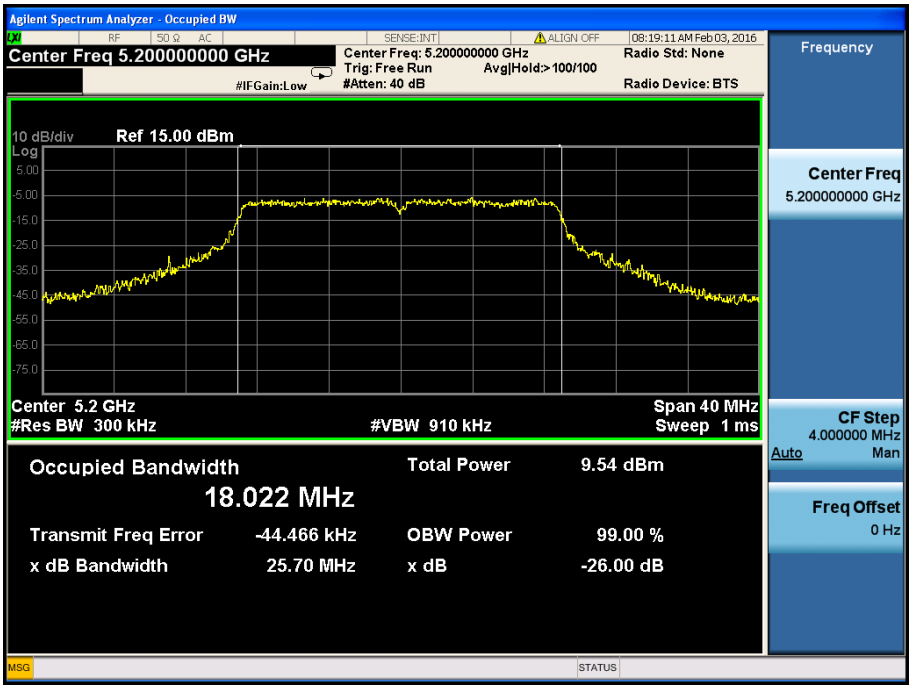
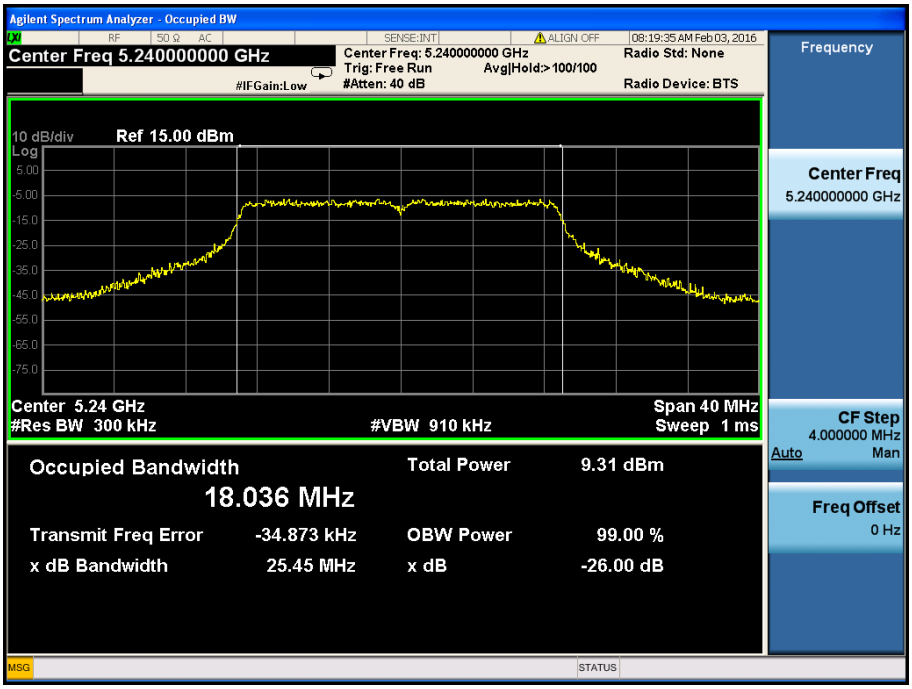
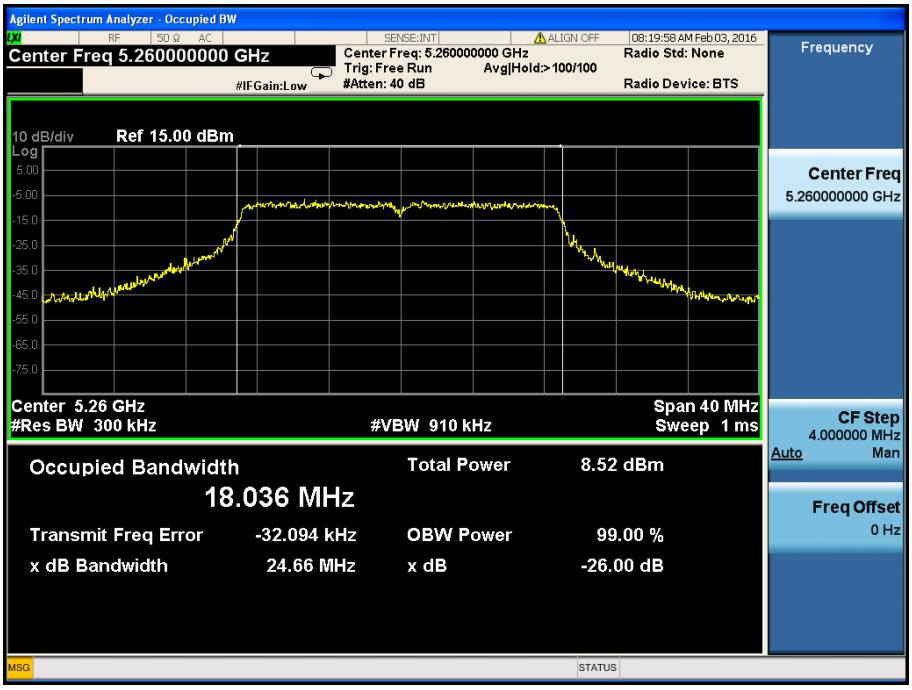
5200MHz



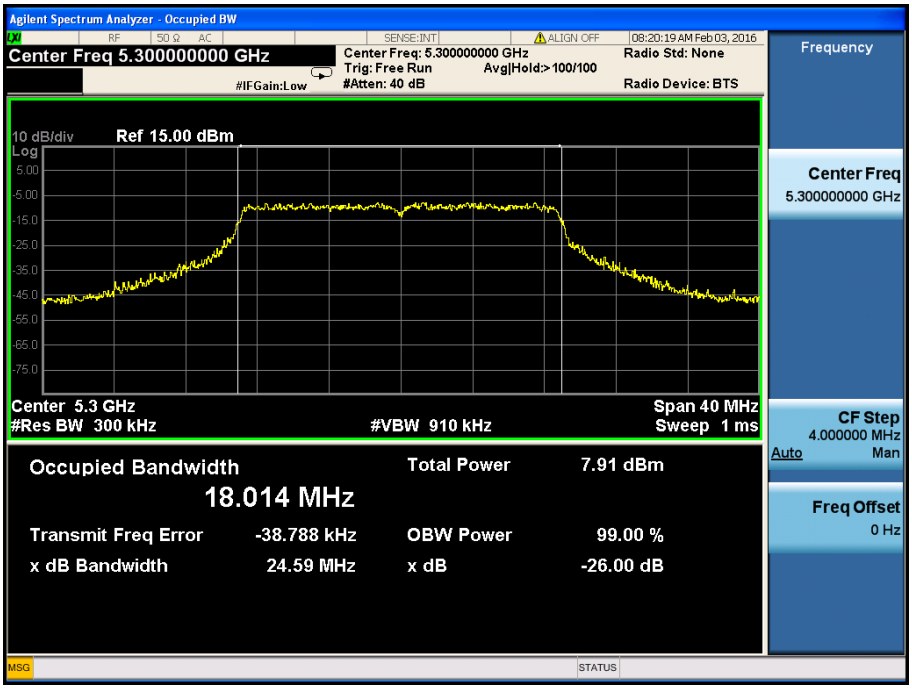
5240MHz



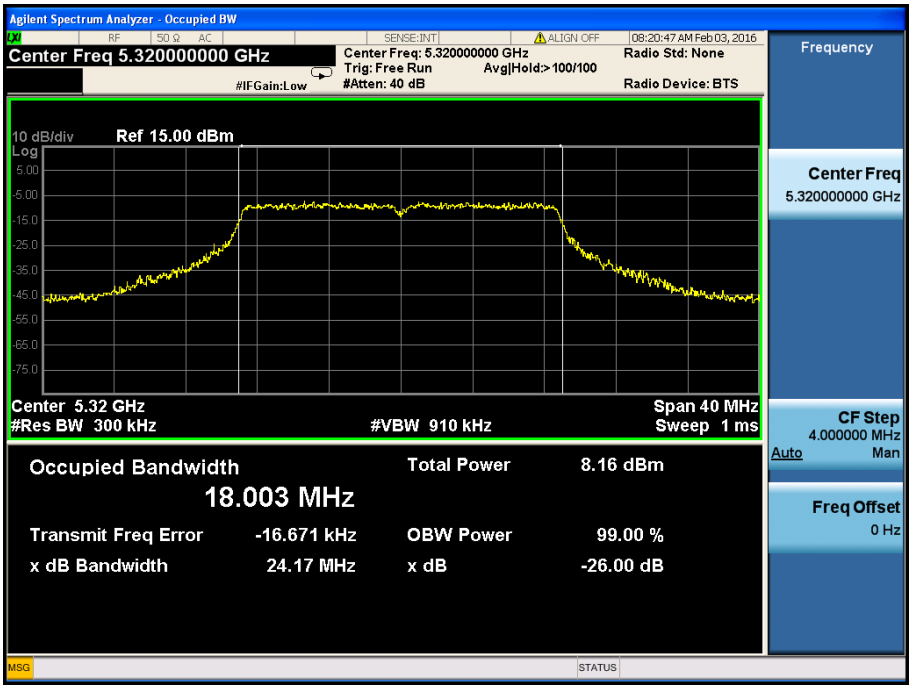
5260MHz



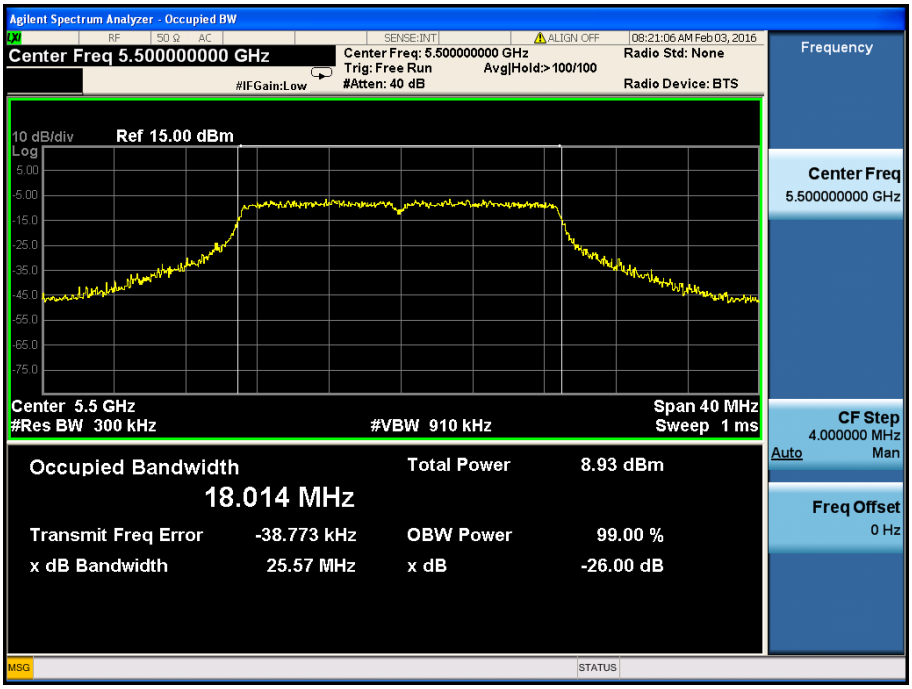
5300MHz



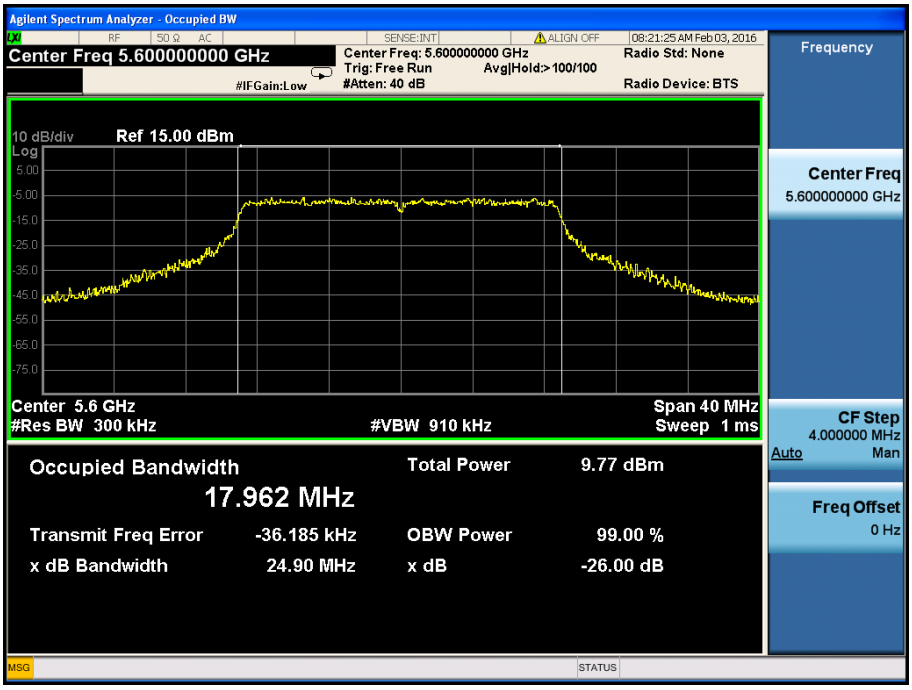
5320MHz



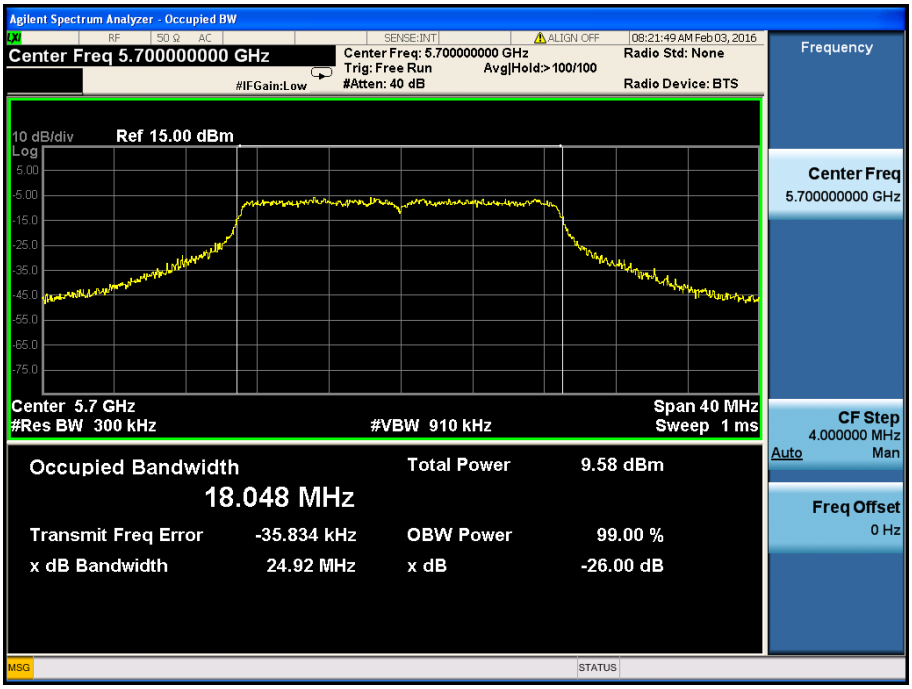
5500MHz



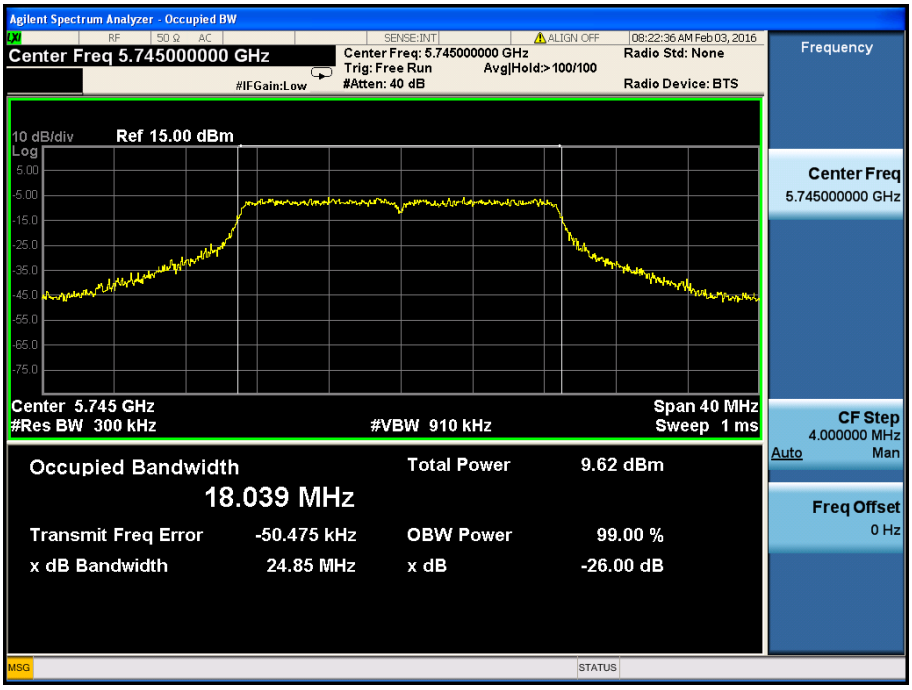
5600MHz

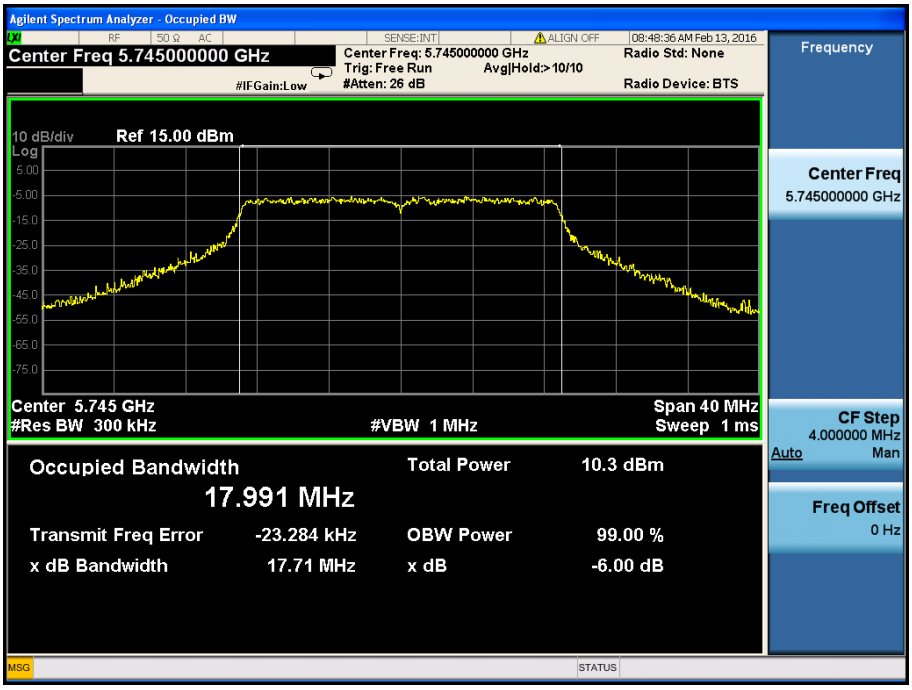


5700MHz

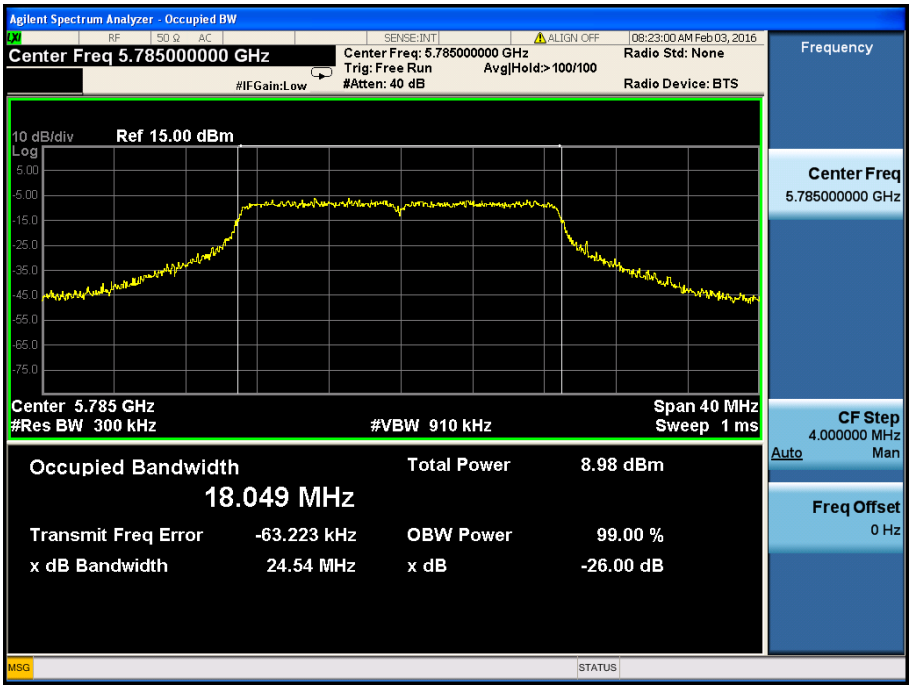


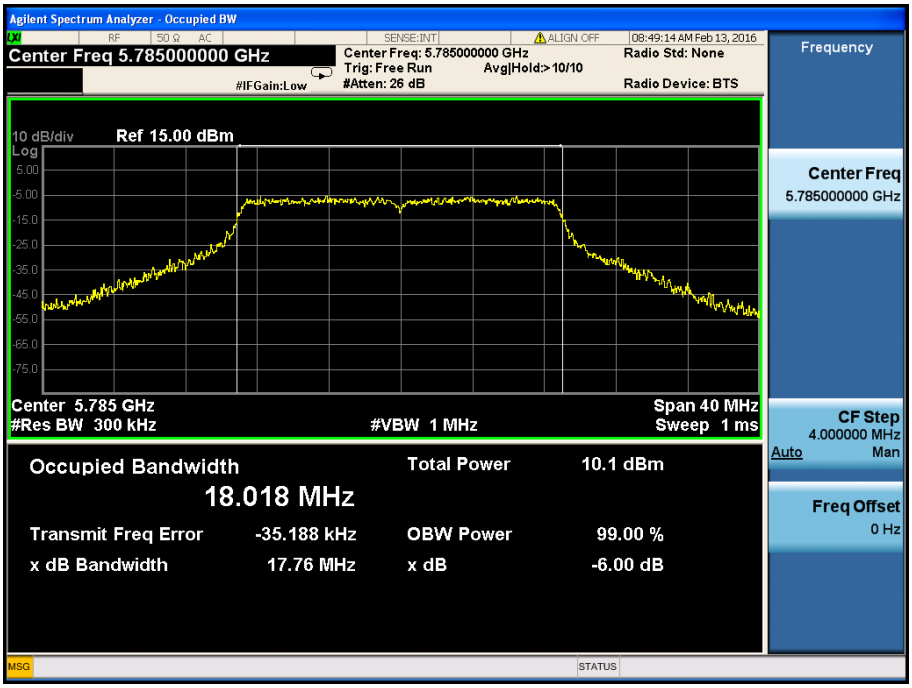
5745MHz


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.745000000 GHz
Center Freq: 5.745000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#IFGain:Low
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
08:22:36 AM Feb 03, 2016
Frequency
10 dB/div
Log
Ref 15.00 dBm
Center 5.745 GHz
#Res BW 300 kHz
#VBW 910 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
18.039 MHz
Total Power
9.62 dBm
Transmit Freq Error
-50.475 kHz
OBW Power
99.00 %
x dB Bandwidth
24.85 MHz
x dB
-26.00 dB
Center Freq
5.745000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

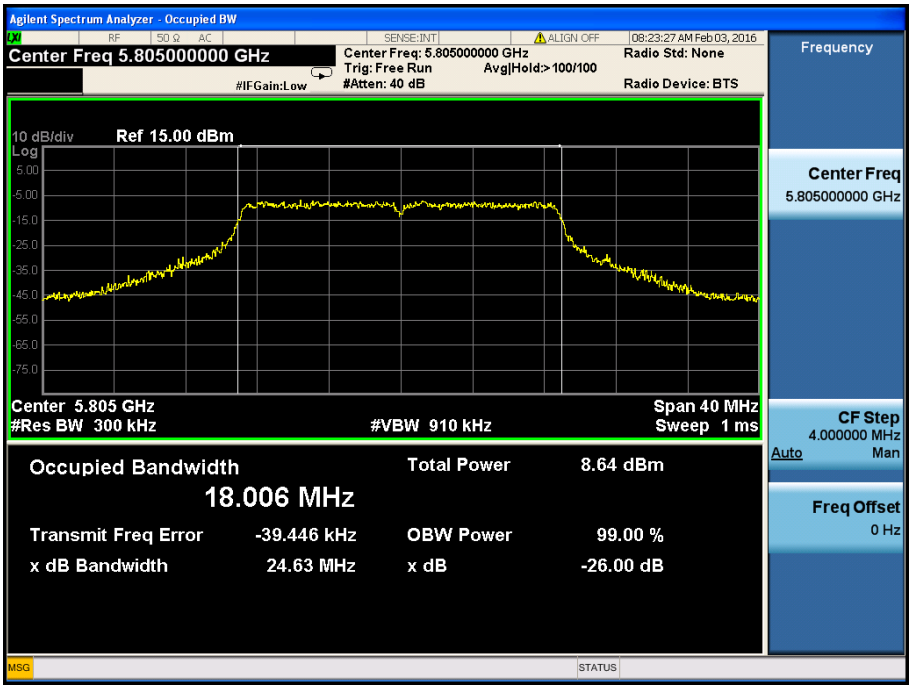

Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.745000000 GHz
Center Freq: 5.745000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
08:48:36 AM Feb 13, 2016
Frequency
10 dB/div
Log
Ref 15.00 dBm
Center 5.745 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.991 MHz
Total Power
10.3 dBm
Transmit Freq Error
-23.284 kHz
OBW Power
99.00 %
x dB Bandwidth
17.71 MHz
x dB
-6.00 dB
Center Freq
5.745000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

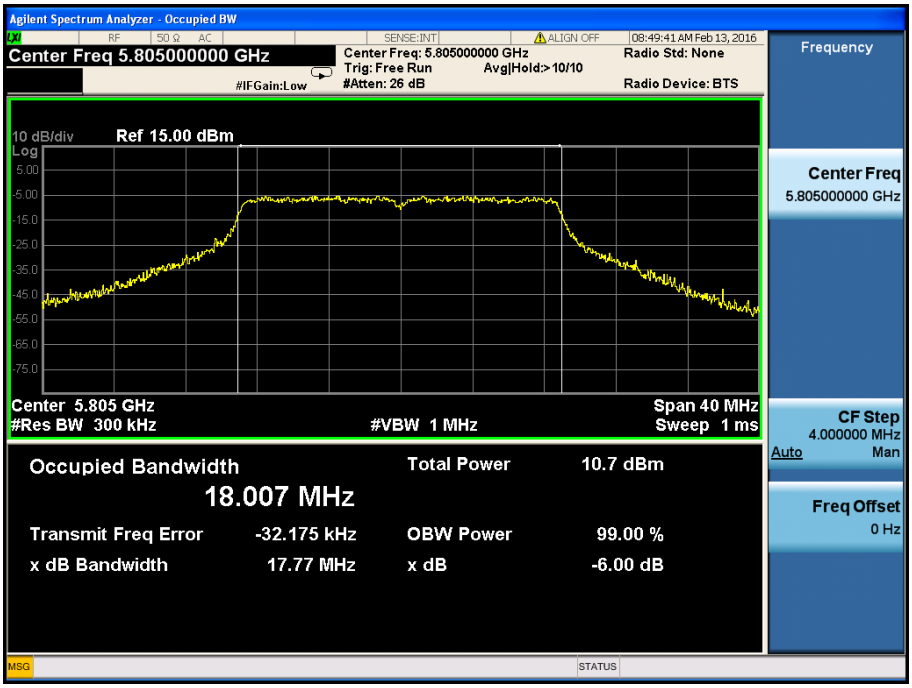
5785MHz


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.785000000 GHz
Center Freq: 5.785000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#IFGain:Low
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
08:23:00 AM Feb 03, 2016
Frequency
10 dB/div
Ref 15.00 dBm
Log
Center 5.785 GHz
#Res BW 300 kHz
#VBW 910 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
18.049 MHz
Total Power
8.98 dBm
Transmit Freq Error
-63.223 kHz
OBW Power
99.00 %
x dB Bandwidth
24.54 MHz
x dB
-26.00 dB
Center Freq
5.785000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.785000000 GHz
Center Freq: 5.785000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
08:49:14 AM Feb 13, 2016
Frequency
10 dB/div
Ref 15.00 dBm
Log
Center 5.785 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
18.018 MHz
Total Power
10.1 dBm
Transmit Freq Error
-35.188 kHz
OBW Power
99.00 %
x dB Bandwidth
17.76 MHz
x dB
-6.00 dB
Center Freq
5.785000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

5805MHz

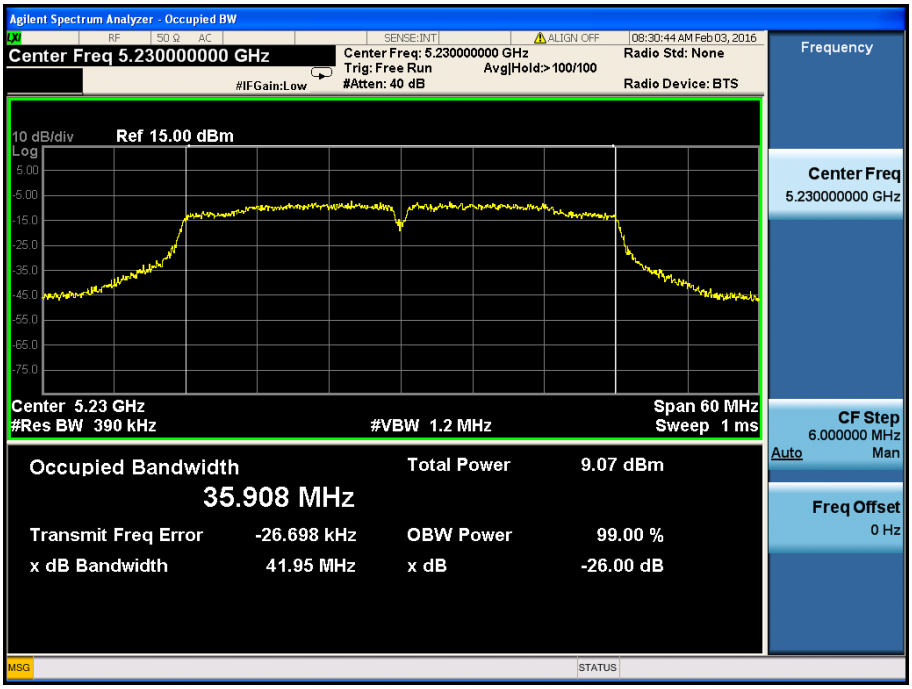

Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.805000000 GHz
Center Freq: 5.805000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#IFGain:Low
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
08:23:27 AM Feb 03, 2016
Frequency
10 dB/div
Ref 15.00 dBm
Log
Center 5.805 GHz
#Res BW 300 kHz
#VBW 910 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
18.006 MHz
Total Power
8.64 dBm
Transmit Freq Error
-39.446 kHz
OBW Power
99.00 %
x dB Bandwidth
24.63 MHz
x dB
-26.00 dB
Center Freq
5.805000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.805000000 GHz
Center Freq: 5.805000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
08:49:41 AM Feb 13, 2016
Frequency
10 dB/div
Ref 15.00 dBm
Log
Center 5.805 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
18.007 MHz
Total Power
10.7 dBm
Transmit Freq Error
-32.175 kHz
OBW Power
99.00 %
x dB Bandwidth
17.77 MHz
x dB
-6.00 dB
Center Freq
5.805000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

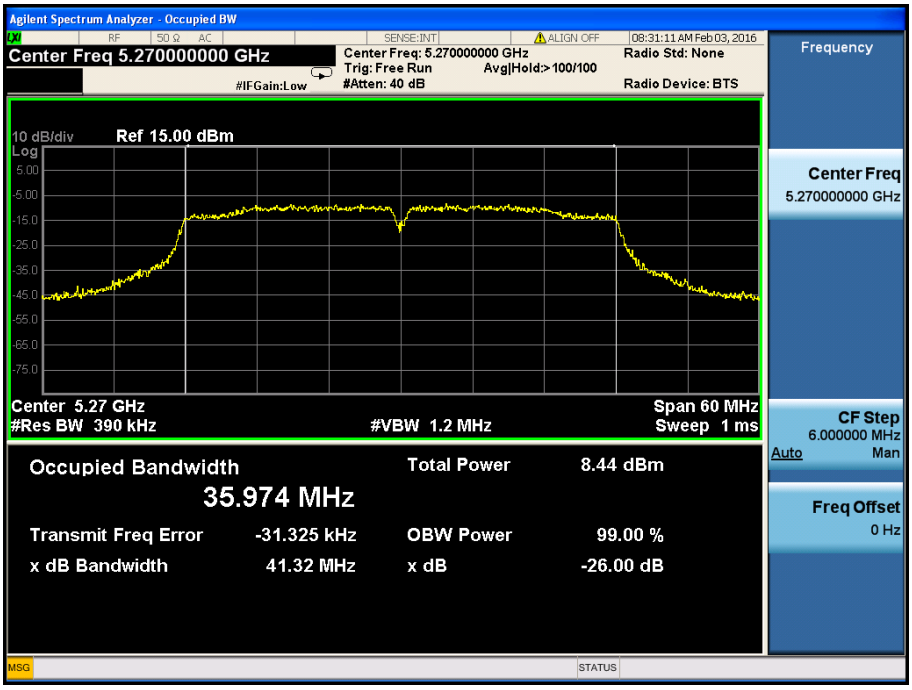
Test mode：802.11n-HT40

5190MHz

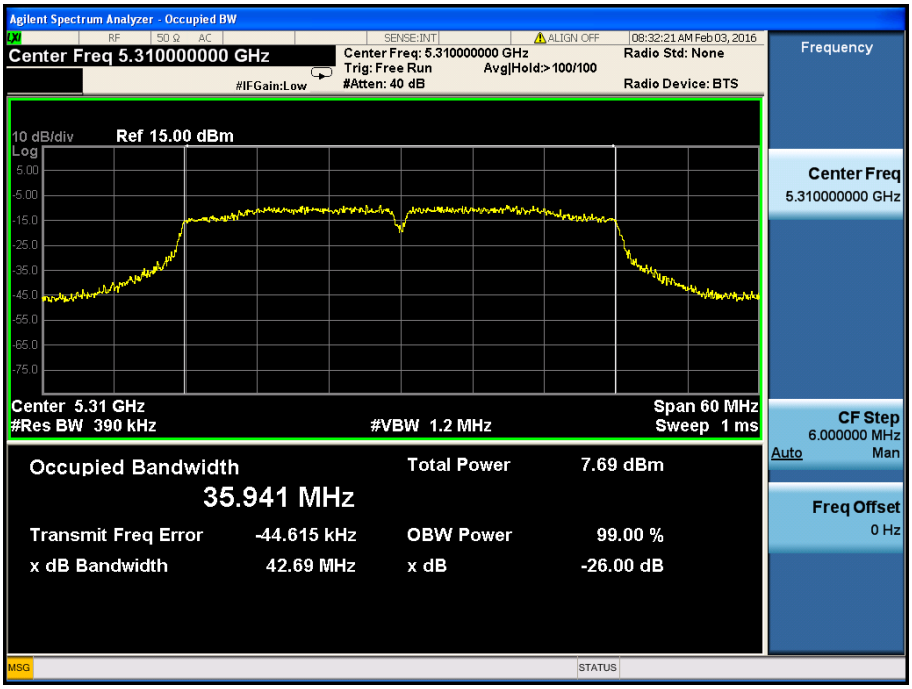
5230MHz



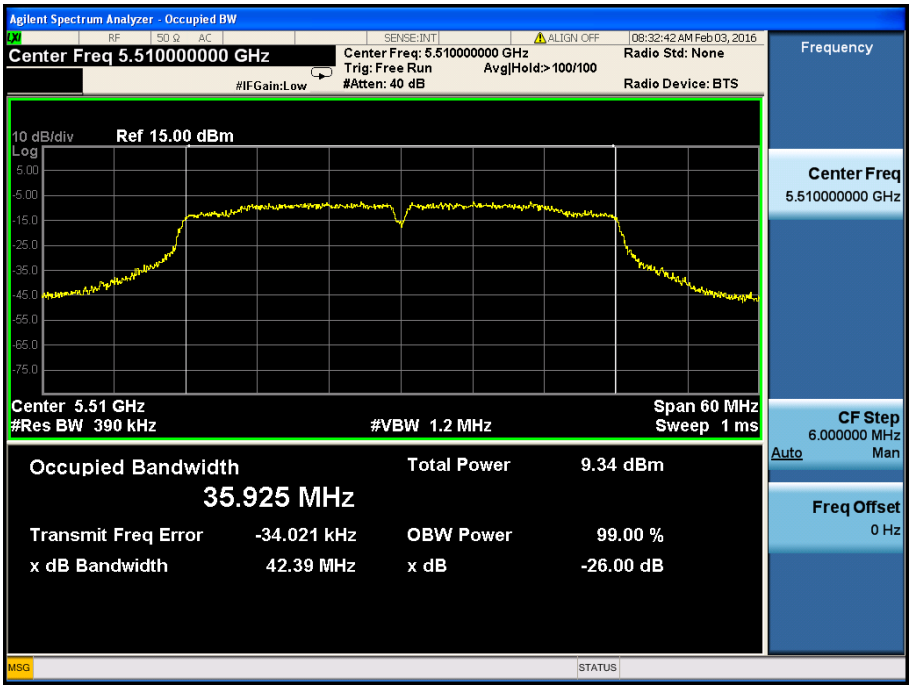
5270MHz



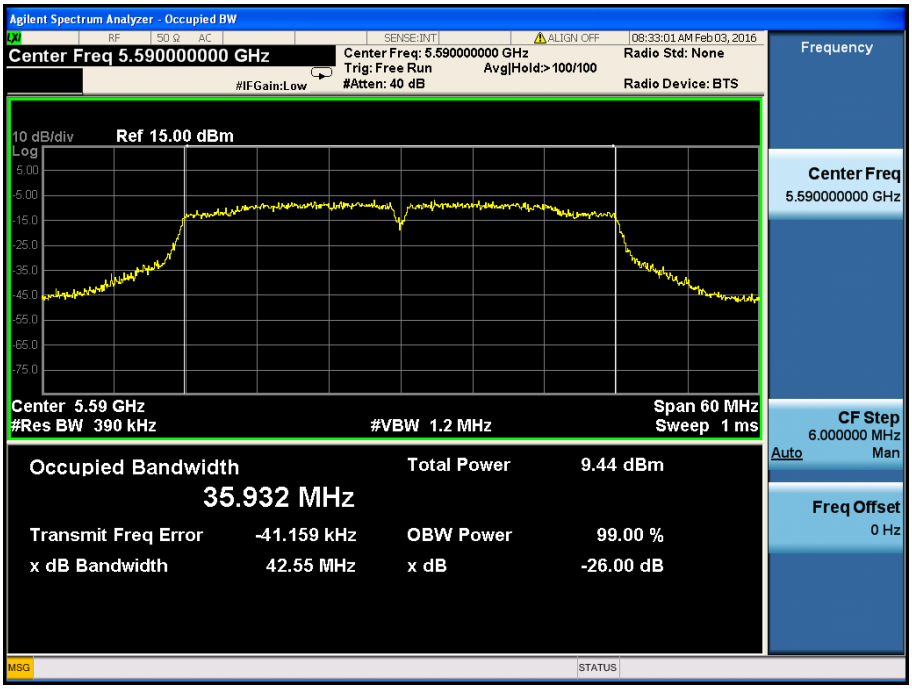
5310MHz



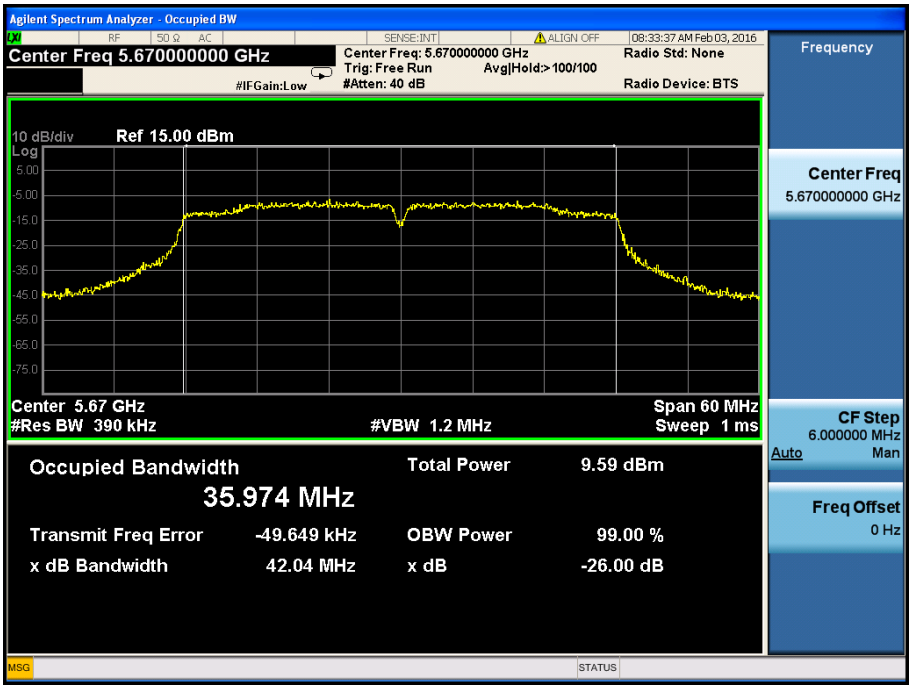
5510MHz



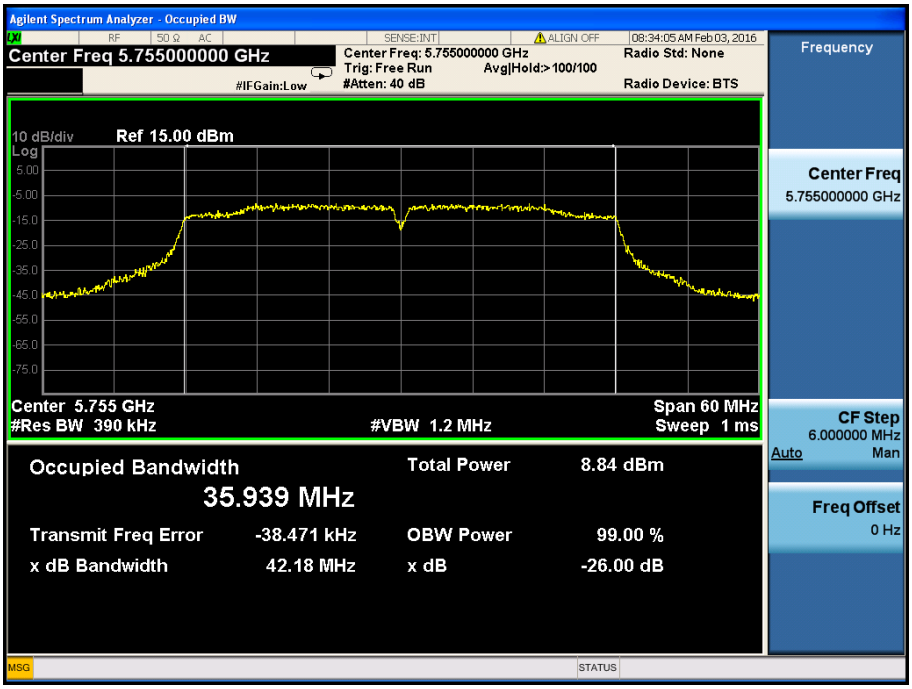
5590MHz



5670MHz

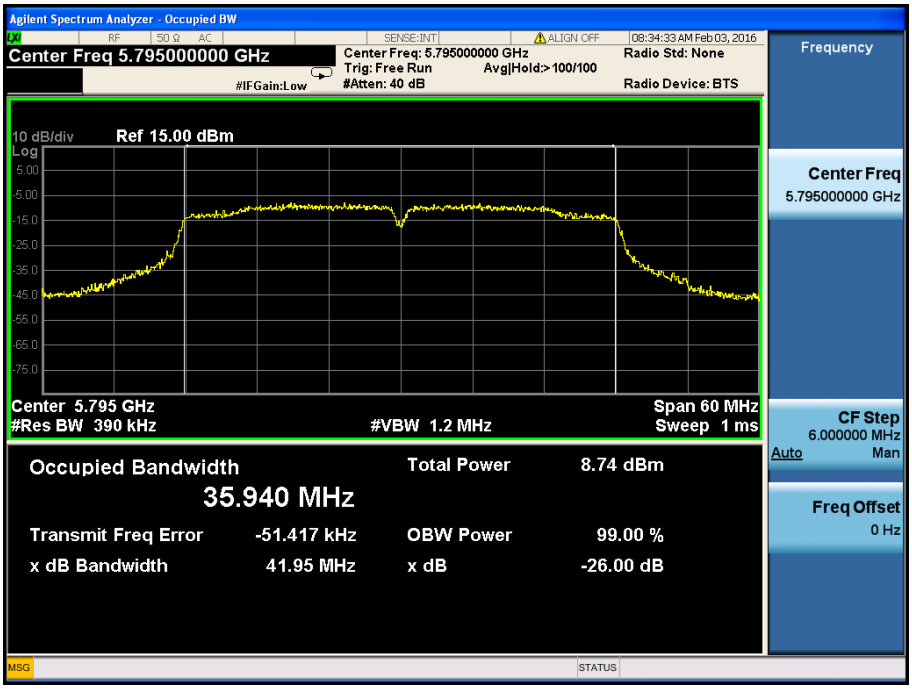


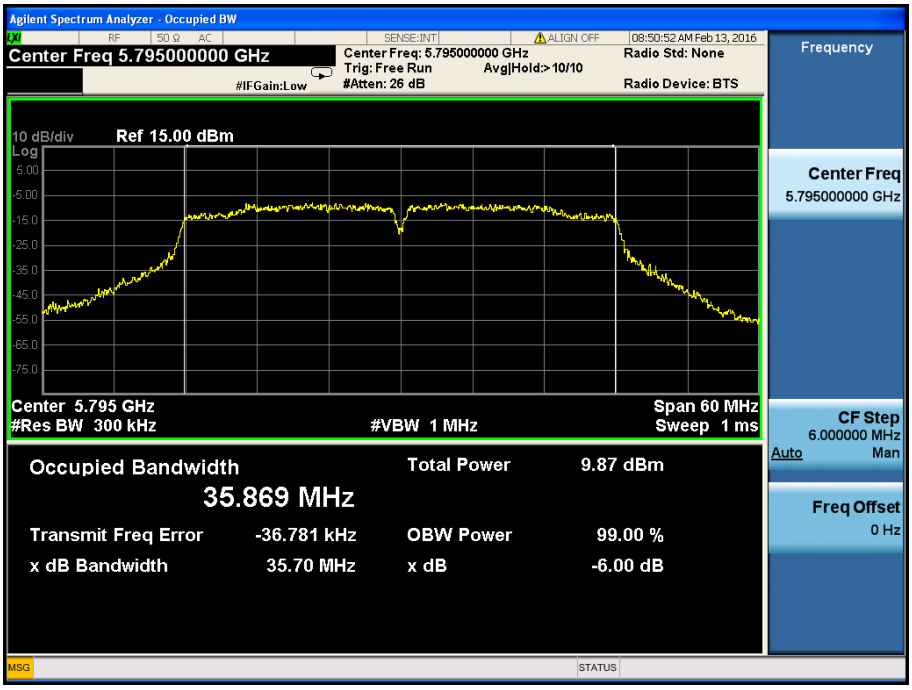
5755MHz




Agilent Spectrum Analyzer - Occupied BW
Span 60.000 MHz
Center Freq: 5.755000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 26 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
08:50:34 AM Feb 13, 2016
10 dB/div
Log
Ref 15.00 dBm
Center 5.755 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 60 MHz
Sweep 1 ms
Occupied Bandwidth
35.874 MHz
Total Power
10.3 dBm
Transmit Freq Error
-27.191 kHz
OBW Power
99.00 %
x dB Bandwidth
36.04 MHz
x dB
-6.00 dB
Span
Span
60.000 MHz
Full Span
Last Span
MSG
STATUS

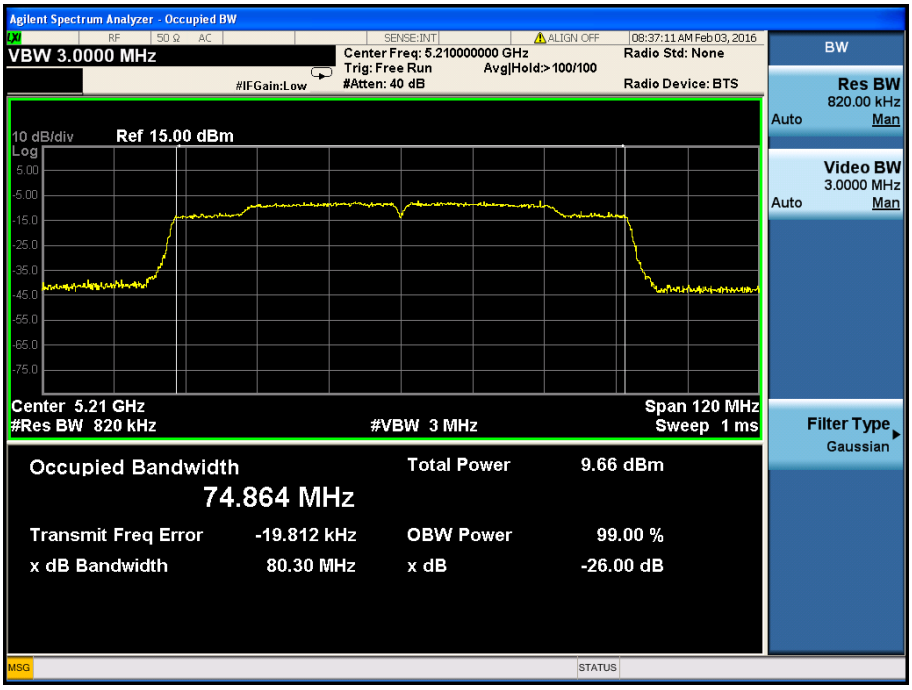
5795MHz


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.795000000 GHz
Center Freq: 5.795000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 40 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
08:34:33 AM Feb 03, 2016
10 dB/div
Log
Ref 15.00 dBm
Center 5.795 GHz
#Res BW 390 kHz
#VBW 1.2 MHz
Span 60 MHz
Sweep 1 ms
Occupied Bandwidth
35.940 MHz
Total Power
8.74 dBm
Transmit Freq Error
-51.417 kHz
OBW Power
99.00 %
x dB Bandwidth
41.95 MHz
x dB
-26.00 dB
Frequency
Center Freq
5.795000000 GHz
CF Step
6.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

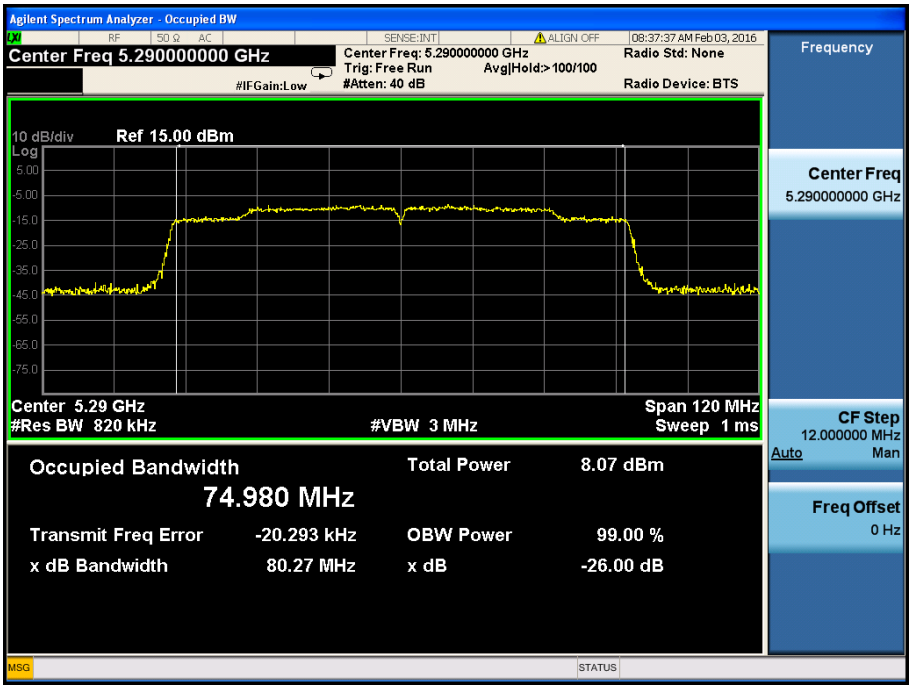


Test mode：802.11ac-HT80

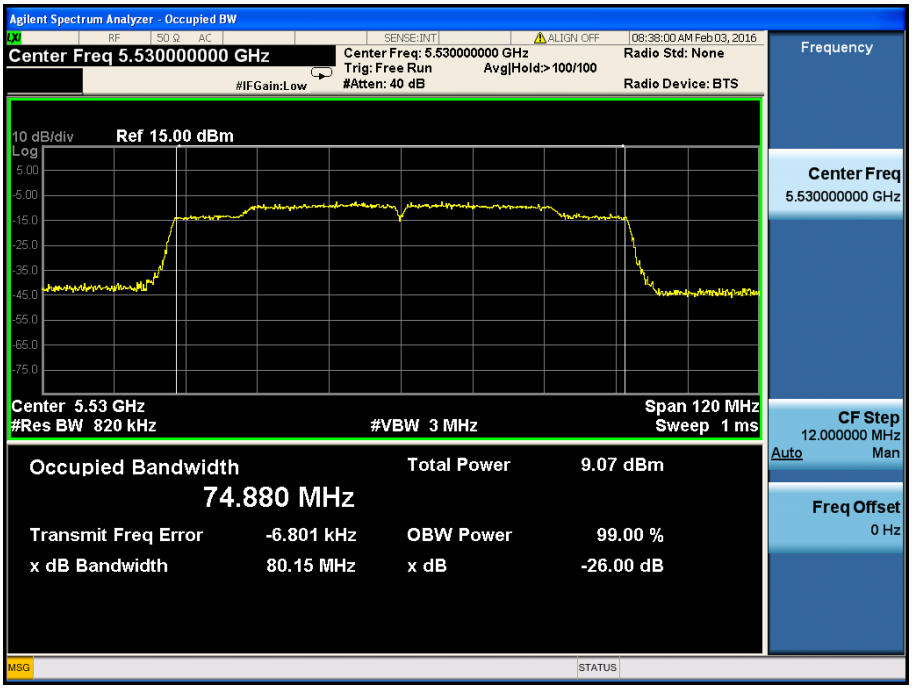
5210MHz



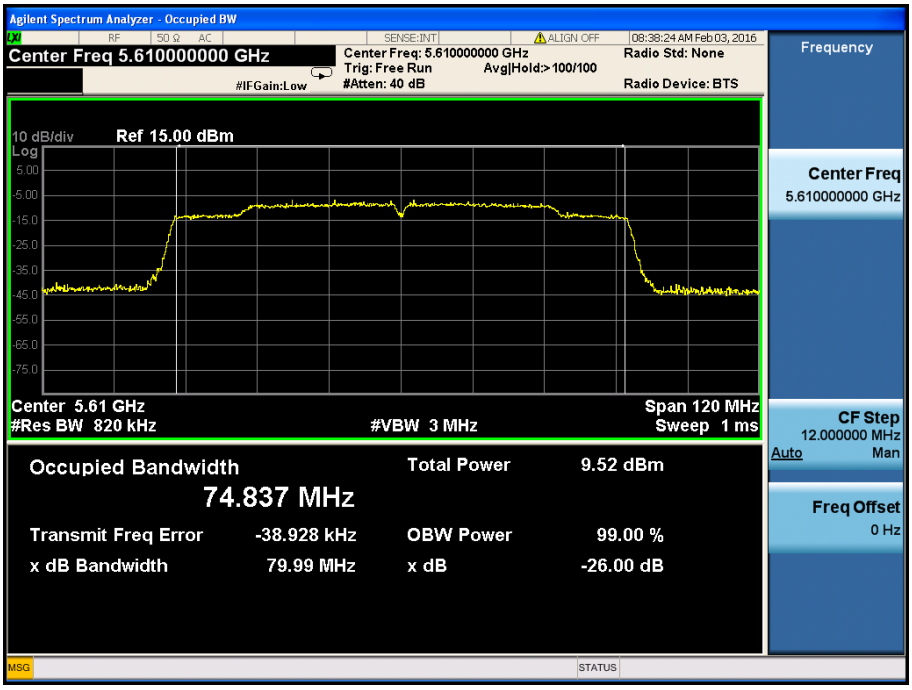
5290MHz



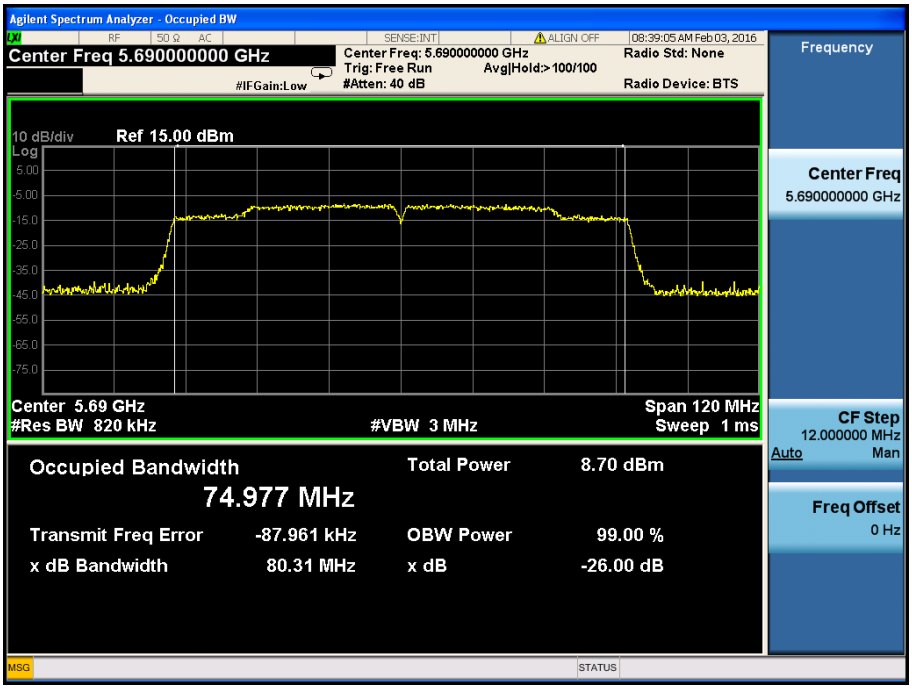
5530MHz



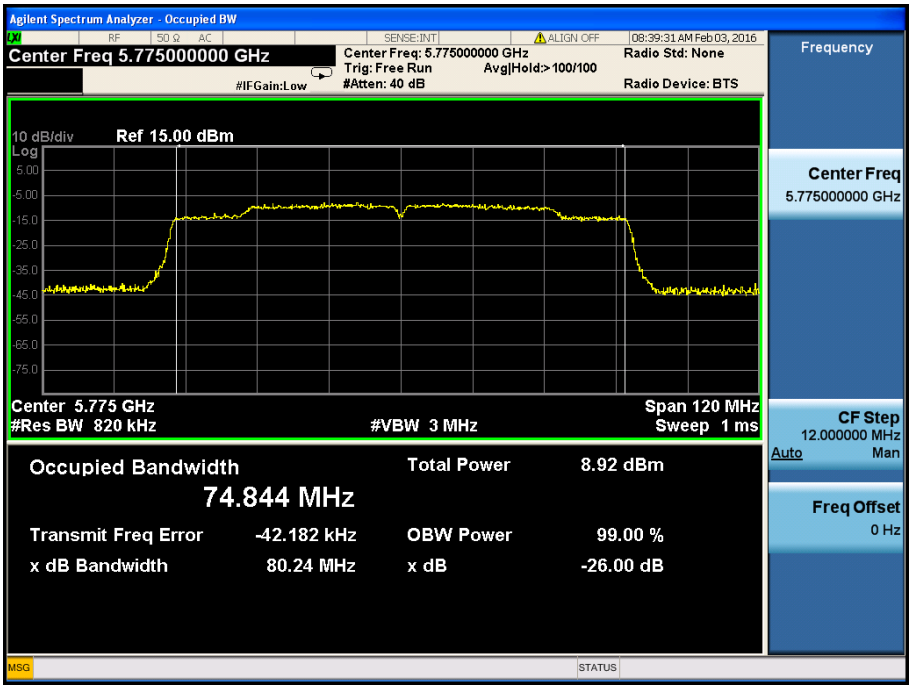
5610MHz



5690MHz



5775MHz


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.775000000 GHz
Center Freq: 5.775000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#IFGain:Low
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
08:39:31 AM Feb 03, 2016
Frequency
10 dB/div
Ref 15.00 dBm
Log
Center 5.775 GHz
#Res BW 820 kHz
#VBW 3 MHz
Span 120 MHz
Sweep 1 ms
Occupied Bandwidth
74.844 MHz
Total Power
8.92 dBm
Transmit Freq Error
-42.182 kHz
OBW Power
99.00 %
x dB Bandwidth
80.24 MHz
x dB
-26.00 dB
Center Freq
5.775000000 GHz
CF Step
12.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Span 100.00 MHz
Center Freq: 5.775000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 26 dB
Radio Std: None
Radio Device: BTS
08:52:10 AM Feb 13, 2016
Span
10 dB/div
Ref 15.00 dBm
Log
Center 5.775 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 100 MHz
Sweep 1.4 ms
Occupied Bandwidth
74.812 MHz
Total Power
10.6 dBm
Transmit Freq Error
-79.263 kHz
OBW Power
99.00 %
x dB Bandwidth
75.48 MHz
x dB
-6.00 dB
Span
100.00 MHz
Full Span
Last Span
MSG
STATUS

8. Maximum Conducted Output Power

8.1 Standard Applicable

According to 15.407(a) Power limits:

(1) For the band 5.15-5.25 GHz.
(iv) 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 provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 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.

(2) 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 or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 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.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

8.2 Test Procedure

According to KDB789033 D02 v01 section E, the following is the measurement procedure.

(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

(vii) If transmit duty cycle < 98 percent, 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 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.

(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.

(ix) 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.

8.3 Environmental Conditions

Temperature:	26° C
Relative Humidity:	65%
ATM Pressure:	1011 mbar

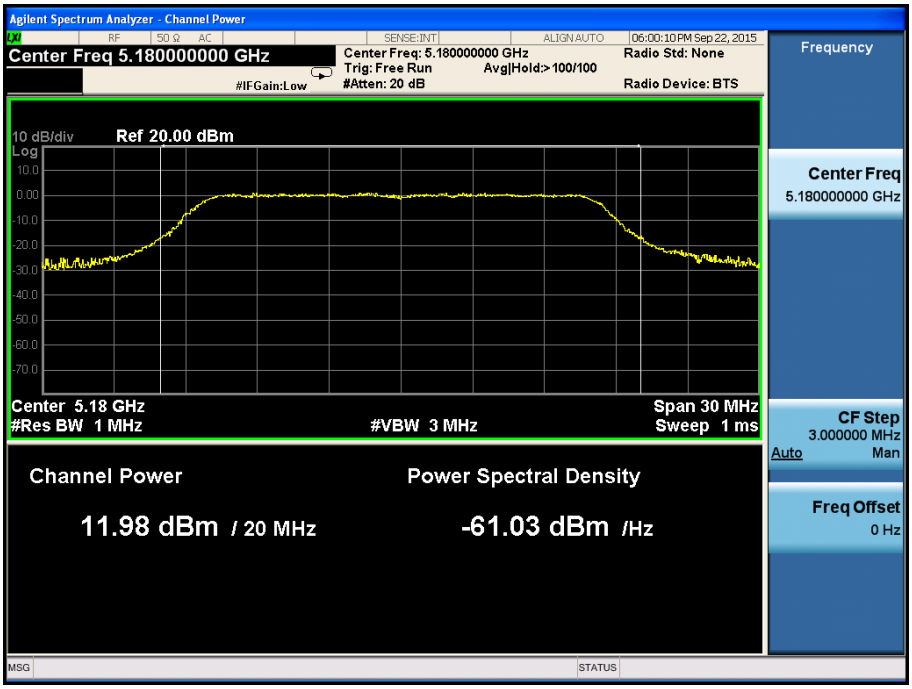
8.4 Summary of Test Results/Plots

Test mode	Frequency MHz	Power 1 dBm	Power 2 dBm	Total Power dBm	Total Power mW	Limit mW
802.11a	5180	11.98	11.21	14.62	28.99	250
	5200	10.92	11.95	14.48	28.03	250
	5240	11.02	11.24	14.14	25.95	250
	5260	11.18	11.02	14.11	25.77	250
	5300	11.13	10.93	14.04	25.36	250
	5320	10.32	10.70	13.52	22.51	250
	5500	10.75	11.92	14.38	27.44	250
	5600	11.74	11.93	14.85	30.52	250
	5700	10.35	11.36	13.89	24.52	250
	5745	11.20	11.65	14.44	27.80	1000
	5785	10.79	11.18	14.00	25.12	1000
	5805	11.25	11.67	14.48	28.02	1000
802.11n-HT20	5180	9.81	8.99	12.43	17.50	250
	5200	9.93	9.74	12.85	19.26	250
	5240	9.27	11.61	13.61	22.94	250
	5260	8.73	8.12	11.45	13.95	250
	5300	9.30	10.13	12.75	18.82	250
	5320	8.43	10.45	12.57	18.06	250
	5500	9.36	11.59	13.63	23.05	250
	5600	9.26	11.20	13.35	21.62	250
	5700	8.30	10.57	12.59	18.16	250
	5745	9.22	10.55	12.95	19.71	1000
	5785	9.41	10.31	12.89	19.47	1000
	5805	8.92	10.79	12.97	19.79	1000
802.11n-HT40	5190	8.83	9.28	12.07	16.11	250
	5230	9.19	11.93	13.78	23.89	250
	5270	8.49	11.05	12.97	19.80	250
	5310	8.85	8.85	11.86	15.35	250
	5510	9.04	11.13	13.22	20.99	250
	5590	8.58	11.10	13.03	20.09	250
	5670	8.67	11.28	13.18	20.79	250
	5755	9.08	11.53	13.49	22.31	1000
	5795	8.97	11.92	13.70	23.45	1000
802.11ac-HT80	5210	8.34	10.84	12.78	18.96	250
	5290	8.02	9.66	11.93	15.59	250
	5530	7.96	10.14	12.20	16.58	250
	5610	8.03	10.33	12.34	17.14	250
	5690	7.59	10.29	12.16	16.43	250
	5775	7.85	11.04	12.74	18.80	1000

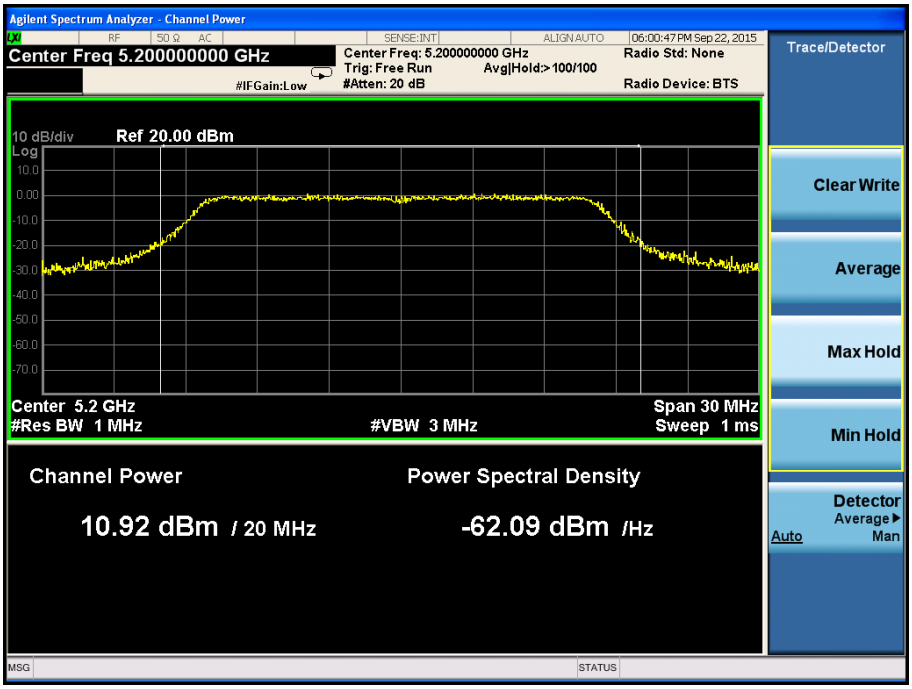
Antenna 1

Test Mode: 802.11a

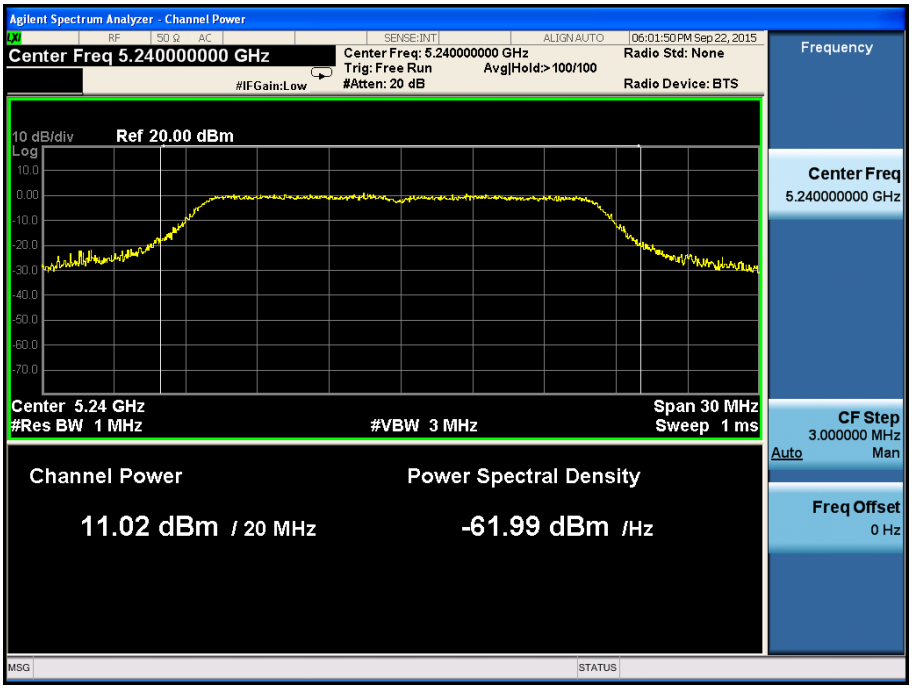
5180MHz



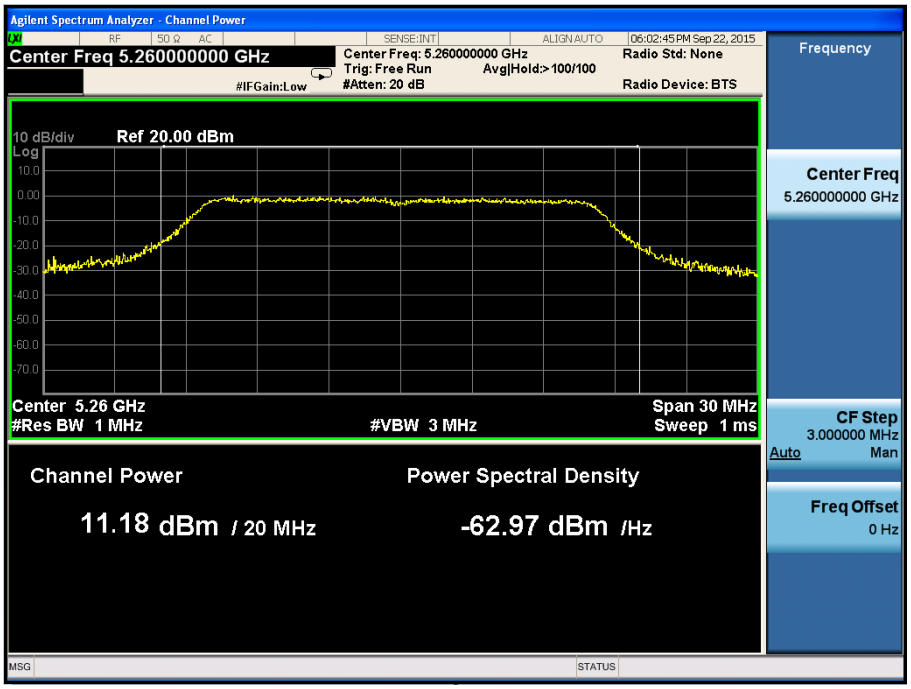
5200MHz



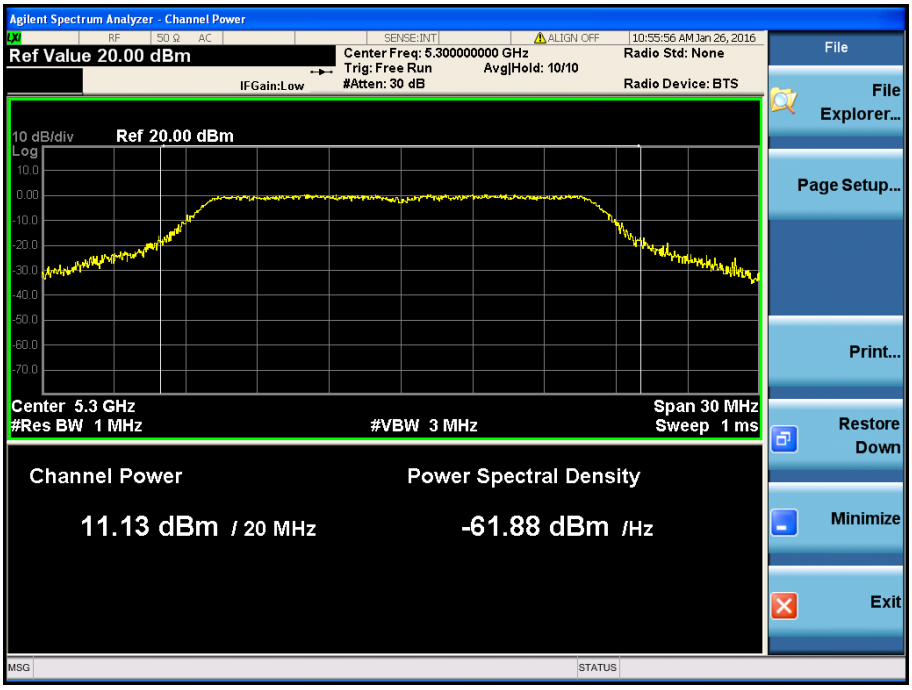
5240MHz



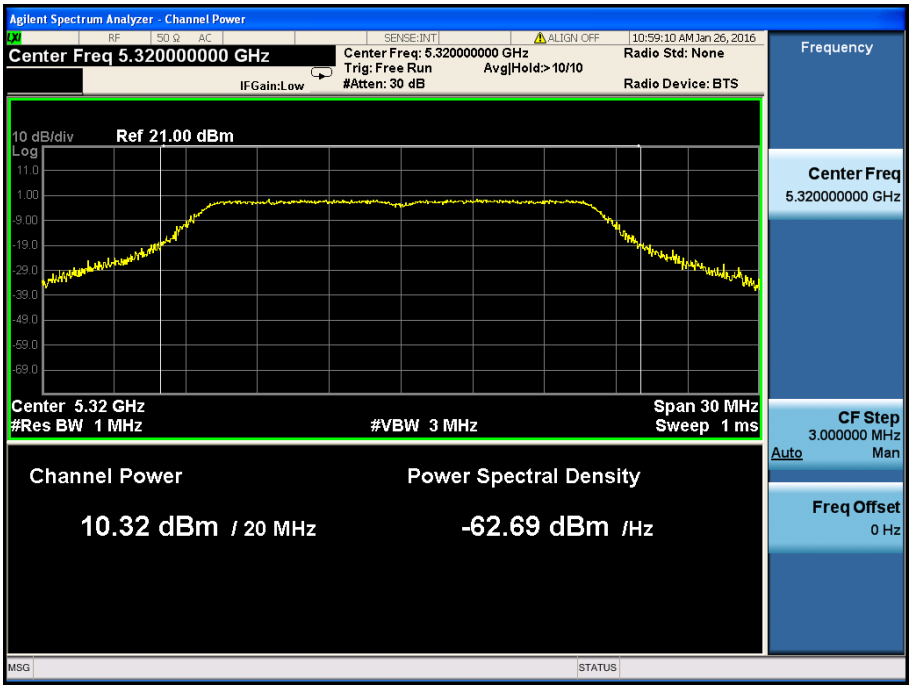
5260MHz



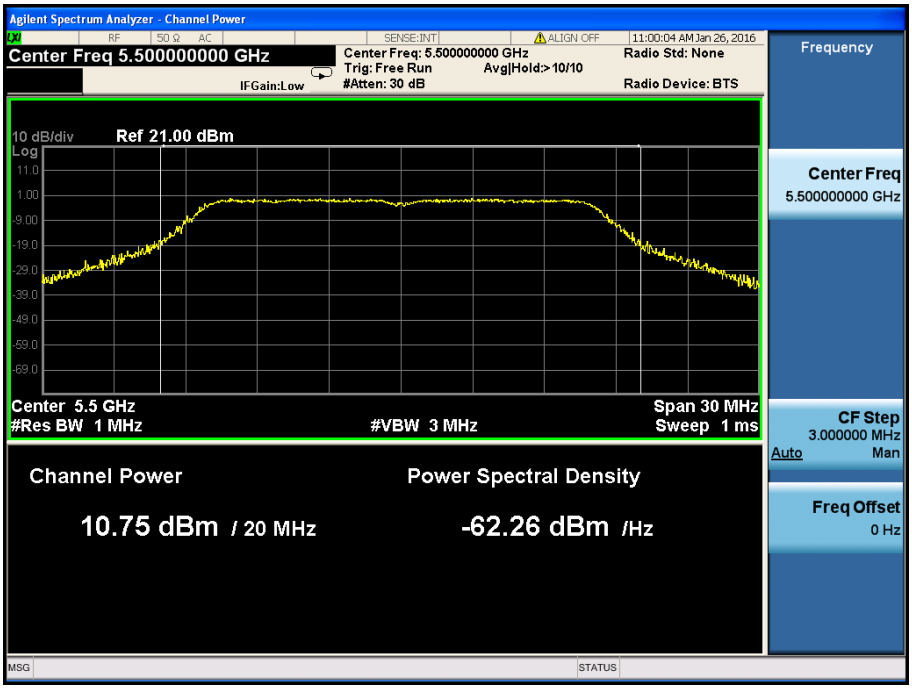
5300MHz



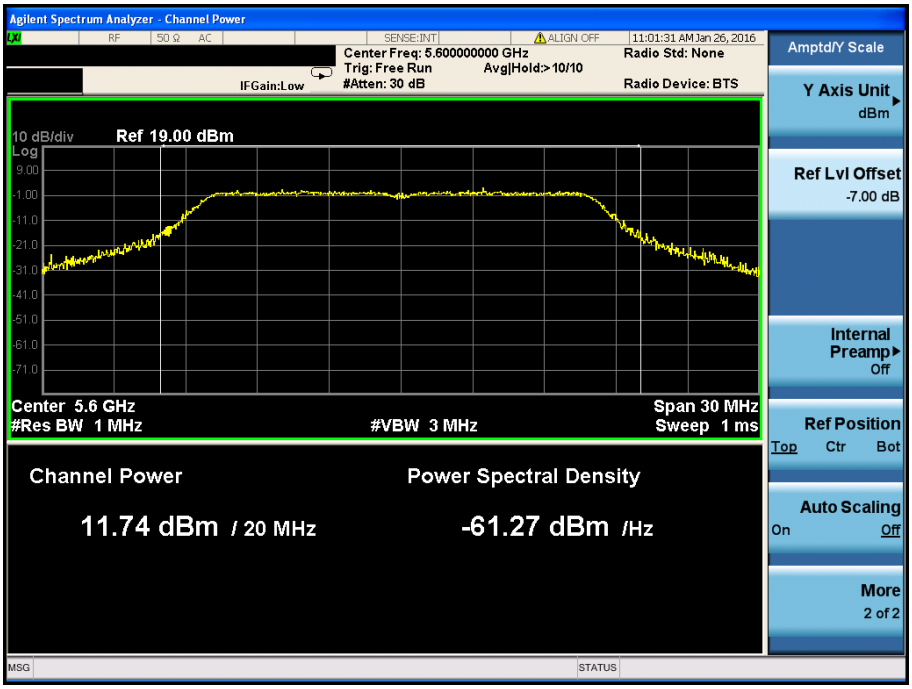
5320MHz



5500MHz



5600MHz



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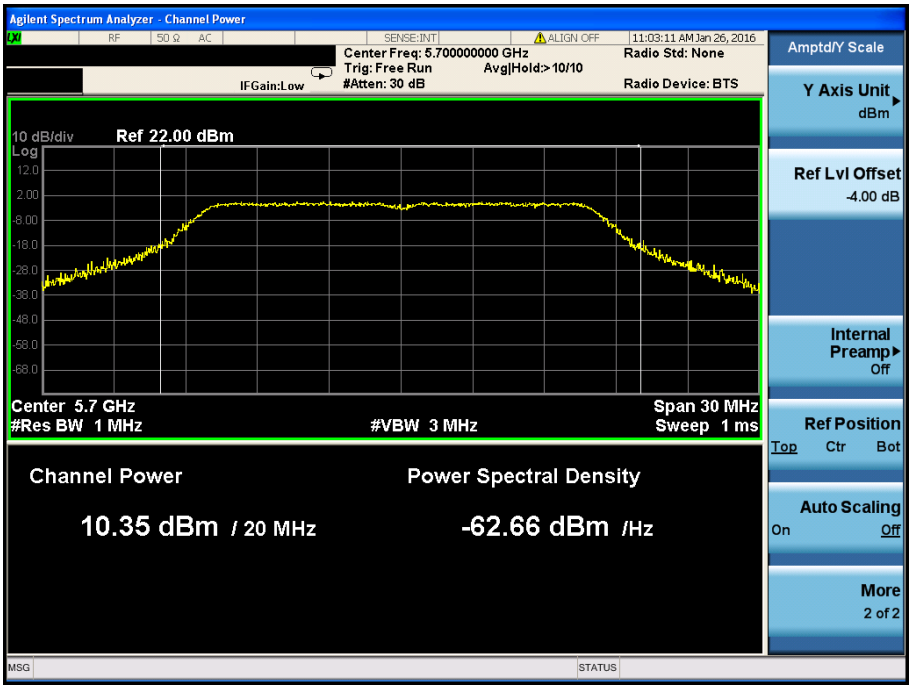

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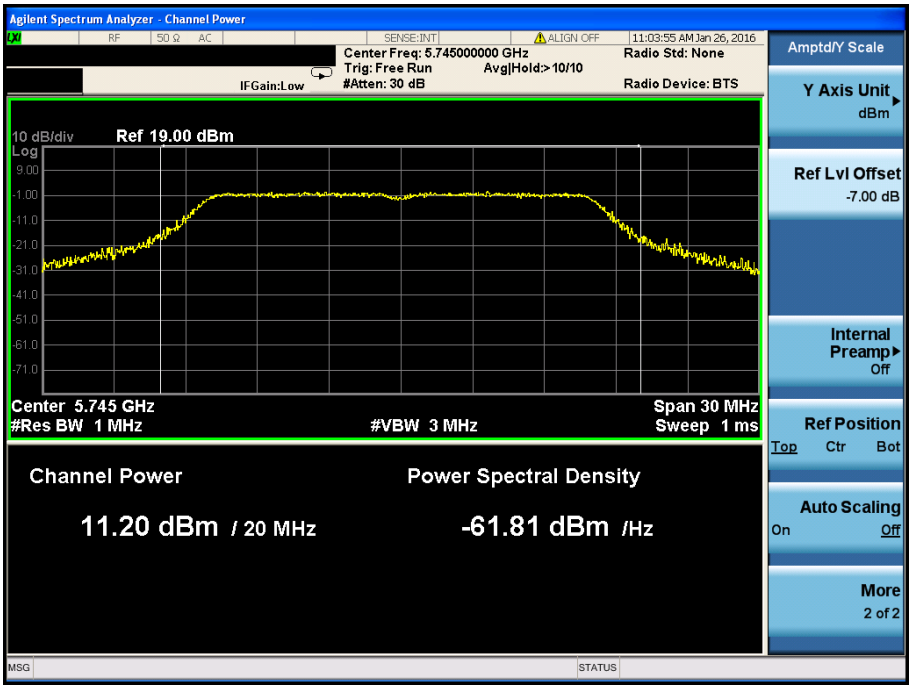
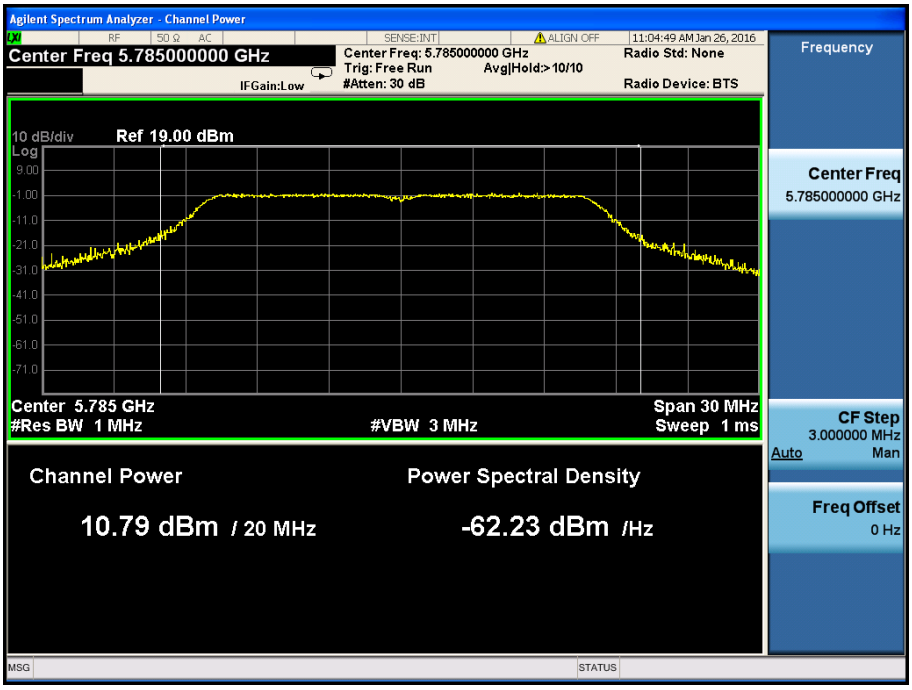
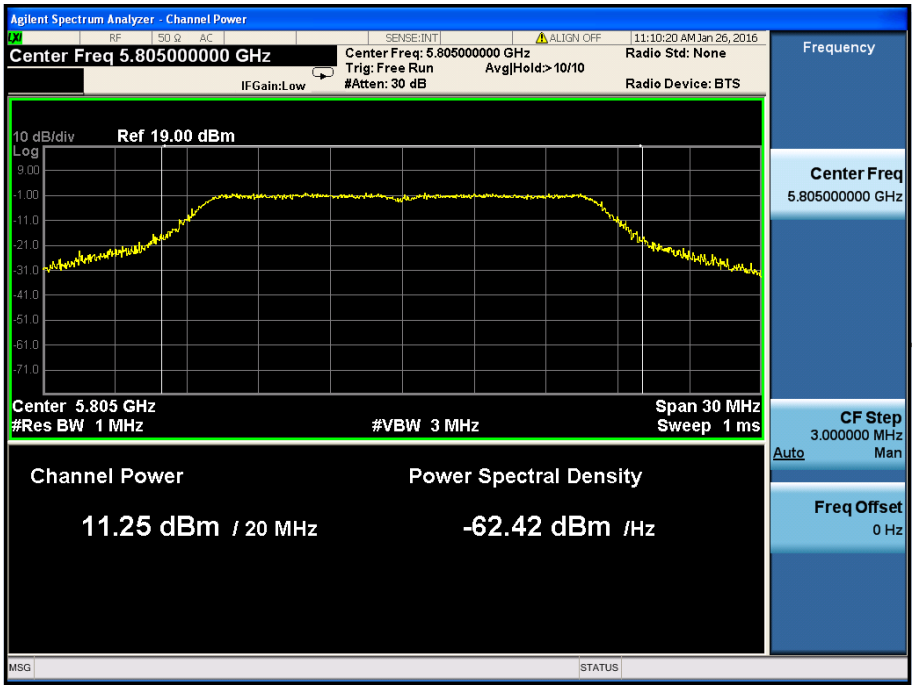


5785MHz

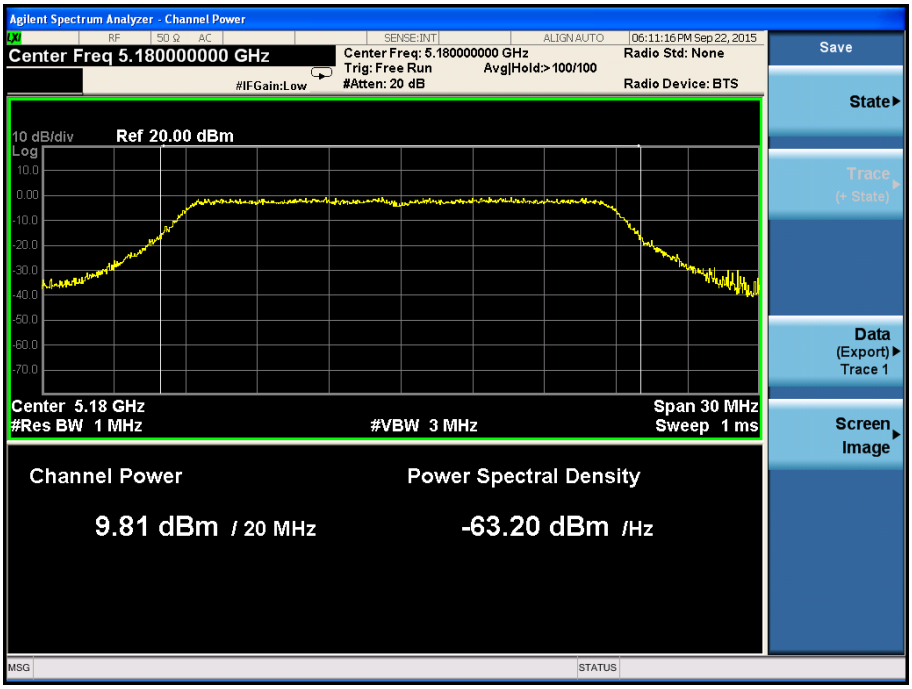


5805MHz



Test Mode: 802.11n-HT20

5180MHz



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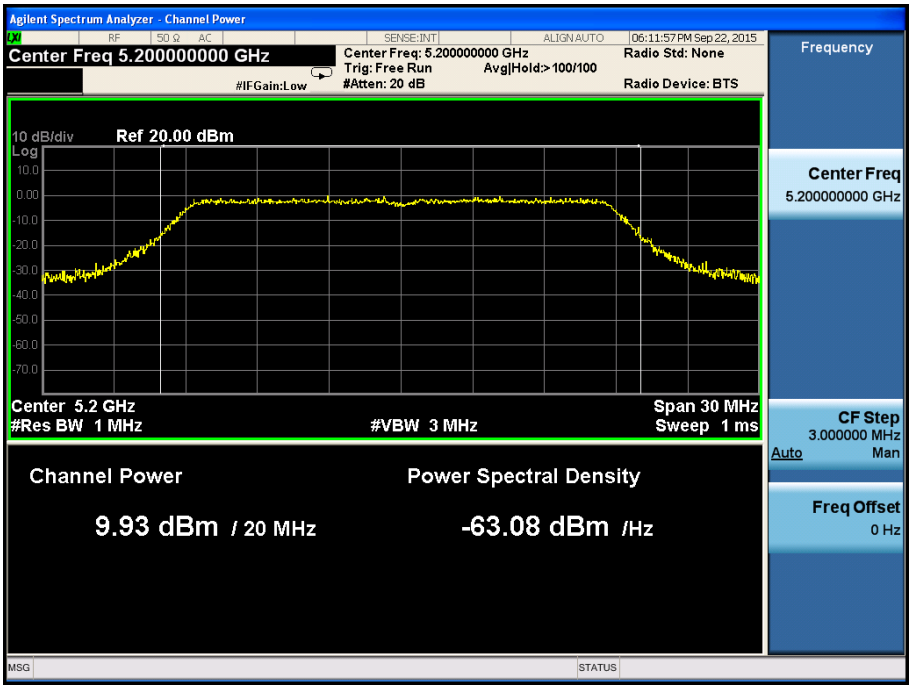

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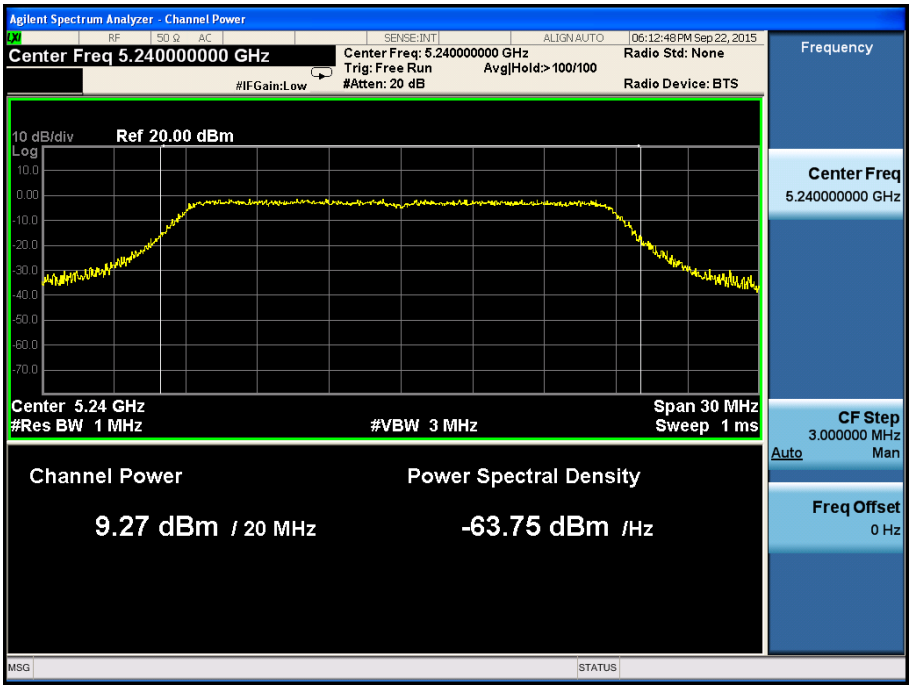

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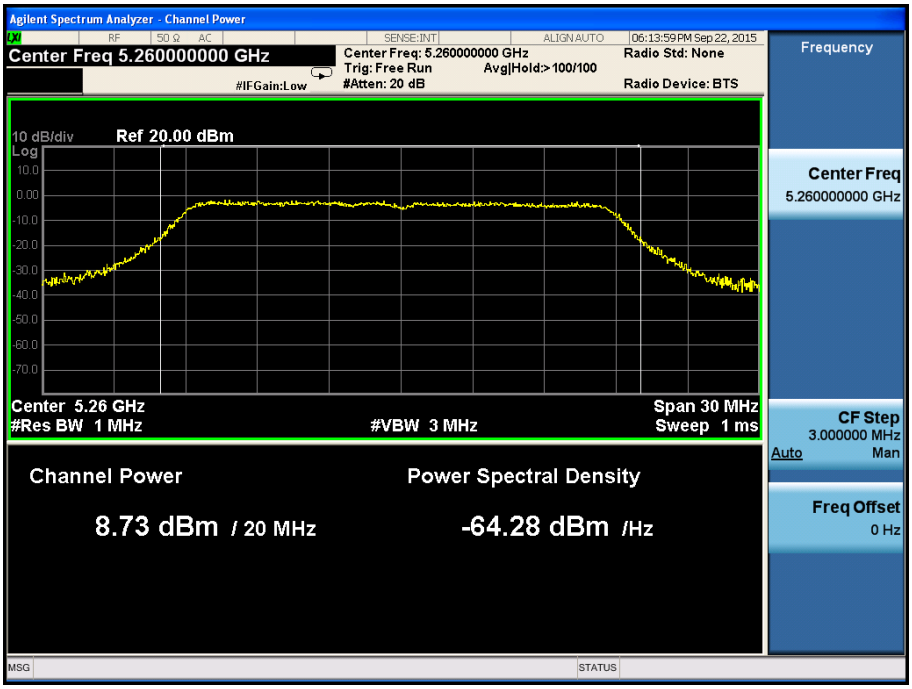

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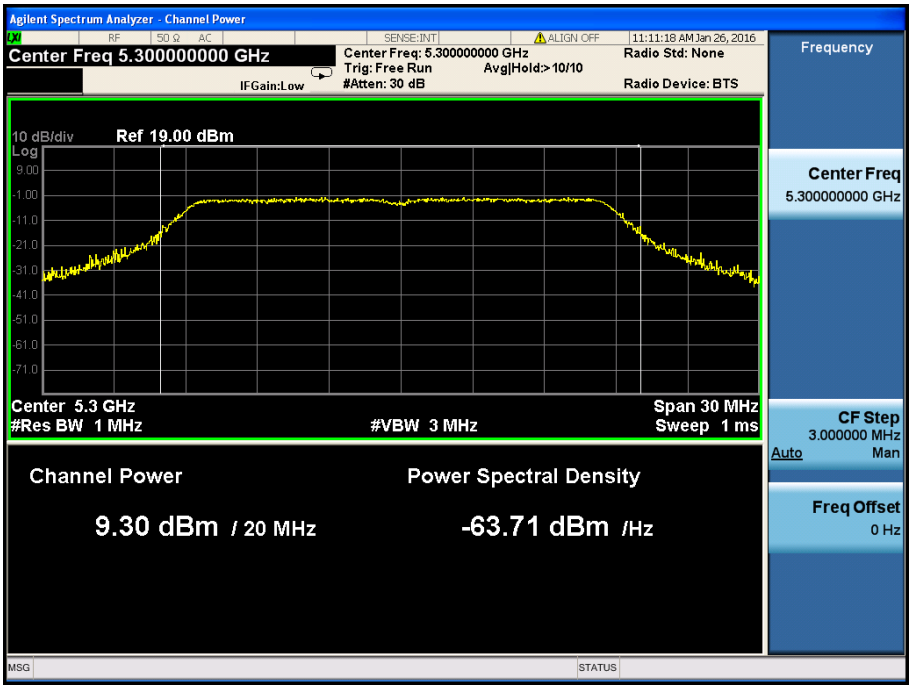
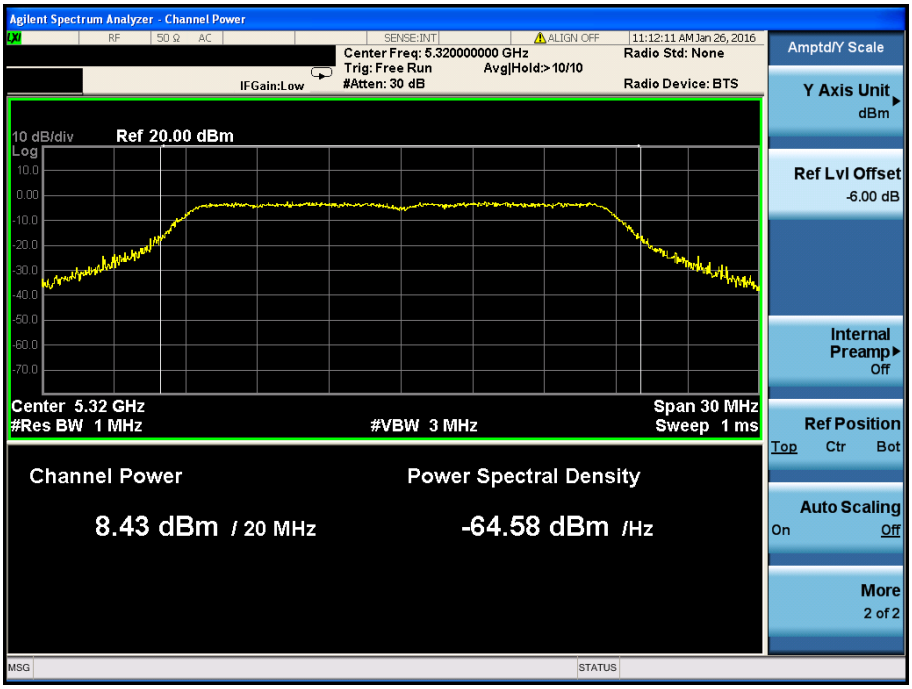
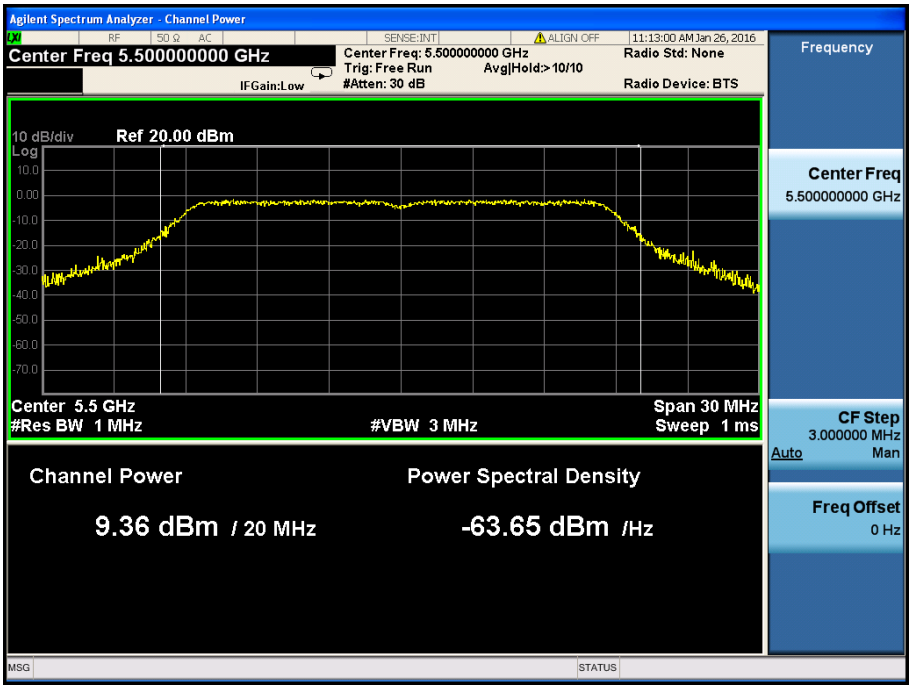


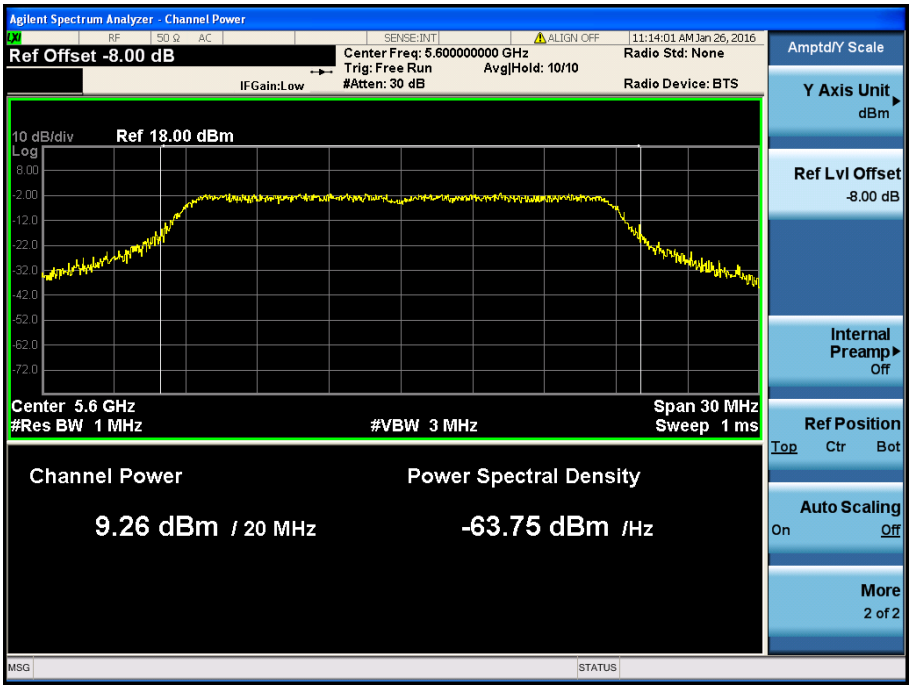
5320MHz



5500MHz



5600MHz



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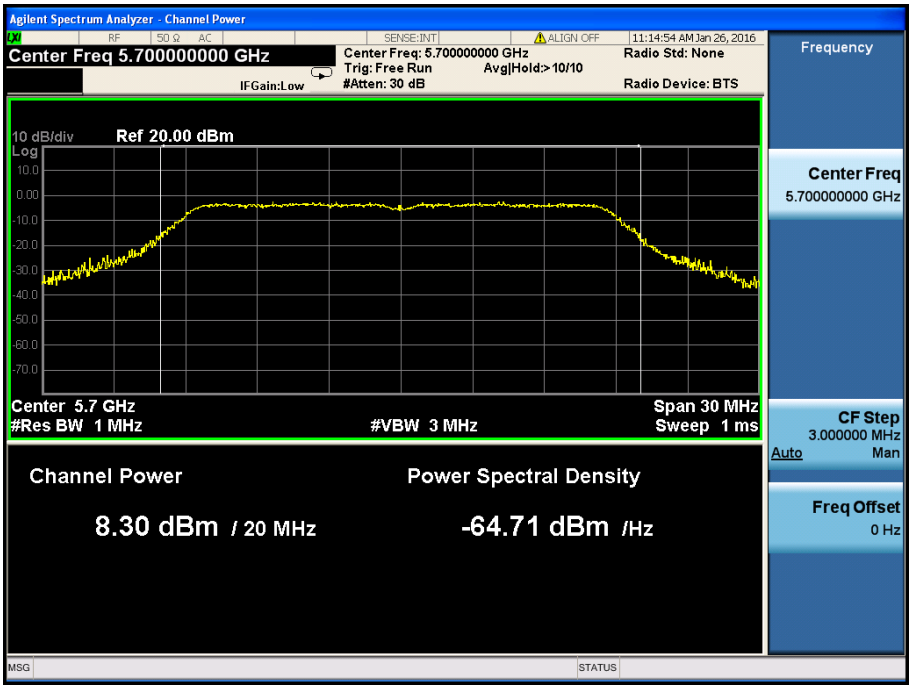

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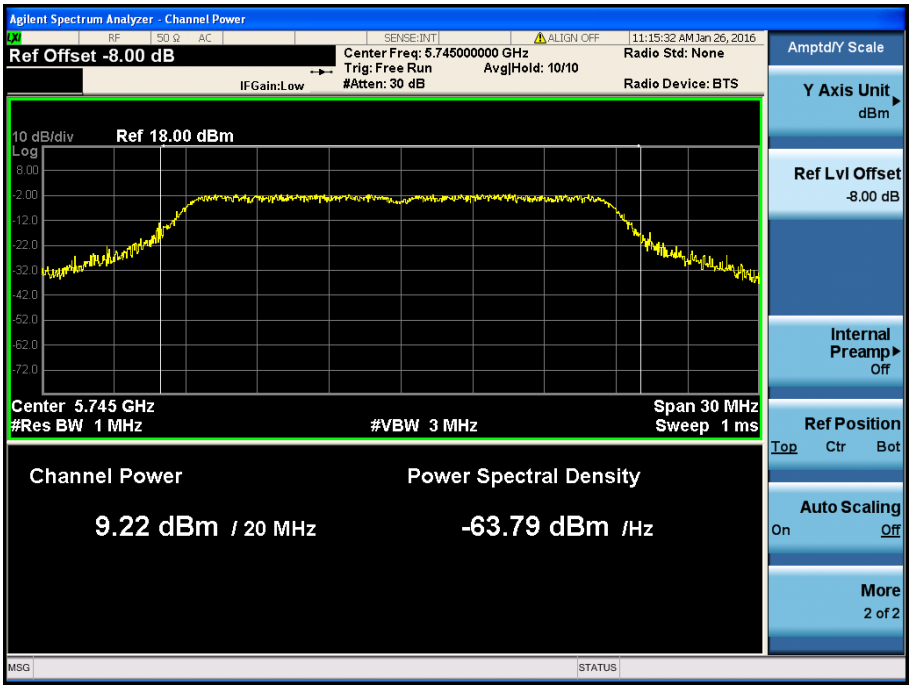

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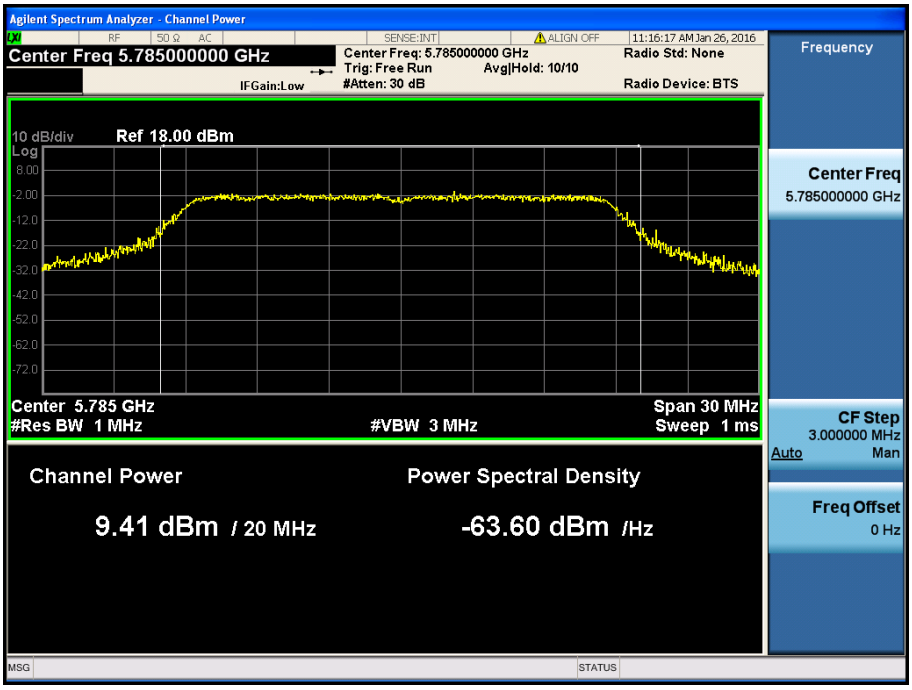
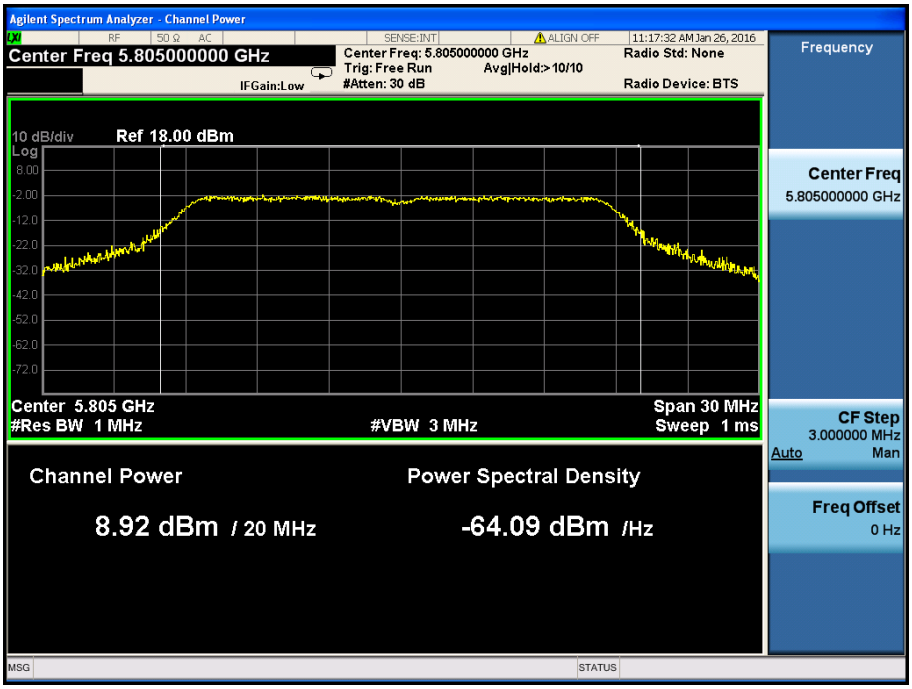
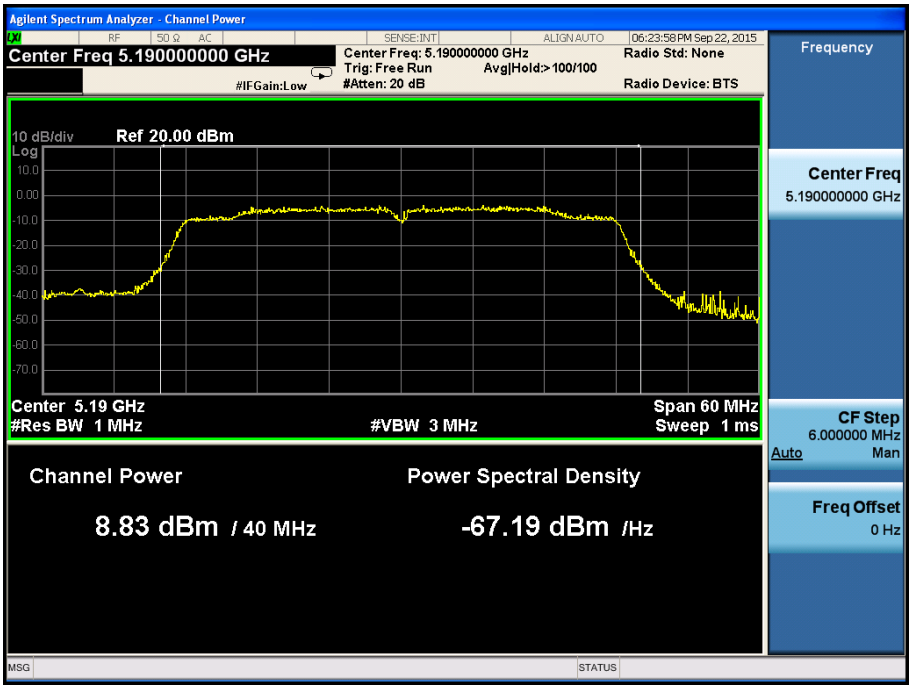


5805MHz

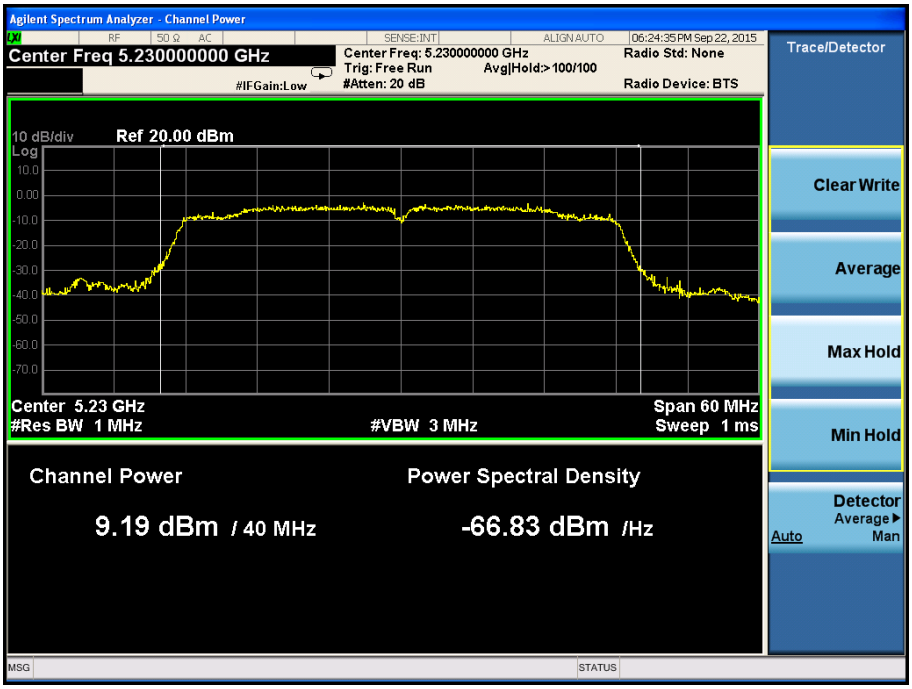


Test Mode: 802.11n-HT40

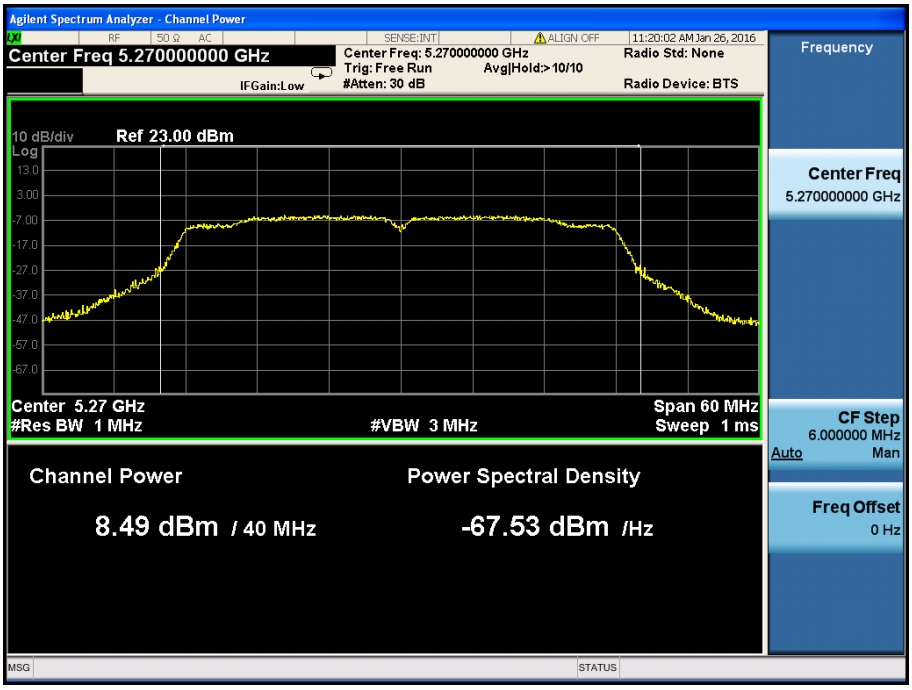
5190MHz



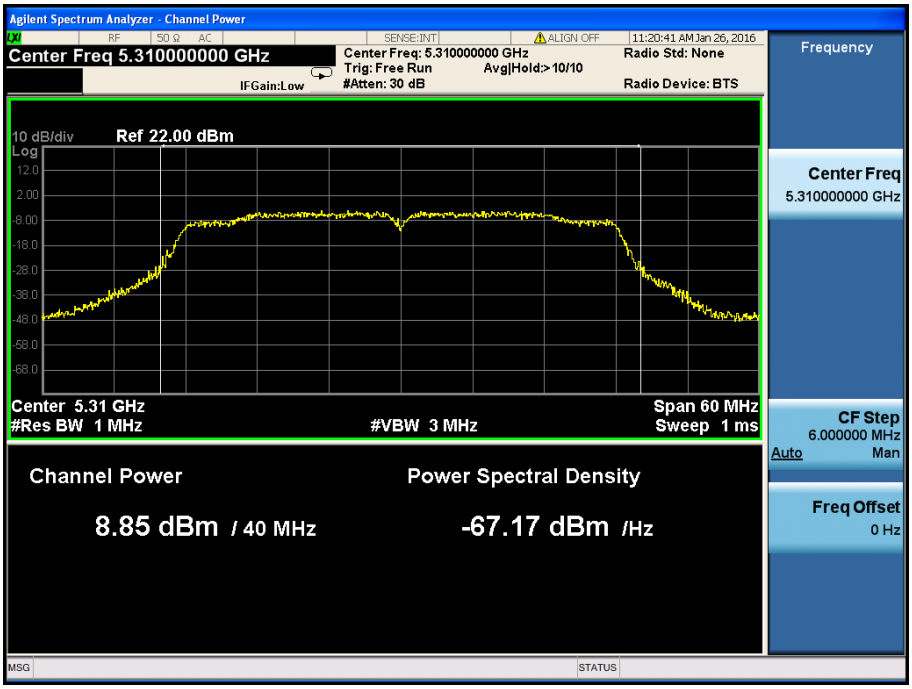
5230MHz



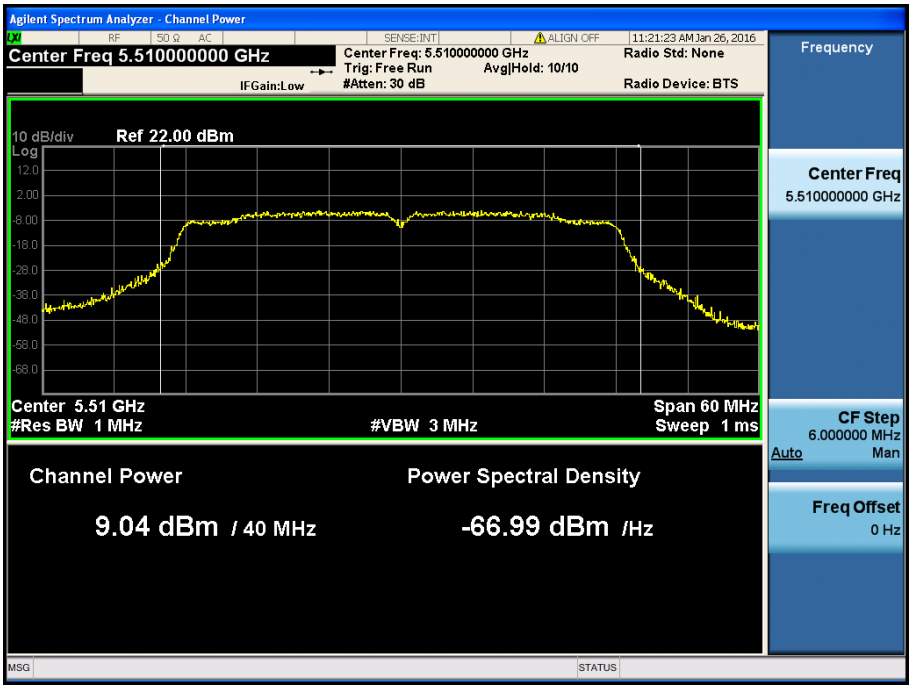
5270MHz



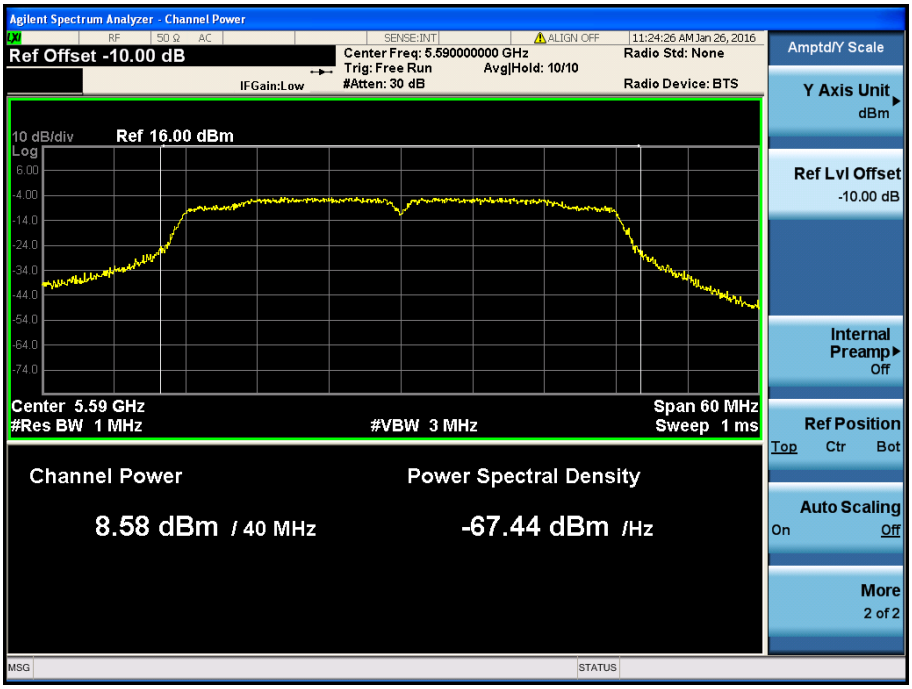
5310MHz



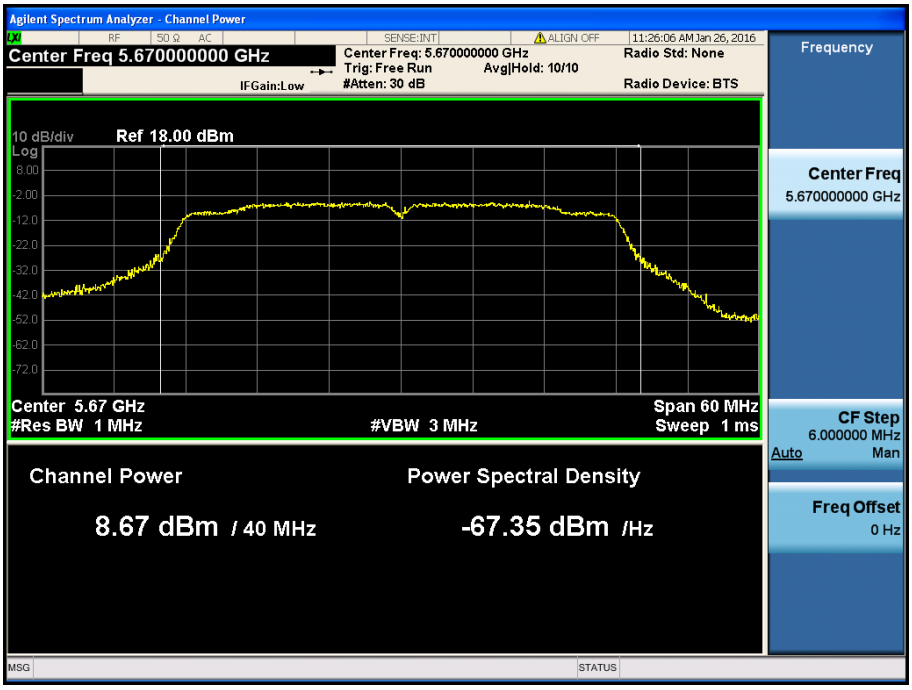
5510MHz



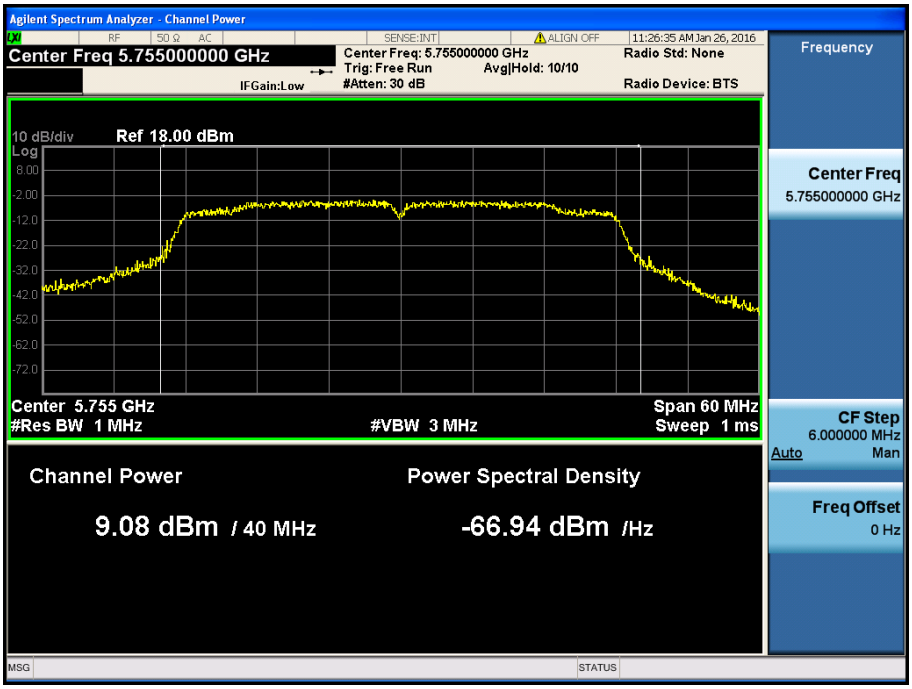
5590MHz



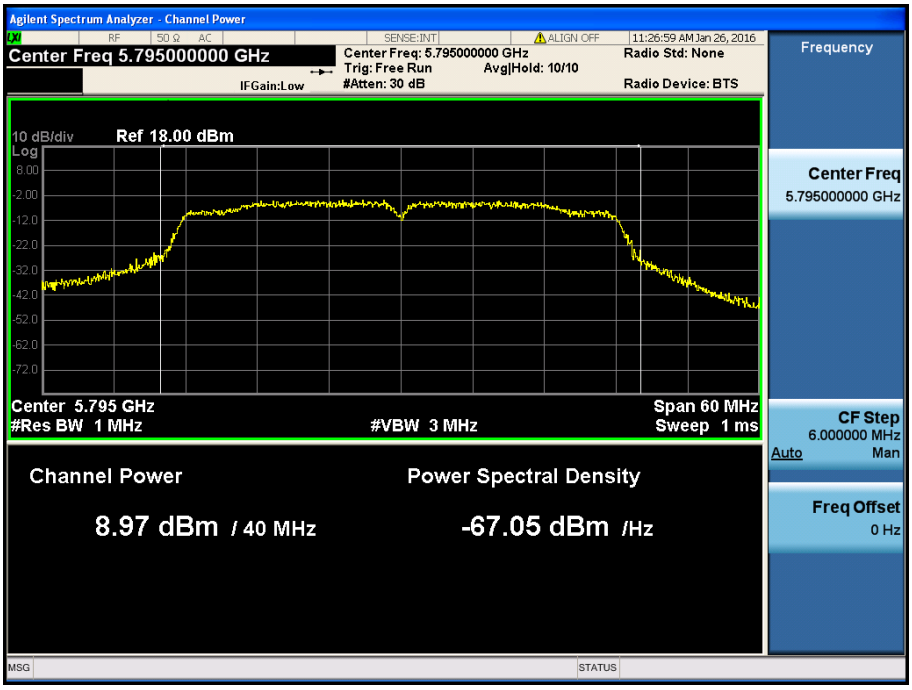
5670MHz



5755MHz

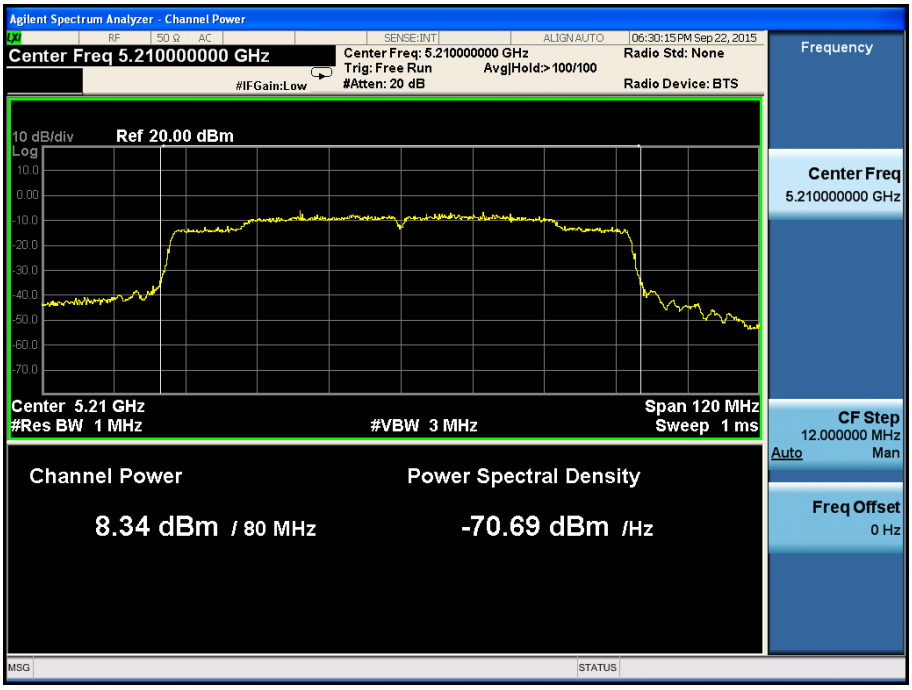


5795MHz

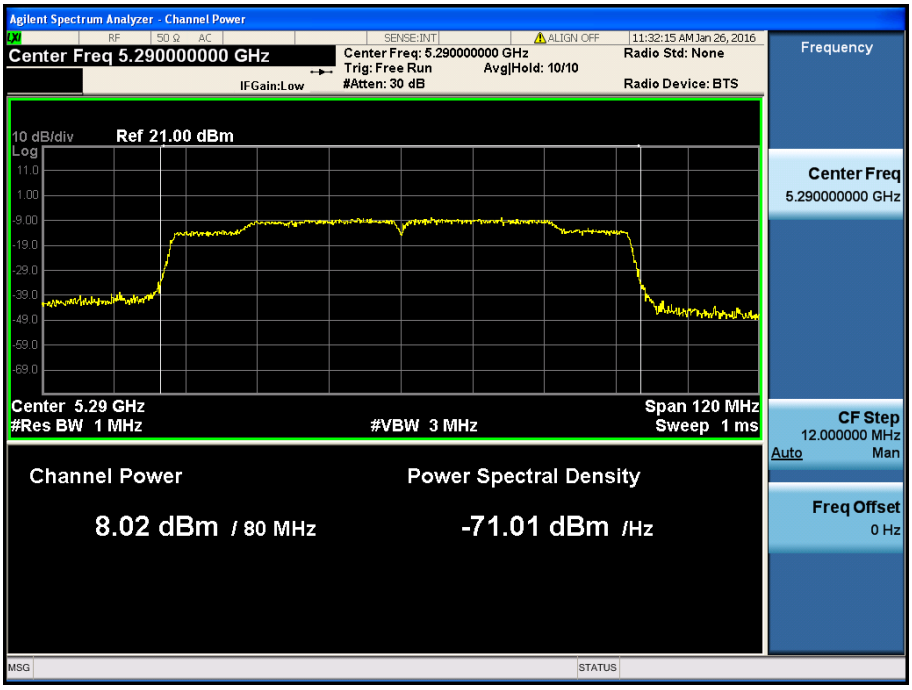


Test Mode: 802.11ac-HT80

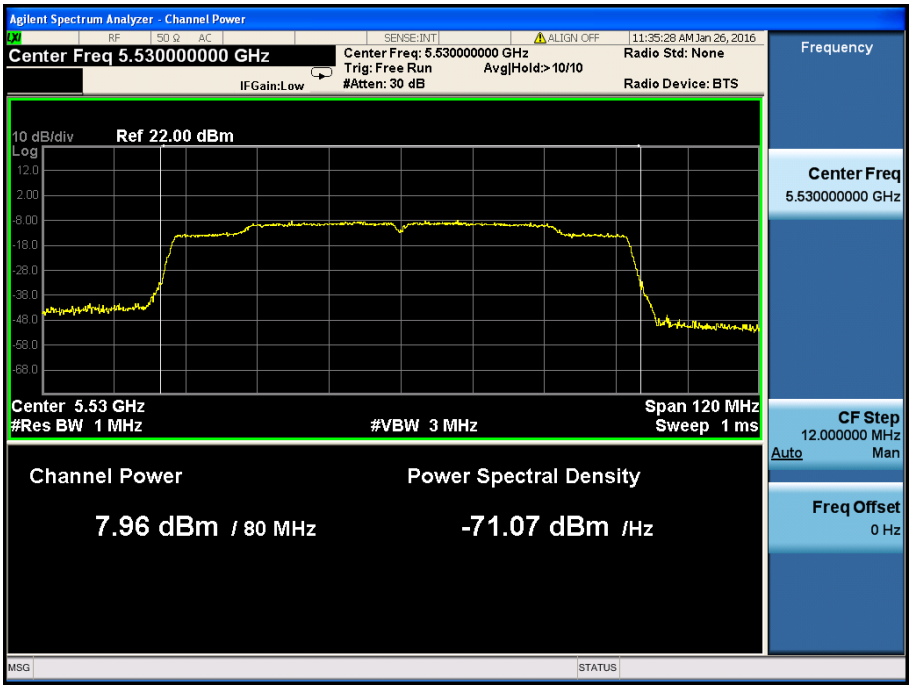
5210MHz



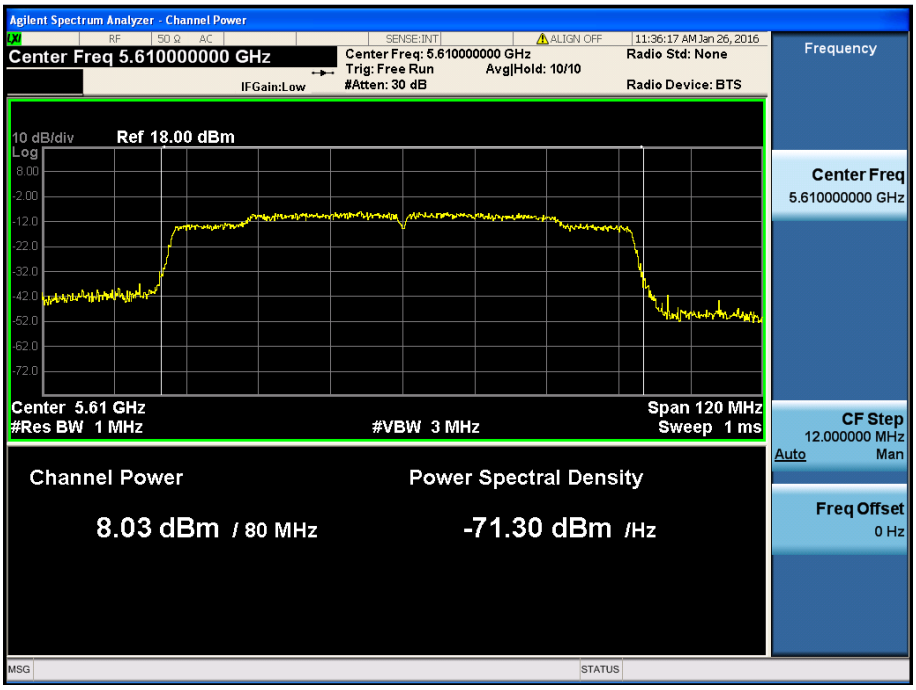
5290MHz



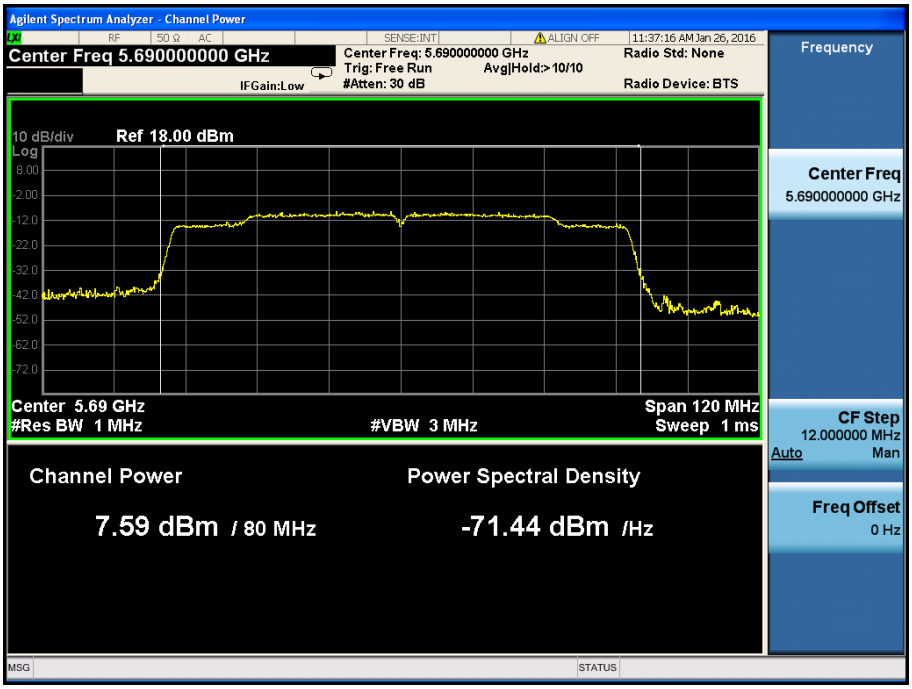
5530MHz



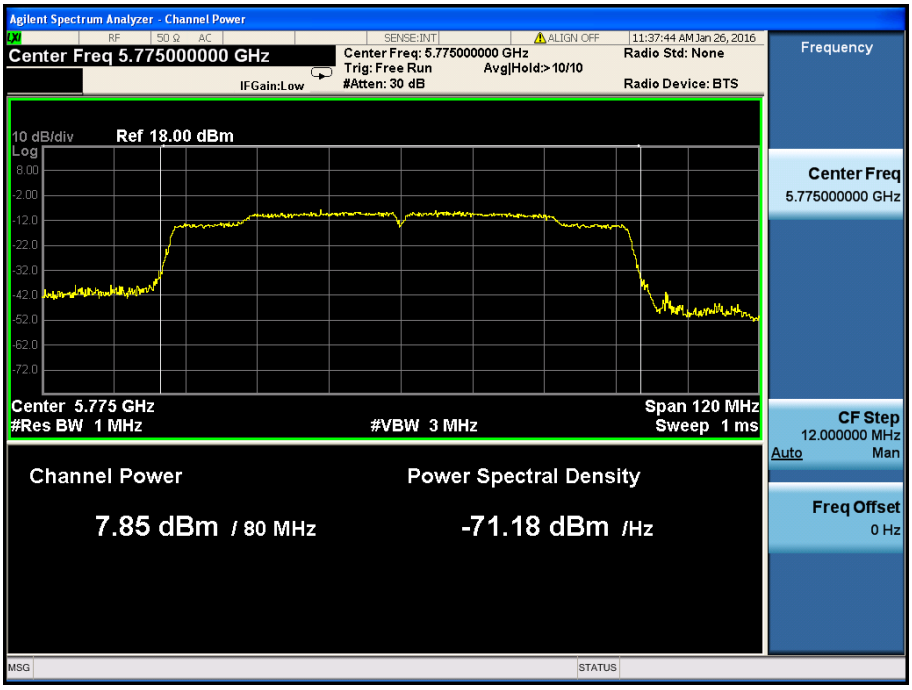
5610MHz



5690MHz



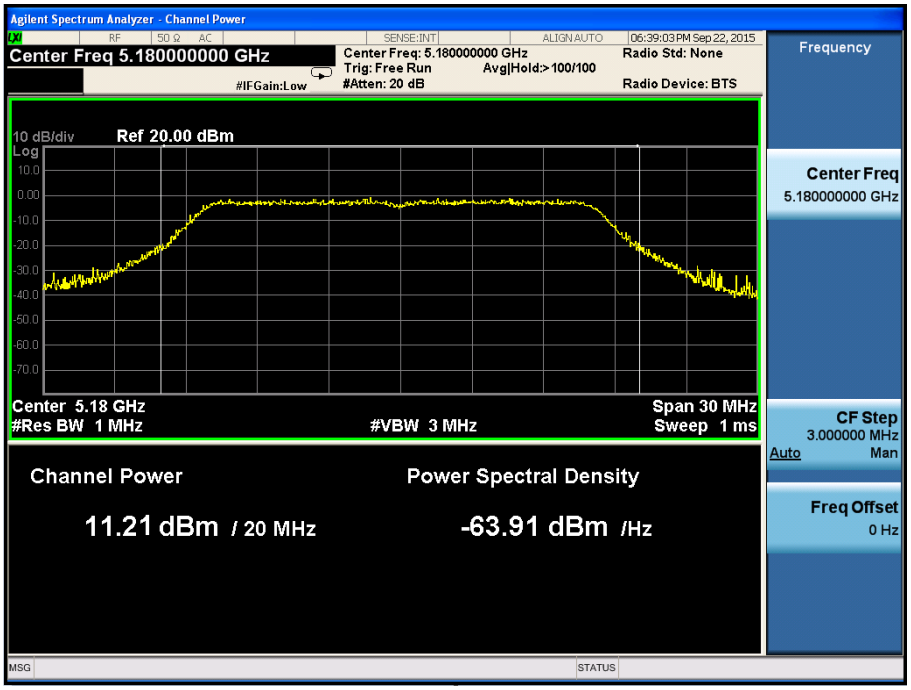
5775MHz



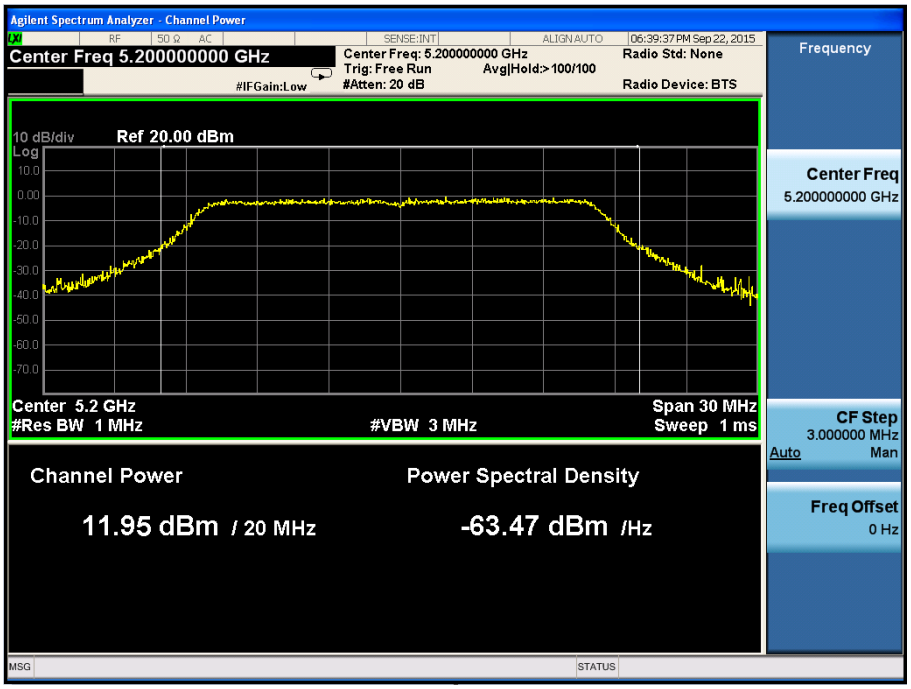
Antenna 2

Test Mode: 802.11a

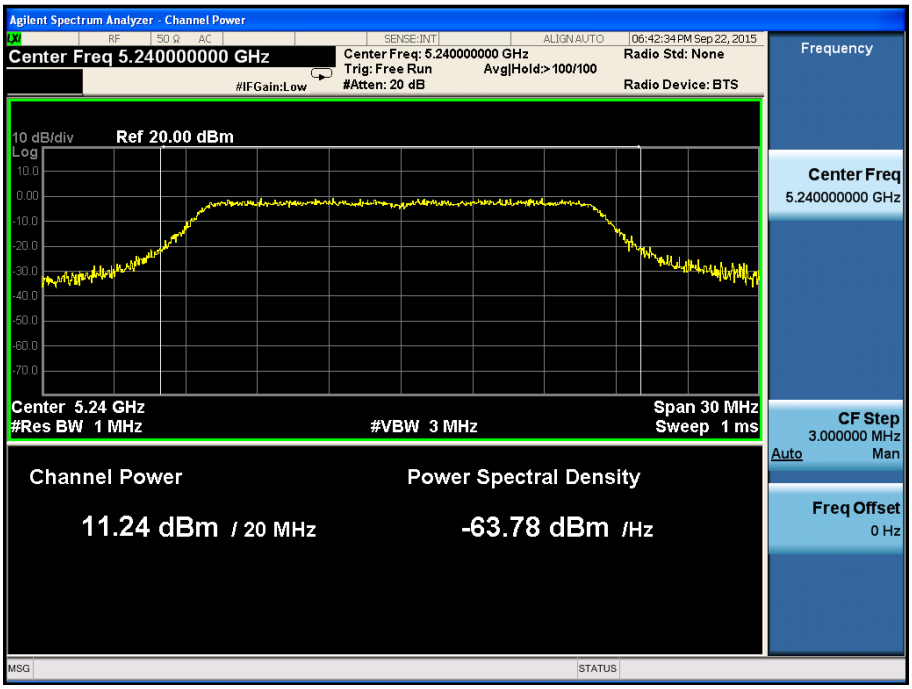
5180MHz



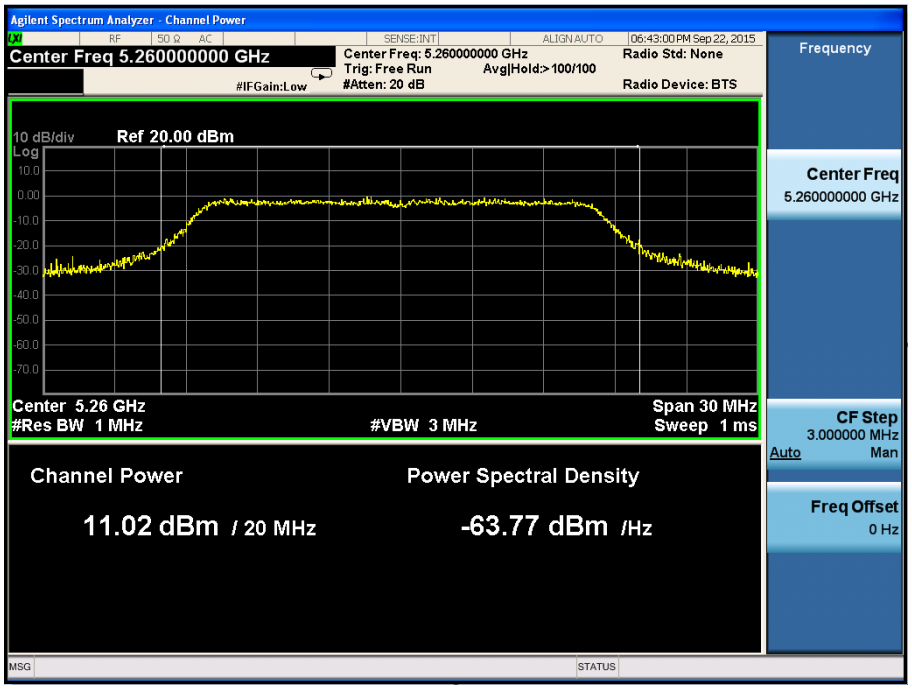
5200MHz



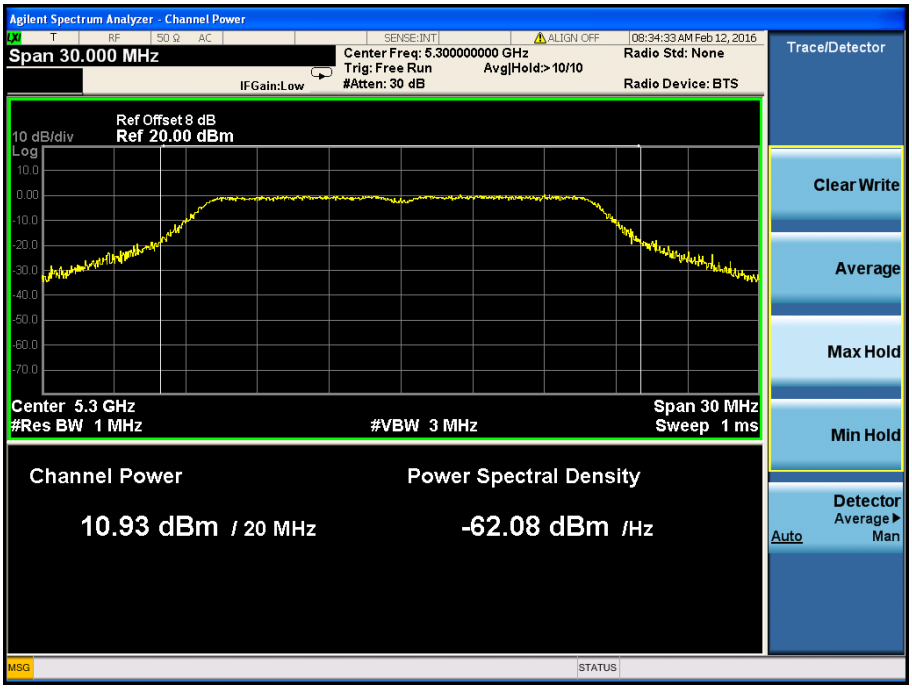
5240MHz



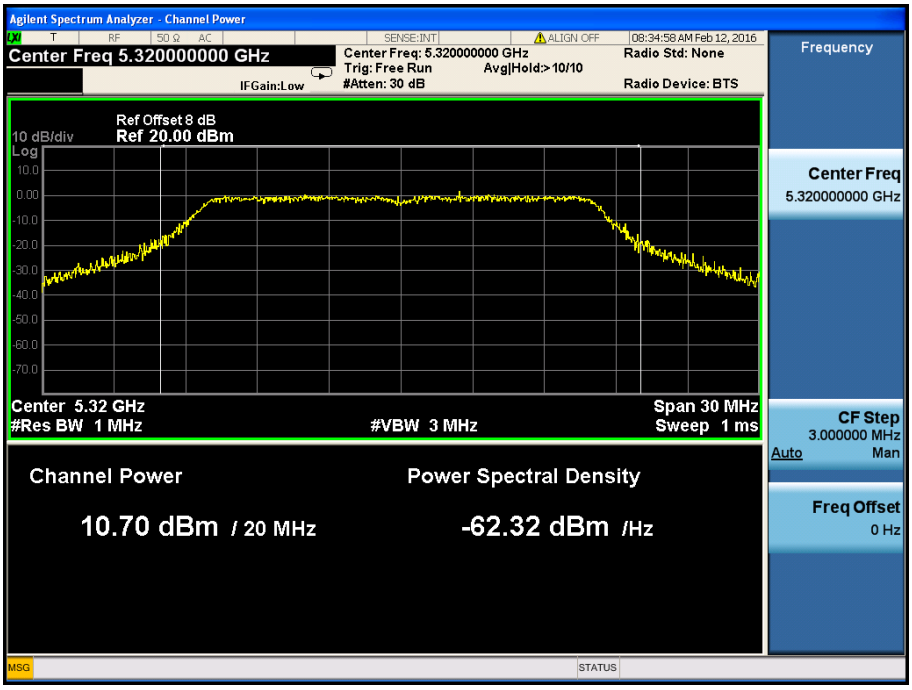
5260MHz



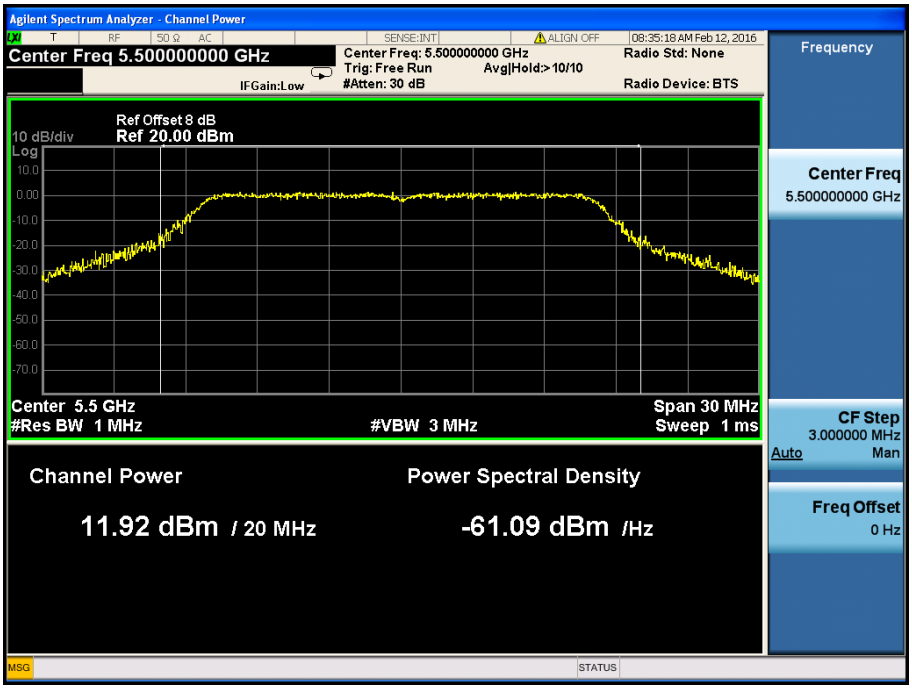
5300MHz



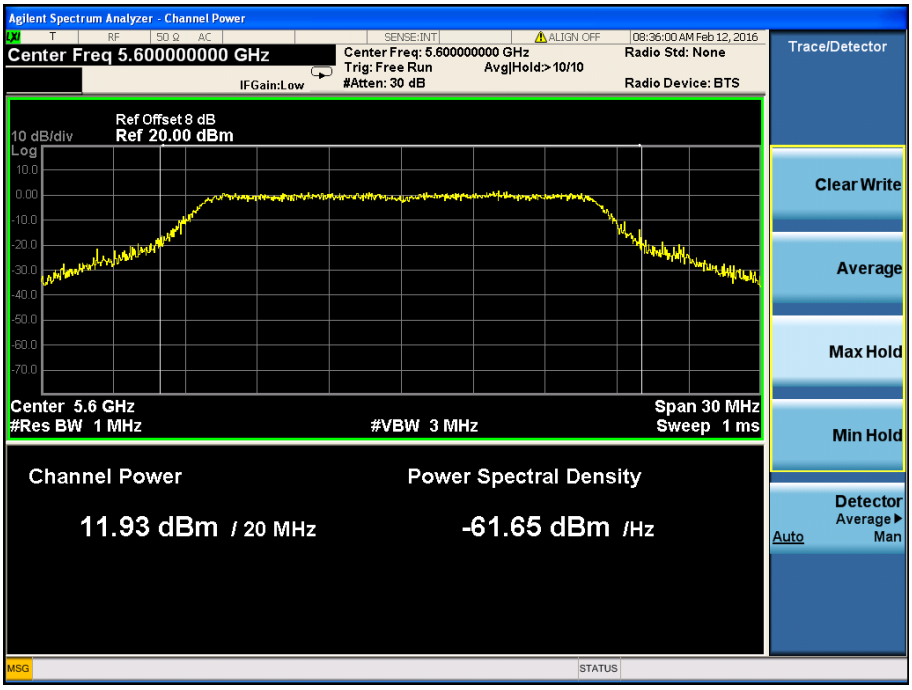
5320MHz



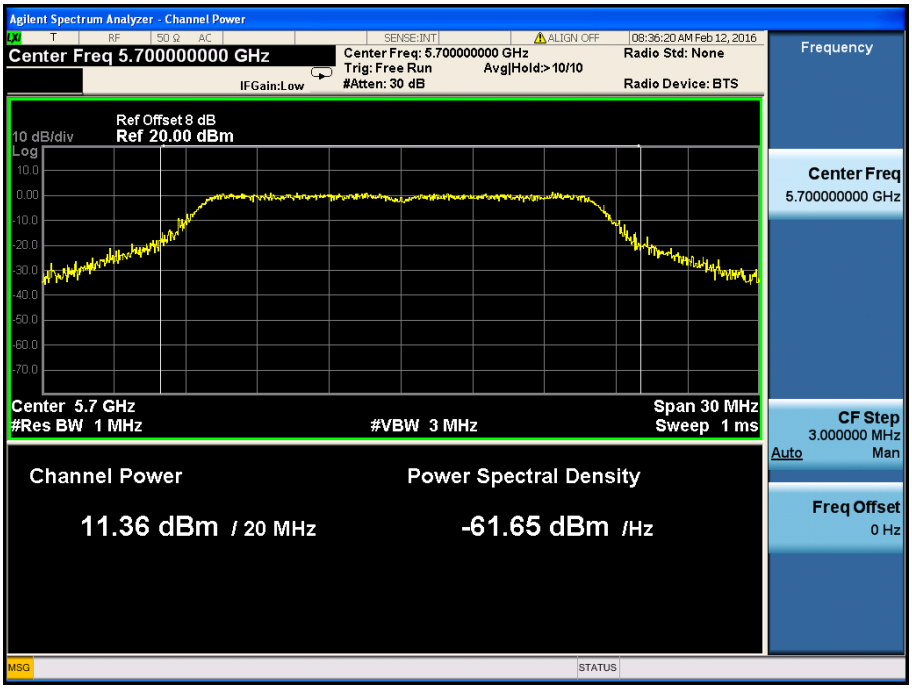
5500MHz



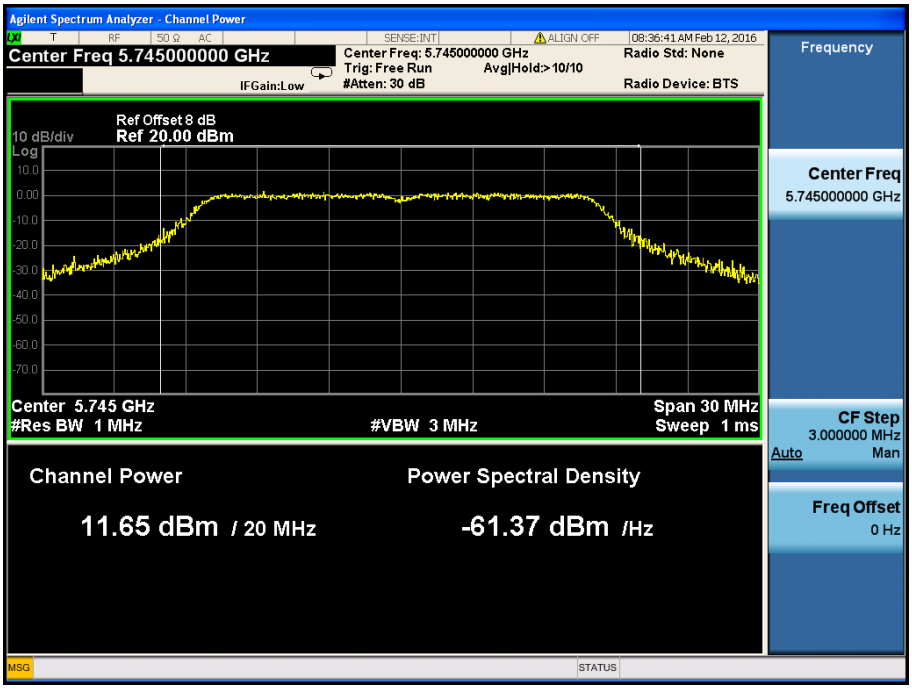
5600MHz



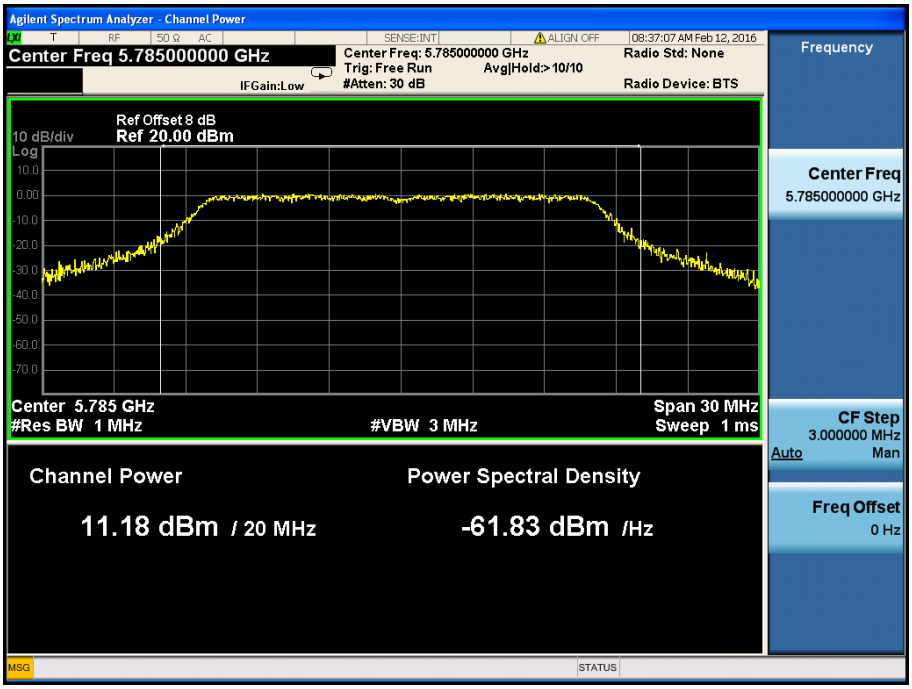
5700MHz



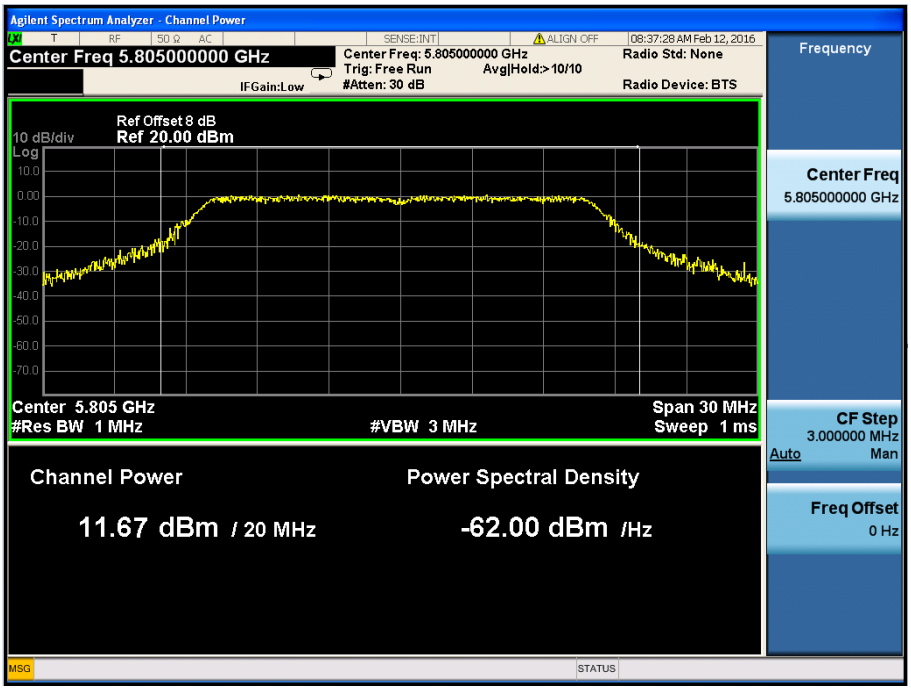
5745MHz



5785MHz

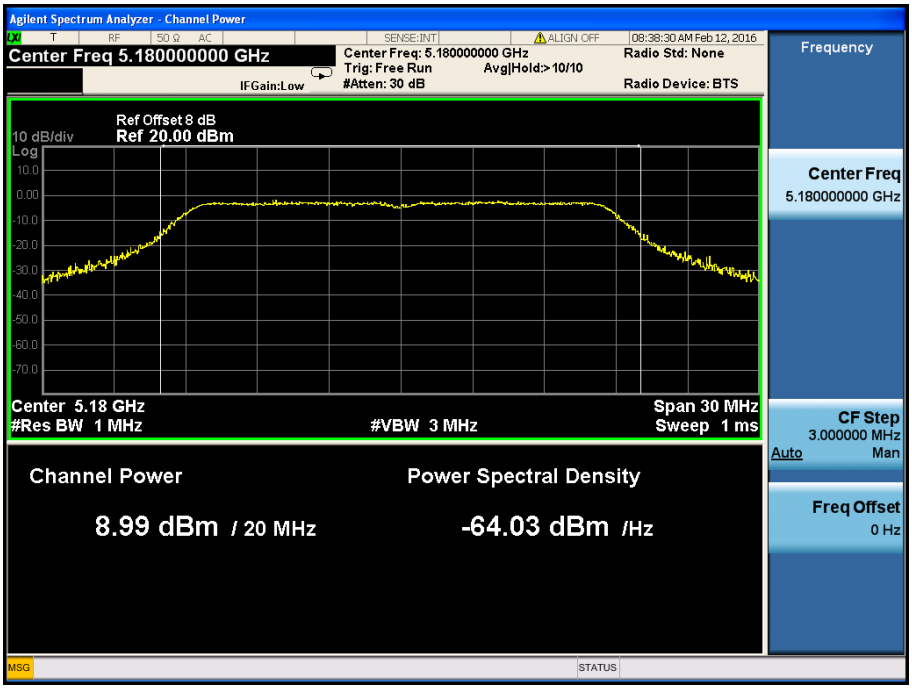


5805MHz

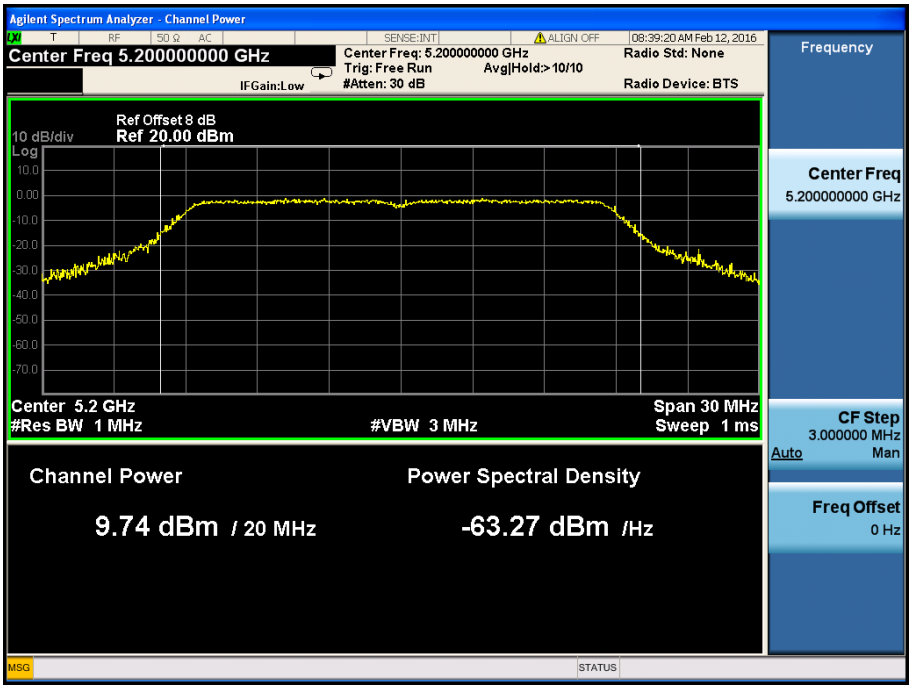


Test Mode: 802.11n-HT20

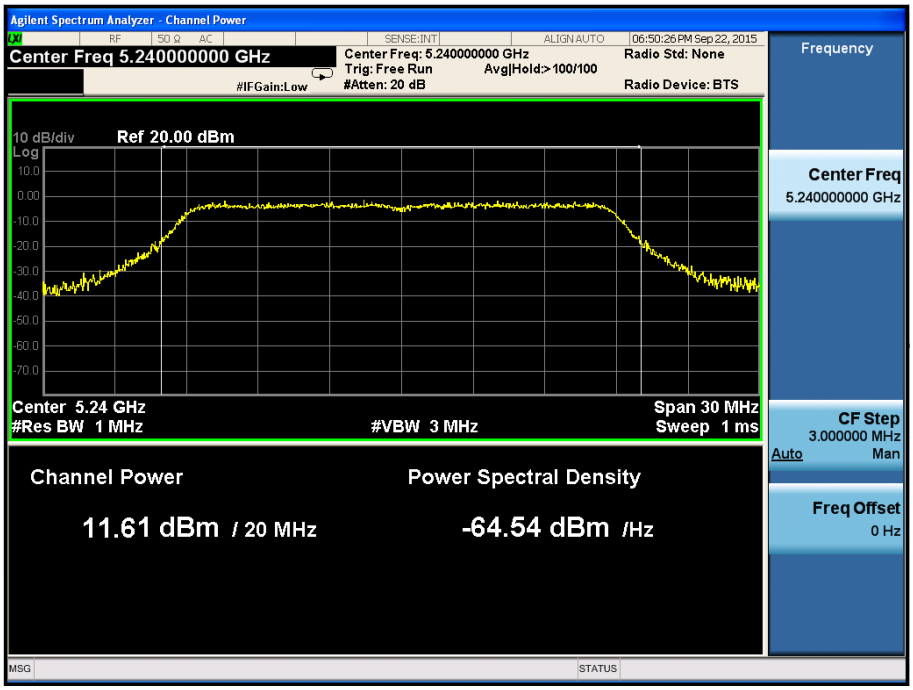
5180MHz



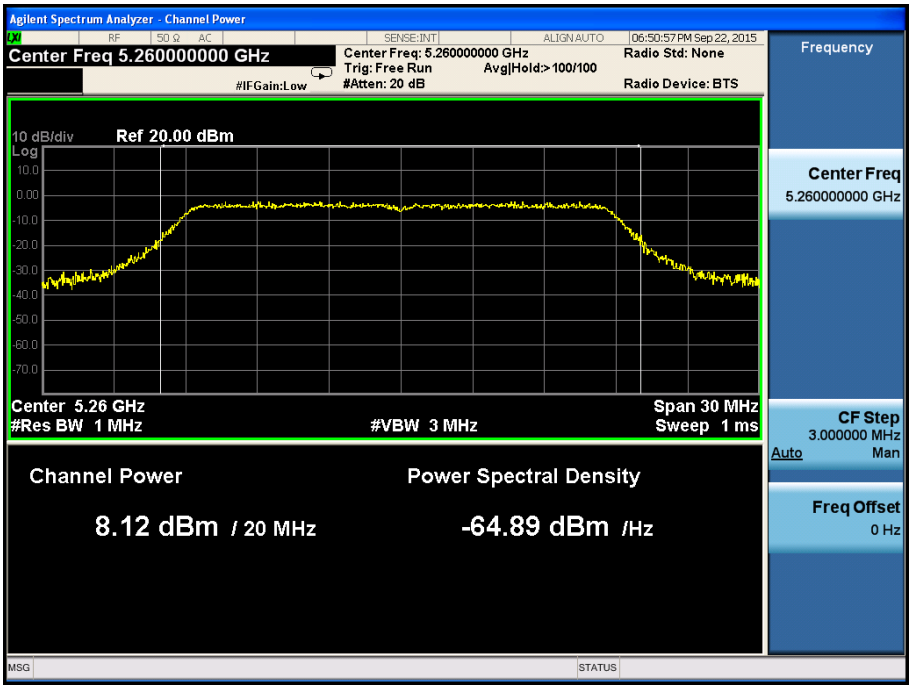
5200MHz



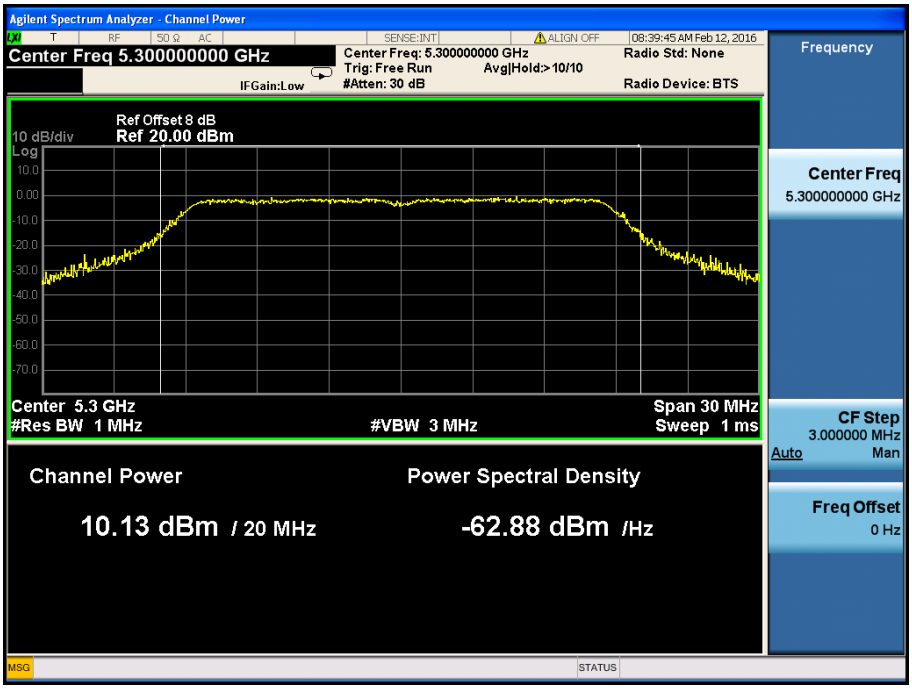
5240MHz



5260MHz



5300MHz



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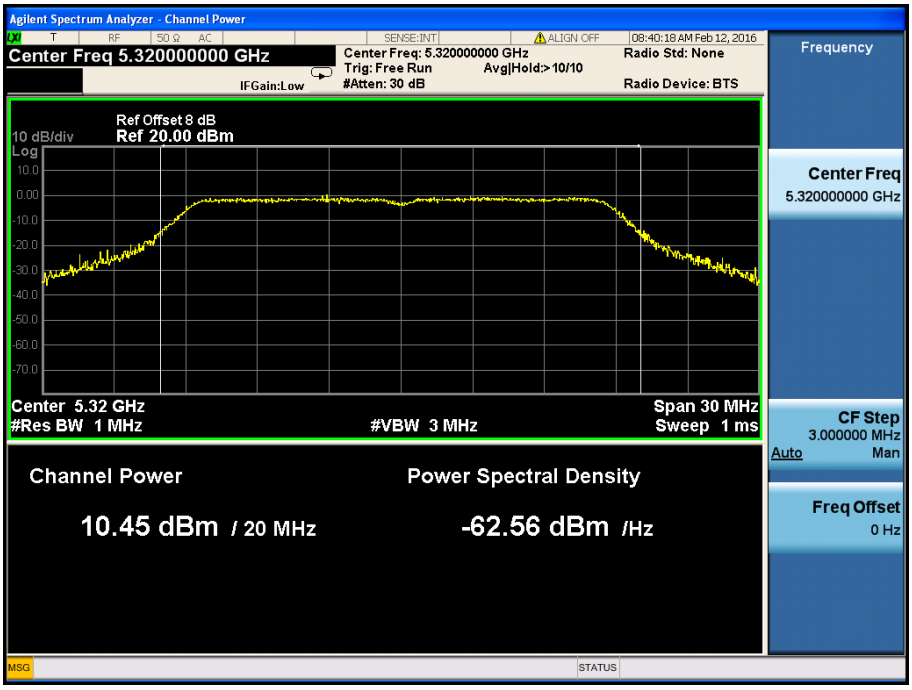

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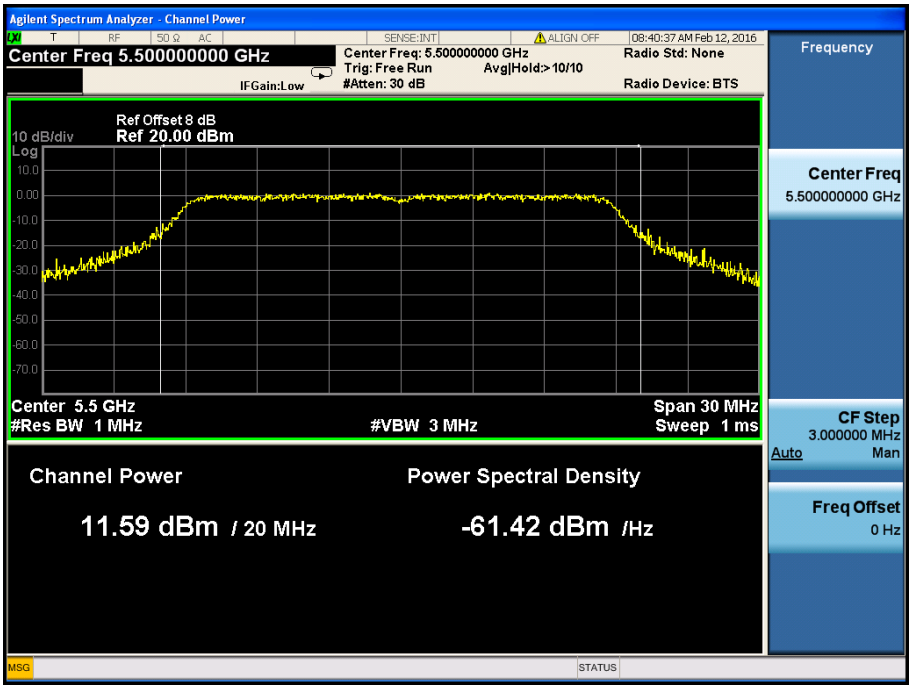
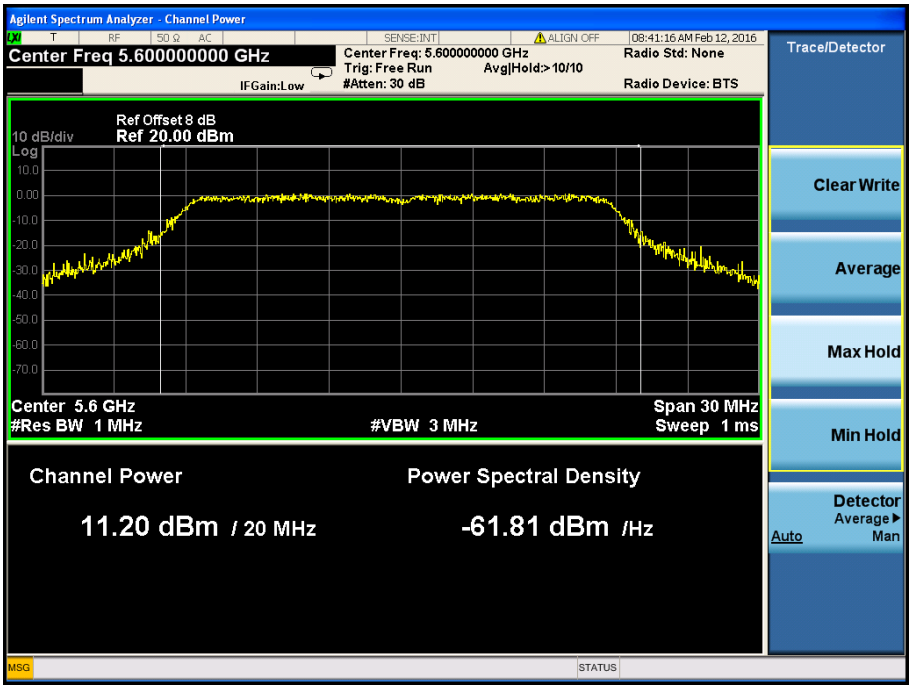
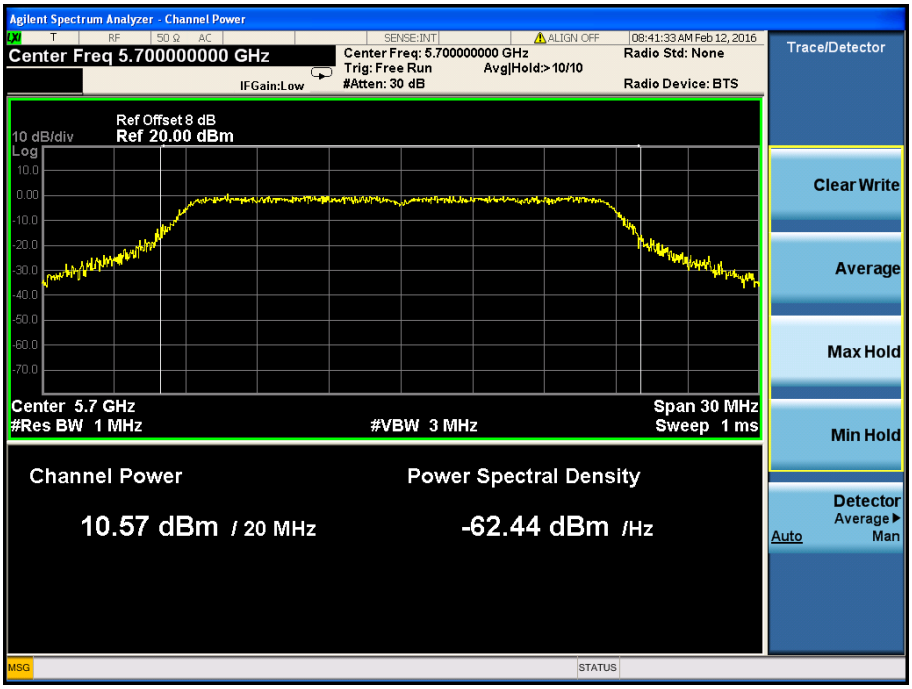


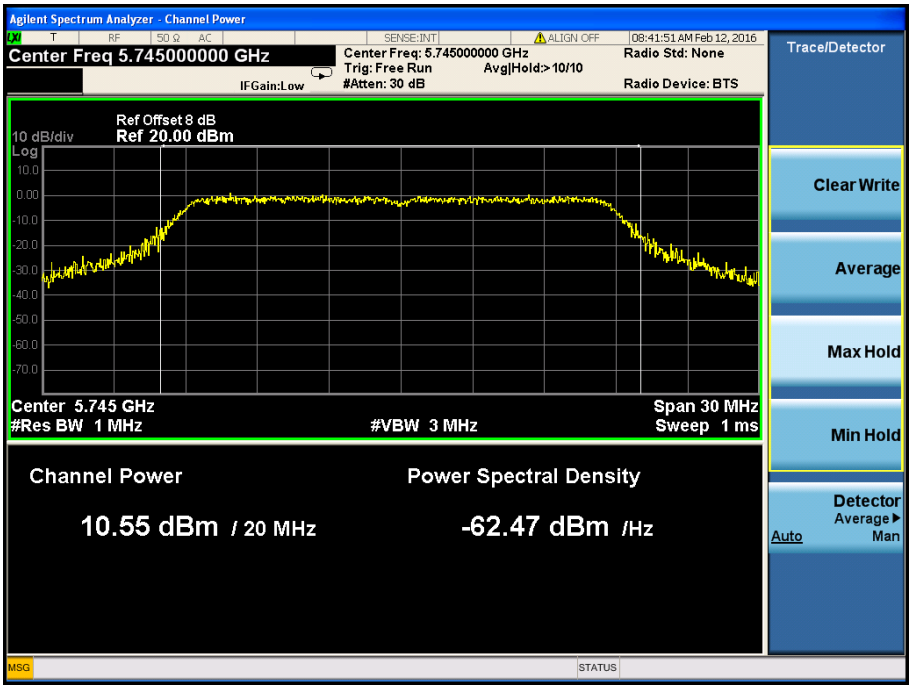
5600MHz



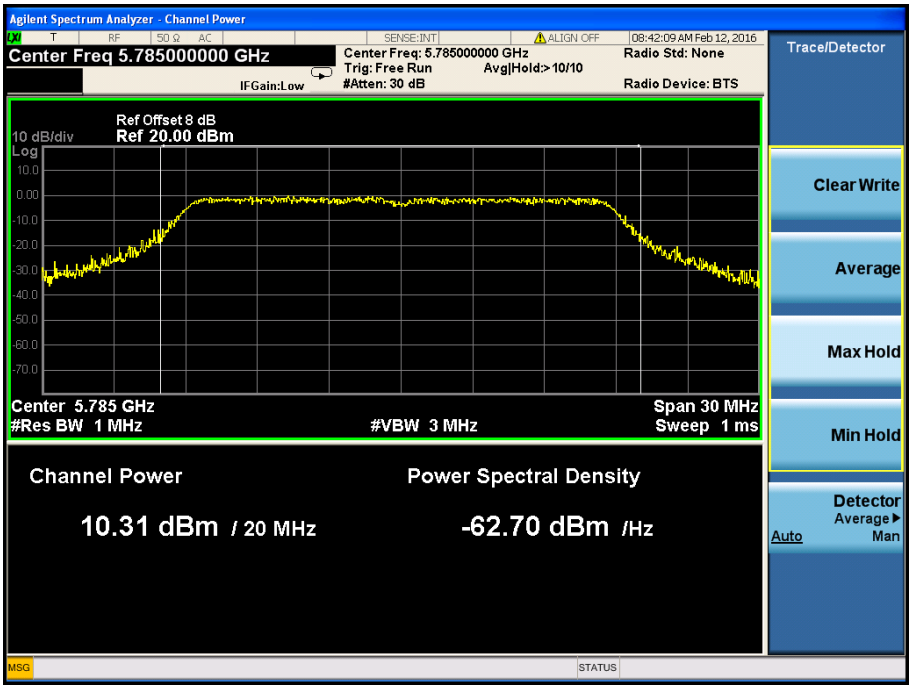
5700MHz



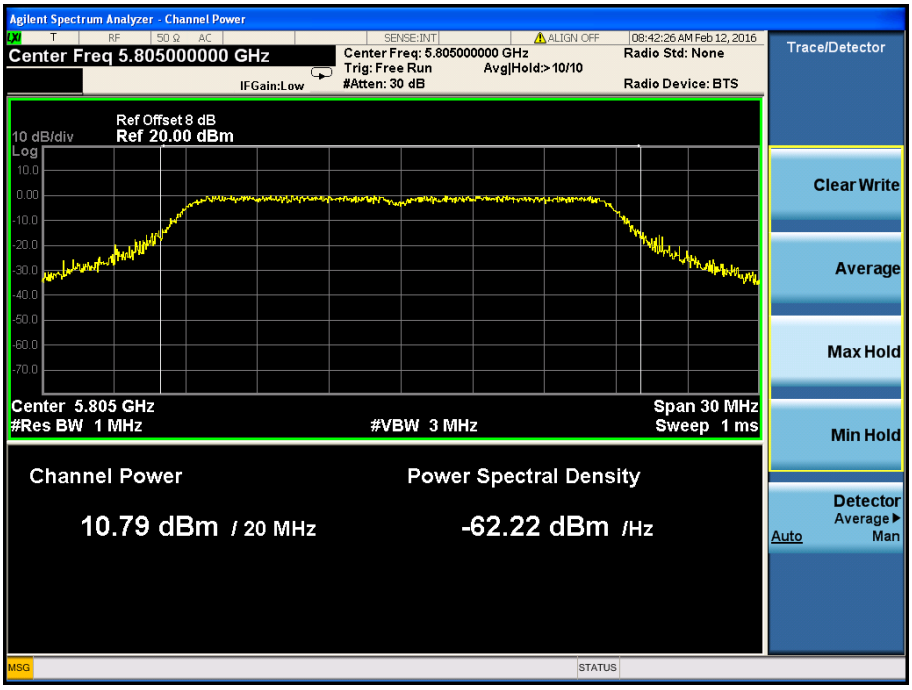
5745MHz



5785MHz

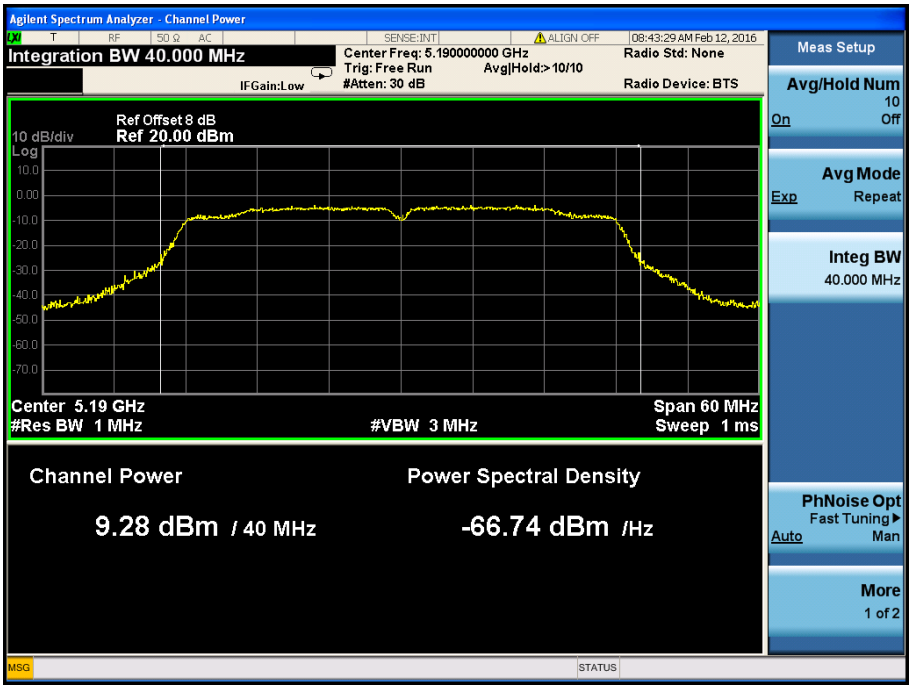


5805MHz

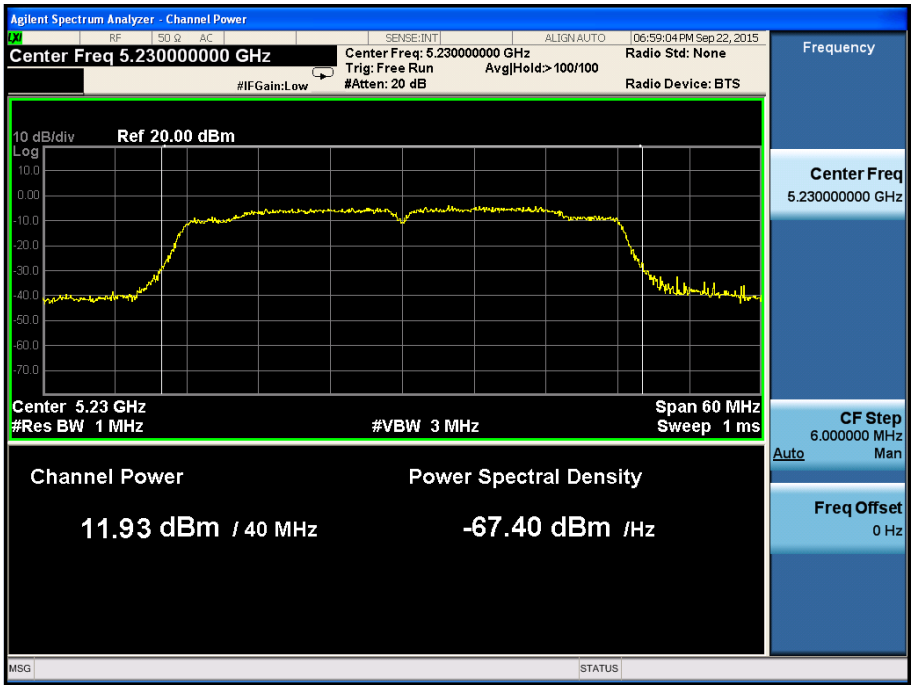


Test Mode: 802.11n-HT40

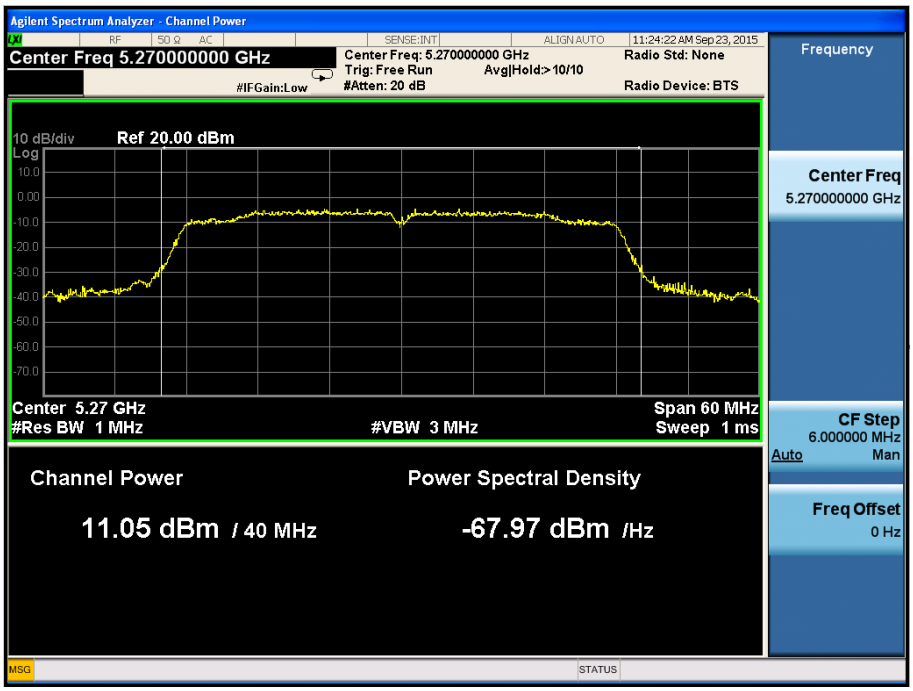
5190MHz



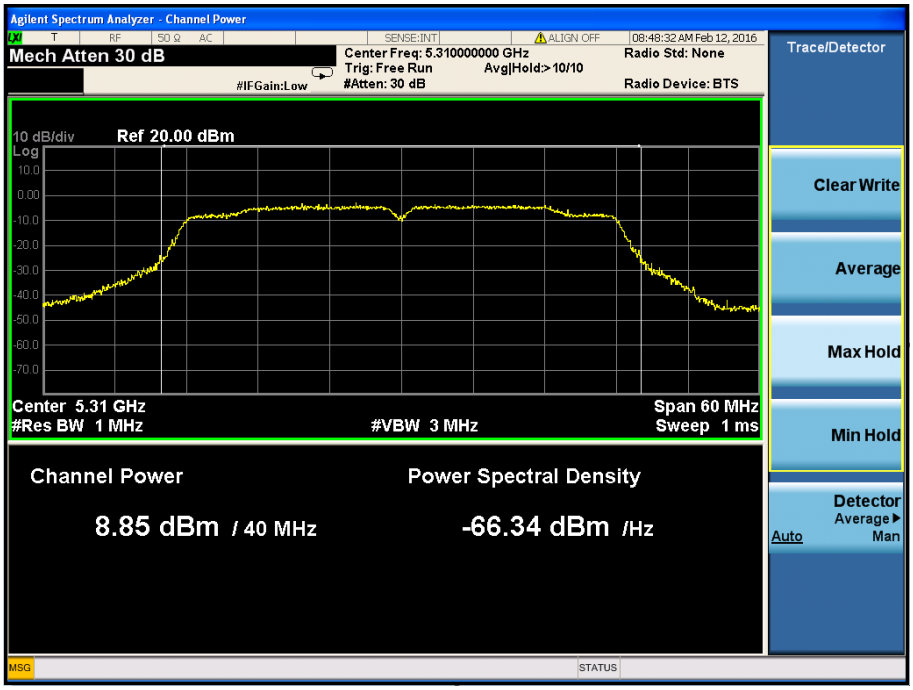
5230MHz



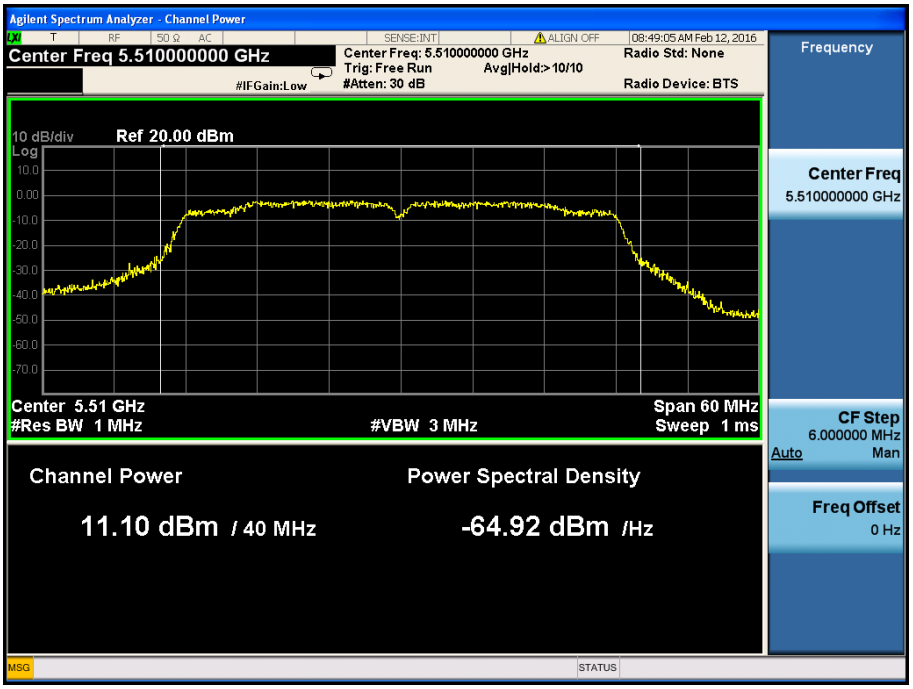
5270MHz



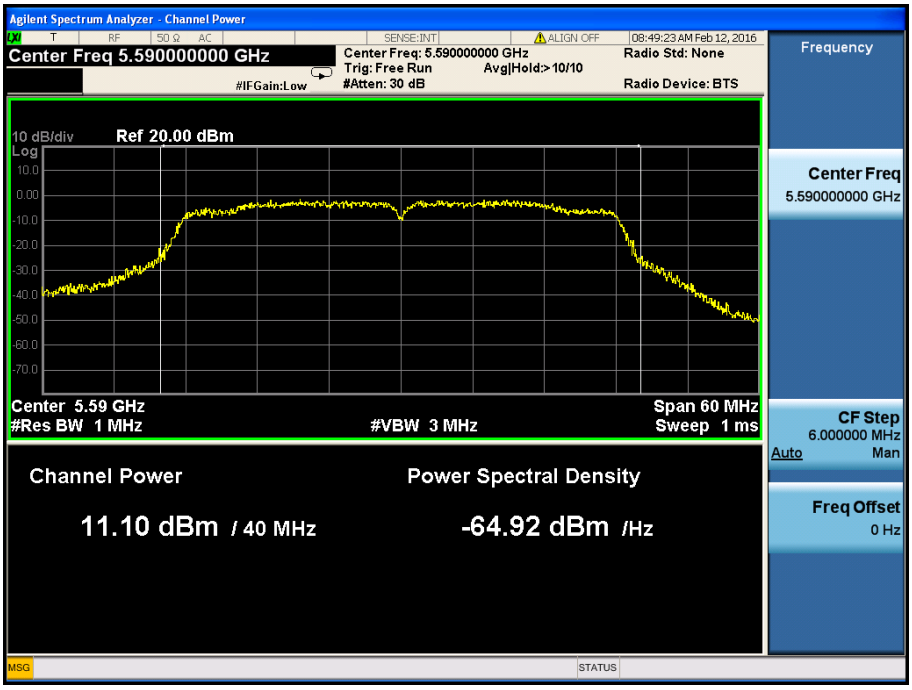
5310MHz



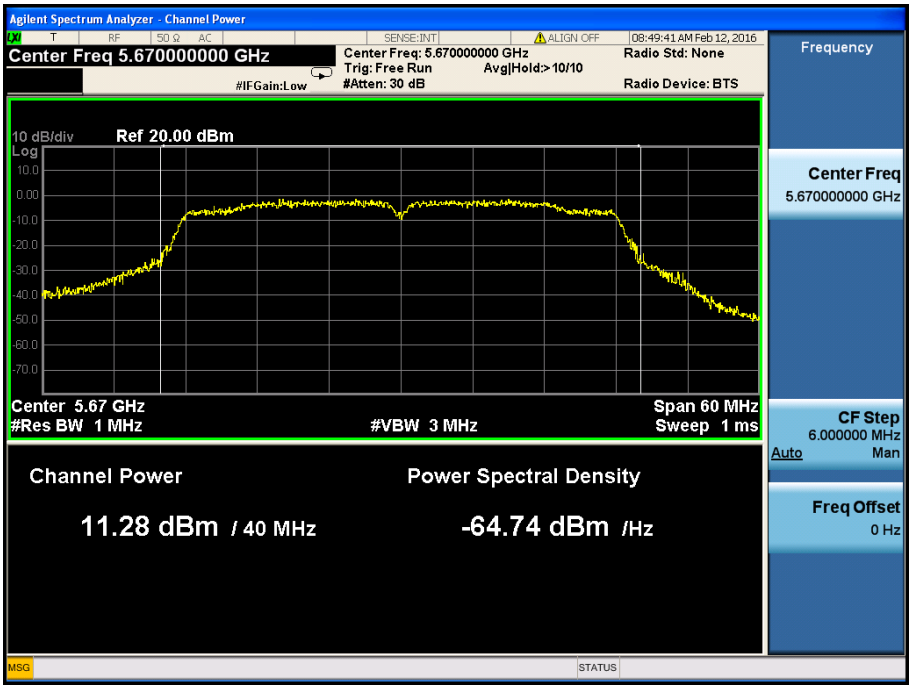
5510MHz



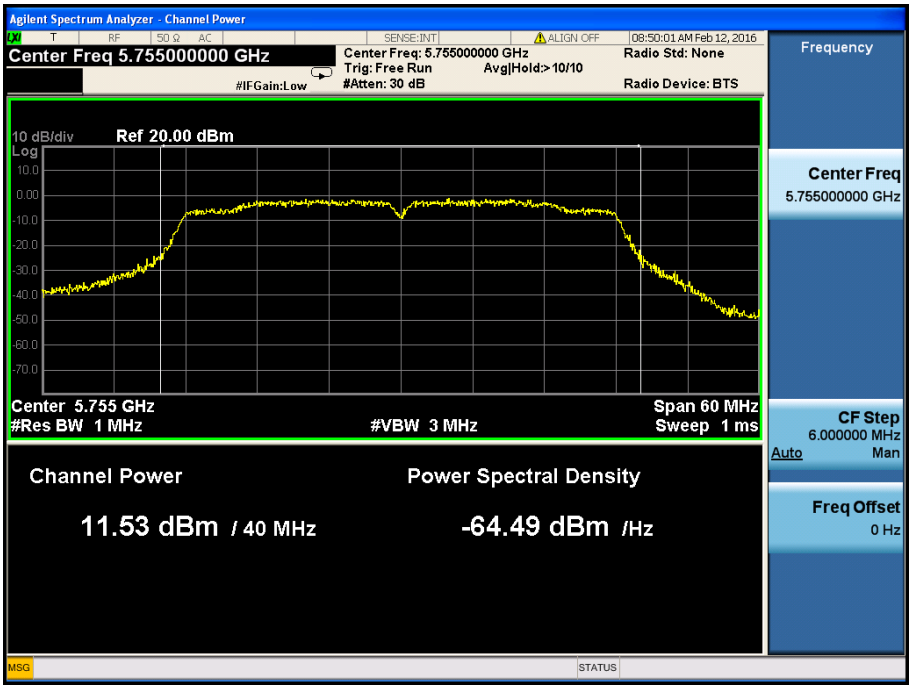
5590MHz



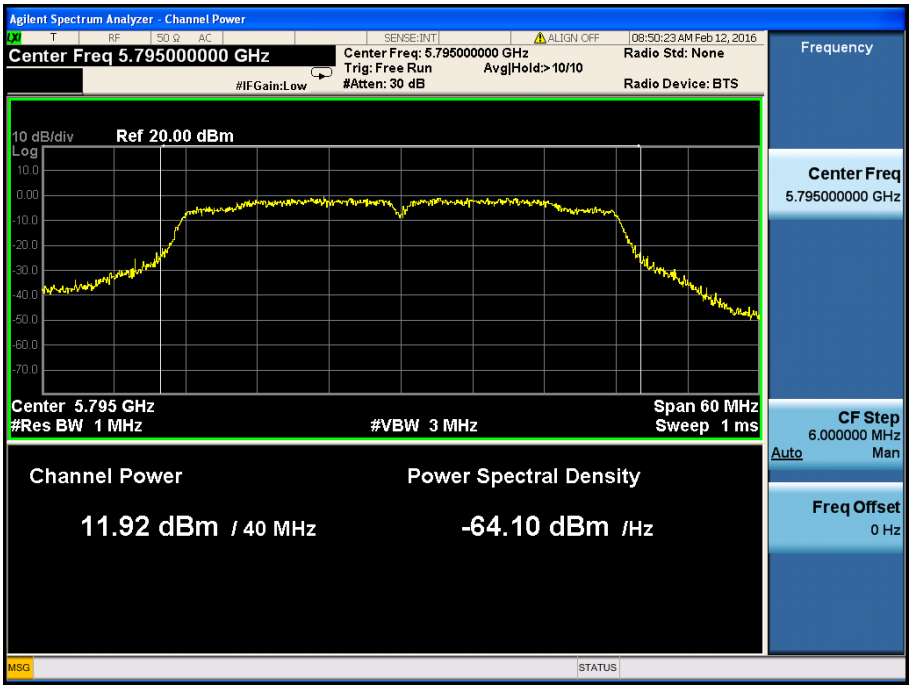
5670MHz



5755MHz

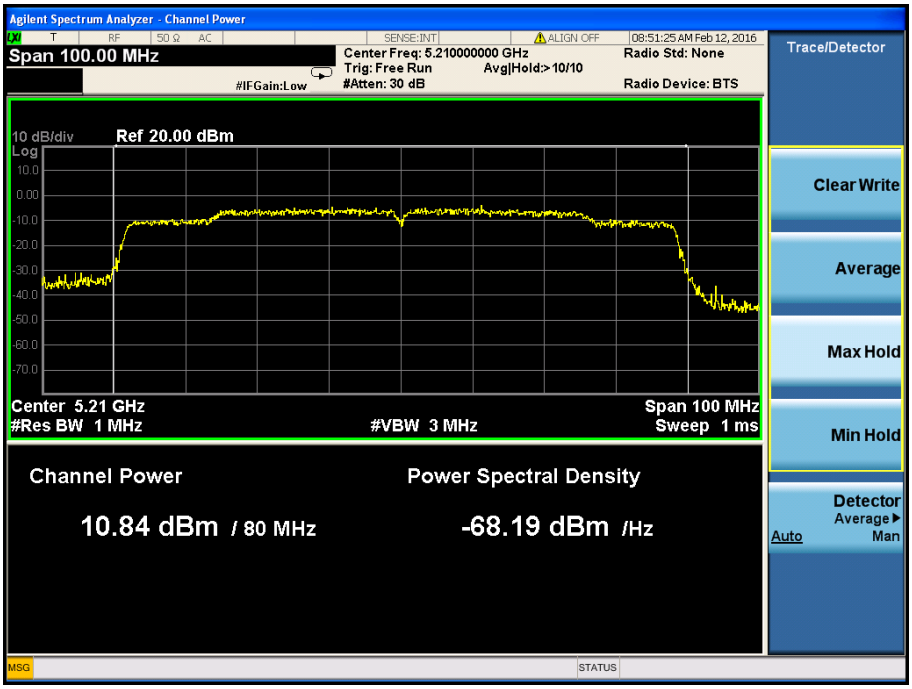


5795MHz

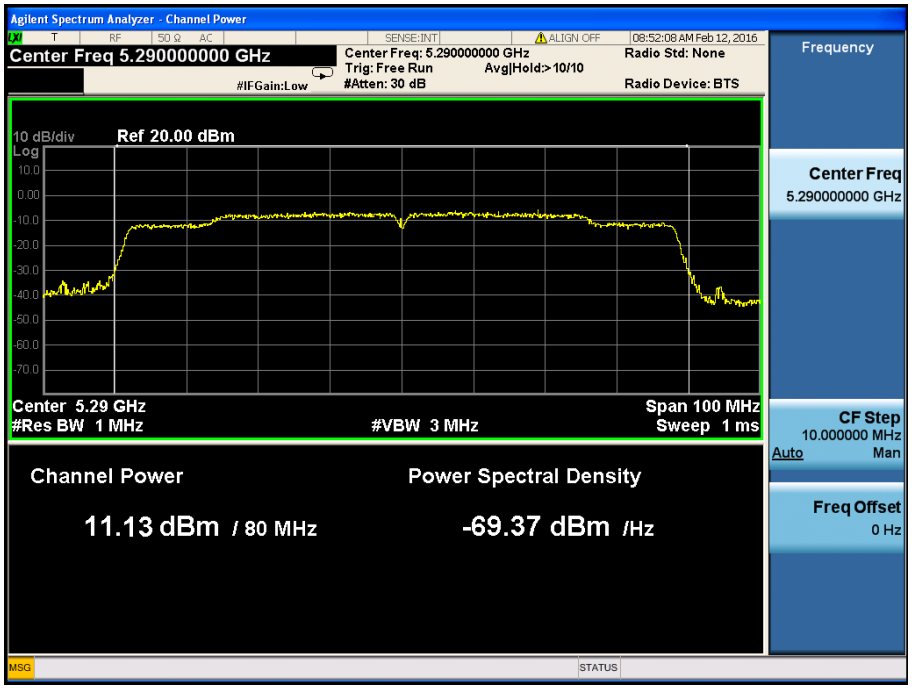


Test Mode: 802.11ac-HT80

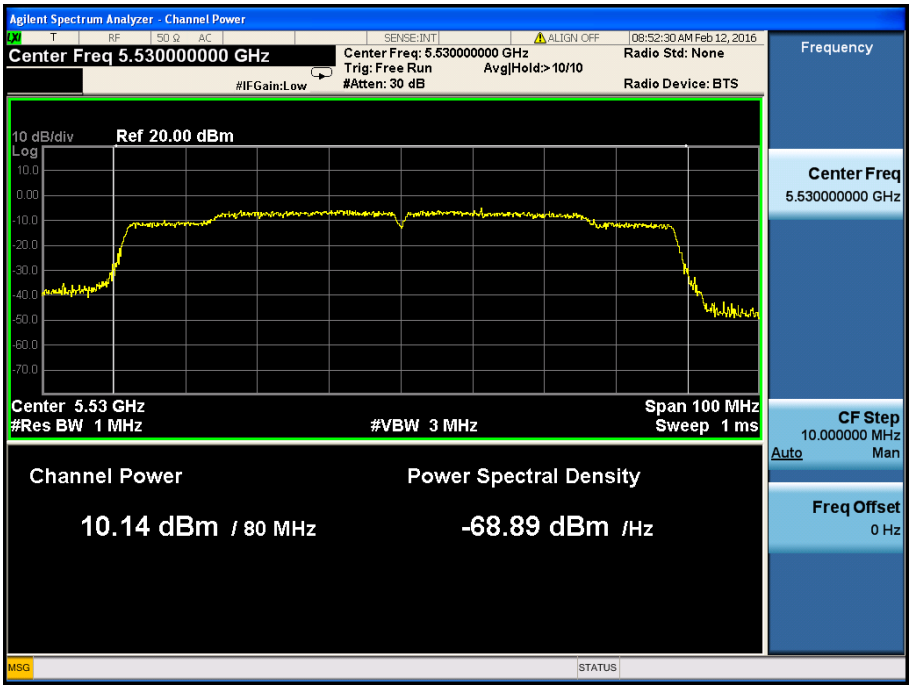
5210MHz



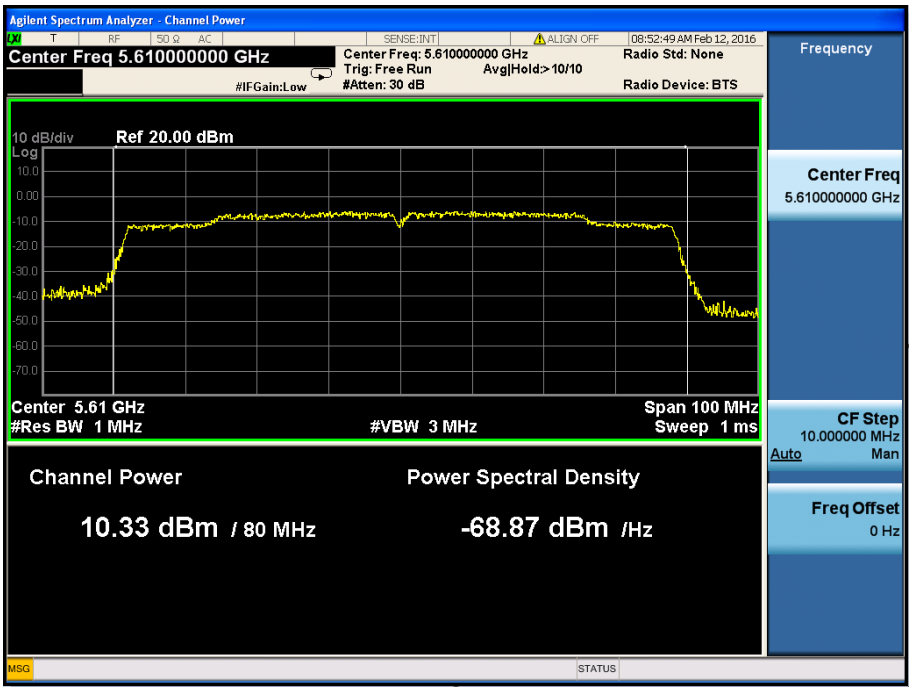
5290MHz



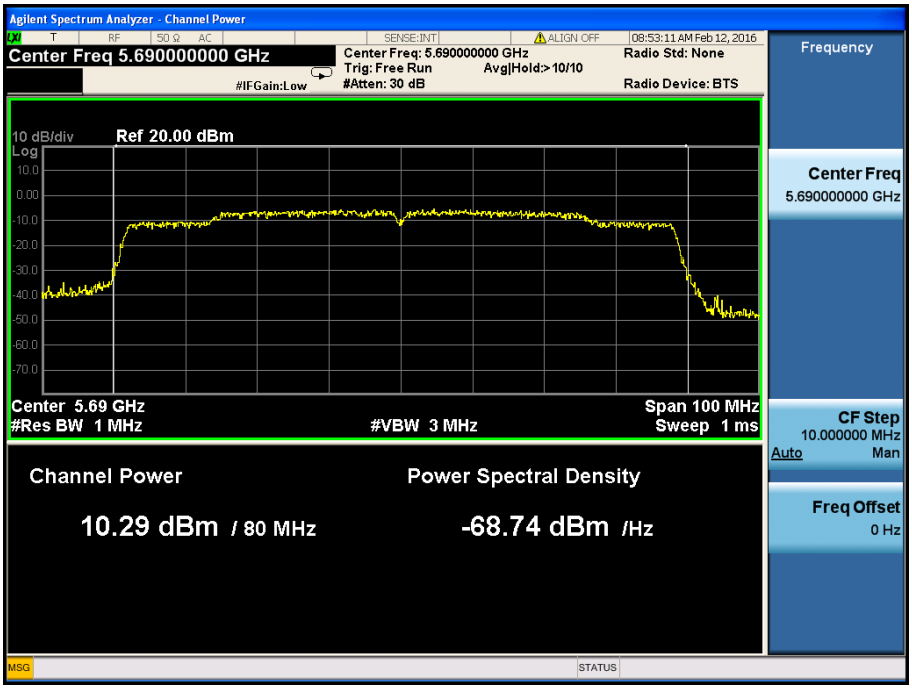
5530MHz



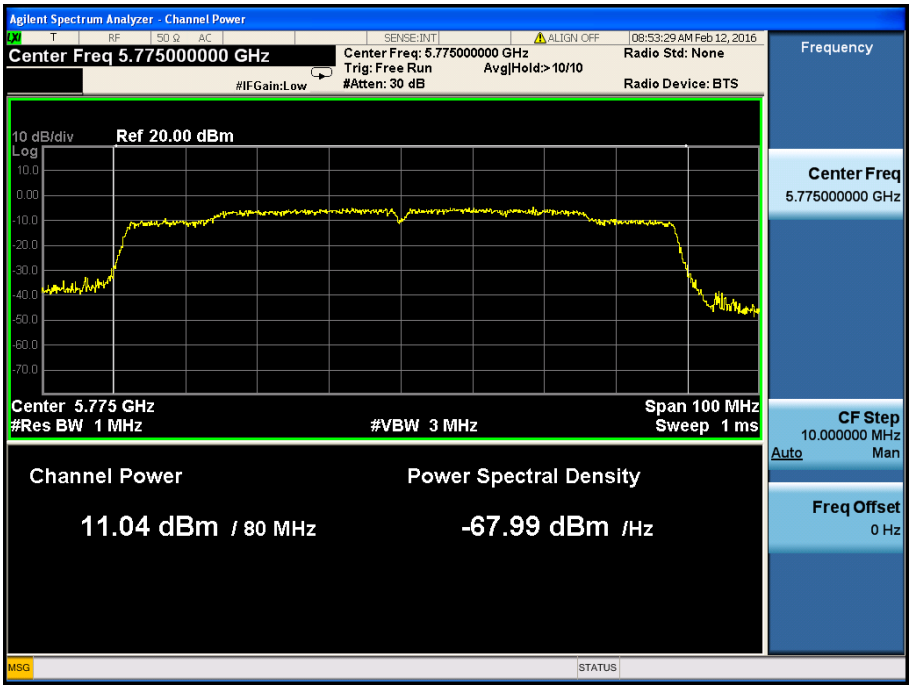
5610MHz



5690MHz



5775MHz



9. Conducted Spurious Emissions

9.1 Standard Applicable

According to §15.407 (b) (b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

9.2 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer via a RF combiner.
2. Set the spectrum analyzer as RBW = 100kHz/1MHz, VBW=300kHz/3MHz, Sweep = auto
3. Set the Lowest, Middle and Highest Transmitting Channel, observed the outside band of 9kHz to 40GHz, then mark the higher-level emission for comparing with the FCC rules.

9.3 Environmental Conditions

Temperature:	21° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

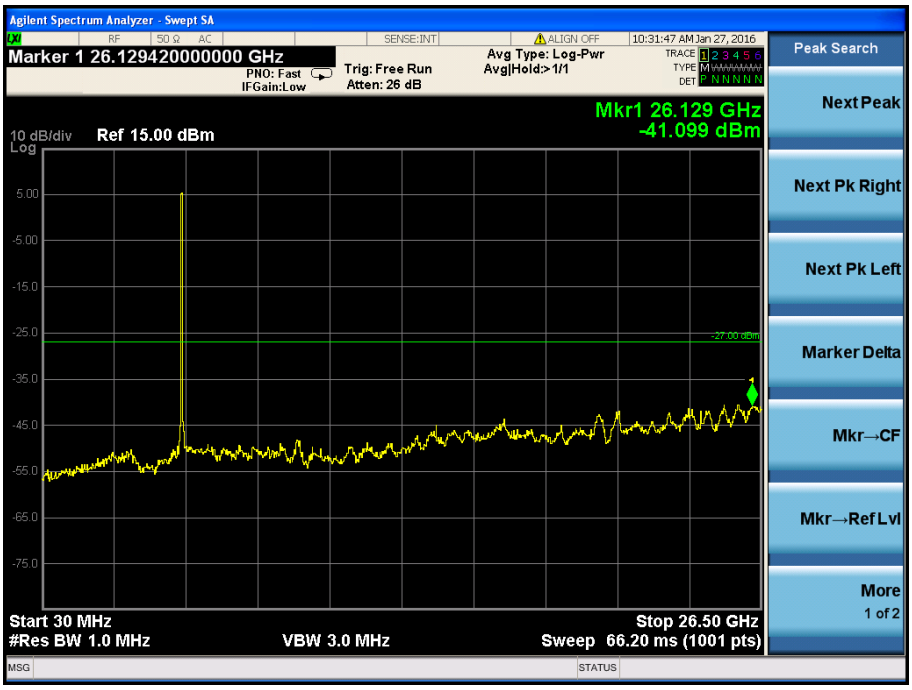
9.4 Summary of Test Results/Plots

Emissions below 30MHz and above 26.5GHz are attenuated more than 20dB below the permissible limits and test data are not reported.

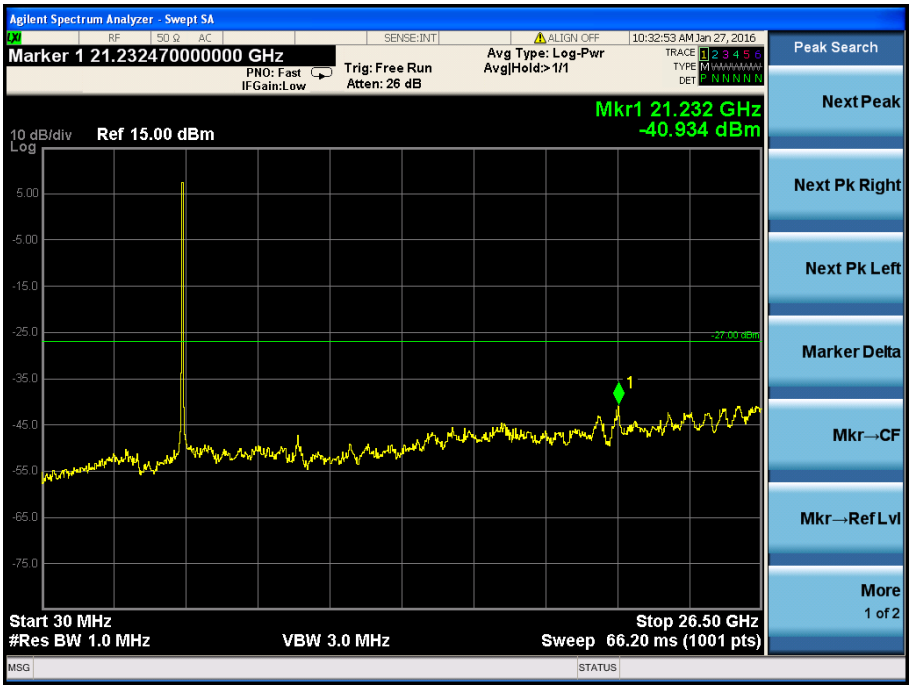
Antenna 1

Test Mode: 802.11a

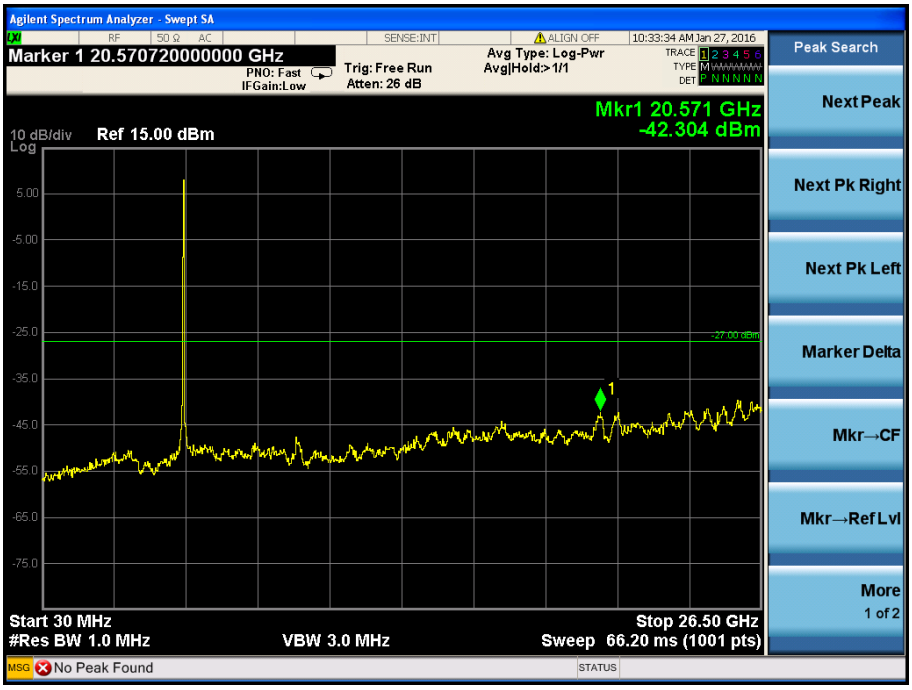
5180MHz



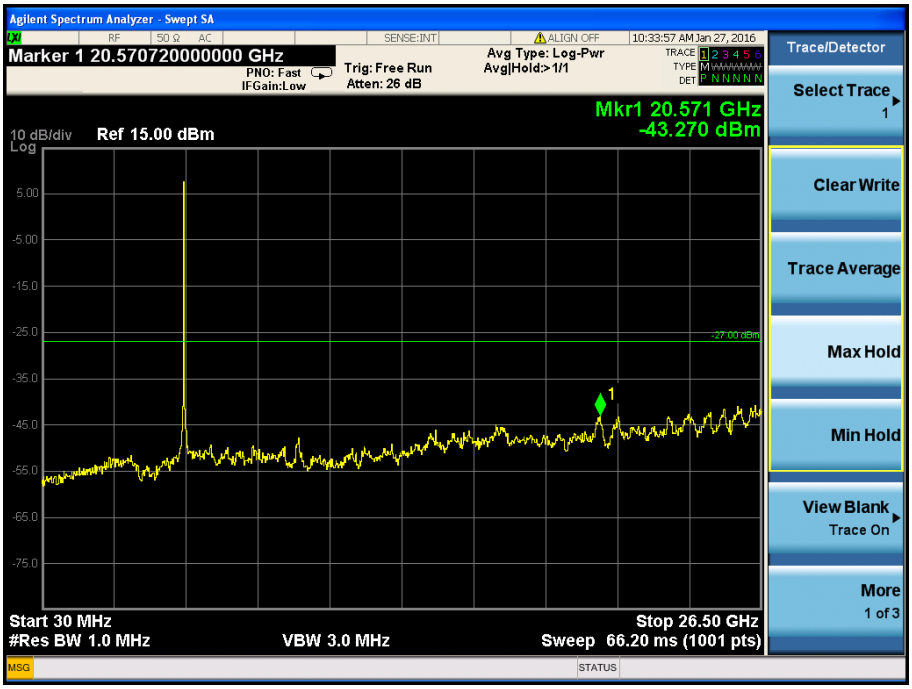
5200MHz



5240MHz

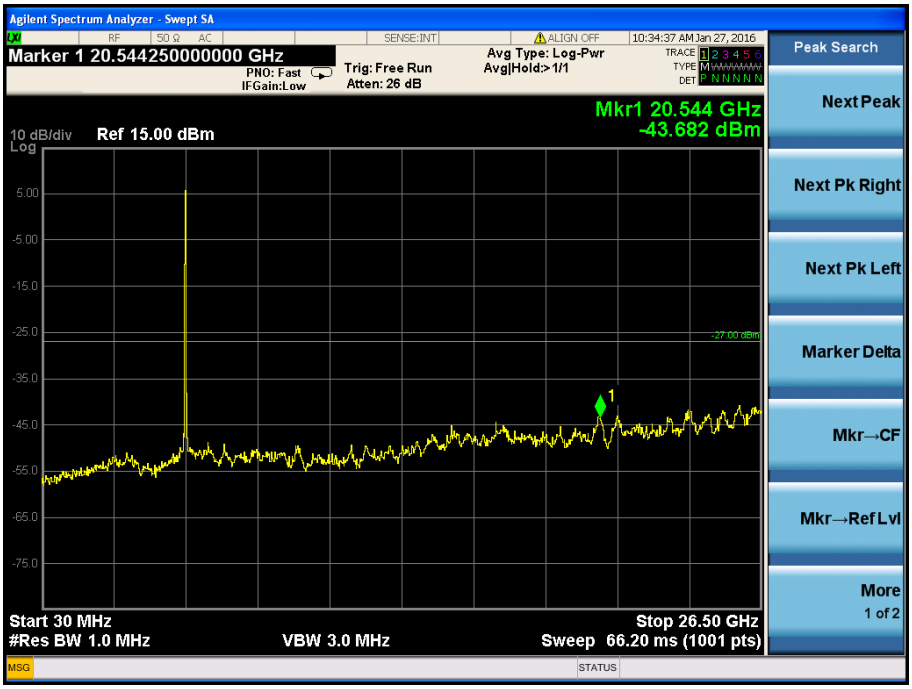


5260MHz

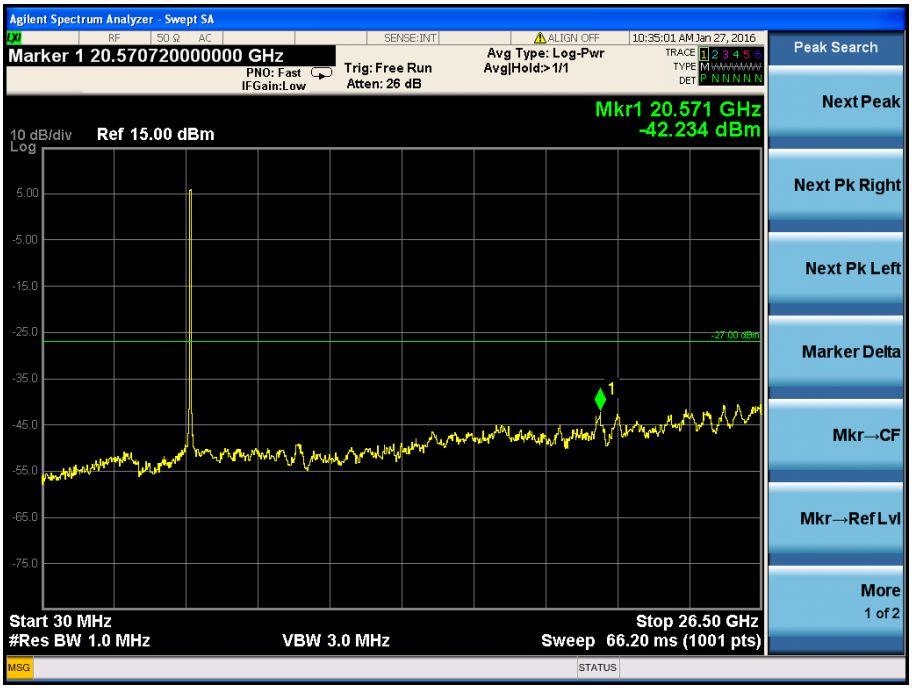


5300MHz

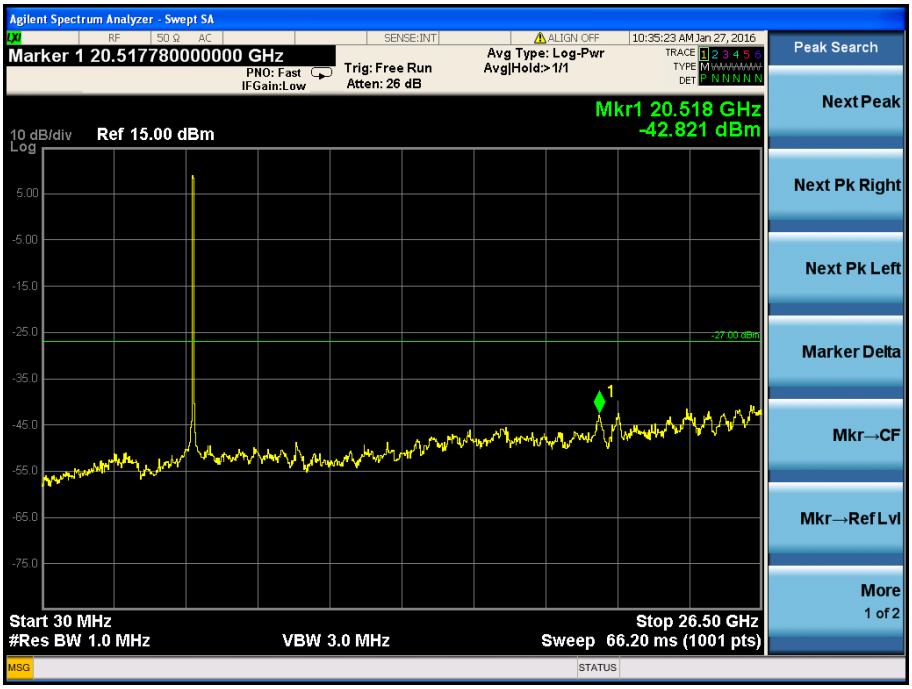
5320MHz



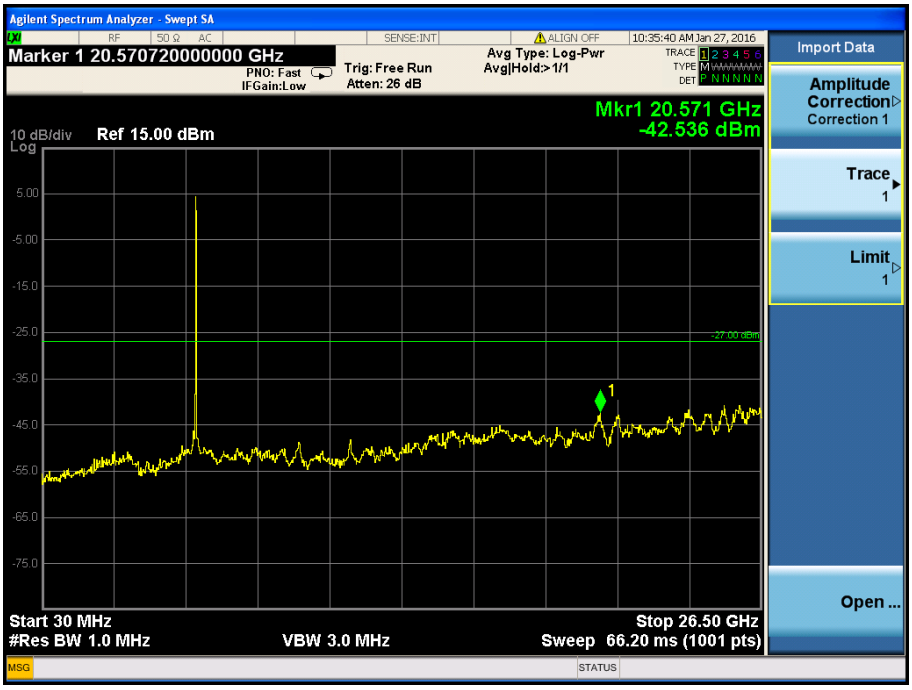
5500MHz



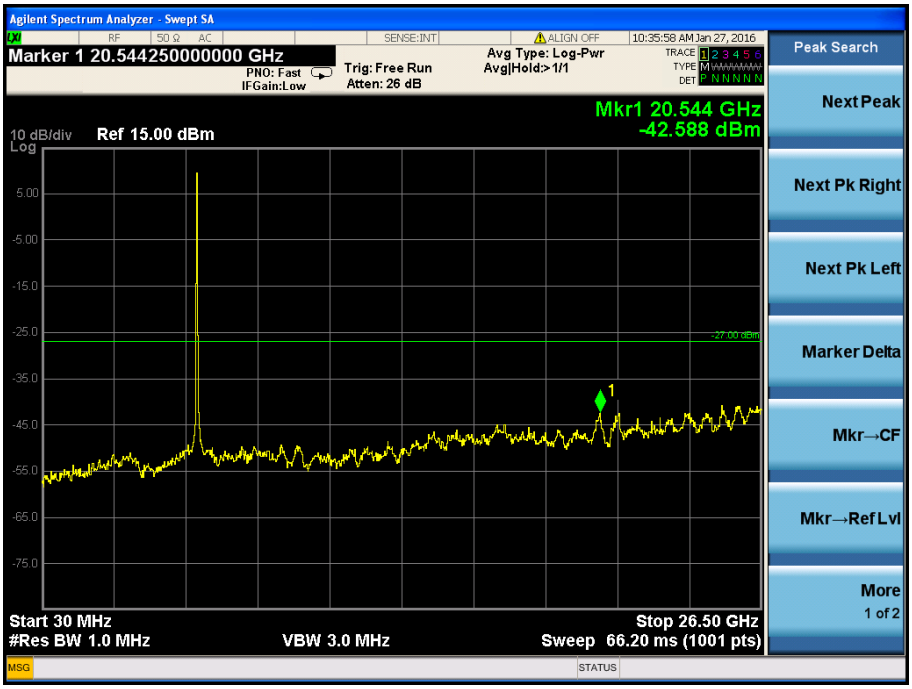
5600MHz



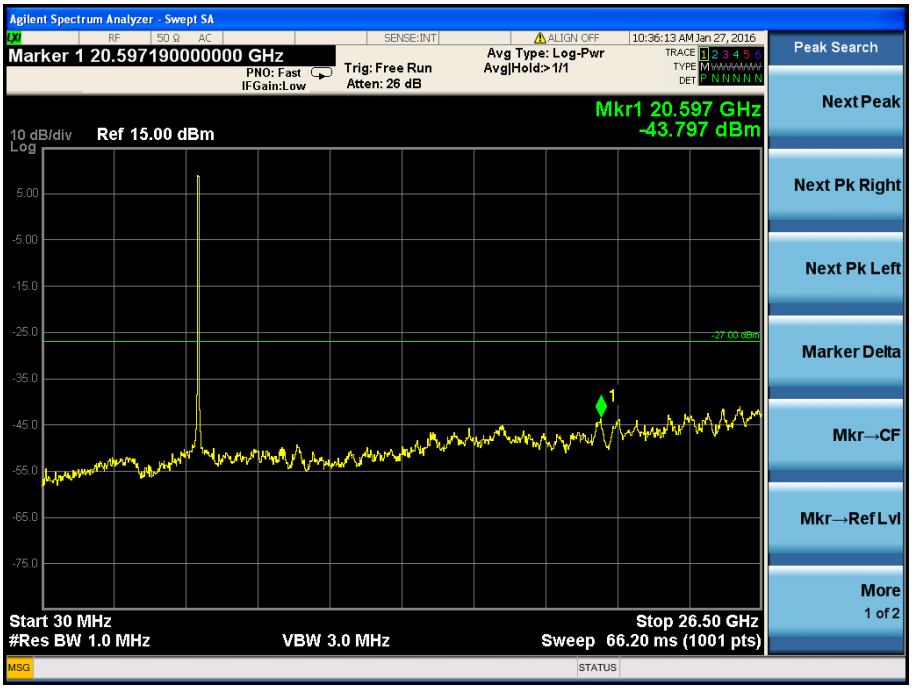
5700MHz



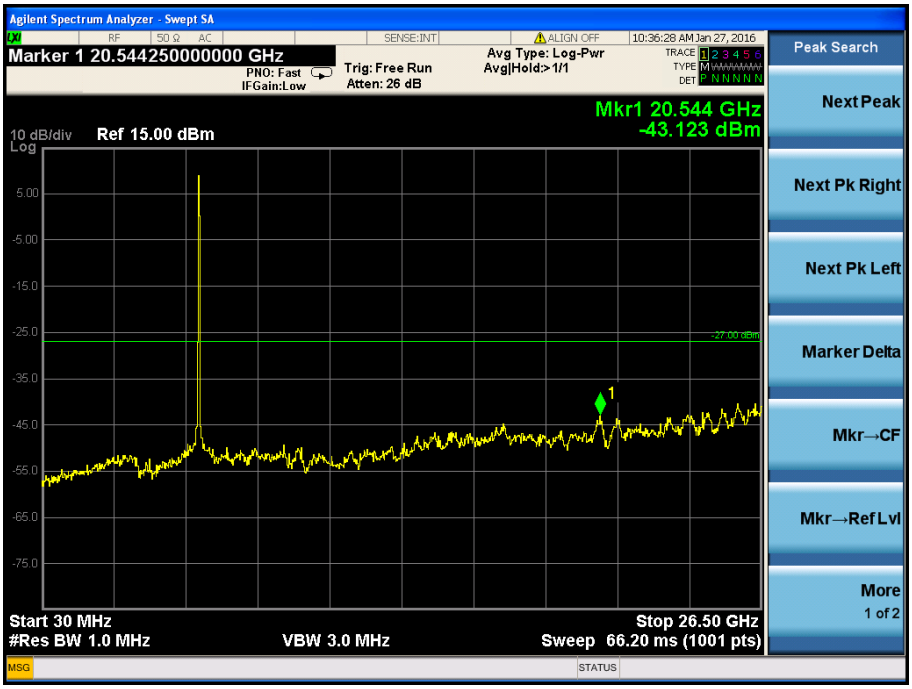
5745MHz



5785MHz

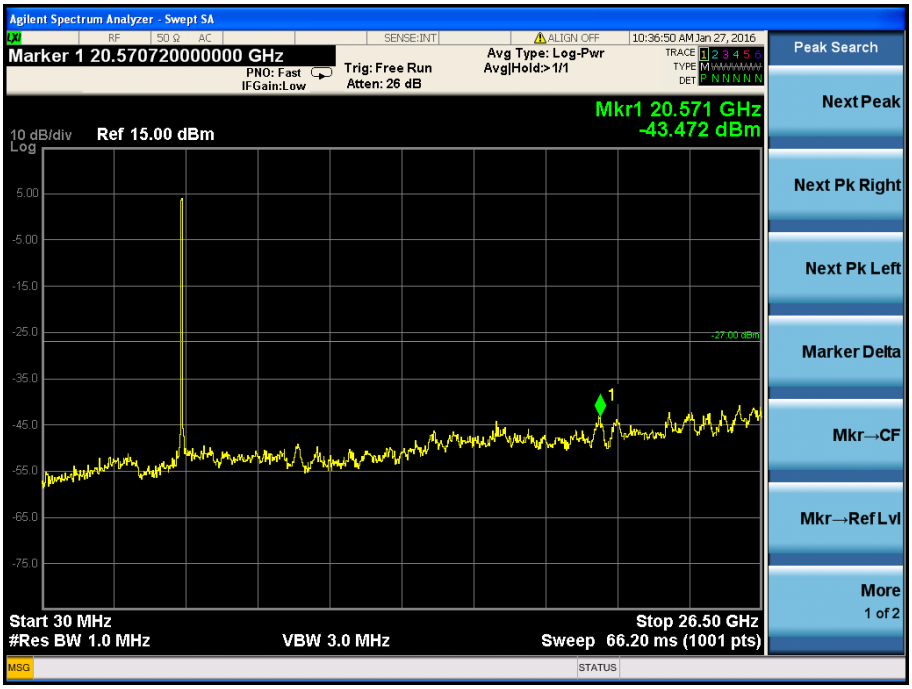


5805MHz

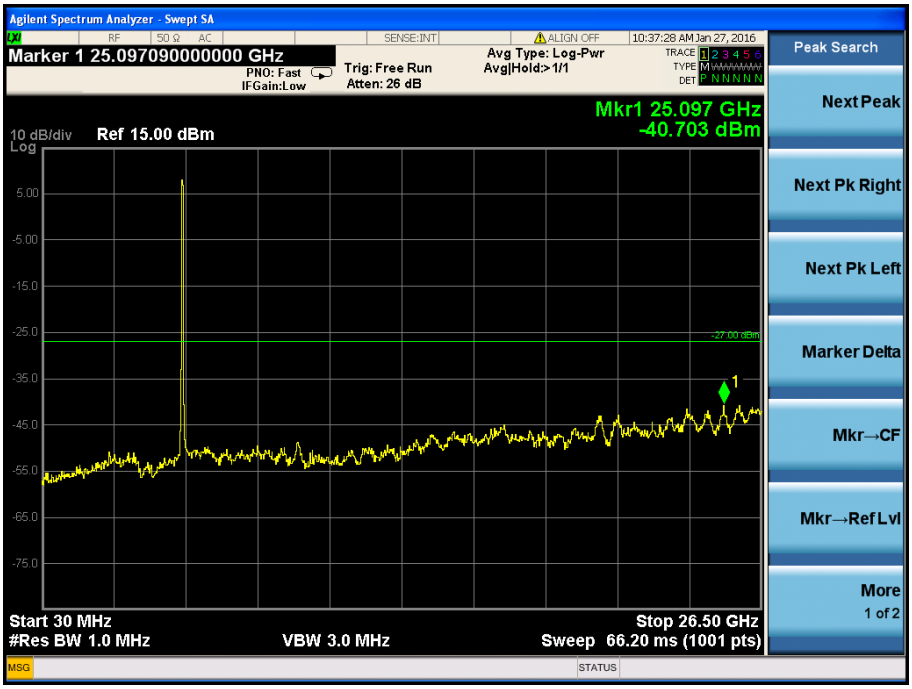


Test Mode: 802.11n-HT20

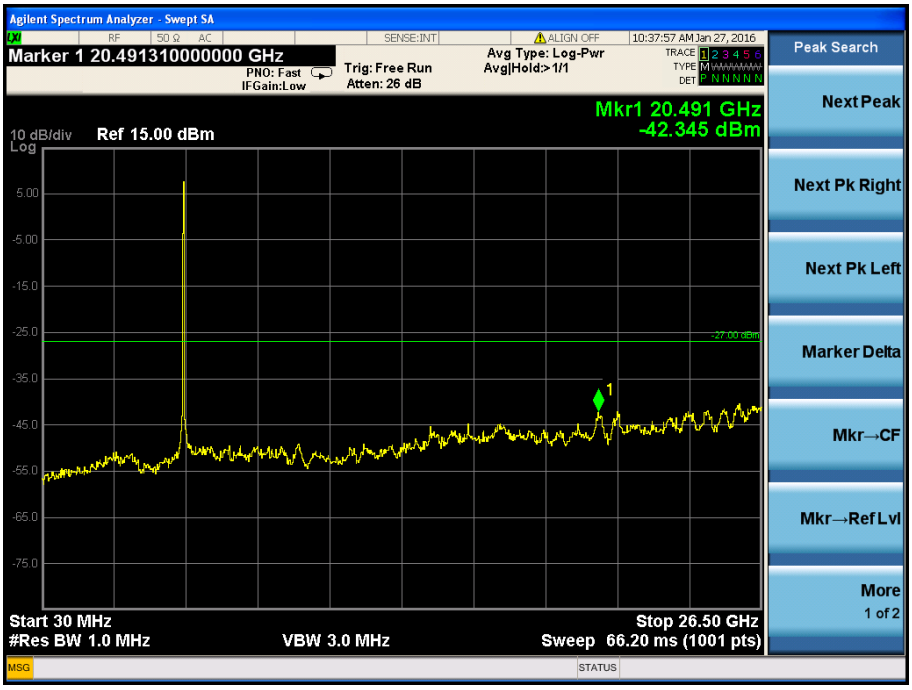
5180MHz



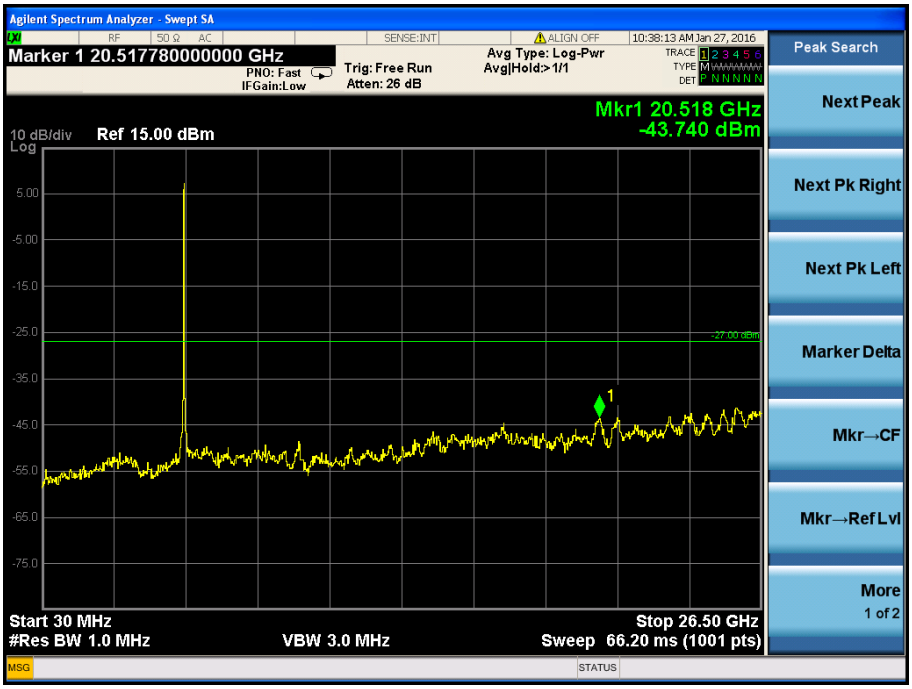
5200MHz



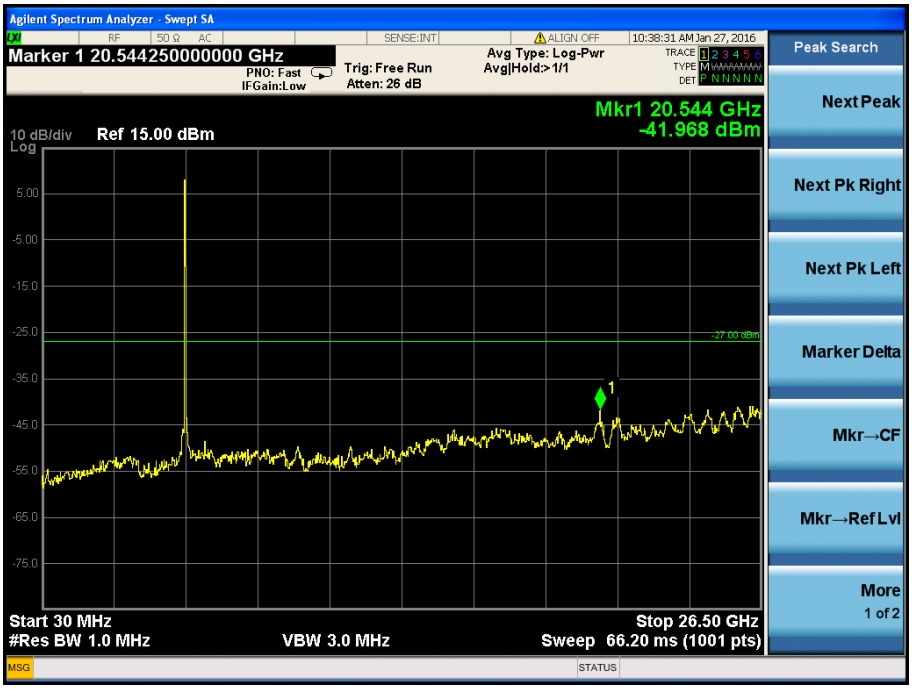
5240MHz



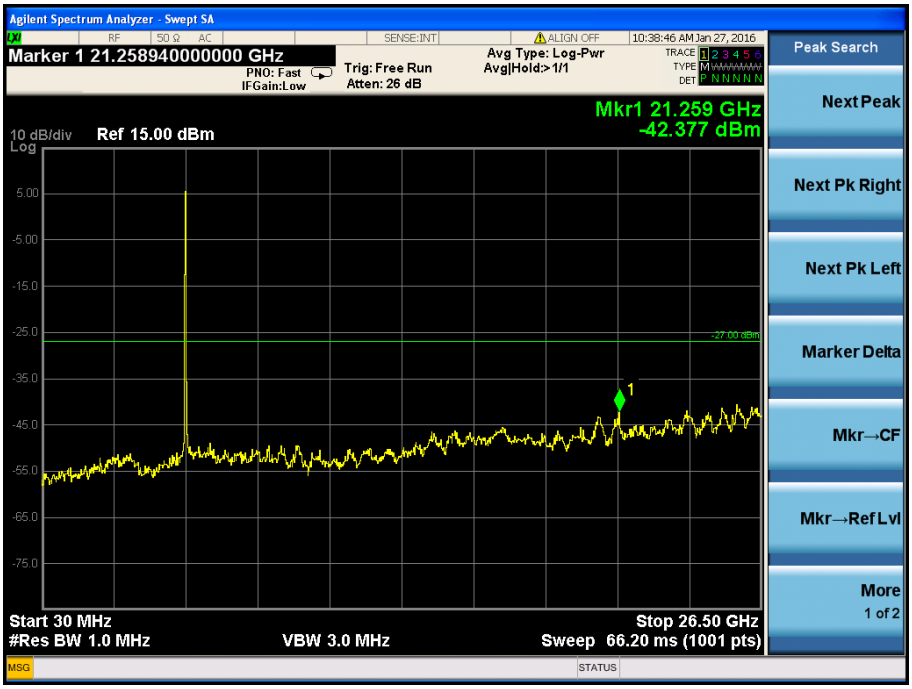
5260MHz



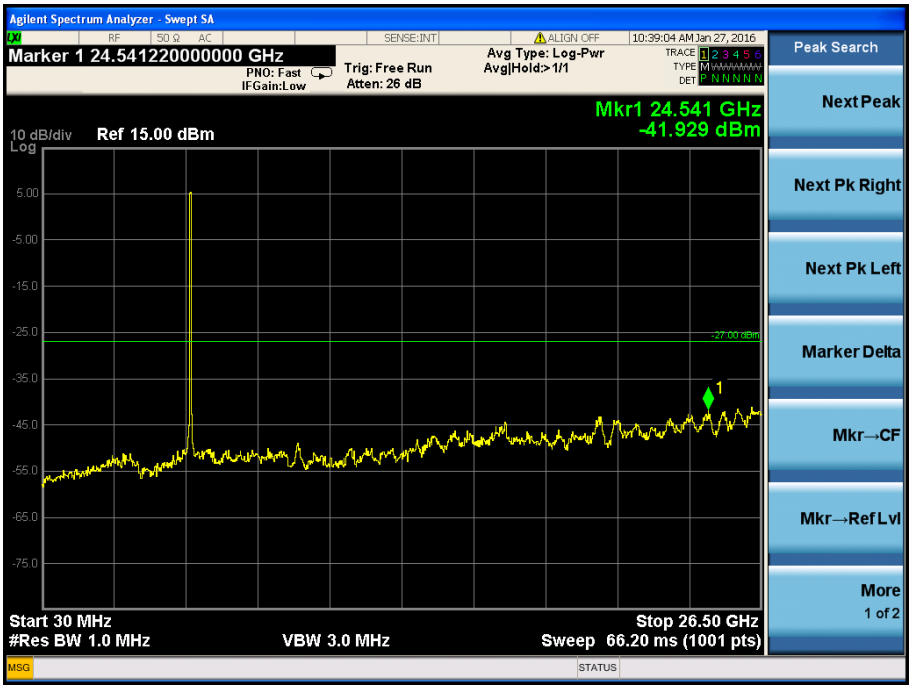
5300MHz



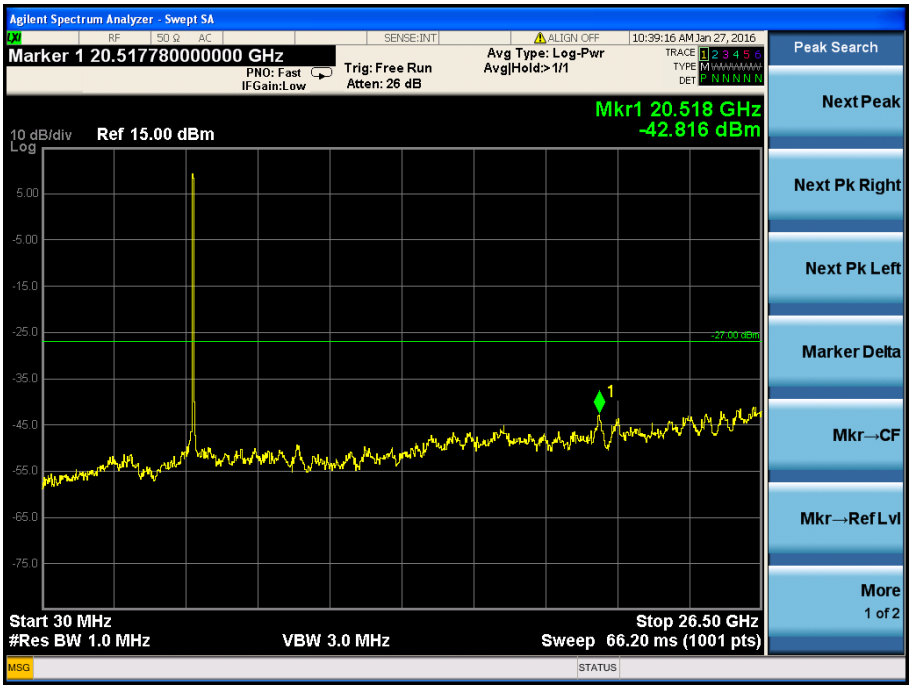
5320MHz



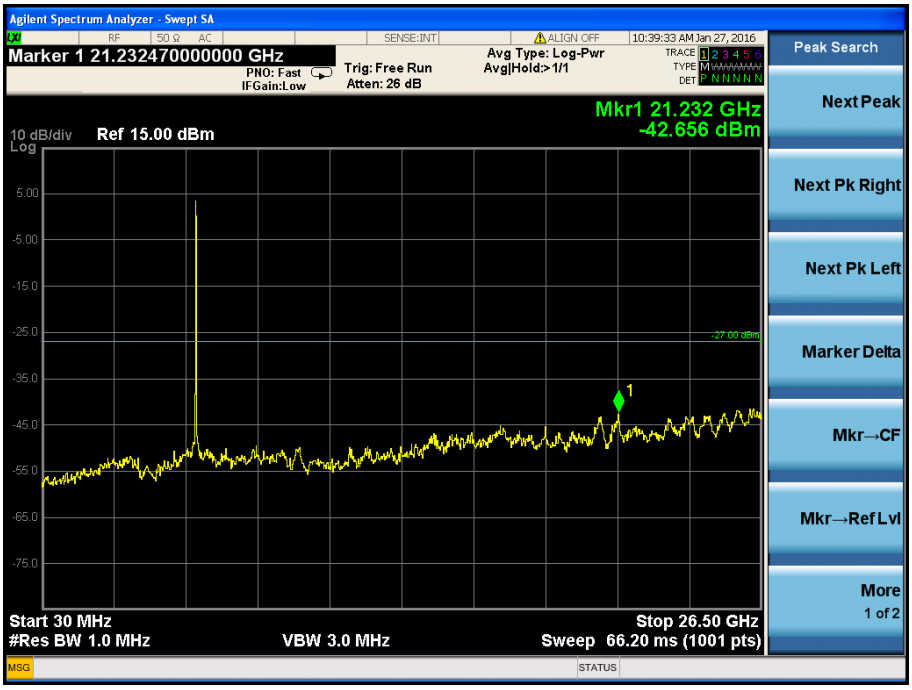
5500MHz



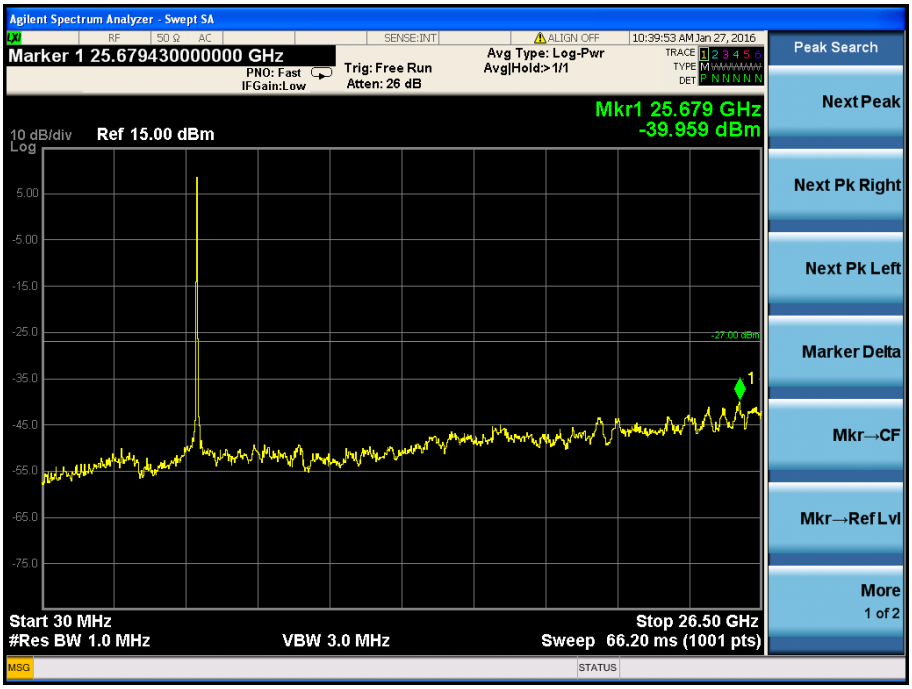
5600MHz



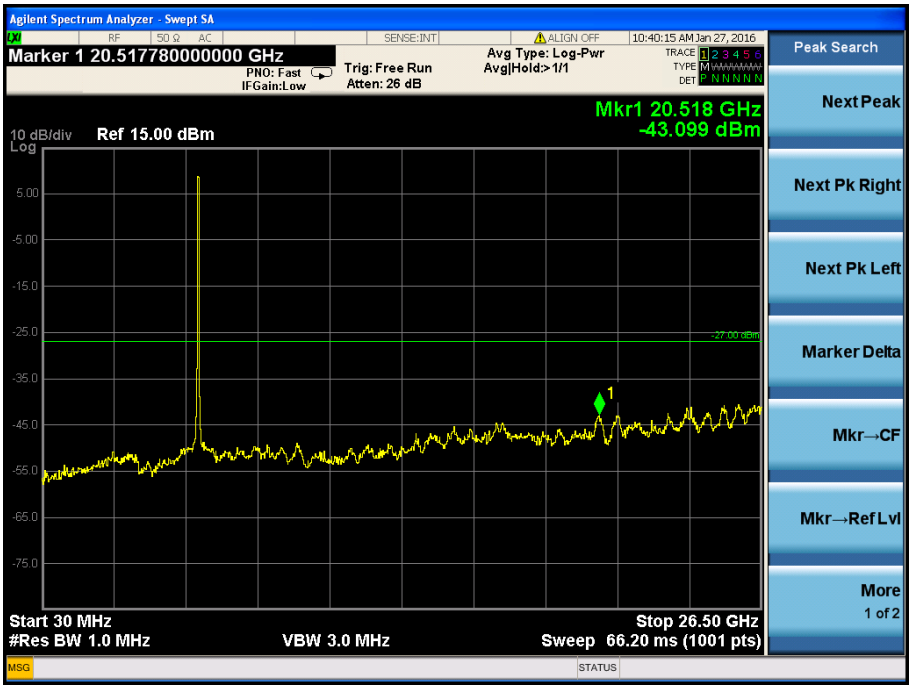
5700MHz



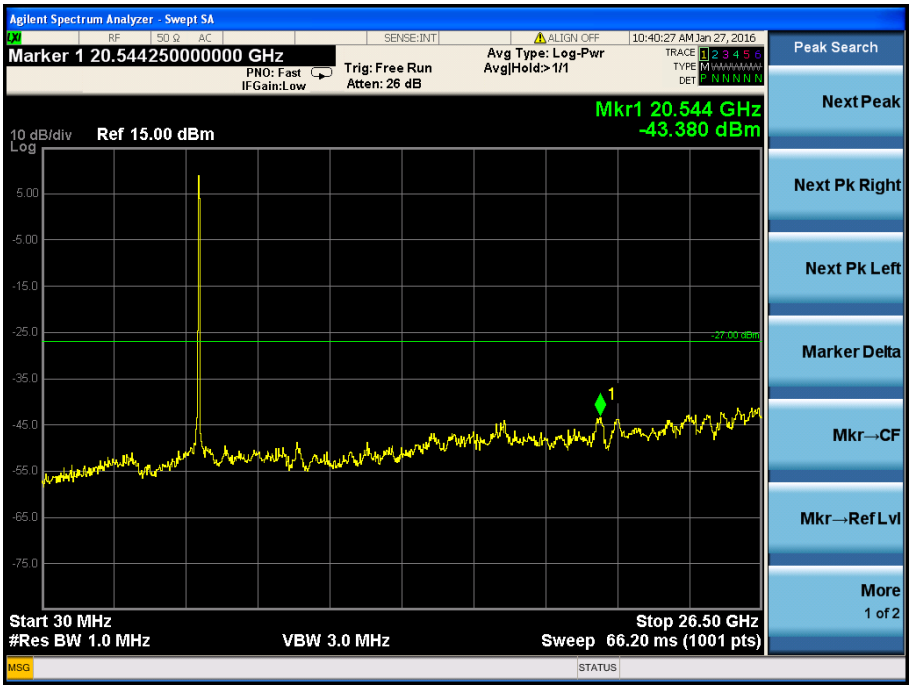
5745MHz



5785MHz

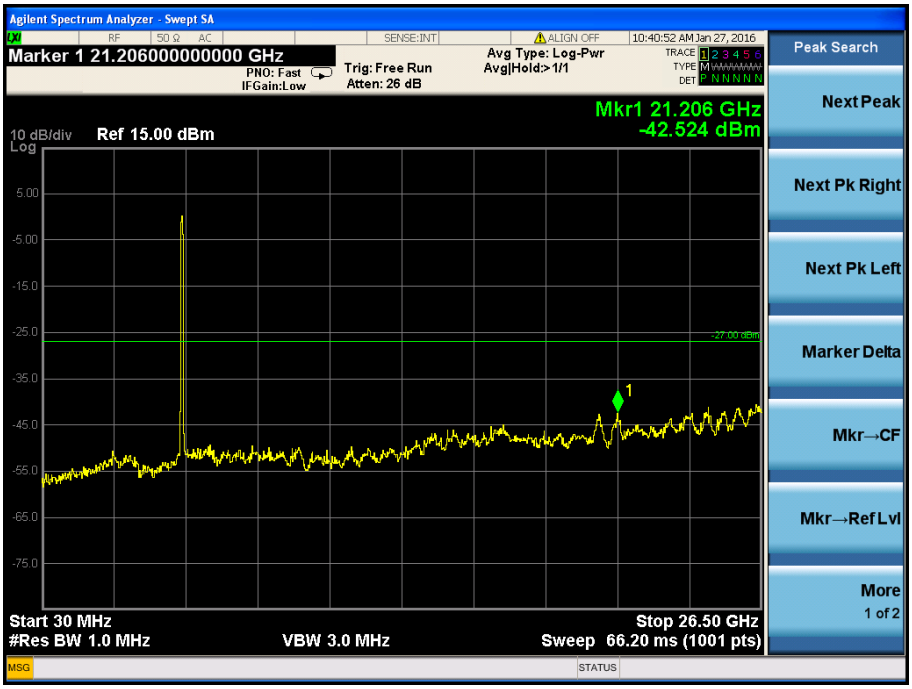


5805MHz

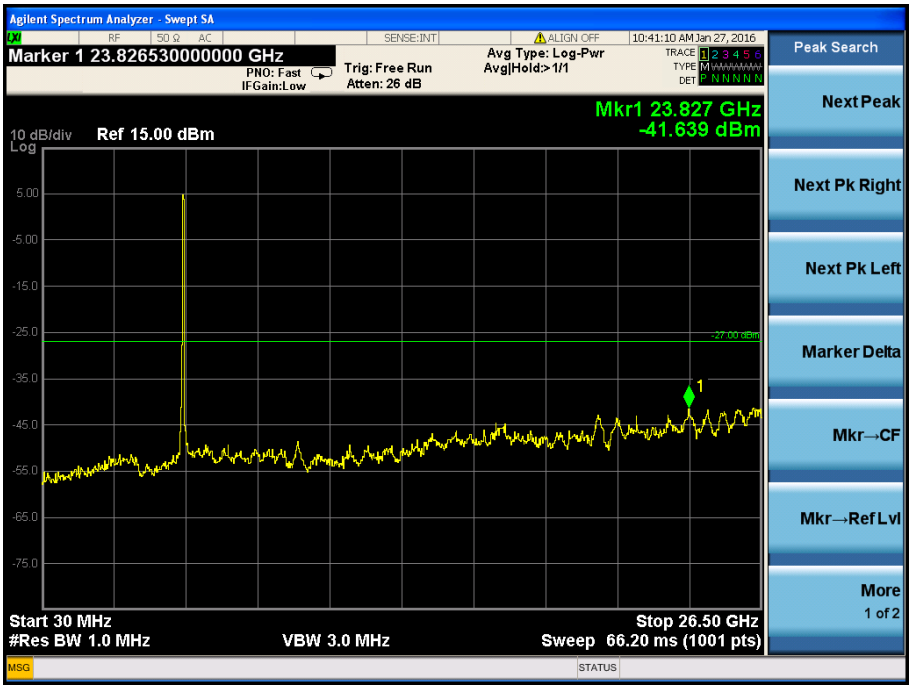


Test Mode: 802.11n-HT40

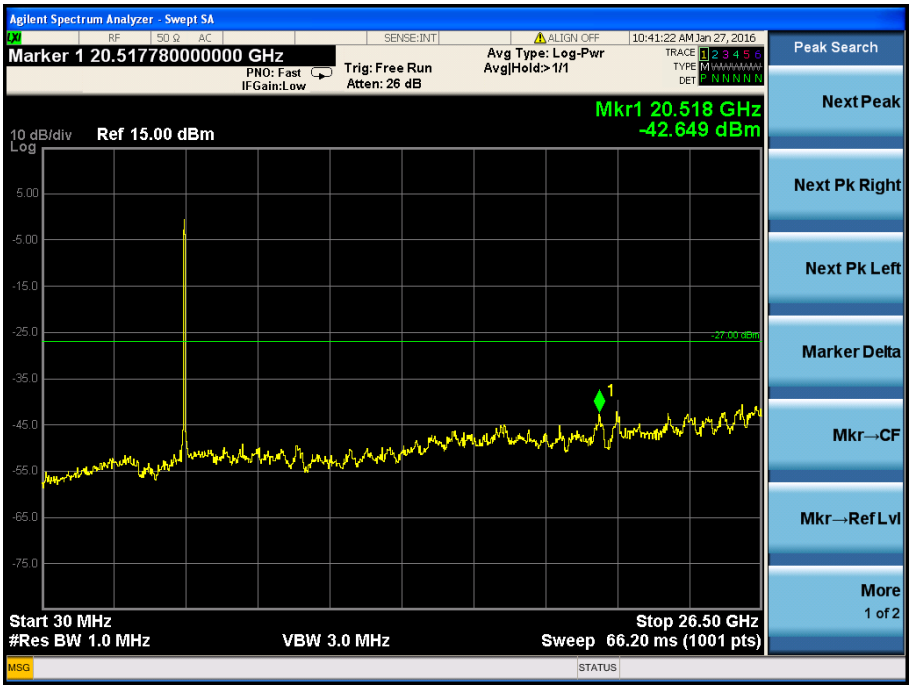
5190MHz



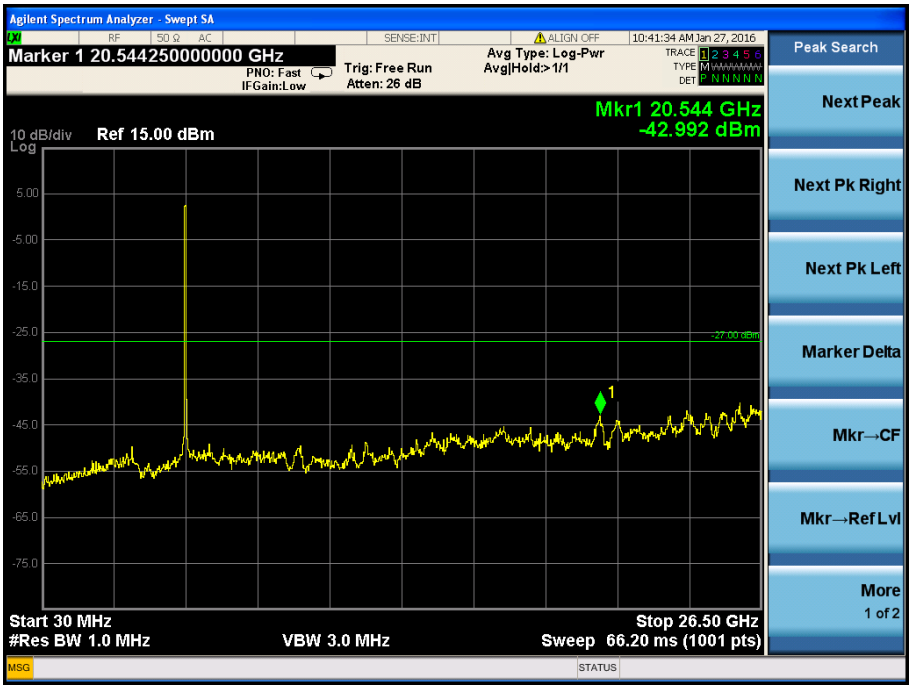
5230MHz



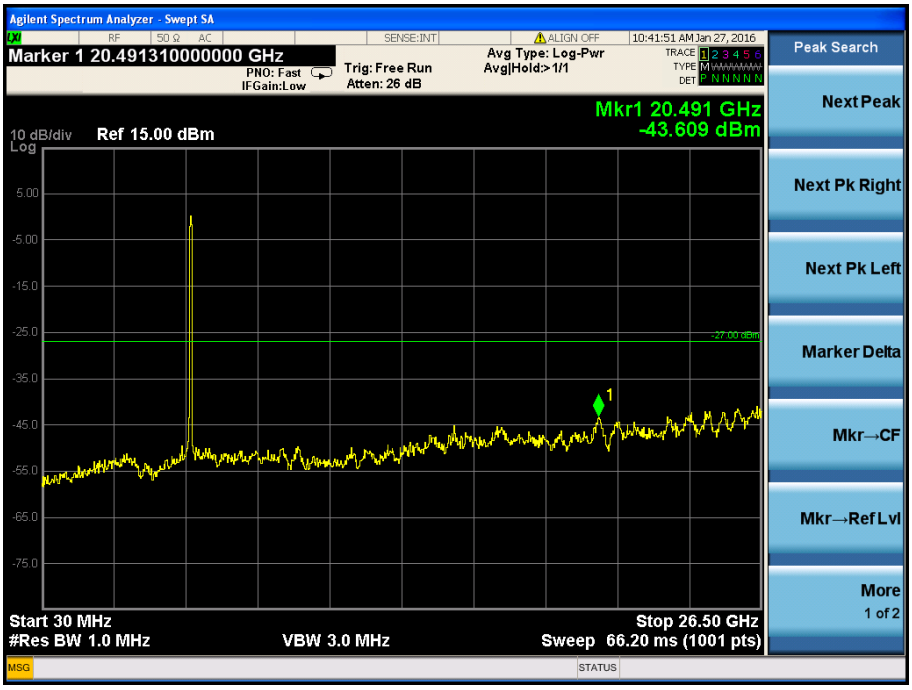
5270MHz



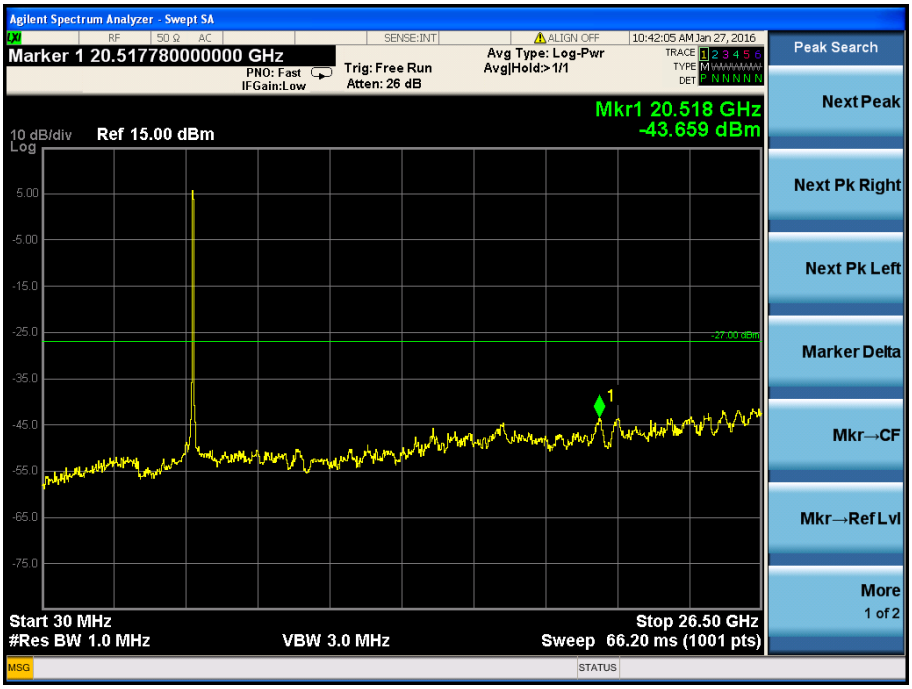
5310MHz



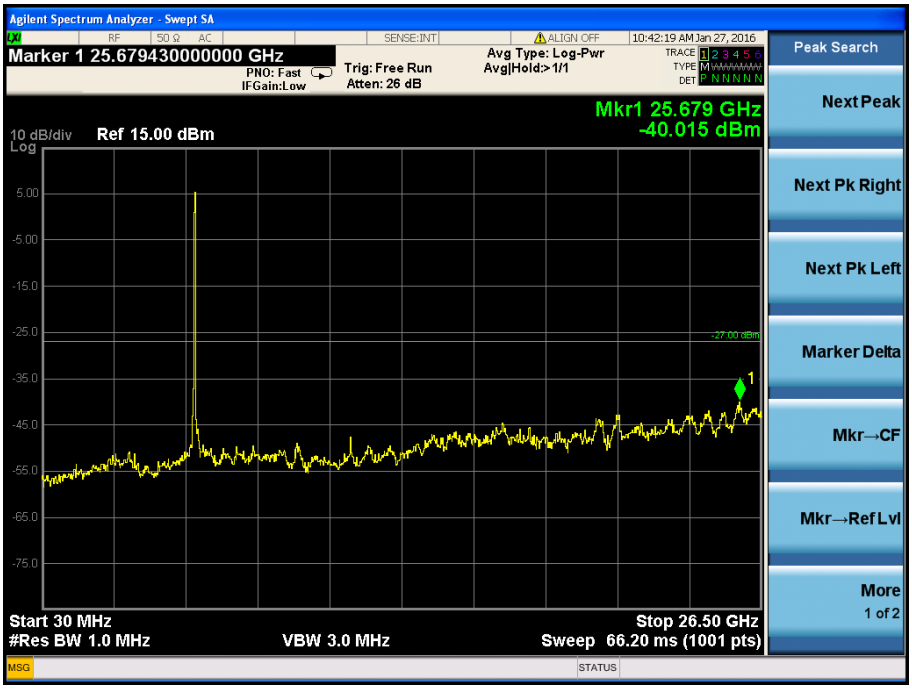
5510MHz



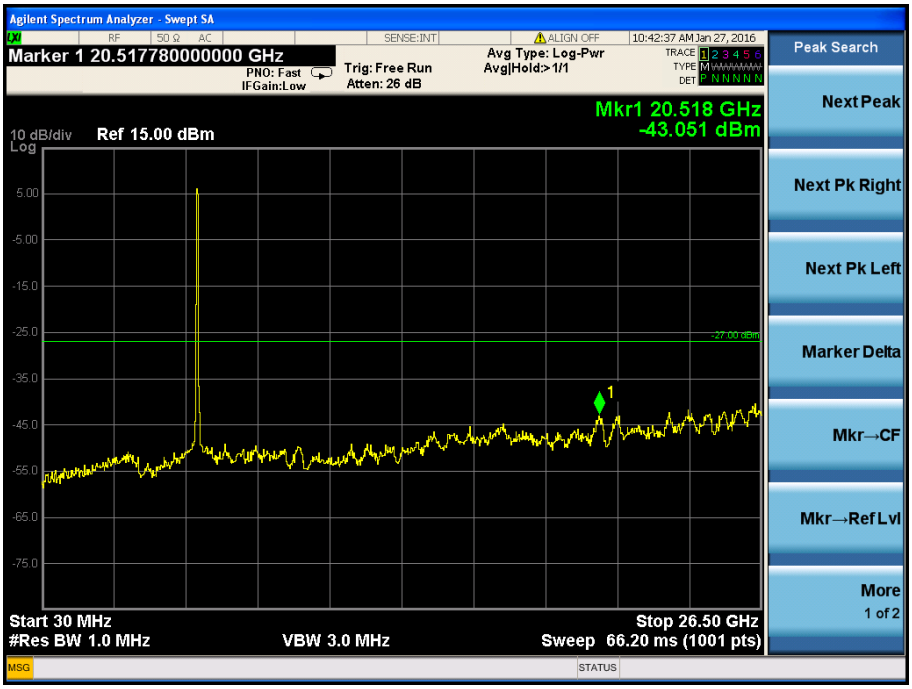
5590MHz



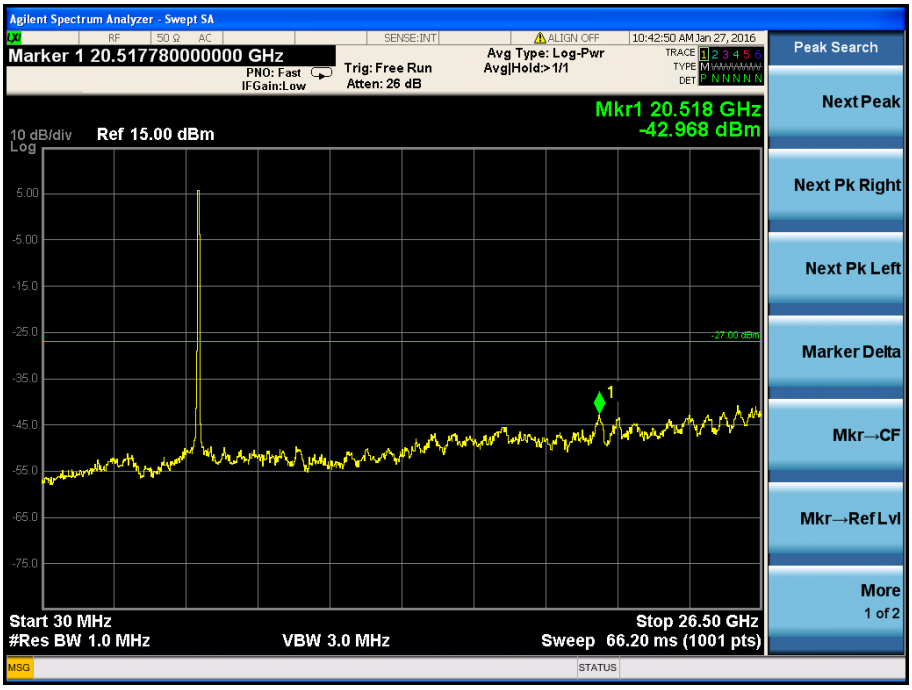
5670MHz



5755MHz

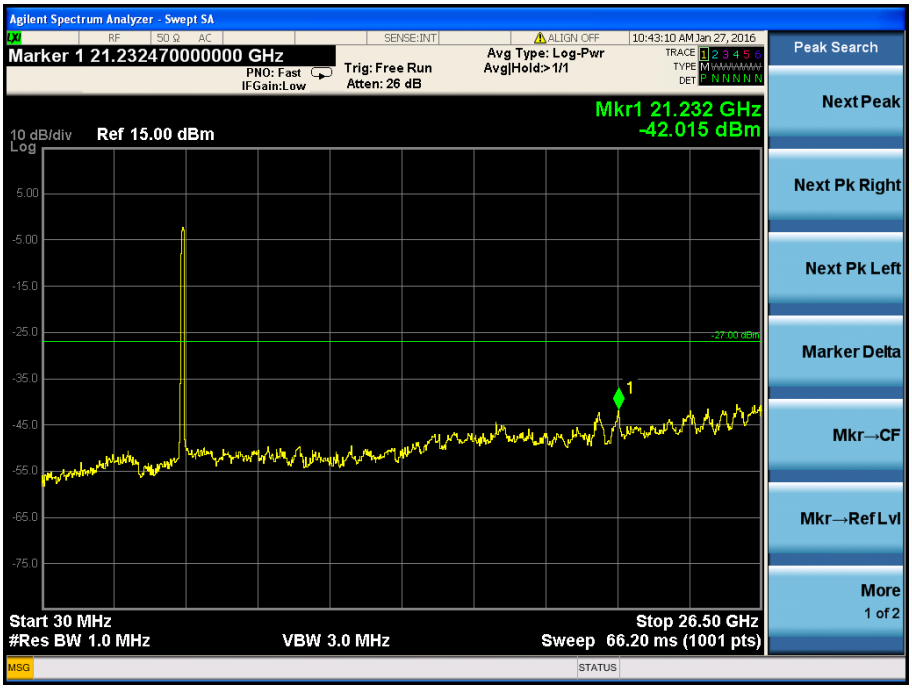


5795MHz

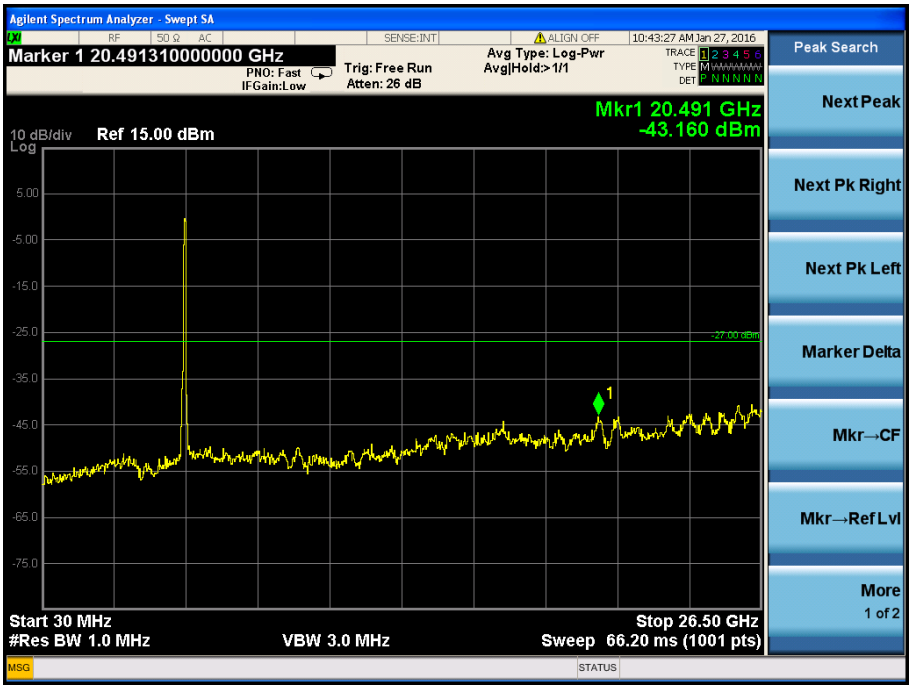


Test Mode: 802.11ac-HT80

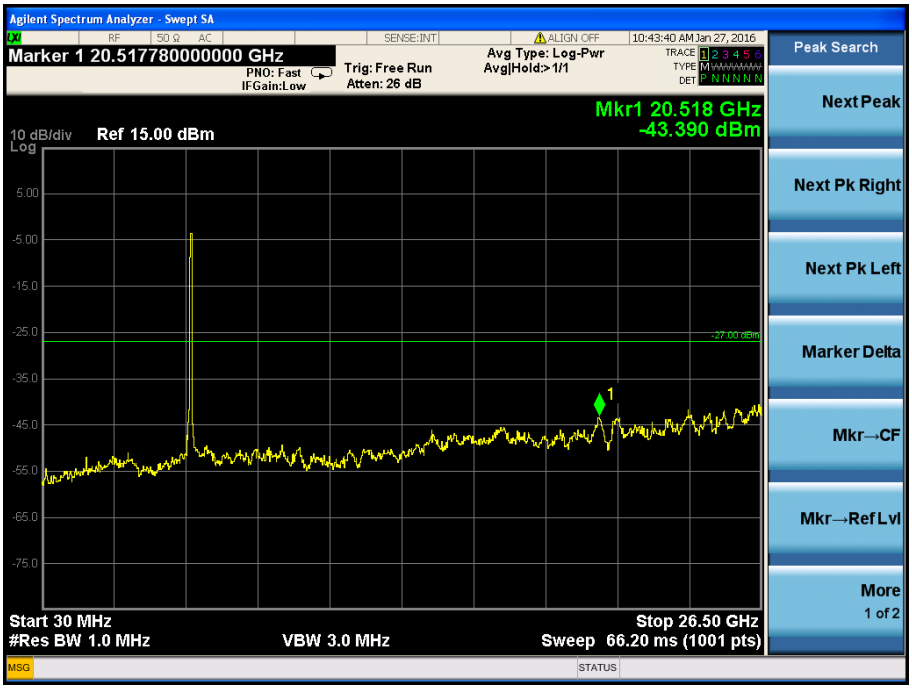
5210MHz



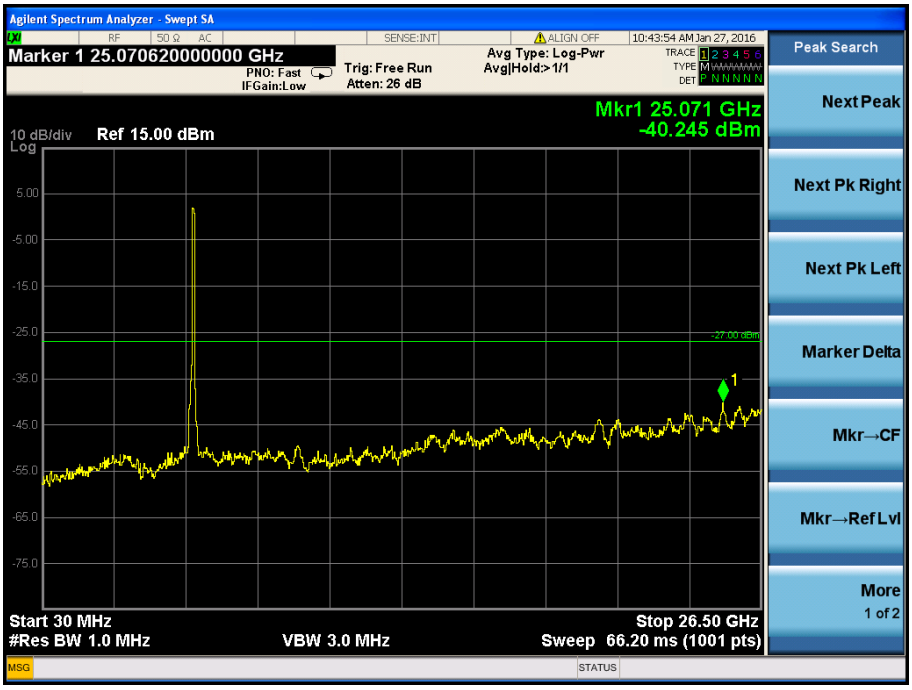
5290MHz



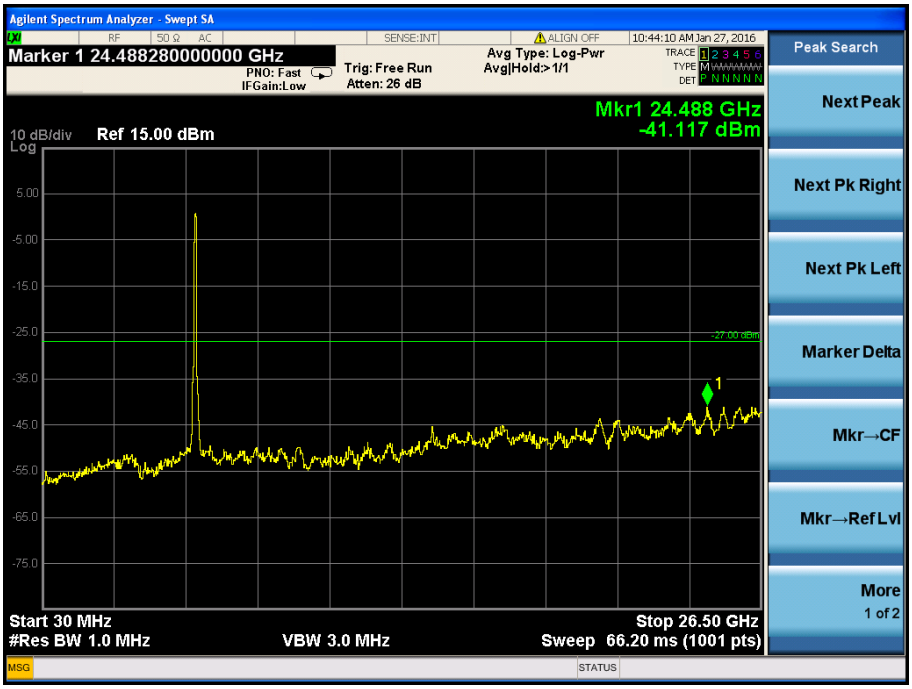
5530MHz



5610MHz



5690MHz

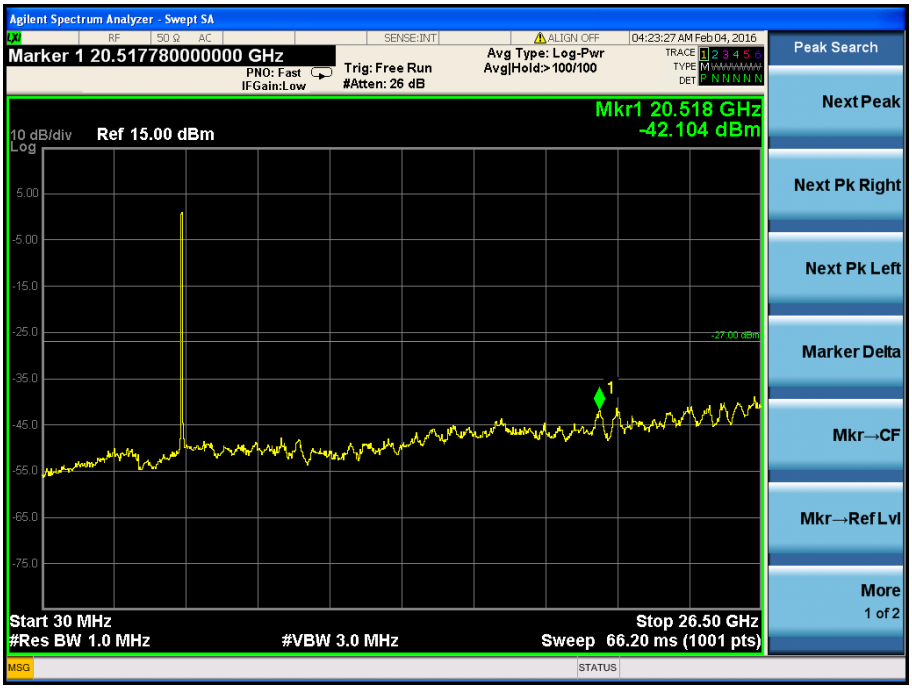


5775MHz

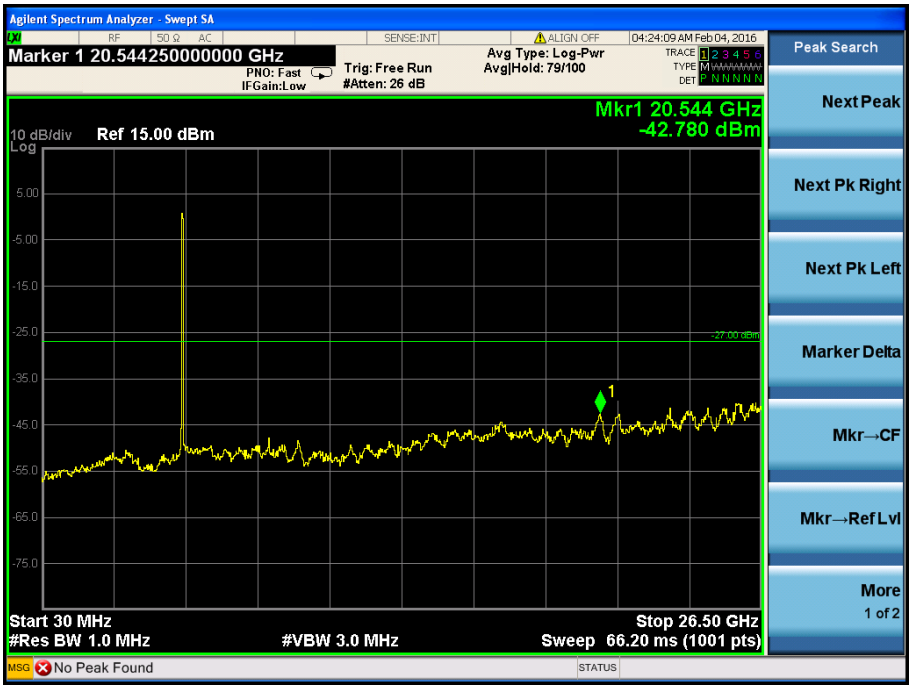
Antenna 2

Test Mode: 802.11a

5180MHz



5200MHz



5240MHz