11n HT40/11ac VHT40/ 11ac VHT80Mode
 Limit= 30.00 dBm

U-NII-2C Band:

| | | |
|--------------------------|-------------------------|--------------------------|
| EUT: Complex Set-Top Box | | |
| M/N: P2571 | | |
| Test date: 2019-05-28 | Pressure: 102.1±1.0 kpa | Humidity: 51.1±3.0% |
| Tested by: Lynn | Test site: RF site | Temperature: 22.8±0.6 °C |

| Test Mode | Frequency (MHz) | E.I.R.P (dBm) | | | Limit (dBm) | |
|------------------|-----------------|---------------|-------|-------|-------------|-------|
| | | ANT1 | ANT2 | Total | ANT1 | ANT2 |
| 11a | 5500 | 23.07 | 24.54 | N/A | 29.25 | 29.27 |
| | 5580 | 25.96 | 27.52 | N/A | | |
| | 5700 | 20.47 | 21.44 | N/A | | |
| 11n HT20 | 5500 | 20.01 | 21.26 | 23.69 | 29.51 | |
| | 5580 | 21.53 | 22.63 | 25.13 | | |
| | 5700 | 19.04 | 19.94 | 22.52 | | |
| 11n HT40 | 5510 | 17.71 | 18.38 | 21.07 | 30 | |
| | 5550 | 22.81 | 23.87 | 26.38 | | |
| | 5670 | 19.95 | 20.61 | 23.30 | | |
| 11ac VHT20 | 5500 | 19.79 | 21.17 | 23.54 | 29.50 | |
| | 5580 | 20.99 | 21.96 | 24.51 | | |
| | 5700 | 19.32 | 19.78 | 22.57 | | |
| 11ac VHT40 | 5510 | 17.87 | 18.74 | 21.34 | 30 | |
| | 5550 | 22.93 | 23.83 | 26.41 | | |
| | 5670 | 20.88 | 21.71 | 24.33 | | |
| 11ac VHT80 | 5530 | 18.88 | 19.52 | 22.22 | 30 | |
| Conclusion: PASS | | | | | | |

Note: For 11a/11n HT20/11ac VHT20 Mode

Limit=17 dBm + 10 log B

where B is the 99% emission bandwidth in megahertz.

For 11n HT40/11ac VHT40/ 11ac VHT80Mode

Limit= 30.00 dBm

9. SPECTRAL DENSITY TEST

9.1. Test Equipment

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-----------------|----------------|--------------|------------|-----------|---------------|
| 1. | Signal Analyzer | Rohode&Schwarz | FSV7 | 102493 | Oct.14,18 | 1 Year |
| 2. | Attenuator | Agilent | 8491B | MY39262165 | Oct.14,18 | 1 Year |
| 3. | RF Cable | Mini-Circults | CBL-1M-SMSM+ | No.4 | Oct.14,18 | 1 Year |

9.2. Limit

Band 5150-5250 MHz:

The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

Band 5250-5350 MHz:

The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

Band 5470-5725 MHz:

The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

Band 5725-5850 MHz:

The power spectral density shall not exceed 30 dBm in any 500 KHz band.

9.3. Test Procedure

Use the test method described in ANSI C63.10 clause 12.5:

For the Band 5.15-5.35GHz; 5.47-5.725 GHz:

The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW; Detector: RMS mode.

For the band 5.725-5.85 GHz:

The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW, RMS Detector.

So use the test method described in KDB789033 clause E

- 1) Set the RBW=100kHz and VBW =3MHz
- 2) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is \leq RBW/2, so that narrowband signals are not lost between frequency bins.)
- 3) Sweep time = auto
- 4) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- 5) Use the “peak search” function of spectrum analyzer find the max value, then add $10\log(500\text{kHz}/\text{RBW})$ to the measured result.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

9.4. Test Results

U-NII-2A Band:

| | | |
|--------------------------|-------------------------|--------------------------|
| EUT: Complex Set-Top Box | | |
| M/N: P2571 | | |
| Test date: 2019-05-21~23 | Pressure: 102.3±1.0 kpa | Humidity: 51.6±3.0% |
| Tested by: Lynn | Test site: RF site | Temperature: 22.5±0.6 °C |

| Test Mode | Frequency (MHz) | Power density (dBm/MHz) | | | | | | Limit (dBm/MHz) | |
|------------------|-----------------|-------------------------|-------|-----------------------|-------|-------|-------|-----------------|-------|
| | | ANT1 | ANT2 | Duty Cycle Correction | ANT1 | ANT2 | Total | ANT1 | ANT2 |
| 11a | 5260 | 8.23 | 6.57 | 0.27 | 8.5 | 6.84 | N/A | 10.91 | 10.07 |
| | 5300 | 7.85 | 6.52 | 0.27 | 8.12 | 6.79 | N/A | | |
| | 5320 | 4.02 | 3.85 | 0.27 | 4.29 | 4.12 | N/A | | |
| 11n HT20 | 5260 | 3.91 | 3.42 | 0.28 | 4.19 | 3.70 | 6.96 | 7.47 | |
| | 5300 | 3.74 | 3.40 | 0.28 | 4.02 | 3.68 | 6.86 | | |
| | 5320 | 2.86 | 2.48 | 0.28 | 3.14 | 2.76 | 5.96 | | |
| 11n HT40 | 5270 | 2.18 | 1.36 | 0.56 | 2.74 | 1.92 | 5.36 | 7.47 | |
| | 5310 | -2.16 | -2.51 | 0.56 | -1.60 | -1.95 | 1.24 | | |
| 11ac VHT20 | 5260 | 3.81 | 3.39 | 0.28 | 4.09 | 3.67 | 6.90 | 7.47 | |
| | 5300 | 3.71 | 3.29 | 0.28 | 3.99 | 3.57 | 6.80 | | |
| | 5320 | 2.77 | 2.36 | 0.28 | 3.05 | 2.64 | 5.86 | | |
| 11ac VHT40 | 5270 | 2.06 | 1.50 | 0.56 | 2.62 | 2.06 | 5.36 | 7.47 | |
| | 5310 | -2.36 | -3.15 | 0.56 | -1.8 | -2.59 | 0.83 | | |
| 11ac VHT80 | 5290 | -6.05 | -6.75 | 1.05 | -5.00 | -5.70 | -2.33 | 7.47 | |
| Conclusion: PASS | | | | | | | | | |

Notes:

- Antenna 1 Gain= 6.09dBi>6dBi;
 Antenna 2 Gain= 6.93dBi>6dBi;
 Directional Gain= $10 \log[(10^{6.09/20} + 10^{6.93/20})^2 / 2]$ dBi= 9.53dBi>6dBi.
- The transmit signals are correlated.

U-NII-2C Band:

| | | |
|--------------------------|-------------------------|--------------------------|
| EUT: Complex Set-Top Box | | |
| M/N: P2571 | | |
| Test date: 2019-05-21~28 | Pressure: 102.8±1.0 kpa | Humidity: 51.8±3.0% |
| Tested by: Lynn | Test site: RF site | Temperature: 23.2±0.6 °C |

| Test Mode | Frequency (MHz) | Power density (dBm/MHz) | | | | | | Limit (dBm/MHz) | |
|------------|-----------------|-------------------------|-------|-----------------------|-------|-------|-------|-----------------|------|
| | | ANT1 | ANT2 | Duty Cycle Correction | ANT1 | ANT2 | Total | ANT1 | ANT2 |
| 11a | 5500 | 5.97 | 5.84 | 0.27 | 6.24 | 6.11 | N/A | 10.92 | 9.69 |
| | 5580 | 8.78 | 8.56 | 0.27 | 9.05 | 8.83 | N/A | | |
| | 5700 | 2.62 | 2.34 | 0.27 | 2.89 | 2.61 | N/A | | |
| 11n HT20 | 5500 | 2.34 | 1.91 | 0.28 | 2.62 | 2.19 | 5.42 | 7.27 | |
| | 5580 | 3.69 | 3.13 | 0.28 | 3.97 | 3.41 | 6.71 | | |
| | 5700 | 1.03 | 0.63 | 0.28 | 1.31 | 0.91 | 4.12 | | |
| 11n HT40 | 5510 | -2.97 | -3.28 | 0.56 | -2.41 | -2.72 | 0.45 | 7.27 | |
| | 5590 | 1.96 | 1.56 | 0.56 | 2.52 | 2.12 | 5.33 | | |
| | 5670 | -1.18 | -1.44 | 0.56 | -0.62 | -0.88 | 2.26 | | |
| 11ac VHT20 | 5500 | 2.47 | 1.98 | 0.28 | 2.75 | 2.26 | 5.52 | 7.27 | |
| | 5580 | 3.41 | 3.06 | 0.28 | 3.69 | 3.34 | 6.53 | | |
| | 5700 | 1.39 | 0.77 | 0.28 | 1.67 | 1.05 | 4.38 | | |
| 11ac VHT40 | 5510 | -2.98 | -3.02 | 0.56 | -2.42 | -2.46 | 0.57 | 7.27 | |
| | 5590 | 1.88 | 1.58 | 0.56 | 2.44 | 2.14 | 5.30 | | |
| | 5670 | -0.21 | -0.66 | 0.56 | 0.35 | -0.10 | 3.14 | | |
| 11ac VHT80 | 5530 | -5.24 | -6.00 | 1.05 | -4.19 | -4.95 | -1.54 | 7.27 | |
| | 5610 | -0.27 | -0.77 | 1.05 | 0.78 | 0.28 | 3.55 | | |

Conclusion: PASS

Notes:

- Antenna 1 Gain= 6.08dBi>6dBi;
 Antenna 2 Gain= 7.31dBi>6dBi;
 Directional Gain= $10 \log[(10^{6.08/20} + 10^{7.31/20})^2 / 2]$ dBi= 9.73dBi>6dBi.
- The transmit signals are correlated.

U-NII-2A Band:

ANT1

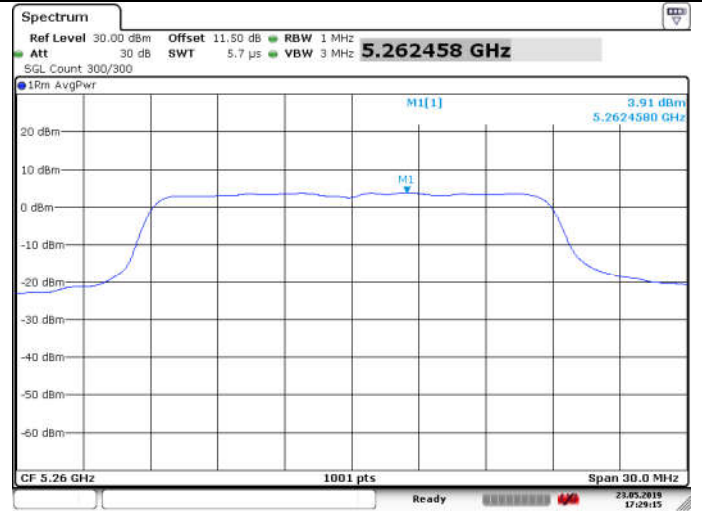
11a

5260MHz

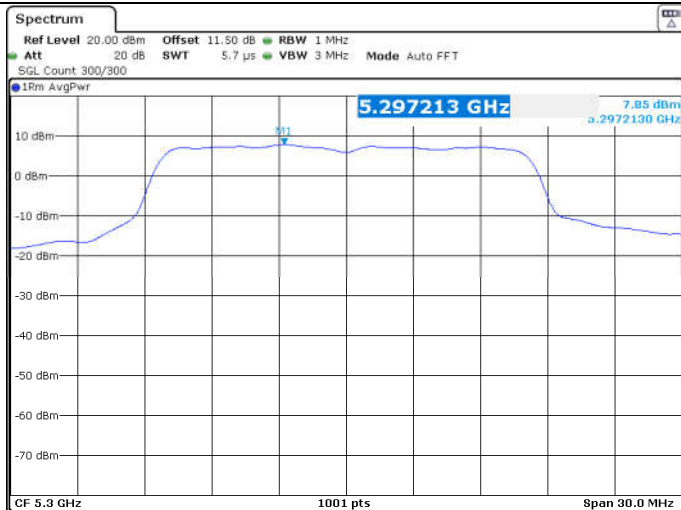


11n HT20

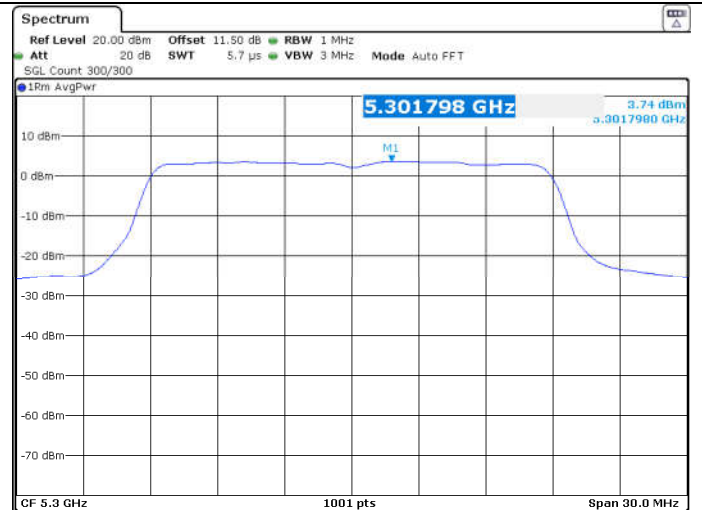
5260MHz



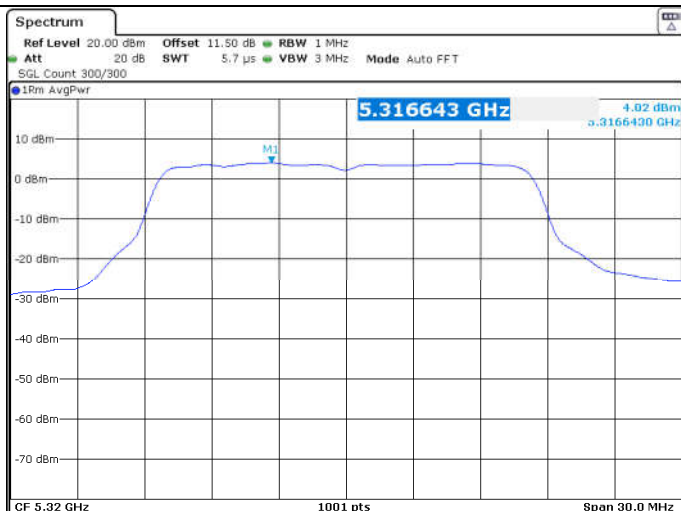
5300MHz



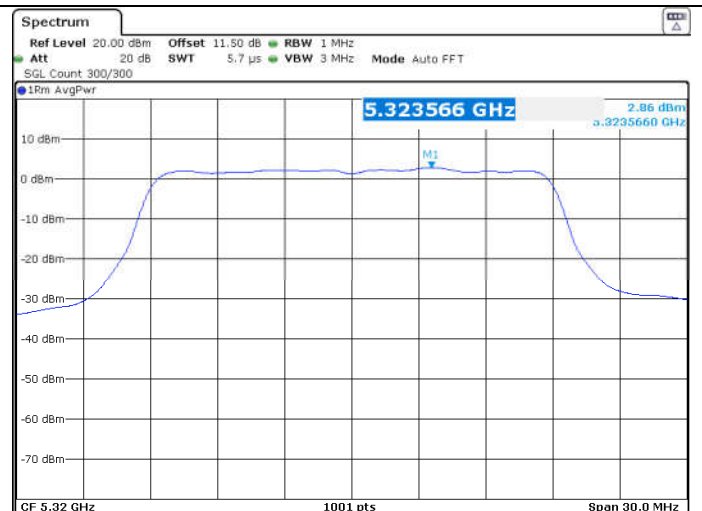
5300MHz



5320MHz

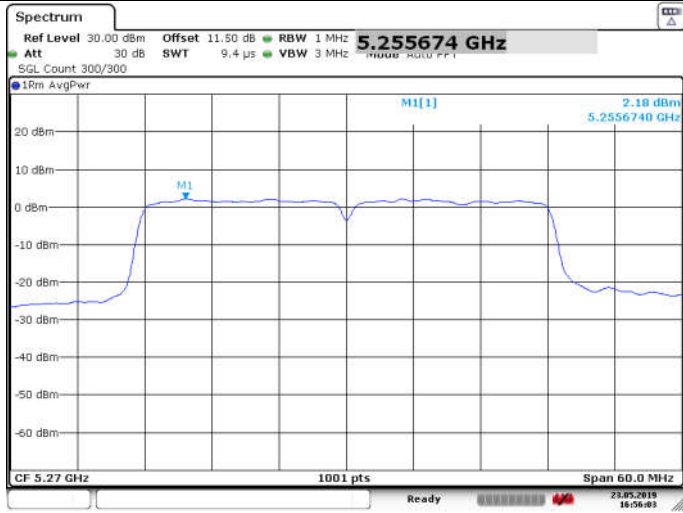


5320MHz



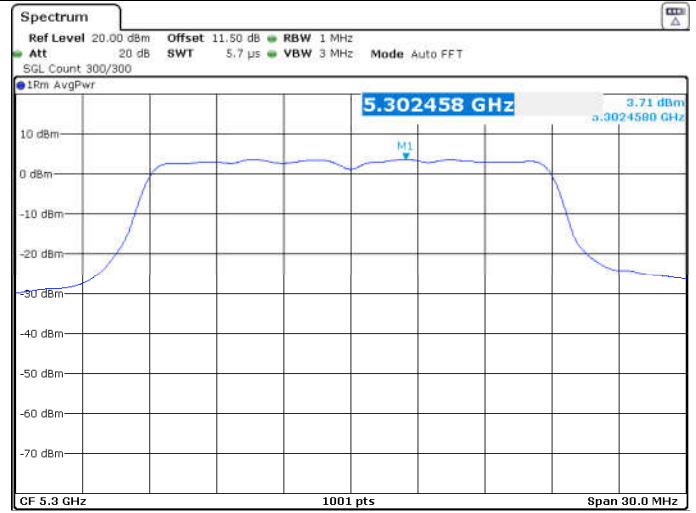
11n HT40

5270MHz



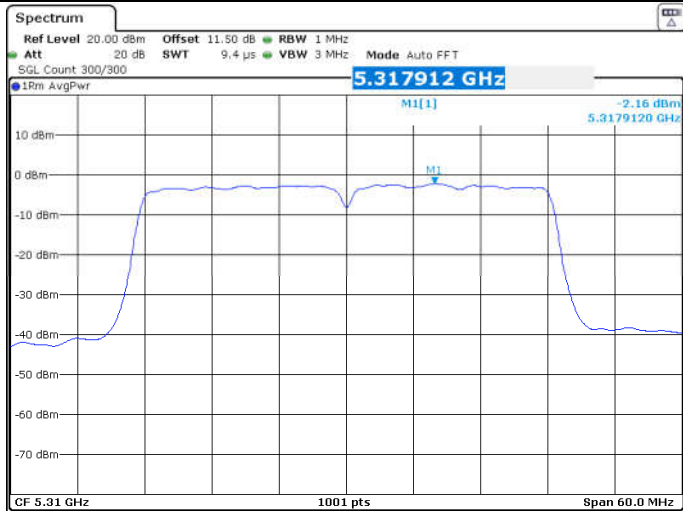
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5300MHz



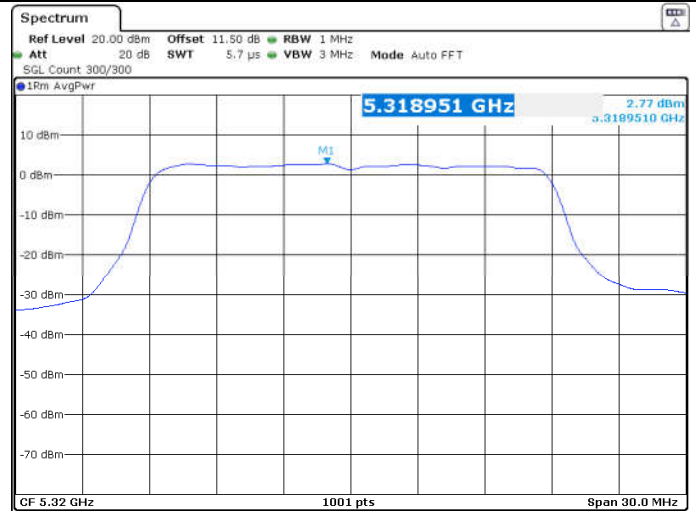
Date: 21.MAY.2019 11:26:24

5310MHz



Date: 22.MAY.2019 04:38:41

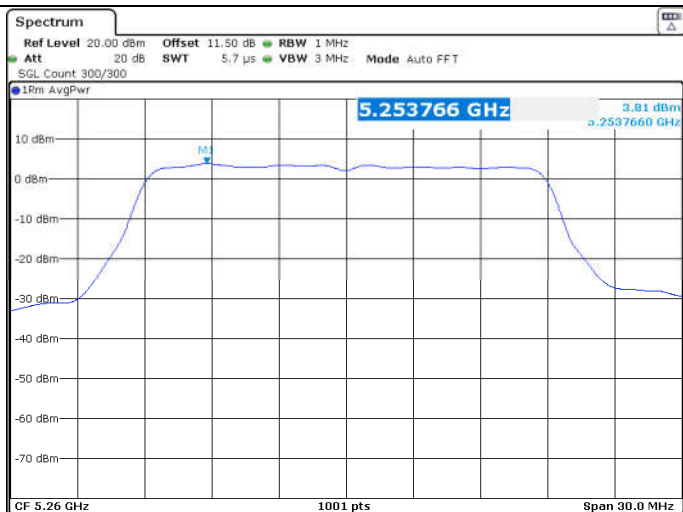
5320MHz



Date: 21.MAY.2019 11:27:44

11ac VHT20

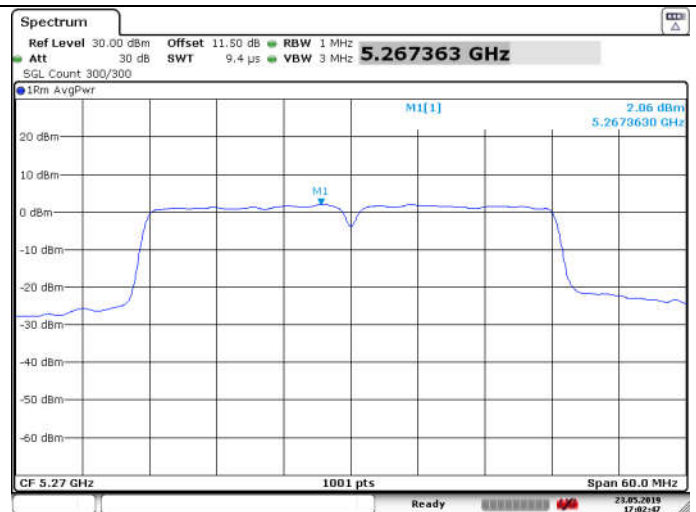
5260MHz



Date: 21.MAY.2019 11:22:24

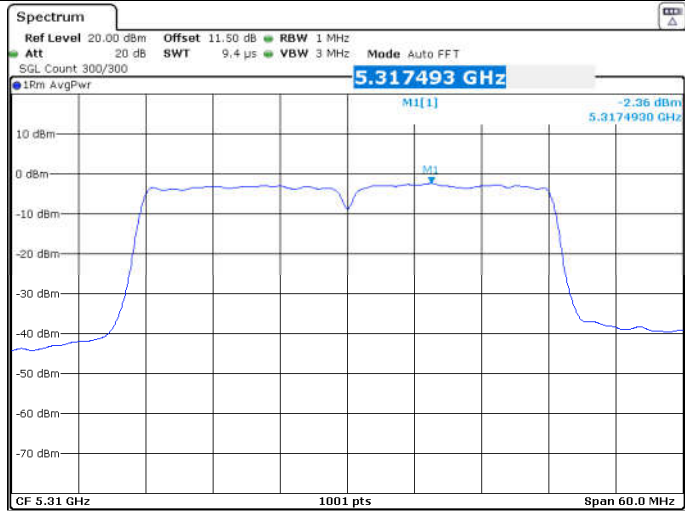
11ac VHT40

5270MHz



Date: 23.MAY.2019 17:02:47

5310MHz



11ac VHT80

5290MHz

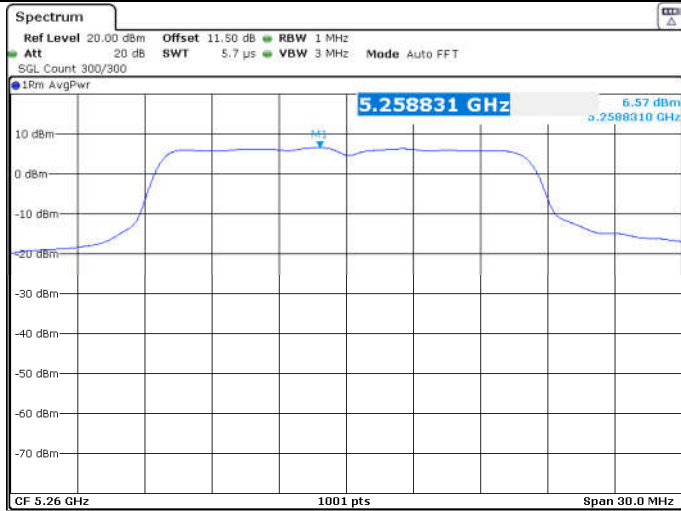


U-NII-2A Band:

ANT2

11a

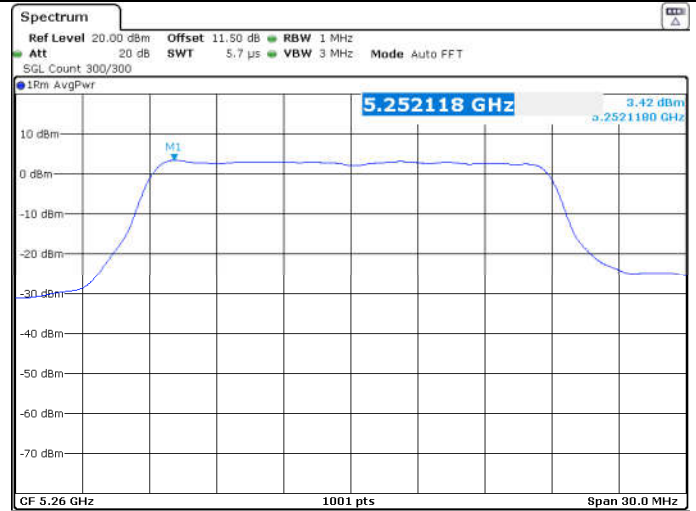
5260MHz



Date: 21.MAY.2019 09:27:40

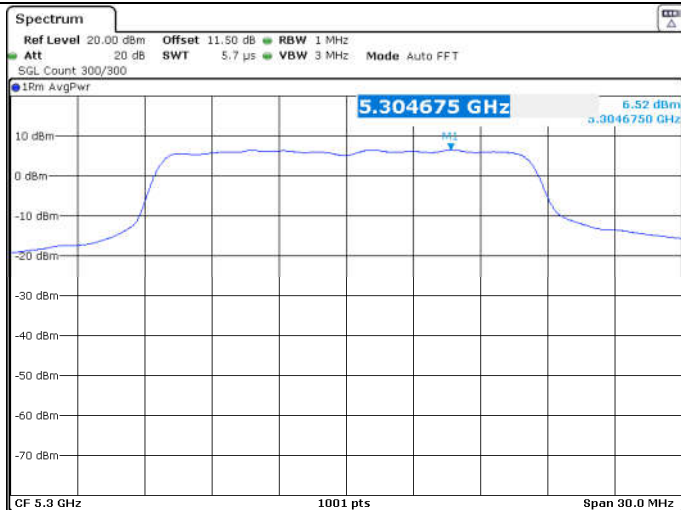
11n HT20

5260MHz



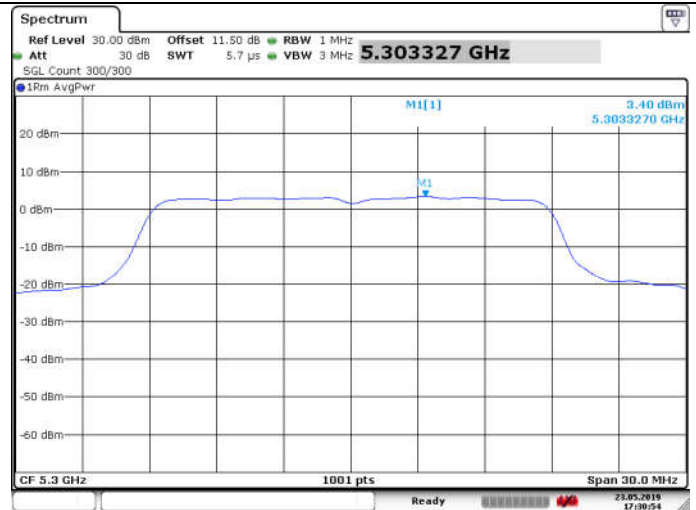
Date: 21.MAY.2019 10:19:50

5300MHz



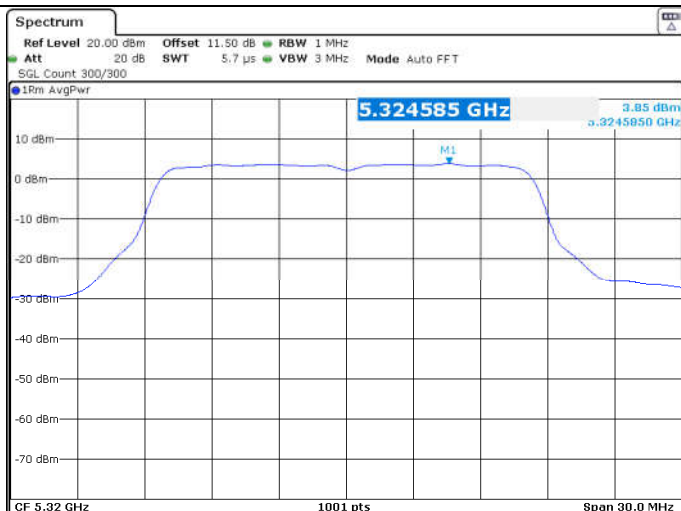
Date: 21.MAY.2019 09:29:11

5300MHz



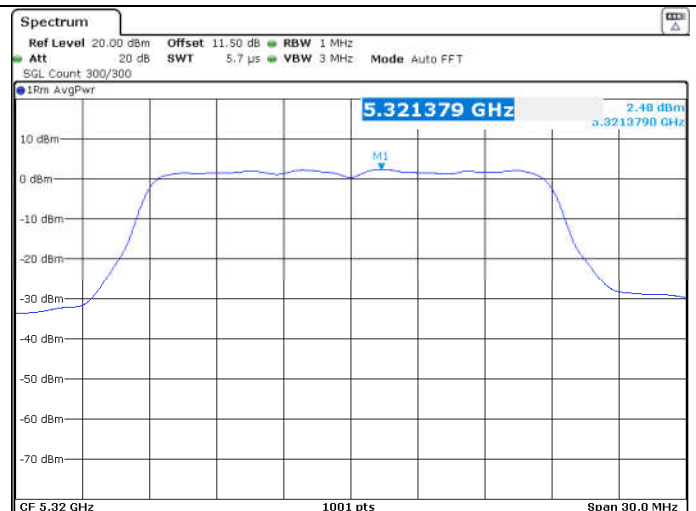
Date: 23.MAY.2019 17:30:55

5320MHz



Date: 21.MAY.2019 09:30:42

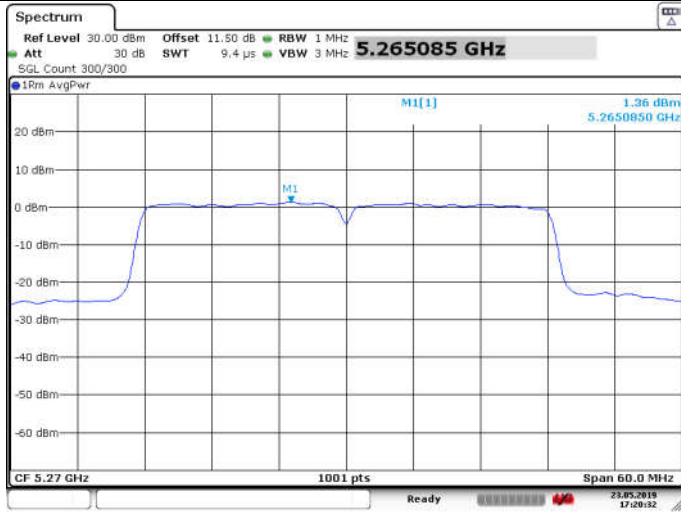
5320MHz



Date: 21.MAY.2019 10:51:06

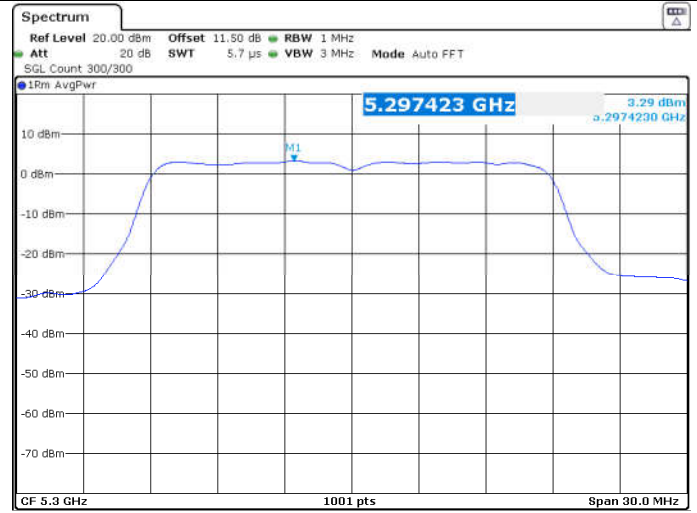
11n HT40

5270MHz



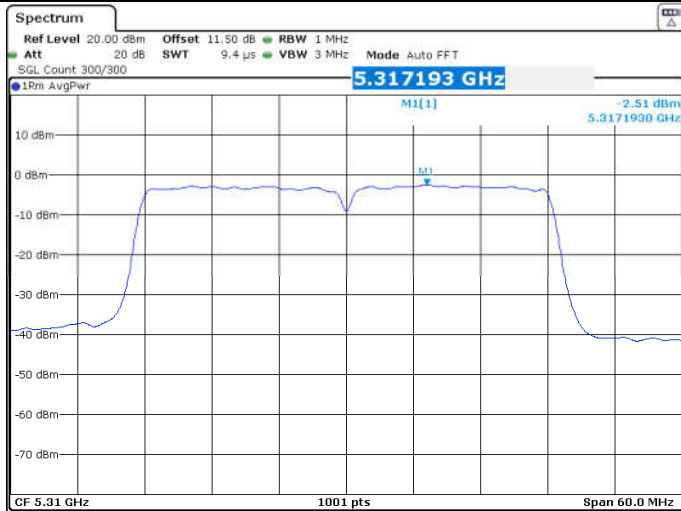
Date: 23.MAY.2019 17:20:32

5300MHz



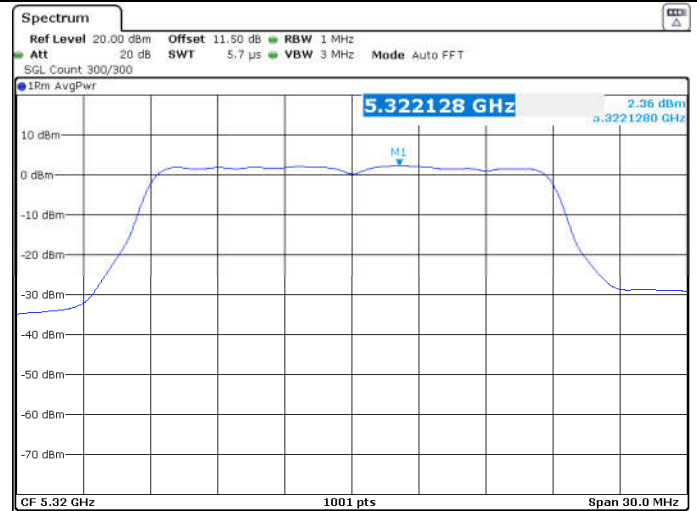
Date: 21.MAY.2019 11:07:57

5310MHz



Date: 22.MAY.2019 05:04:54

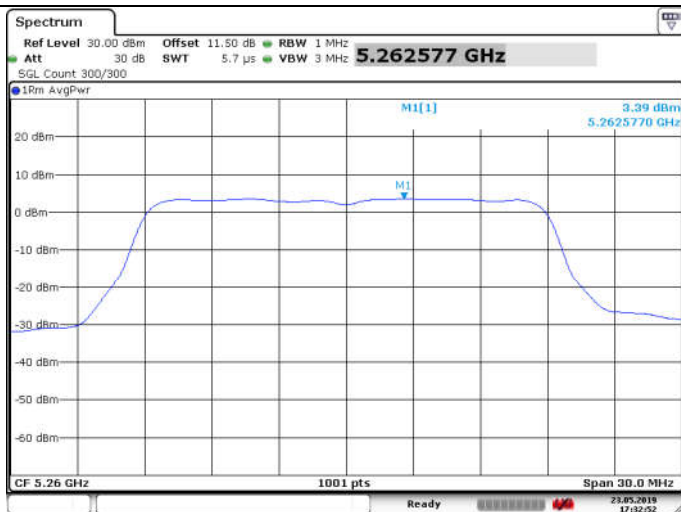
5320MHz



Date: 21.MAY.2019 11:10:11

11ac VHT20

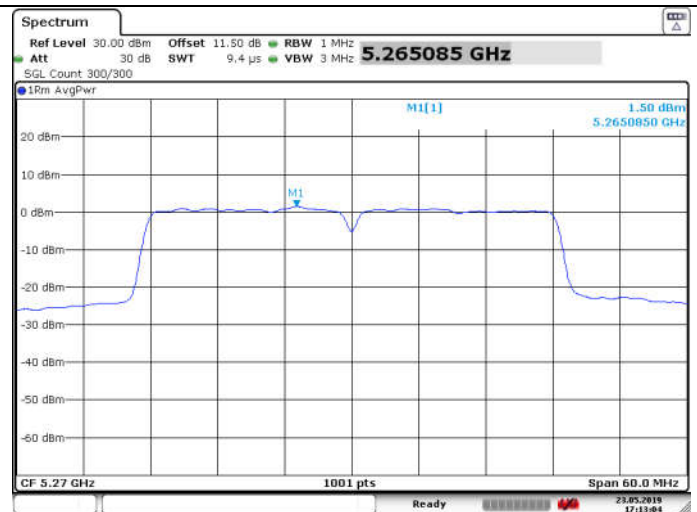
5260MHz



Date: 23.MAY.2019 17:32:52

11ac VHT40

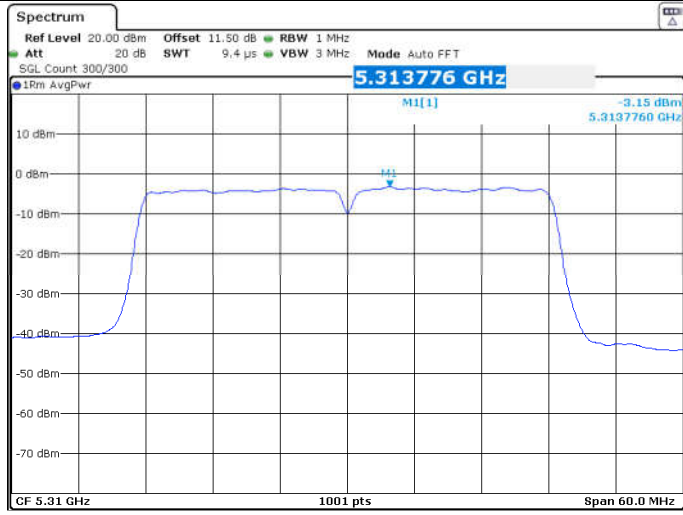
5270MHz



Date: 23.MAY.2019 17:13:04

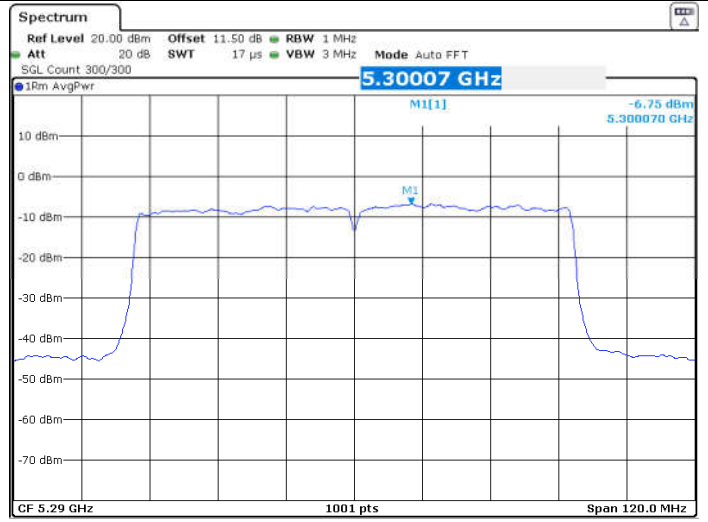
FCC ID: VOB-P2571

5310MHz



11ac VHT80

5290MHz

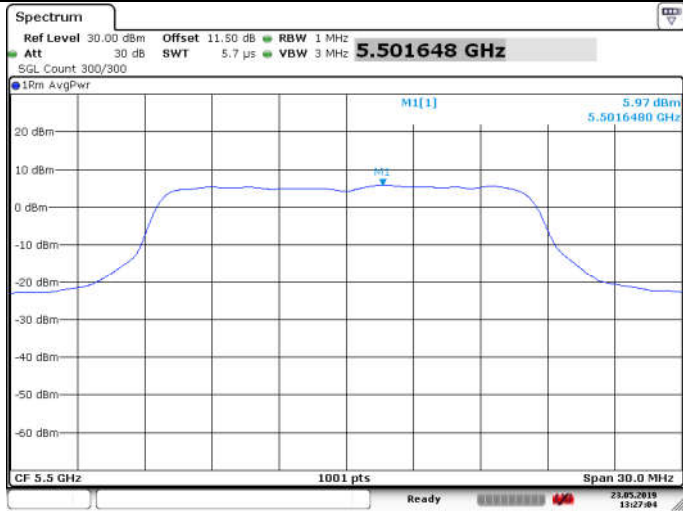


U-NII-2C Band:

ANT1

11a

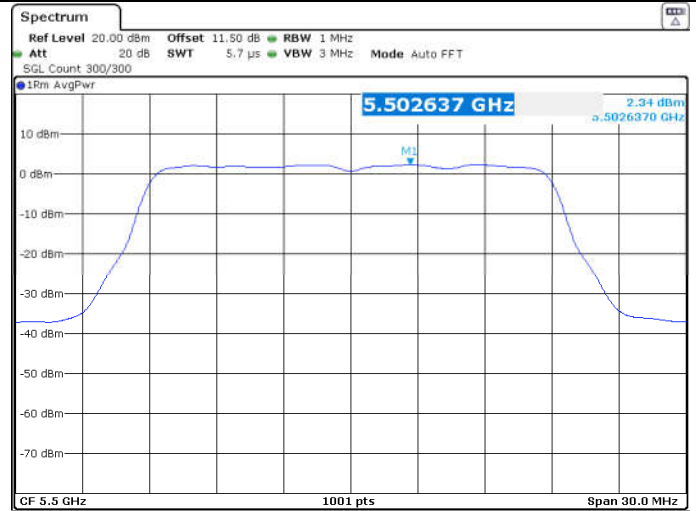
5500MHz



Date: 23.MAY.2019 13:27:04

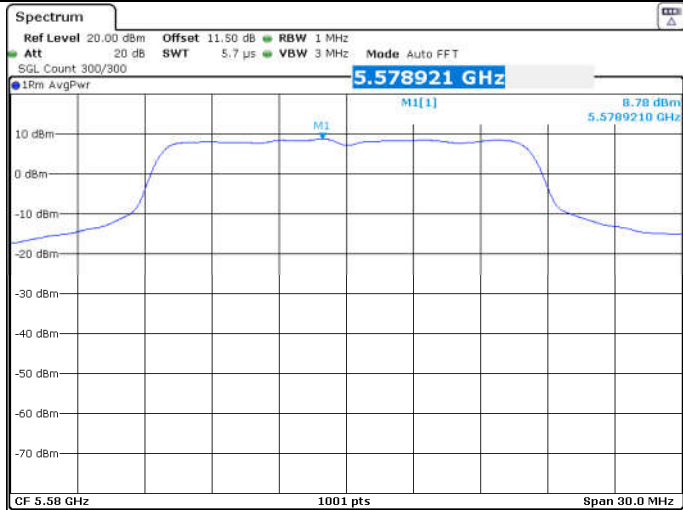
11n HT20

5500MHz



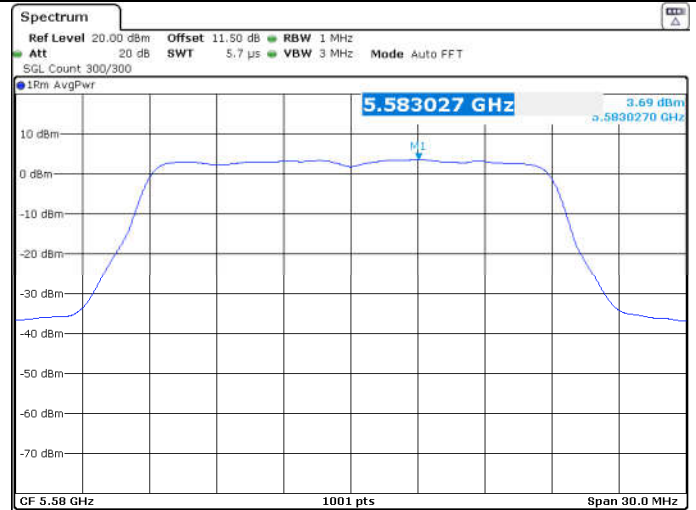
Date: 21.MAY.2019 10:33:57

5580MHz



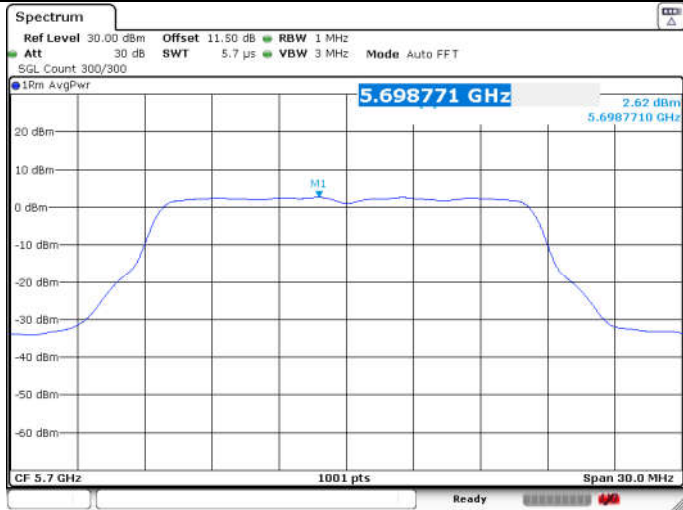
Date: 22.MAY.2019 08:35:38

5580MHz



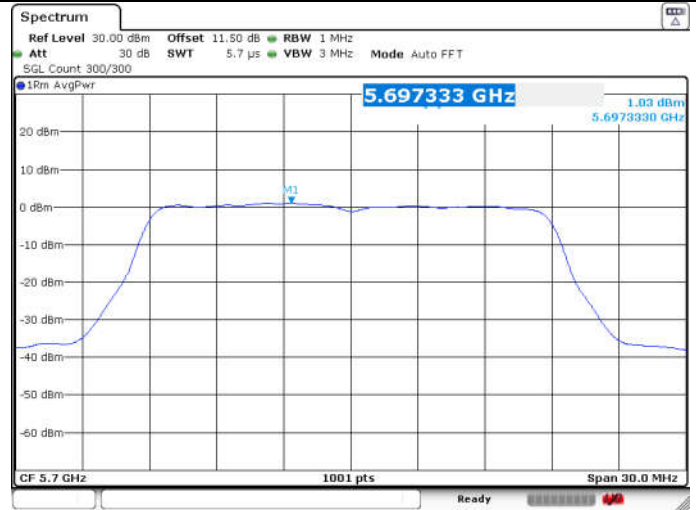
Date: 21.MAY.2019 10:41:47

5700MHz

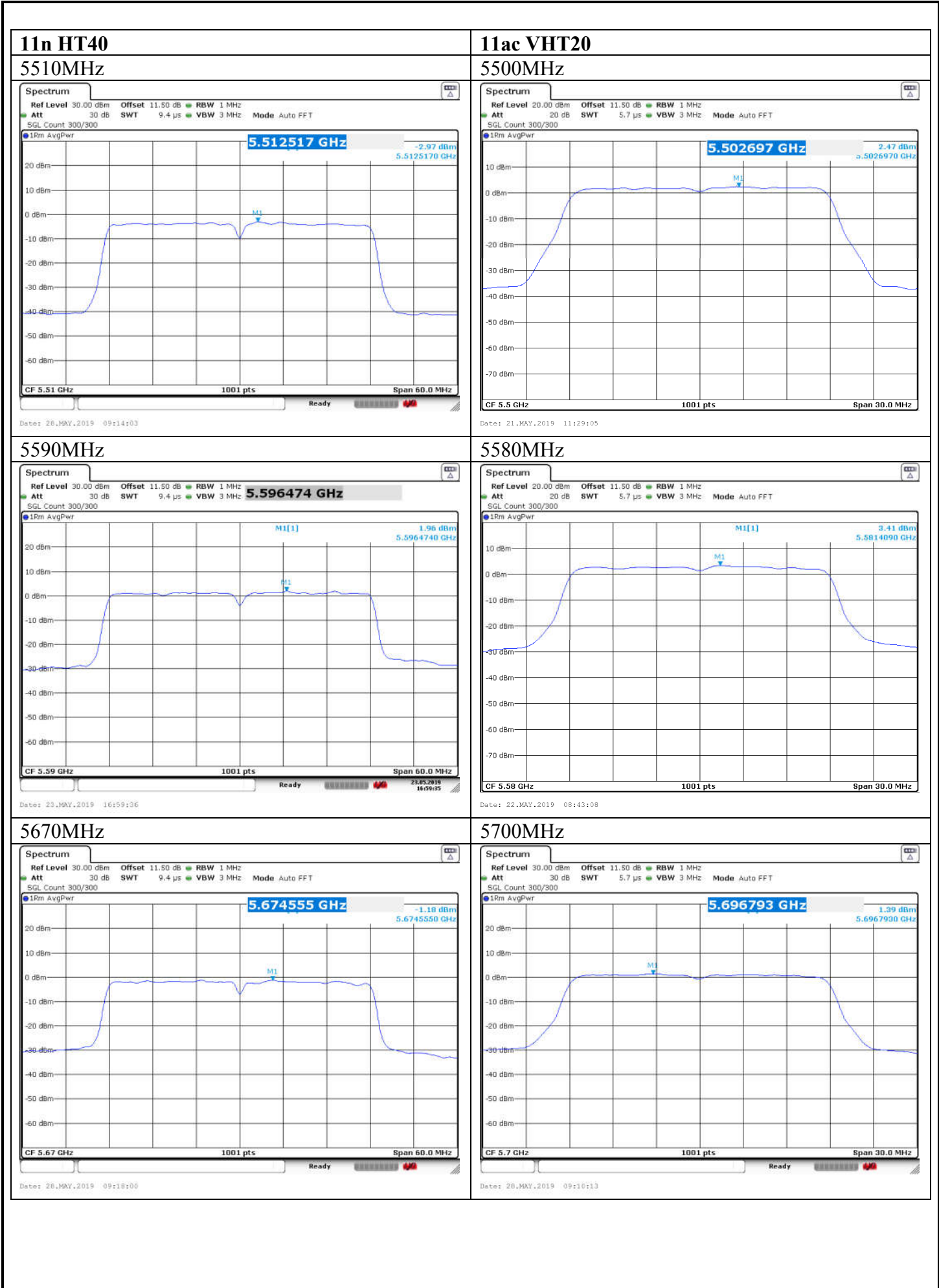


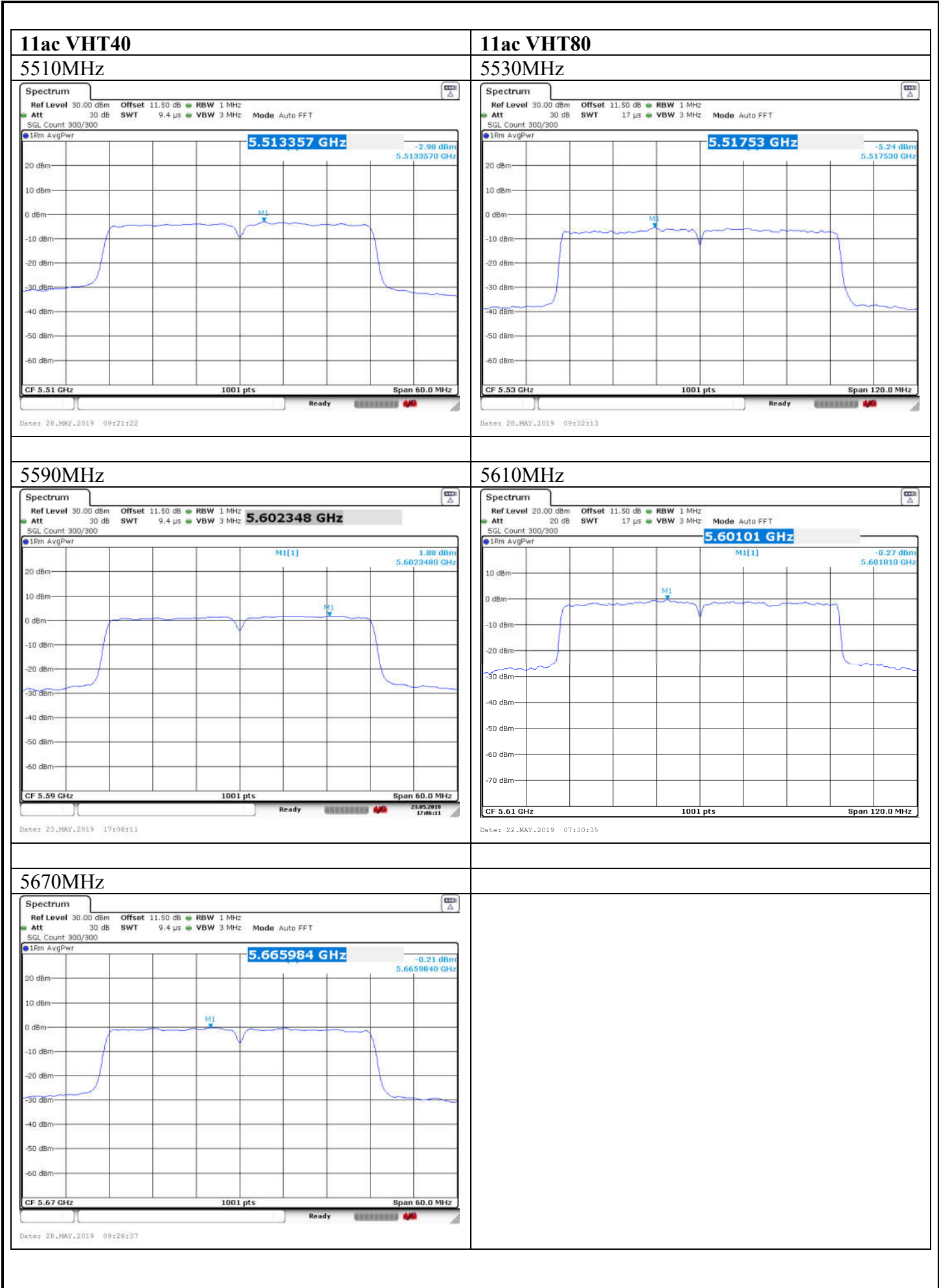
Date: 26.MAY.2019 08:56:00

5700MHz



Date: 26.MAY.2019 09:03:54



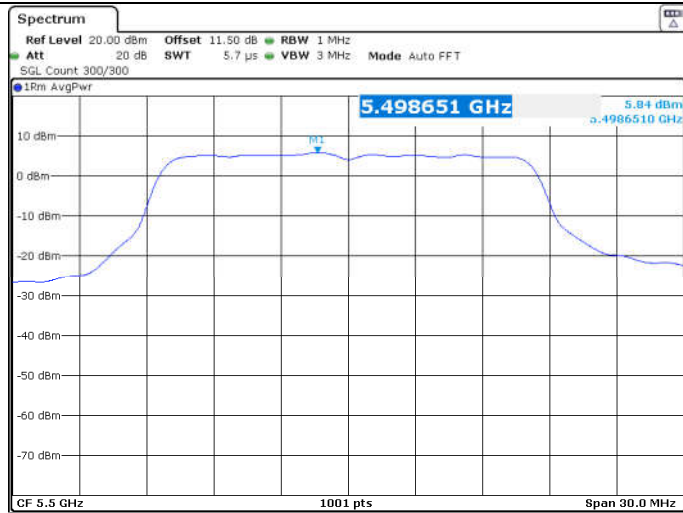


U-NII-2C Band:

ANT2

11a

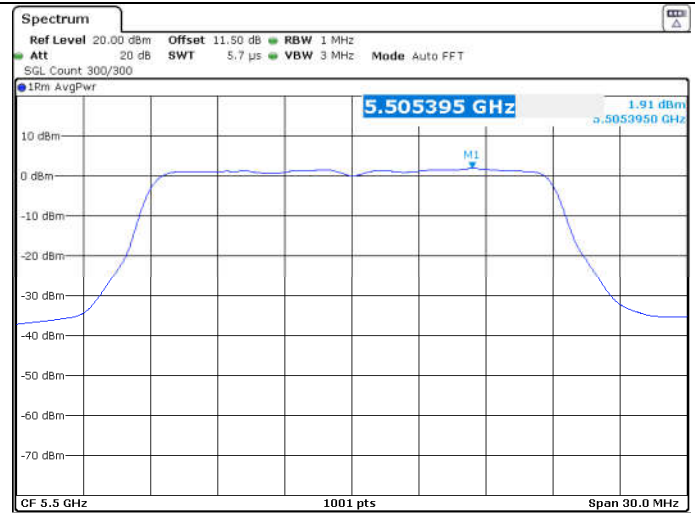
5500MHz



Date: 21.MAY.2019 09:32:21

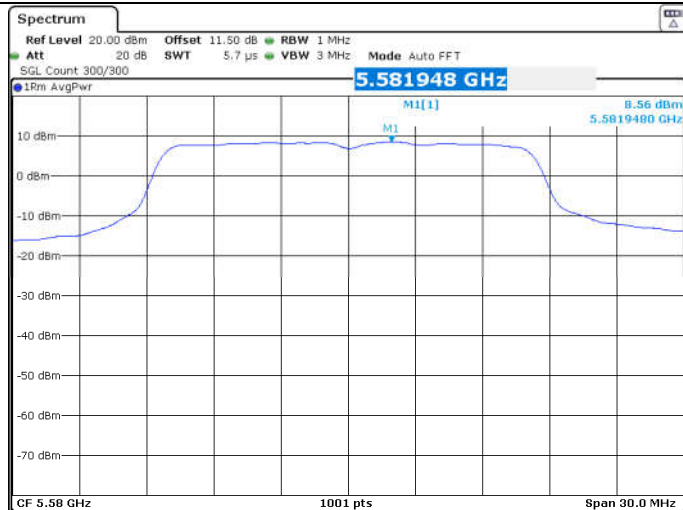
11n HT20

5500MHz



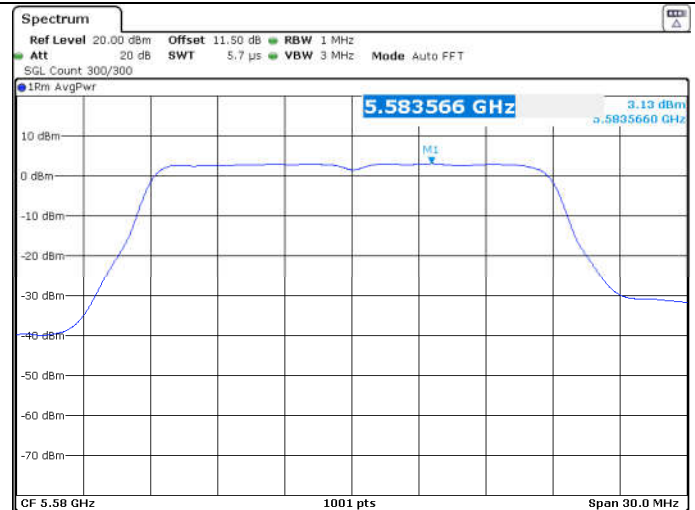
Date: 21.MAY.2019 10:53:30

5580MHz



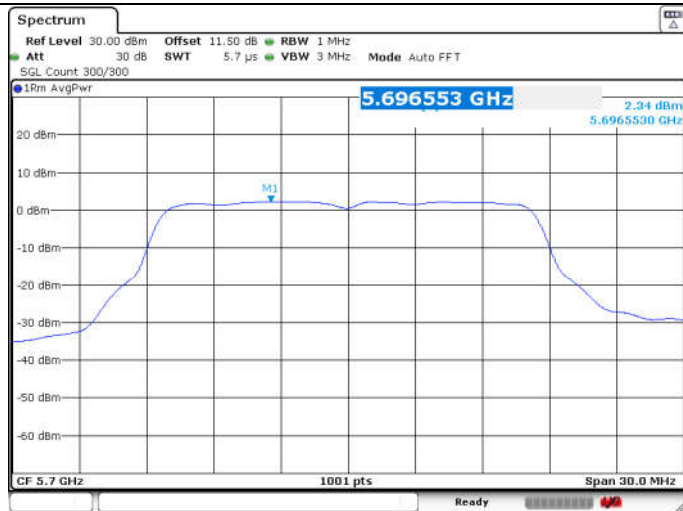
Date: 22.MAY.2019 08:33:53

5580MHz



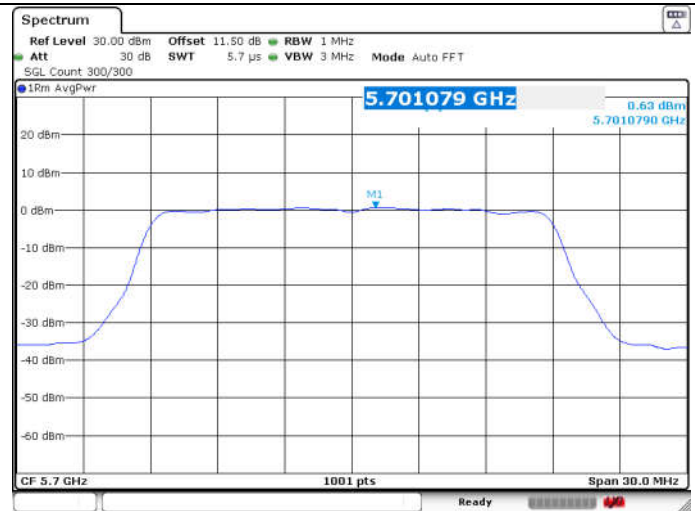
Date: 21.MAY.2019 11:00:12

5700MHz

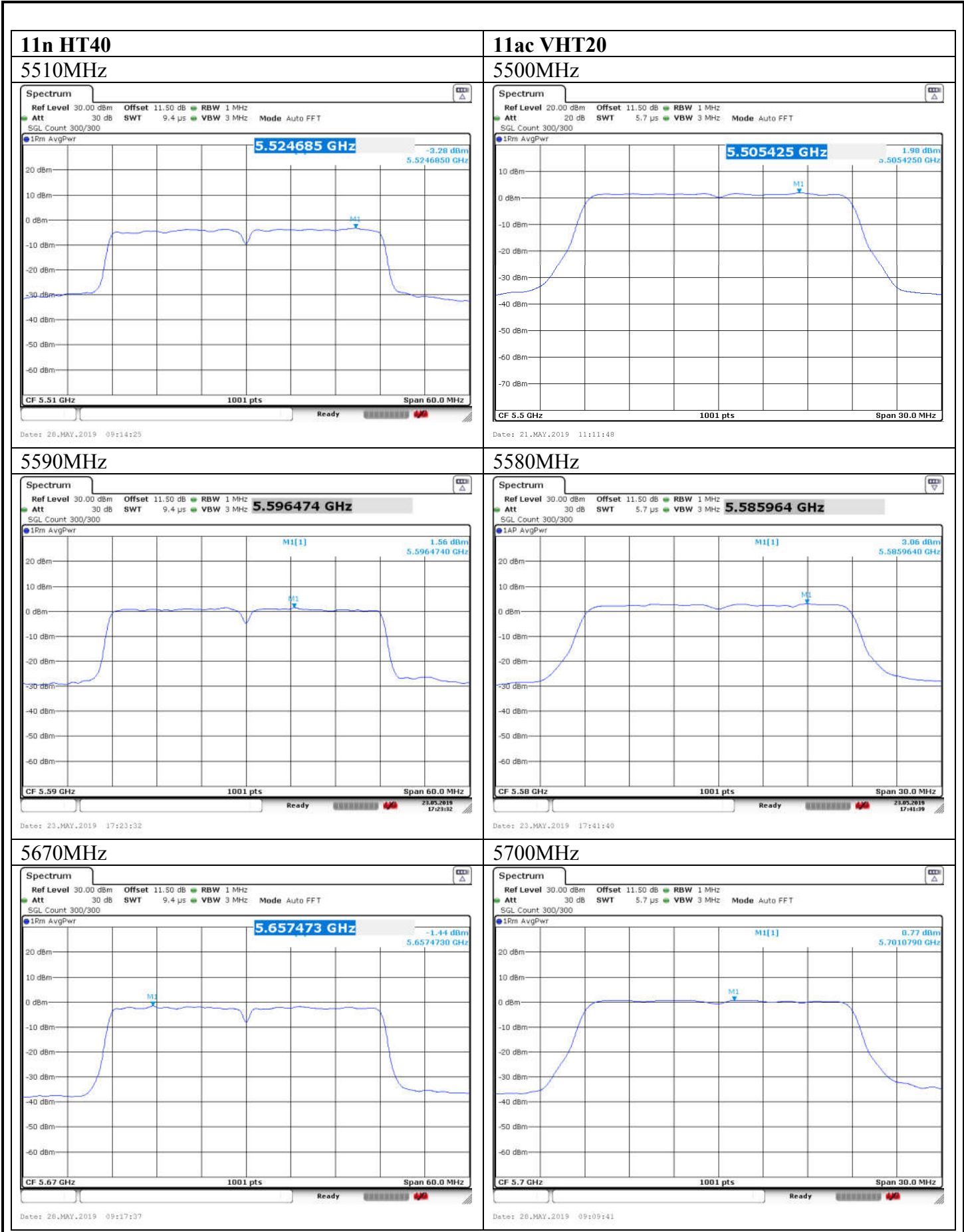


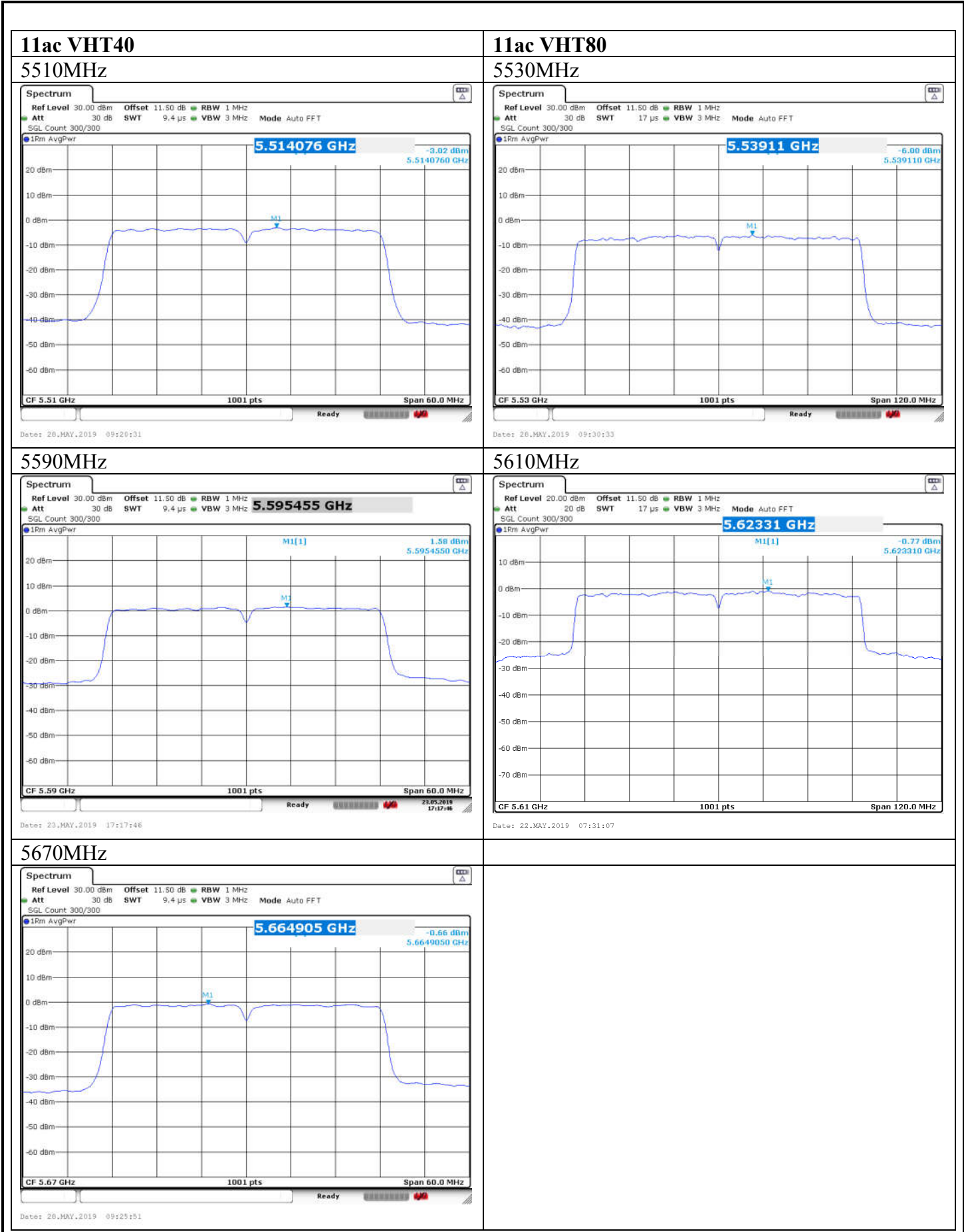
Date: 26.MAY.2019 08:54:34

5700MHz



Date: 26.MAY.2019 09:04:20





10.FREQUENCY STABILITY MEASUREMENT

10.1.Test Equipment

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|---------------------|---------------|--------------|------------|-----------|---------------|
| 1. | PXA Signal Analyzer | Agilent | N9030A | MY51380221 | Sep.08,18 | 1 Year |
| 2. | Attenuator | Agilent | 8491B | MY39262165 | Oct.14,18 | 1 Year |
| 3. | RF Cable | Mini-Circults | CBL-1M-SMSM+ | No.4 | Oct.14,18 | 1 Year |

10.2.Limit

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

10.3.Test Procedure

Use the test method described in ANSI C63.10 clause 6.8:

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

10.4. Test Result

| | | |
|--------------------------|-------------------------|--------------------------|
| EUT: Complex Set-Top Box | | |
| M/N: P2571 | | |
| Test date: 2019-06-05 | Pressure: 102.7±1.0 kpa | Humidity: 52.5±3.0% |
| Tested by: Lynn | Test site: RF site | Temperature: 22.7±0.6 °C |

Frequency Stability vs. Voltage:

| Test Voltage | Temperature | CH | Max. Reading (MHz) | Target Frequency (MHz) | Result (ppm) |
|--------------|-------------|-------|--------------------|------------------------|--------------|
| AC 102V | 20°C | CH52 | 5259.9152 | 5260 | -16.12 |
| | | CH54 | 5269.9825 | 5270 | -3.32 |
| | | CH58 | 5289.9162 | 5290 | -15.84 |
| | | CH60 | 5299.9635 | 5300 | -6.89 |
| | | CH62 | 5309.9712 | 5310 | -5.42 |
| | | CH64 | 5319.9871 | 5320 | -2.42 |
| | | CH100 | 5499.932 | 5500 | -12.36 |
| | | CH102 | 5509.923 | 5510 | -13.97 |
| | | CH106 | 5529.9767 | 5530 | -4.21 |
| | | CH116 | 5579.9625 | 5580 | -6.72 |
| | | CH118 | 5589.9715 | 5590 | -5.10 |
| | | CH122 | 5609.9575 | 5610 | -7.58 |
| | | CH134 | 5669.9825 | 5670 | -3.09 |
| | | CH140 | 5699.971 | 5700 | -5.09 |

| Test Voltage | Temperature | CH | Max. Reading (MHz) | Target Frequency (MHz) | Result (ppm) |
|--------------|-------------|-------|--------------------|------------------------|--------------|
| AC 120V | 20°C | CH52 | 5259.9272 | 5260 | -13.84 |
| | | CH54 | 5270.0075 | 5270 | 1.42 |
| | | CH58 | 5289.9402 | 5290 | -11.30 |
| | | CH60 | 5299.9515 | 5300 | -9.15 |
| | | CH62 | 5309.9362 | 5310 | -12.02 |
| | | CH64 | 5319.9731 | 5320 | -5.06 |
| | | CH100 | 5499.944 | 5500 | -10.18 |
| | | CH102 | 5509.919 | 5510 | -14.70 |
| | | CH106 | 5529.9927 | 5530 | -1.32 |
| | | CH116 | 5579.9755 | 5580 | -4.39 |
| | | CH118 | 5589.9465 | 5590 | -9.57 |
| | | CH122 | 5609.9645 | 5610 | -6.33 |
| | | CH134 | 5669.9715 | 5670 | -5.03 |
| | | CH140 | 5699.956 | 5700 | -7.72 |
| AC 138V | 20°C | CH52 | 5259.985 | 5260 | -2.85 |
| | | CH54 | 5269.9885 | 5270 | -2.18 |
| | | CH58 | 5289.9895 | 5290 | -1.98 |
| | | CH60 | 5299.943 | 5300 | -10.75 |
| | | CH62 | 5309.9215 | 5310 | -14.78 |
| | | CH64 | 5319.9605 | 5320 | -7.42 |
| | | CH100 | 5499.977 | 5500 | -4.18 |
| | | CH102 | 5509.9725 | 5510 | -4.99 |
| | | CH106 | 5529.9785 | 5530 | -3.89 |
| | | CH116 | 5579.9996 | 5580 | -0.07 |
| | | CH118 | 5589.946 | 5590 | -9.66 |
| | | CH122 | 5609.978 | 5610 | -3.92 |
| | | CH134 | 5669.966 | 5670 | -6.00 |
| | | CH140 | 5699.9465 | 5700 | -9.39 |

Frequency Stability vs. Temperature:

| Test Voltage | Temperature | CH | Max. Reading (MHz) | Target Frequency (MHz) | Result (ppm) |
|--------------|-------------|-------|--------------------|------------------------|--------------|
| AC 120V | 0°C | CH52 | 5259.993 | 5260 | -1.33 |
| | | CH54 | 5269.988 | 5270 | -2.28 |
| | | CH58 | 5289.988 | 5290 | -2.27 |
| | | CH60 | 5299.9525 | 5300 | -8.96 |
| | | CH62 | 5309.9205 | 5310 | -14.97 |
| | | CH64 | 5319.9595 | 5320 | -7.61 |
| | | CH100 | 5499.9895 | 5500 | -1.91 |
| | | CH102 | 5509.9625 | 5510 | -6.81 |
| | | CH106 | 5529.9675 | 5530 | -5.88 |
| | | CH116 | 5579.9817 | 5580 | -3.28 |
| | | CH118 | 5589.9335 | 5590 | -11.90 |
| | | CH122 | 5609.9675 | 5610 | -5.79 |
| | | CH134 | 5669.975 | 5670 | -4.41 |
| | | CH140 | 5699.946 | 5700 | -9.47 |
| AC 120V | 10°C | CH52 | 5259.9835 | 5260 | -3.14 |
| | | CH54 | 5269.989 | 5270 | -2.09 |
| | | CH58 | 5289.988 | 5290 | -2.27 |
| | | CH60 | 5299.9625 | 5300 | -7.08 |
| | | CH62 | 5309.9605 | 5310 | -7.44 |
| | | CH64 | 5319.959 | 5320 | -7.71 |
| | | CH100 | 5499.98 | 5500 | -3.64 |
| | | CH102 | 5509.974 | 5510 | -4.72 |
| | | CH106 | 5529.9775 | 5530 | -4.07 |
| | | CH116 | 5579.9916 | 5580 | -1.51 |
| | | CH118 | 5589.952 | 5590 | -8.59 |
| | | CH122 | 5609.9675 | 5610 | -5.79 |
| | | CH134 | 5669.955 | 5670 | -7.94 |
| | | CH140 | 5699.956 | 5700 | -7.72 |

| Test Voltage | Temperature | CH | Max. Reading (MHz) | Target Frequency (MHz) | Result (ppm) |
|--------------|-------------|-------|--------------------|------------------------|--------------|
| AC 120V | 20°C | CH52 | 5259.9272 | 5260 | -13.84 |
| | | CH54 | 5270.0075 | 5270 | 1.42 |
| | | CH58 | 5289.9402 | 5290 | -11.30 |
| | | CH60 | 5299.9515 | 5300 | -9.15 |
| | | CH62 | 5309.9362 | 5310 | -12.02 |
| | | CH64 | 5319.9731 | 5320 | -5.06 |
| | | CH100 | 5499.944 | 5500 | -10.18 |
| | | CH102 | 5509.919 | 5510 | -14.70 |
| | | CH106 | 5529.9927 | 5530 | -1.32 |
| | | CH116 | 5579.9755 | 5580 | -4.39 |
| | | CH118 | 5589.9465 | 5590 | -9.57 |
| | | CH122 | 5609.9645 | 5610 | -6.33 |
| | | CH134 | 5669.9715 | 5670 | -5.03 |
| | | CH140 | 5699.956 | 5700 | -7.72 |
| AC 120V | 30°C | CH52 | 5259.9755 | 5260 | -4.66 |
| | | CH54 | 5269.959 | 5270 | -7.78 |
| | | CH58 | 5289.9885 | 5290 | -2.17 |
| | | CH60 | 5299.973 | 5300 | -5.09 |
| | | CH62 | 5309.9325 | 5310 | -12.71 |
| | | CH64 | 5319.969 | 5320 | -5.83 |
| | | CH100 | 5499.9905 | 5500 | -1.73 |
| | | CH102 | 5509.97 | 5510 | -5.44 |
| | | CH106 | 5529.9775 | 5530 | -4.07 |
| | | CH116 | 5579.9892 | 5580 | -1.94 |
| | | CH118 | 5589.954 | 5590 | -8.23 |
| | | CH122 | 5609.9775 | 5610 | -4.01 |
| | | CH134 | 5669.9555 | 5670 | -7.85 |
| | | CH140 | 5699.958 | 5700 | -7.37 |

| Test Voltage | Temperature | CH | Max. Reading (MHz) | Target Frequency (MHz) | Result (ppm) |
|--------------|-------------|-------|--------------------|------------------------|--------------|
| AC 120V | 40°C | CH52 | 5259.9775 | 5260 | -4.28 |
| | | CH54 | 5269.989 | 5270 | -2.09 |
| | | CH58 | 5289.989 | 5290 | -2.08 |
| | | CH60 | 5299.955 | 5300 | -8.49 |
| | | CH62 | 5309.9425 | 5310 | -10.83 |
| | | CH64 | 5319.9495 | 5320 | -9.49 |
| | | CH100 | 5499.9805 | 5500 | -3.55 |
| | | CH102 | 5509.9465 | 5510 | -9.71 |
| | | CH106 | 5529.988 | 5530 | -2.17 |
| | | CH116 | 5579.9809 | 5580 | -3.42 |
| | | CH118 | 5589.9445 | 5590 | -9.93 |
| | | CH122 | 5609.9675 | 5610 | -5.79 |
| | | CH134 | 5669.966 | 5670 | -6.00 |
| | | CH140 | 5699.97 | 5700 | -5.26 |

11. ANTENNA REQUIREMENT

11.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2. Antenna Connected Construction

The antennas used for this product are Dipole antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 7.31dBi.

12. DEVIATION TO TEST SPECIFICATIONS

[NONE]

..... **End of Report**