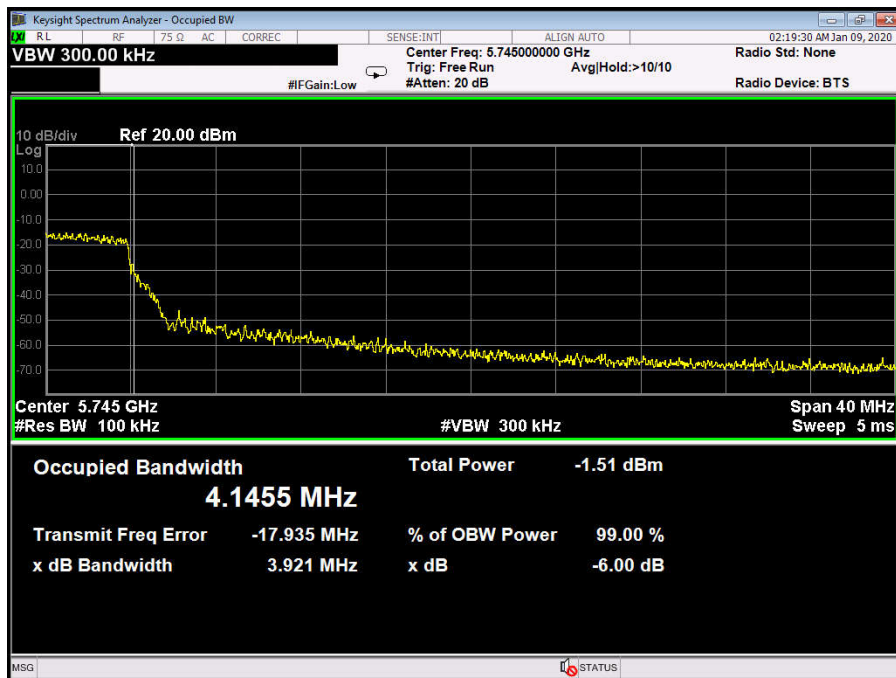
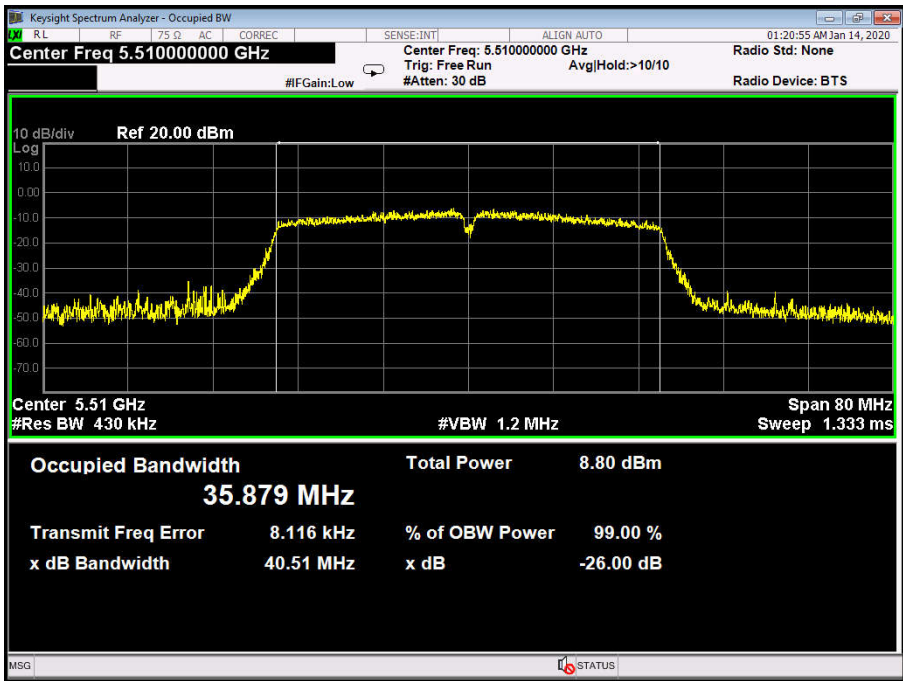


802.11ac(VHT20) Mode

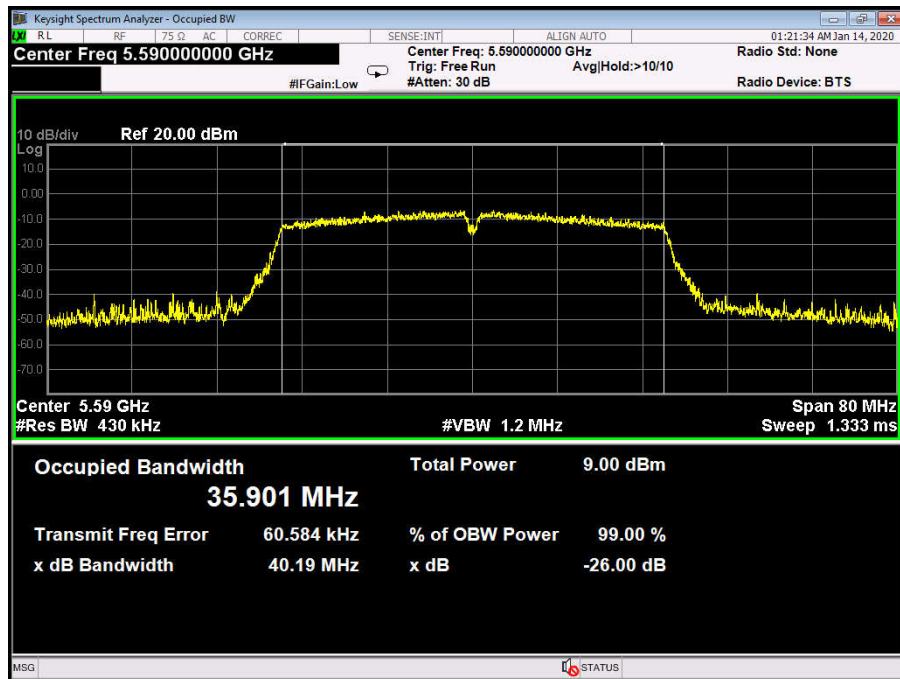
5720 MHz Straddle 5.725-5.85GHz



Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11N(HT40) Mode (U-NII-2C)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
102	5510	40.51	35.879
118	5590	40.19	35.901
142	5670	39.99	35.982
802.11N(HT40) Mode			
5510 MHz			
 Keysight Spectrum Analyzer - Occupied BW Center Freq 5.510000000 GHz Center Freq: 5.510000000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Radio Device: BTS 10 dB/div Ref 20.00 dBm Center 5.51 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1.333 ms Occupied Bandwidth 35.879 MHz Total Power 8.80 dBm Transmit Freq Error 8.116 kHz % of OBW Power 99.00 % x dB Bandwidth 40.51 MHz x dB -26.00 dB			

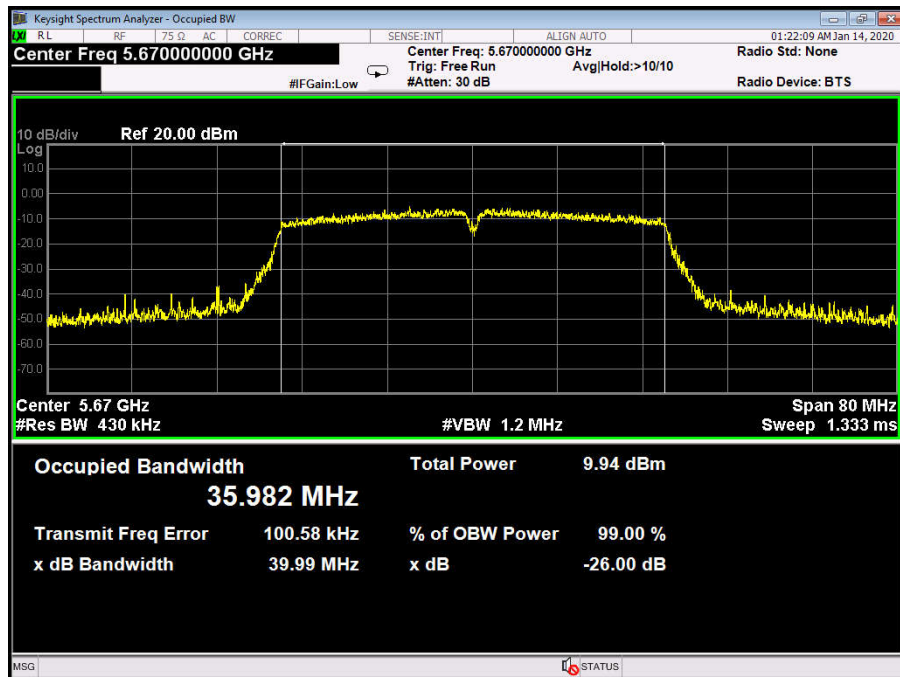
802.11N(HT40) Mode

5590 MHz



802.11N(HT40) Mode

5670 MHz



Temperature:	25 °C	Relative Humidity:		55%
Test Voltage:	DC 3.8V			
Test Mode:	TX 802.11n(HT40) Mode (U-NII-2C)			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
142	5710	35.54	----	32.860
		----	3.233	3.9912
802.11n(HT40) Mode				
5710 MHz Straddle 5.47-5.725GHz				

Keysight Spectrum Analyzer - Occupied BW

RL

RF

75 Ω

AC

CORREC

SENSE:INT

ALIGN AUTO

02:16:24 AM Jan 09, 2020

Center Freq 5.685000000 GHz

Center Freq: 5.685000000 GHz

Radio Std: None

#FGain:Low

Trig: Free Run

Avg/Hold:>10/10

Radio Device: BTS

10 dB/div

Ref 20.00 dBm

Log

10.0

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

Center 5.685 GHz

#Res BW 430 kHz

#VBW 1.2 MHz

Span 80 MHz

Sweep 1 ms

Occupied Bandwidth

32.860 MHz

Total Power

6.64 dBm

Transmit Freq Error

23.356 MHz

% of OBW Power

99.00 %

x dB Bandwidth

35.54 MHz

x dB

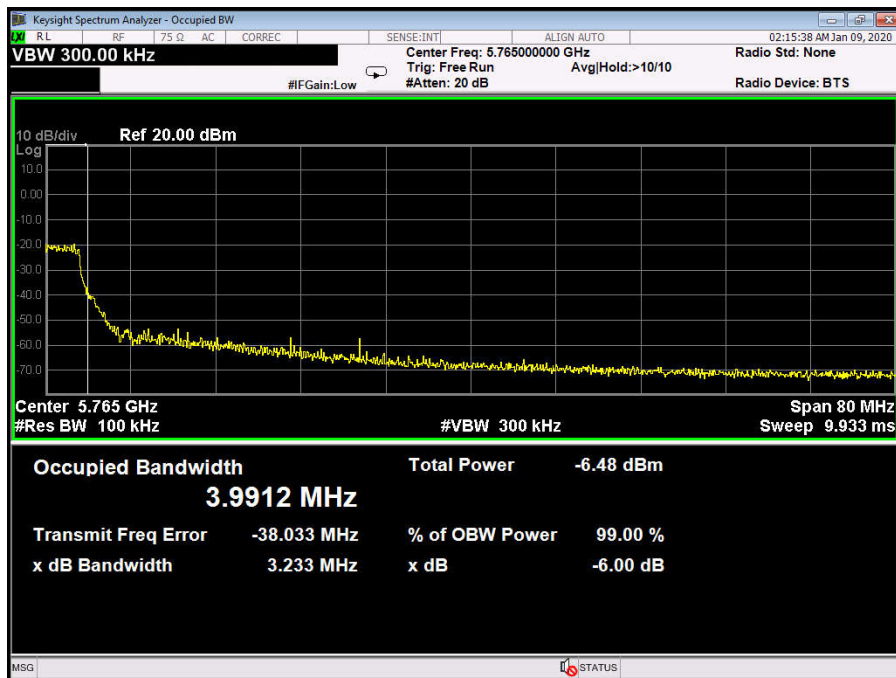
-26.00 dB

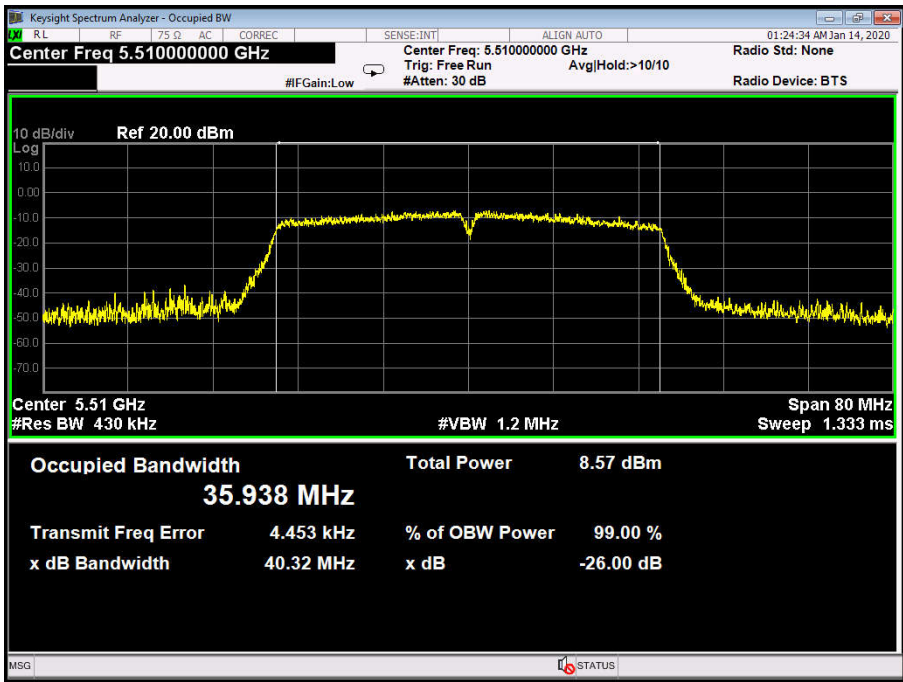
MSG

STATUS

802.11n(HT40) Mode

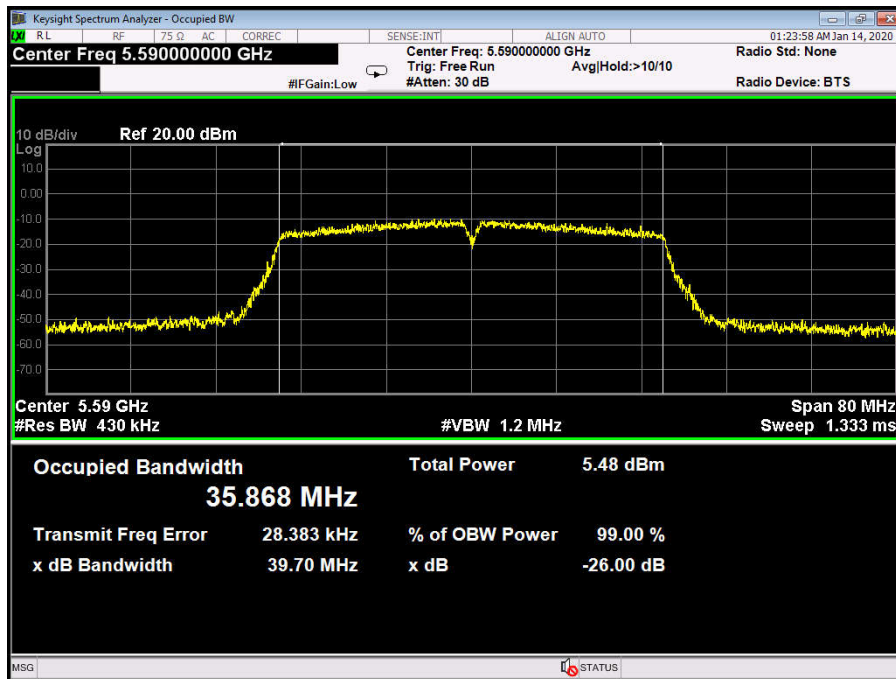
5710 MHz Straddle 5.725-5.85GHz



Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11 ac(VHT40) Mode (U-NII-2C)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
102	5510	40.32	35.938
118	5590	39.70	35.868
142	5670	40.08	35.921
802.11ac(VHT40) Mode			
5510 MHz			
 Keysight Spectrum Analyzer - Occupied BW Center Freq 5.510000000 GHz Center Freq: 5.510000000 GHz Trig: Free Run #Gain: Low #Atten: 30 dB Avg/Hold: >10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 20.00 dBm Center 5.51 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 80 MHz Sweep 1.333 ms Occupied Bandwidth 35.938 MHz Total Power 8.57 dBm Transmit Freq Error 4.453 kHz % of OBW Power 99.00 % x dB Bandwidth 40.32 MHz x dB -26.00 dB			

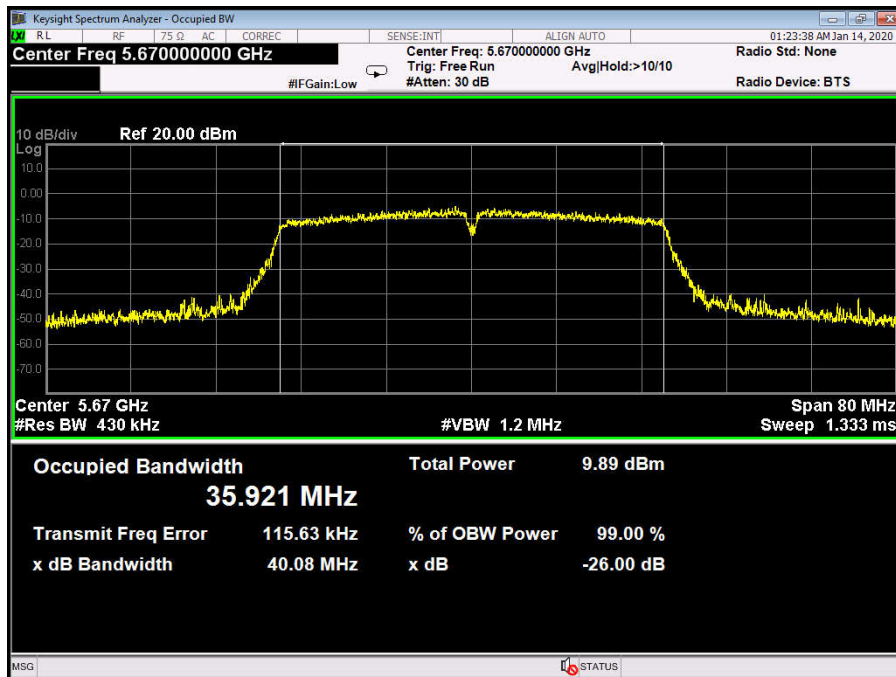
802.11ac(VHT40) Mode

5590 MHz



802.11ac(VHT40) Mode

5670 MHz



Temperature:	25 °C	Relative Humidity:	55%	
Test Voltage:	DC 3.8V			
Test Mode:	TX 802.11ac(VHT40) Mode (U-NII-2C)			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
142	5710	35.55	---	32.901
		----	3.283	5.2179
802.11ac(VHT40) Mode				
5710 MHz Straddle 5.47-5.725GHz				

Keysight Spectrum Analyzer - Occupied BW

VBW 2.4000 MHz

#FGain:Low

Center Freq: 5.685000000 GHz

Trig: Free Run

#Atten: 20 dB

ALIGN AUTO

AvgHld:>10/10

02:14:12 AM Jan 09, 2020

Radio Std: None

Radio Device: BTS

10 dB/div

Ref 20.00 dBm

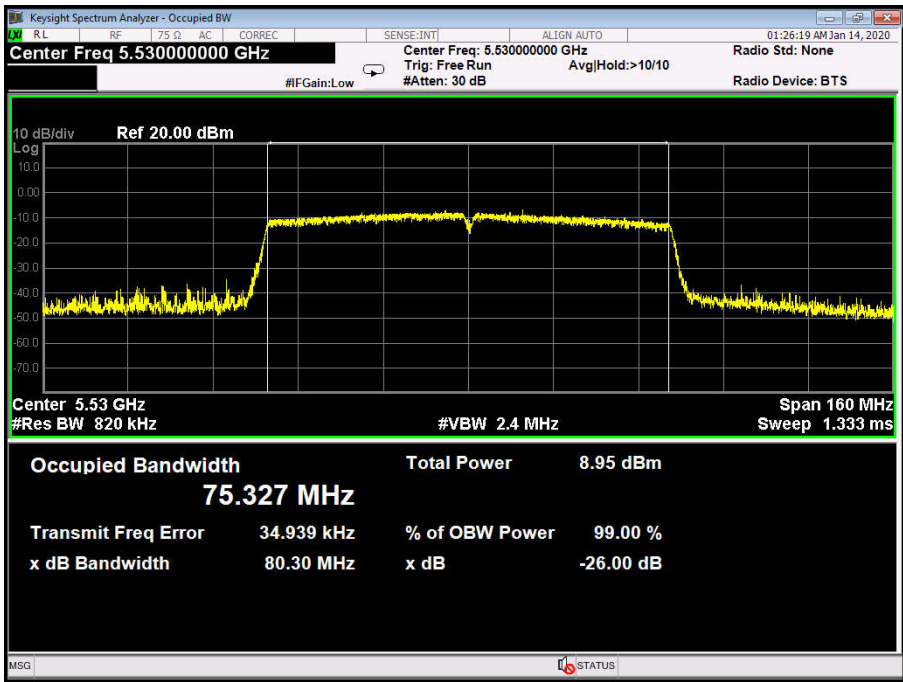
Log

</

802.11ac(VHT40) Mode

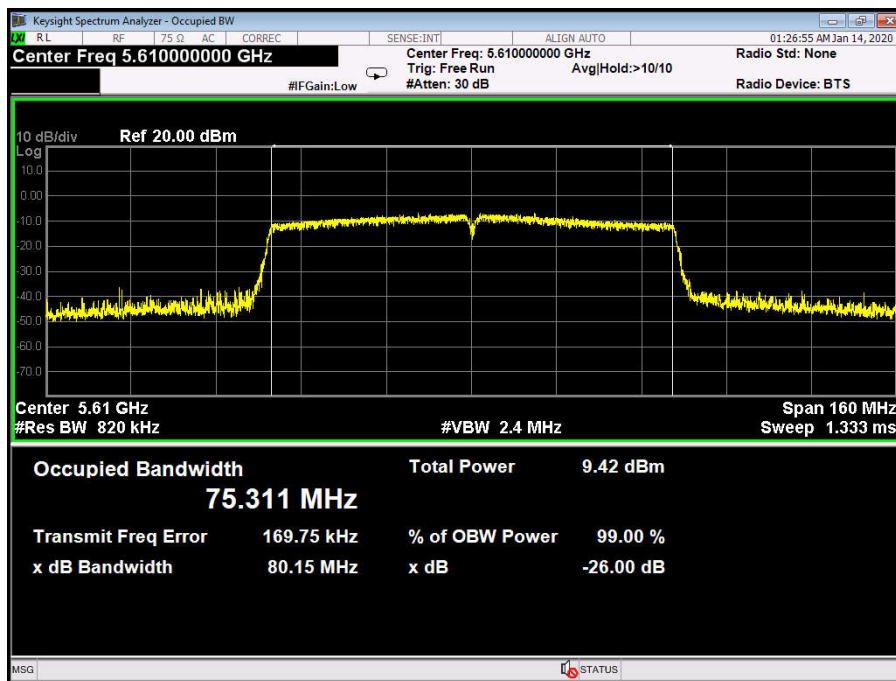
5710 MHz Straddle 5.725-5.85GHz



Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11 ac(VHT80) Mode (U-NII-2C)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
106	5530	80.30	75.327
122	5610	80.15	75.311
138	5690	79.99	75.223
802.11ac(VHT80) Mode			
5530 MHz			
 Keysight Spectrum Analyzer - Occupied BW Center Freq 5.530000000 GHz Center Freq: 5.530000000 GHz Trig: Free Run #Gain: Low #Atten: 30 dB Avg/Hold: >10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 20.00 dBm Center 5.53 GHz #Res BW 820 kHz #VBW 2.4 MHz Span 160 MHz Sweep 1.333 ms Occupied Bandwidth 75.327 MHz Total Power 8.95 dBm Transmit Freq Error 34.939 kHz % of OBW Power 99.00 % x dB Bandwidth 80.30 MHz x dB -26.00 dB			

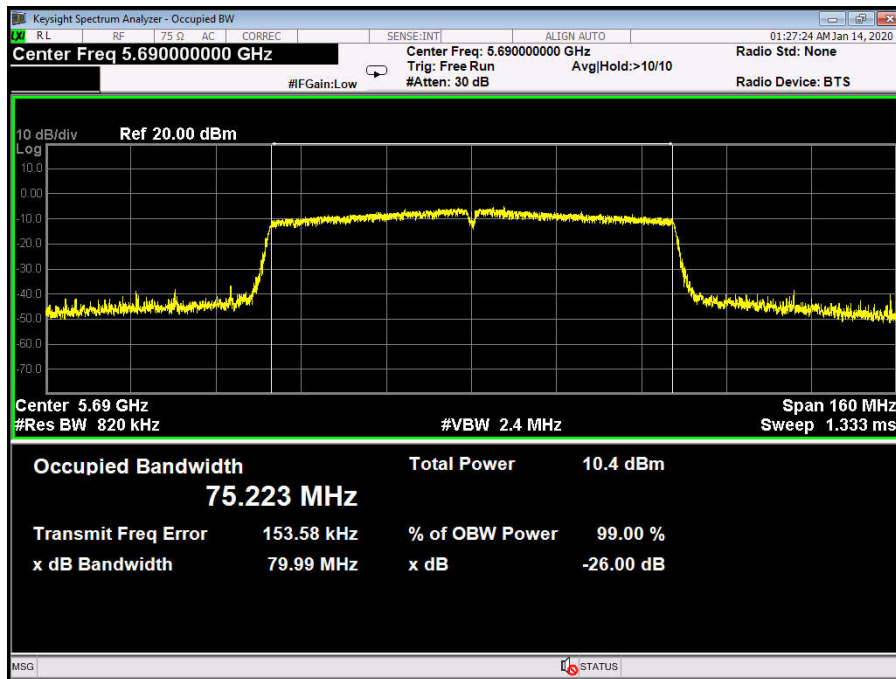
802.11ac(VHT80) Mode

5610 MHz



802.11ac(VHT80) Mode

5690 MHz



Temperature:	25 °C	Relative Humidity:	55%	
Test Voltage:	DC 3.8V			
Test Mode:	TX 802.11ac(HT80) Mode (U-NII-2C)			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
142	5710	75.79	----	72.205
		----	3.284	4.9125
802.11ac(VHT80) Mode				
5710 MHz Straddle 5.47-5.725GHz				

Keysight Spectrum Analyzer - Occupied BW

RL

RF

75 Ω

AC

CORREC

SENSE:INT

ALIGN AUTO

02:12:05 AM Jan 09, 2020

Center Freq 5.645000000 GHz

Center Freq: 5.645000000 GHz

Trig: Free Run

Avg/Hold: >10/10

Radio Std: None

#FGain: Low

#Atten: 20 dB

Radio Device: BTS

10 dB/div

Ref 20.00 dBm

Log

-70.0

-60.0

-50.0

-40.0

-30.0

-20.0

-10.0

0.00

10.0

Center 5.645 GHz

#Res BW 820 kHz

#VBW 2.4 MHz

Span 160 MHz

Sweep 1 ms

Occupied Bandwidth

72.205 MHz

Total Power

7.74 dBm

Transmit Freq Error

43.357 MHz

% of OBW Power

99.00 %

x dB Bandwidth

75.79 MHz

x dB

-26.00 dB

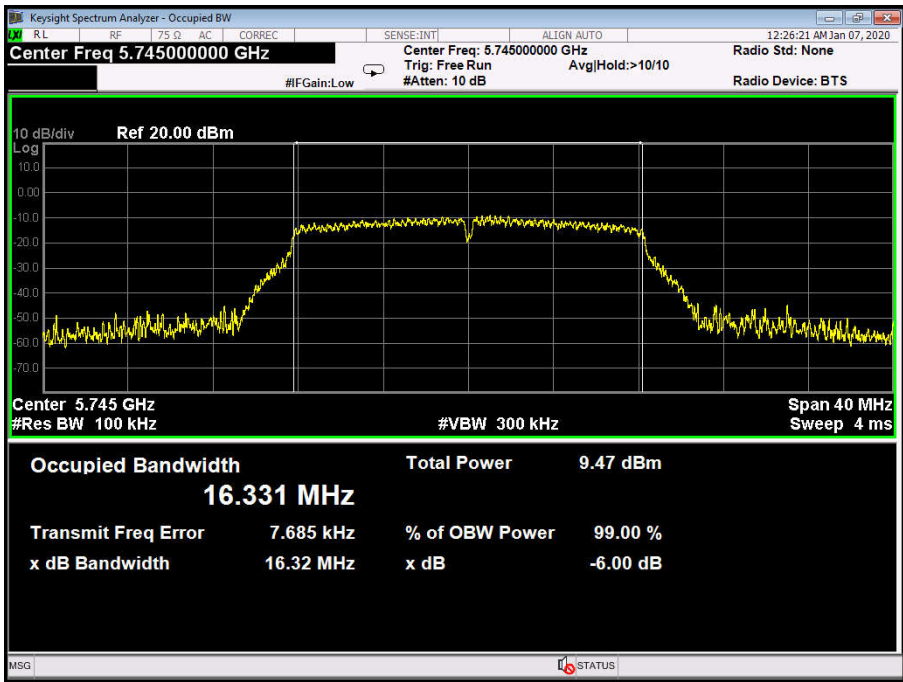
MSG

STATUS

802.11ac(VHT80) Mode

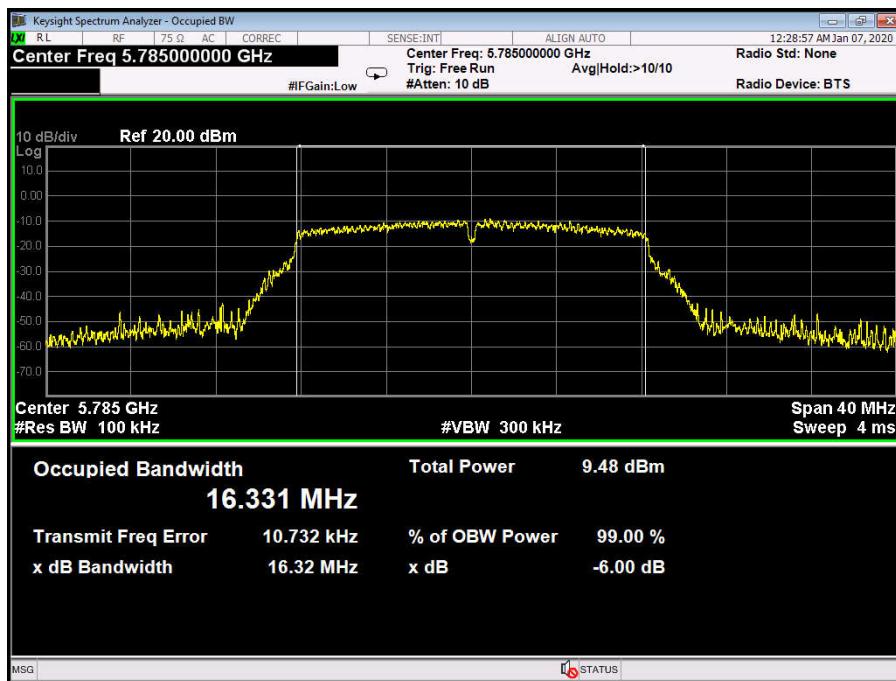
5690 MHz Straddle 5.725-5.85GHz



Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11a Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
149	5745	16.32	16.331
157	5785	16.32	17.331
165	5825	16.31	16.343
802.11a Mode			
5745 MHz			
 Keysight Spectrum Analyzer - Occupied BW Center Freq 5.745000000 GHz Center Freq: 5.745000000 GHz Trig: Free Run #Gain: Low #Atten: 10 dB Avg/Hold: >10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 20.00 dBm Center 5.745 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4 ms Occupied Bandwidth 16.331 MHz Total Power 9.47 dBm Transmit Freq Error 7.685 kHz % of OBW Power 99.00 % x dB Bandwidth 16.32 MHz x dB -6.00 dB			

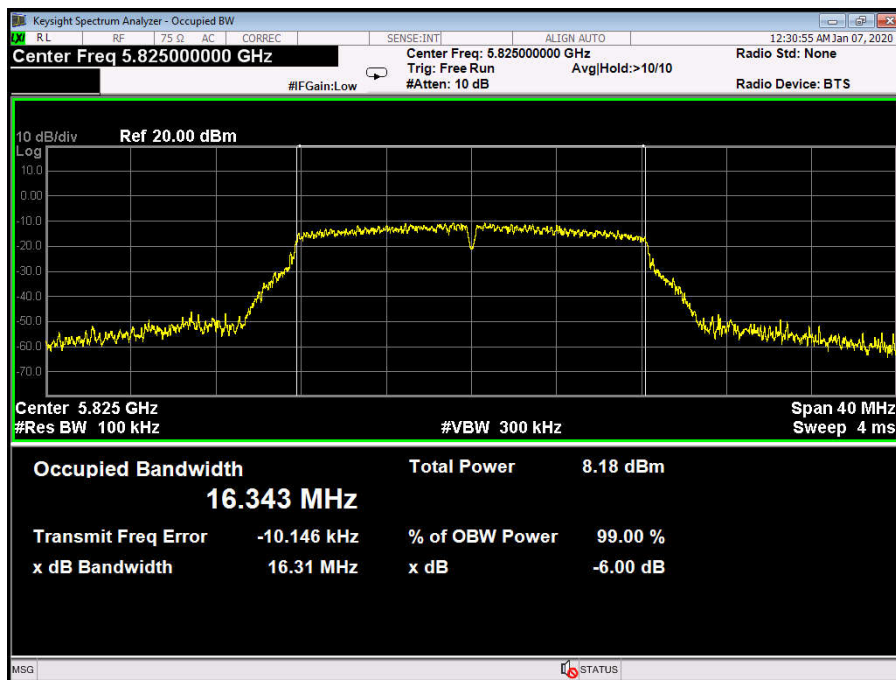
802.11a Mode

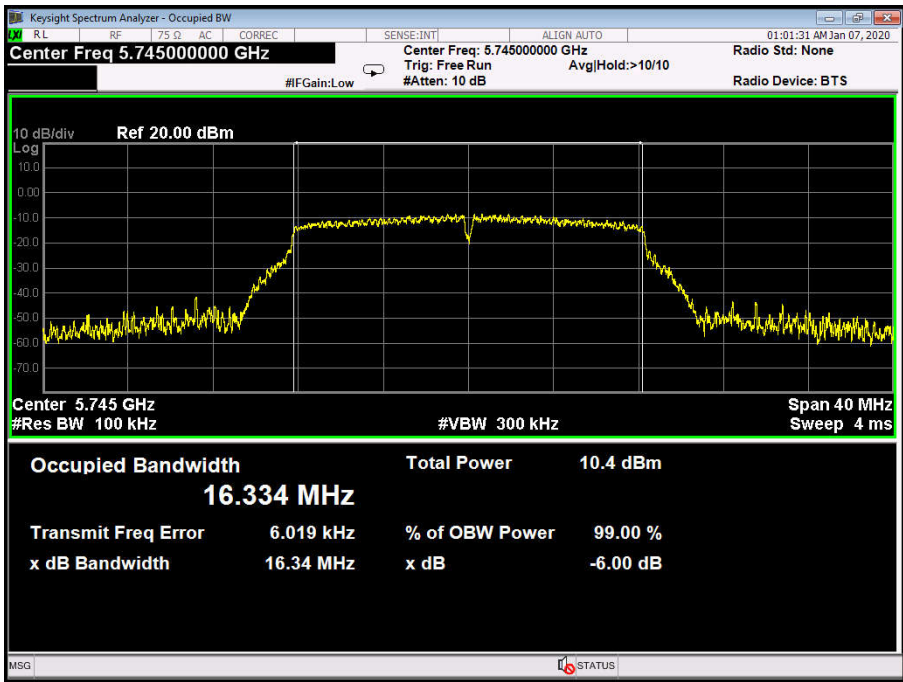
5785 MHz



802.11a Mode

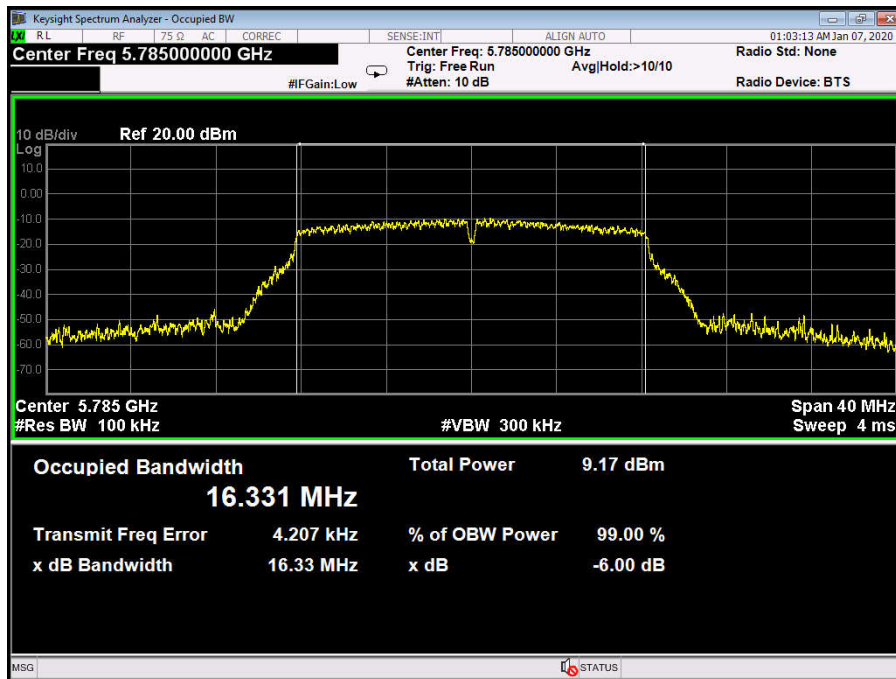
5825 MHz



Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11n(HT20) Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
149	5745	16.34	16.334
157	5785	16.33	16.331
165	5825	16.36	16.357
802.11n(HT20) Mode			
5745 MHz			
 Keysight Spectrum Analyzer - Occupied BW Center Freq 5.745000000 GHz Center Freq: 5.745000000 GHz Trig: Free Run #Gain: Low #Atten: 10 dB Avg/Hold: >10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 20.00 dBm Center 5.745 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4 ms Occupied Bandwidth 16.334 MHz Total Power 10.4 dBm Transmit Freq Error 6.019 kHz % of OBW Power 99.00 % x dB Bandwidth 16.34 MHz x dB -6.00 dB			

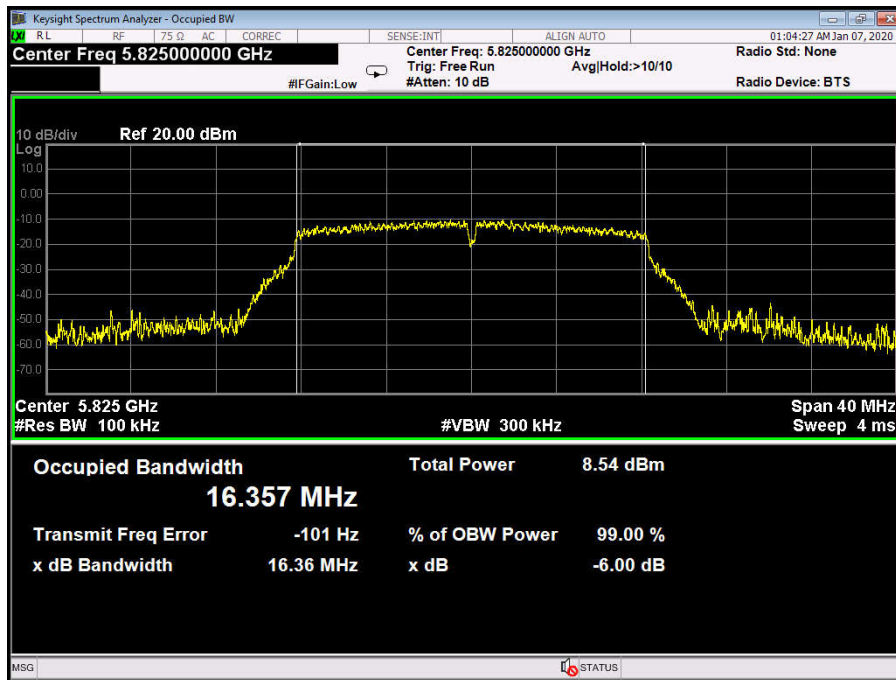
802.11n(HT20) Mode

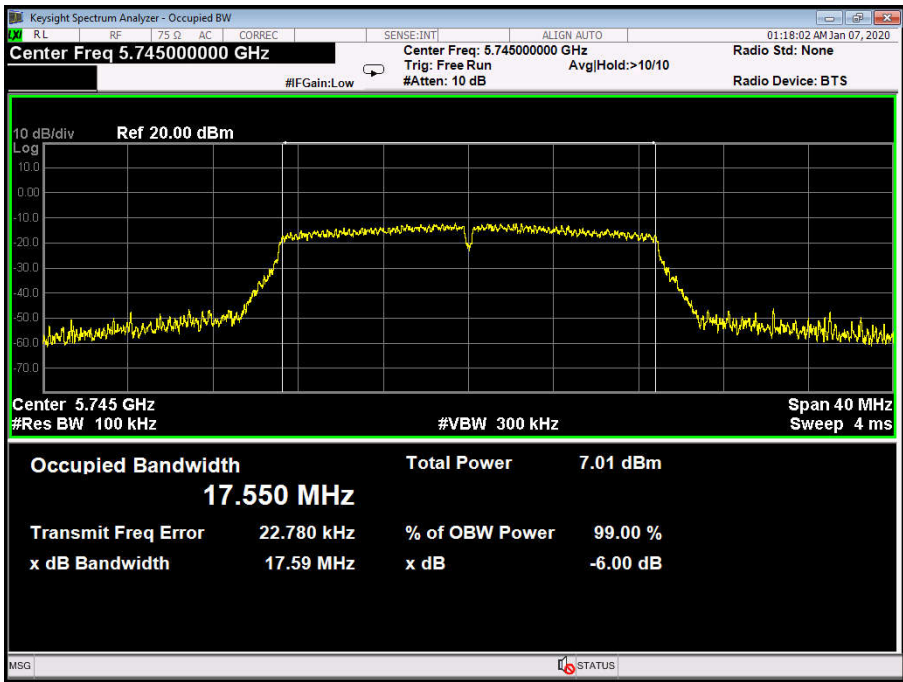
5785 MHz



802.11n(HT20) Mode

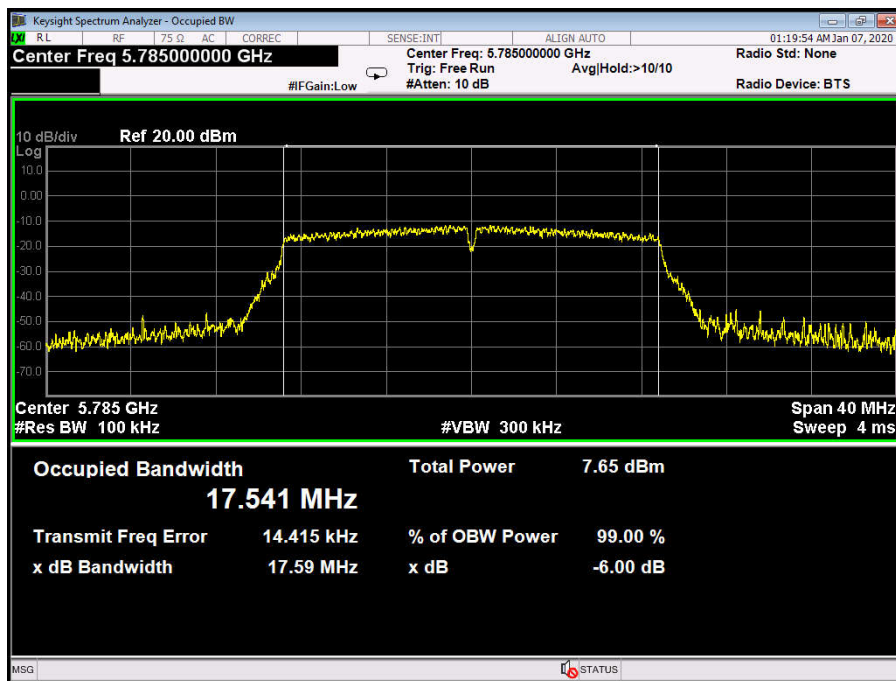
5825 MHz



Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11ac(VHT20) Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
149	5745	17.59	17.550
157	5785	17.59	17.541
165	5825	17.58	17.550
802.11ac(VHT20) Mode			
5745 MHz			
 Keysight Spectrum Analyzer - Occupied BW Center Freq 5.745000000 GHz Center Freq: 5.745000000 GHz Trig: Free Run #Gain: Low #Atten: 10 dB Avg/Hold: >10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 20.00 dBm Center 5.745 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4 ms Occupied Bandwidth 17.550 MHz Total Power 7.01 dBm Transmit Freq Error 22.780 kHz % of OBW Power 99.00 % x dB Bandwidth 17.59 MHz x dB -6.00 dB			

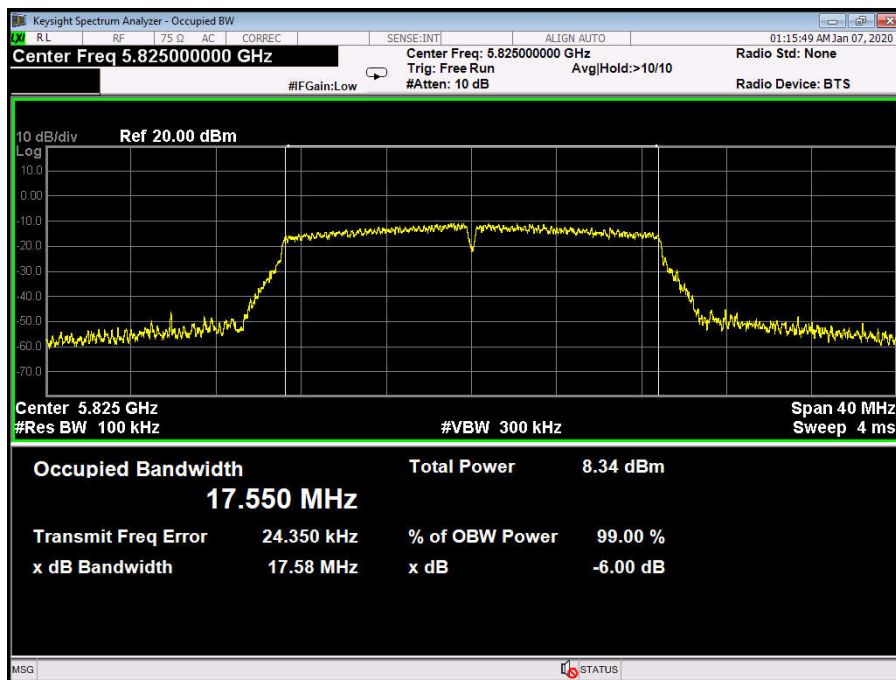
802.11ac(VHT20) Mode

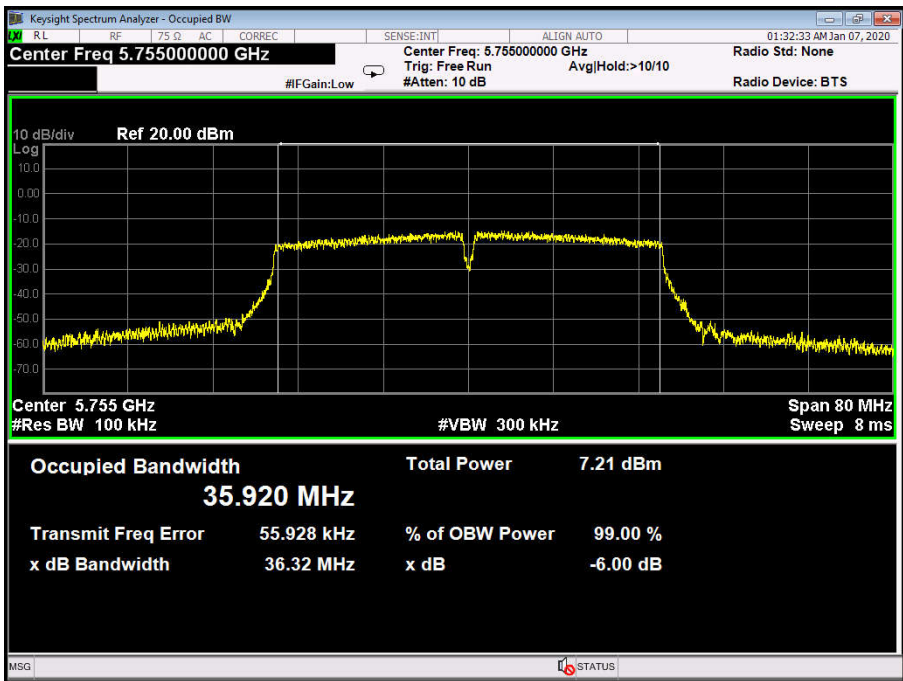
5785 MHz



802.11ac(VHT20) Mode

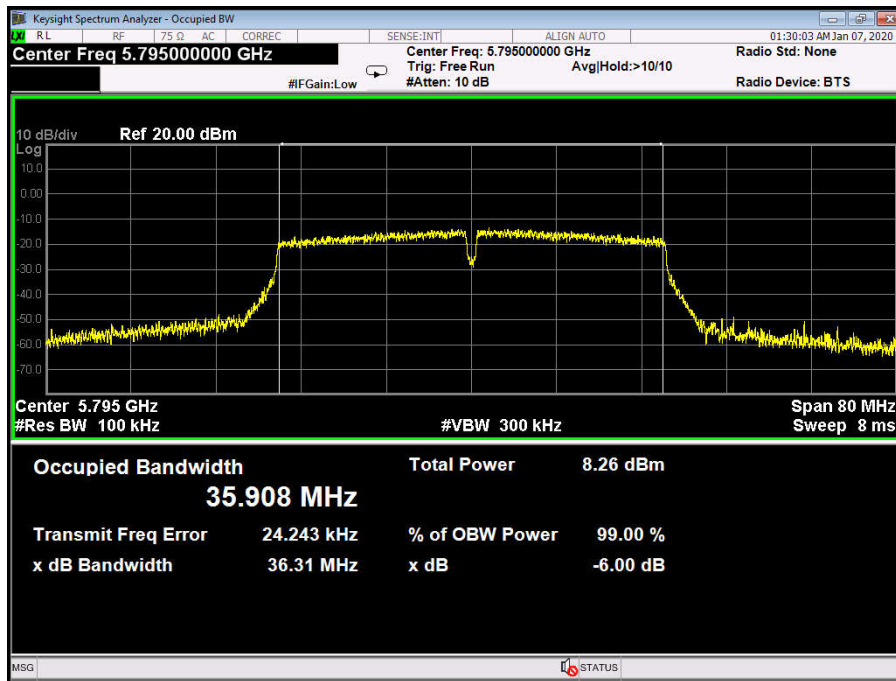
5825 MHz

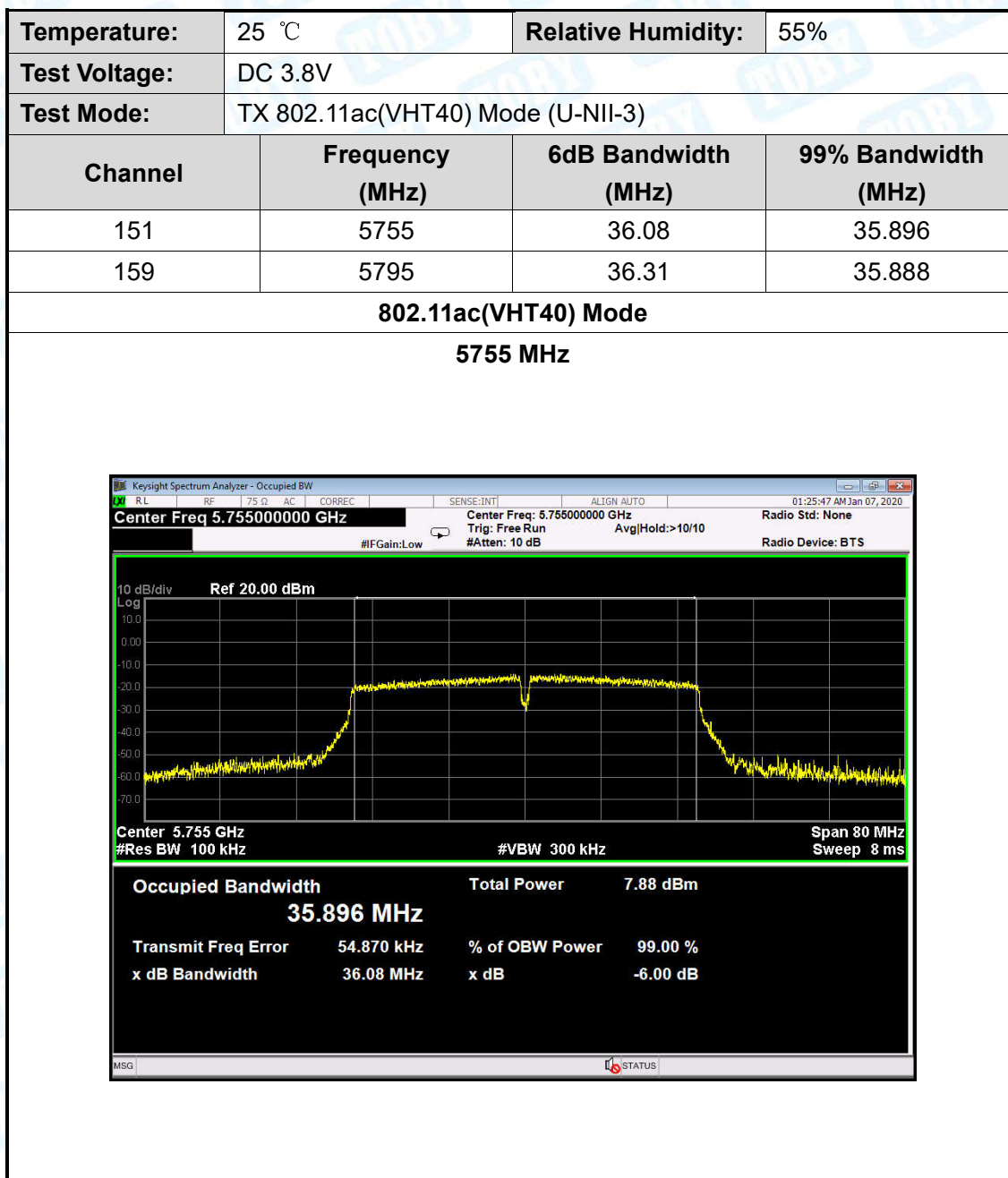


Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX 802.11n(HT40) Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
151	5755	36.32	35.920
159	5795	36.31	35.908
802.11n(HT40) Mode			
5755 MHz			
 Keysight Spectrum Analyzer - Occupied BW Center Freq 5.755000000 GHz Trig: Free Run #Atten: 10 dB Radio Std: None Radio Device: BTS 10 dB/div Ref 20.00 dBm Center 5.755 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms Occupied Bandwidth 35.920 MHz Total Power 7.21 dBm Transmit Freq Error 55.928 kHz % of OBW Power 99.00 % x dB Bandwidth 36.32 MHz x dB -6.00 dB			

802.11n(HT40) Mode

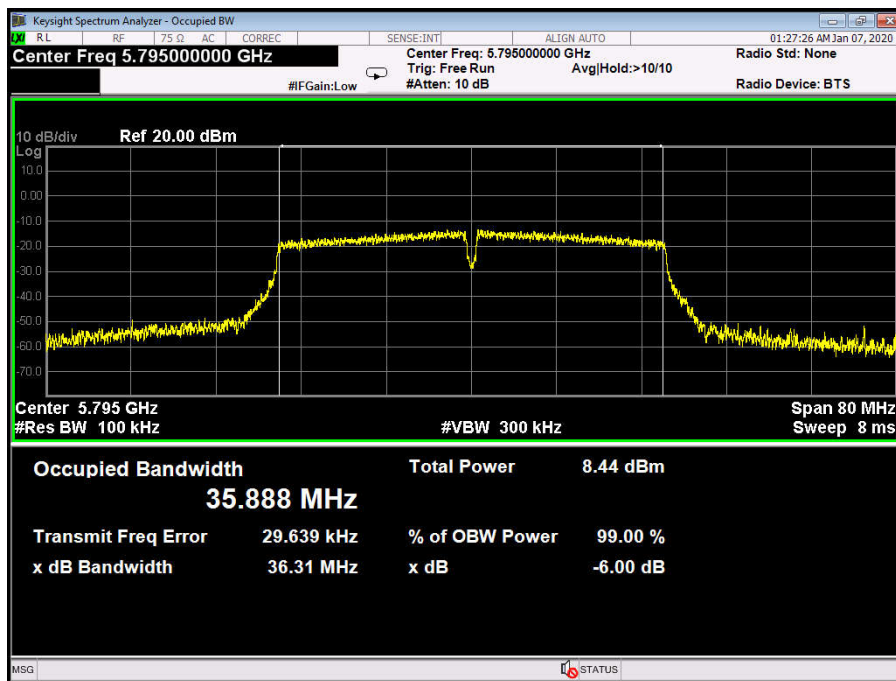
5795 MHz

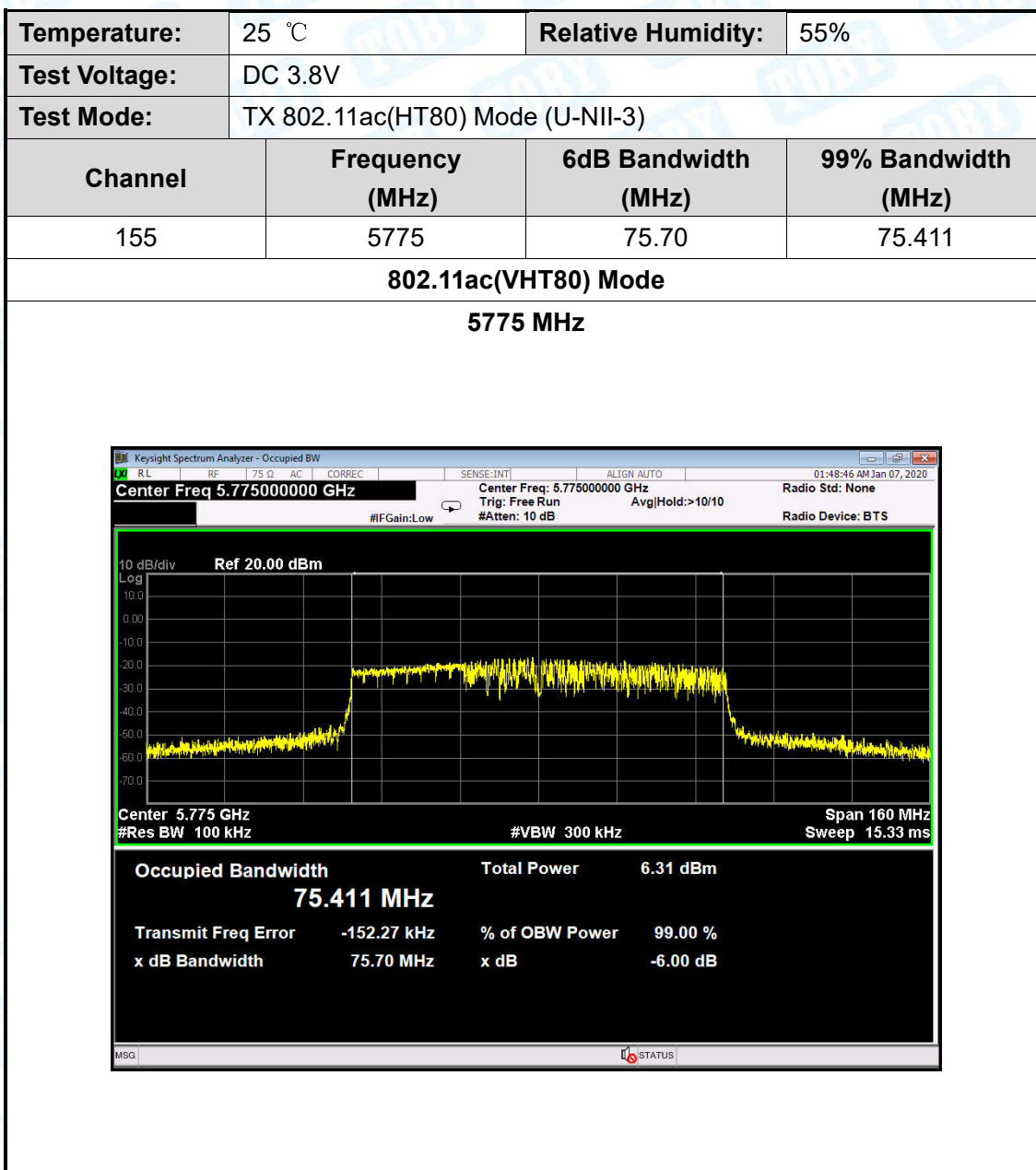




802.11ac(VHT40) Mode

5795 MHz





Attachment E--AVG Output Power Test Data

Temperature:		25 °C		Relative Humidity:		55%		
Test Voltage:		DC 3.8V						
U-NII-1								
Test Mode	Frequency (MHz)	Test Data			Limit (dBm)			
		Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)				
802.11a	5180	16.29	0	16.29	24			
	5200	16.51	0	16.51				
	5240	16.35	0	16.35				
802.11n (HT20)	5180	16.48	0	16.48				
	5200	16.44	0	16.44				
	5240	16.80	0	16.80				
802.11ac (VHT20)	5180	16.37	0	16.37				
	5200	16.14	0	16.14				
	5240	16.46	0	16.46				
802.11n (HT40)	5190	16.45	0	16.45				
	5230	16.82	0	16.82				
802.11 ac(VHT40)	5190	16.44	0	16.44				
	5230	16.67	0	16.67				
802.11 ac(VHT80)	5210	16.53	0	16.53				
Result: PASS								
Remark: the Directional Gain=2.92dBi<6 dBi. So P _{out} =P _{limit} =24dBm								

Temperature:		25 °C		Relative Humidity:		55%		
Test Voltage:		DC 3.8V						
U-NII-2A								
Test Mode	Frequency (MHz)	Test Data			Limit (dBm)			
		Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)				
802.11a	5260	15.98	0	15.98	24			
	5280	15.96	0	15.96				
	5320	16.07	0	16.07				
802.11n (HT20)	5260	15.83	0	15.83				
	5280	15.69	0	15.69				
	5320	16.83	0	16.83				
802.11ac (VHT20)	5260	15.87	0	15.87				
	5280	15.64	0	15.64				
	5320	15.91	0	15.91				
802.11n (HT40)	5270	16.09	0	16.09				
	5310	15.78	0	15.78				
802.11ac(VHT40)	5270	15.80	0	15.80				
	5310	15.57	0	15.57				
802.11ac(VHT80)	5290	15.74	0	15.74				
Result: PASS								
Remark: the Directional Gain=2.92dBi<6 dBi. So P _{out} =P _{limit} =24dBm								

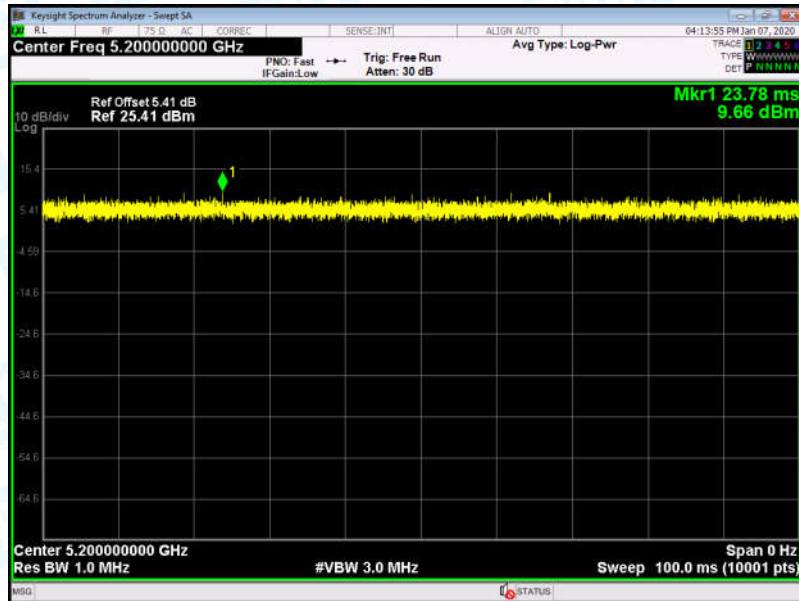
Temperature:		25 °C		Relative Humidity:		55%	
Test Voltage:		DC 3.8V					
U-NII-2C							
Test Mode	Frequency (MHz)	Test Data			Limit (dBm)		
		Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)			
802.11a	5500	15.93	0	15.93	24		
	5600	13.34	0	13.34			
	5720	15.89	0	15.89			
802.11n (HT20)	5500	15.18	0	15.18			
	5600	13.54	0	13.54			
	5720	15.41	0	15.41			
802.11ac (VHT20)	5500	15.65	0	15.65			
	5600	12.52	0	12.52			
	5720	13.48	0	13.48			
802.11n (HT40)	5510	15.65	0	15.65			
	5590	12.52	0	12.52			
	5710	13.48	0	13.48			
802.11 ac(VHT40)	5510	16.07	0	16.07			
	5590	13.22	0	13.22			
	5710	15.40	0	15.40			
802.11 ac(VHT80)	5530	14.76	0	14.76			
	5610	13.08	0	13.08			
	5690	14.63	0	14.63			
Result: PASS							
Remark: the Directional Gain=2.92dBi<6 dBi. So P _{out} =P _{limit} =24dBm							

Temperature:	25 °C	Relative Humidity:	55%		
Test Voltage:	DC 3.8V				
U-NII-2C					
Test Mode	Frequency (MHz)	Test Data			Limit (dBm)
		Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	
802.11a 5720MHz Straddle 5.47-5.725GHz		13.78	0	13.78	24
802.11a 5720MHz Straddle 5.725-5.85GHz		6.57	0	6.57	30
802.11n(HT20) 5720MHz Straddle 5.47-5.725GHz		13.58	0	13.58	24
802.11n(HT20) 5720MHz Straddle 5.725-5.85GHz		6.48	0	6.48	30
802.11ac(VHT20) 5720MHz Straddle 5.47-5.725GHz		14.02	0	14.02	24
802.11ac(VHT20) 5720MHz Straddle 5.725-5.85GHz		6.78	0	6.78	30
802.11n(HT40) 5710MHz Straddle 5.47-5.725GHz		14.93	0	14.93	24
802.11n(HT40) 5710MHz Straddle 5.725-5.85GHz		3.12	0	3.12	30
802.11ac(VHT40) 5710MHz Straddle 5.47-5.725GHz		14.38	0	14.38	24
802.11ac(VHT40) 5710MHz Straddle 5.725-5.85GHz		3.07	0	3.07	30
802.11ac(VHT80) 5690MHz Straddle 5.47-5.725GHz		13.59	0	13.59	24
802.11ac(VHT80) 5690MHz Straddle 5.725-5.85GHz		3.09	0	3.09	30
Result: PASS					
Remark: the Directional Gain=2.92dBi<6 dBi. So P _{out} =P _{limit}					

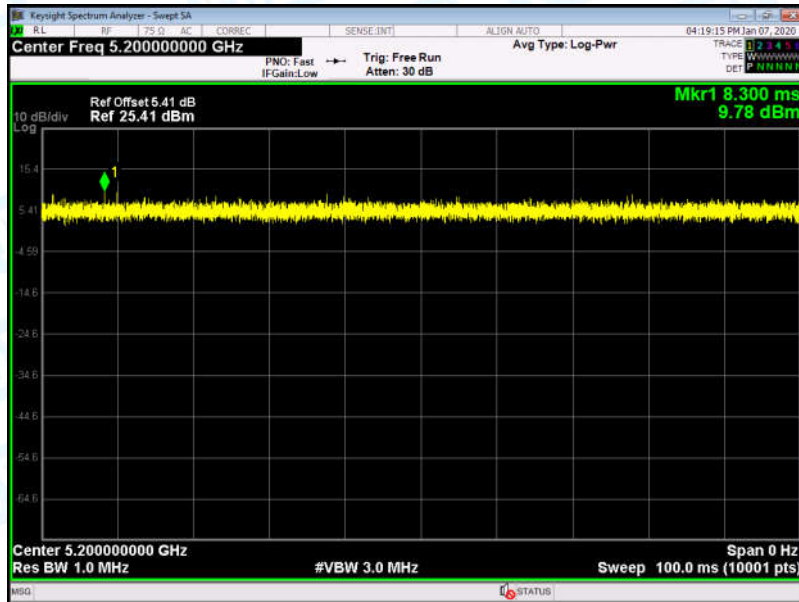
Temperature:	25 °C	Relative Humidity:	55%			
Test Voltage:	DC 3.8V					
U-NII-3						
Test Mode	Frequency (MHz)	Test Data			Limit (dBm)	
		Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)		
802.11a	5745	15.20	0	15.20	30	
	5785	15.10	0	15.10		
	5825	13.51	0	13.51		
802.11n (HT20)	5745	16.19	0	16.19		
	5785	14.87	0	14.87		
	5825	13.92	0	13.92		
802.11ac (VHT20)	5745	12.88	0	12.88		
	5785	13.94	0	13.94		
	5825	12.71	0	12.71		
802.11n (HT40)	5755	13.30	0	13.30		
	5795	13.71	0	13.71		
802.11 ac(VHT40)	5755	13.53	0	13.53		
	5795	14.14	0	14.14		
802.11 ac(VHT80)	5775	13.79	0	13.79		
Result: PASS						
Remark: the Directional Gain=2.92dBi<6 dBi. So P _{out} =P _{limit} =30dBm						

Test Mode		Duty cycle
U-NII-1	802.11 a	>98%
	802.11 n(HT20)	
	802.11 ac(HT20)	
	802.11 n(HT40)	
	802.11 ac(HT40)	
	802.11 ac(HT80)	
U-NII-2A	802.11 a	
	802.11 n(HT20)	
	802.11 ac(HT20)	
	802.11 n(HT40)	
	802.11 ac(HT40)	
	802.11 ac(HT80)	
U-NII-2C	802.11 a	
	802.11 n(HT20)	
	802.11 ac(HT20)	
	802.11 n(HT40)	
	802.11 ac(HT40)	
	802.11 ac(HT80)	
U-NII-3	802.11 a	
	802.11 n(HT20)	
	802.11 ac(HT20)	
	802.11 n(HT40)	
	802.11 ac(HT40)	
	802.11 ac(HT80)	
Please see the next plots.		

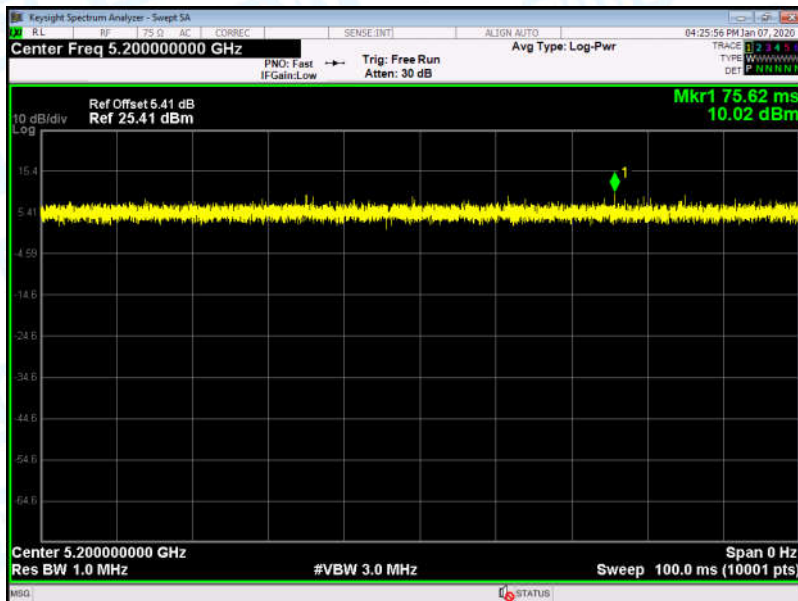
802.11 a 5200MHz U-NII-1



802.11 n(HT20) 5200MHz U-NII-1



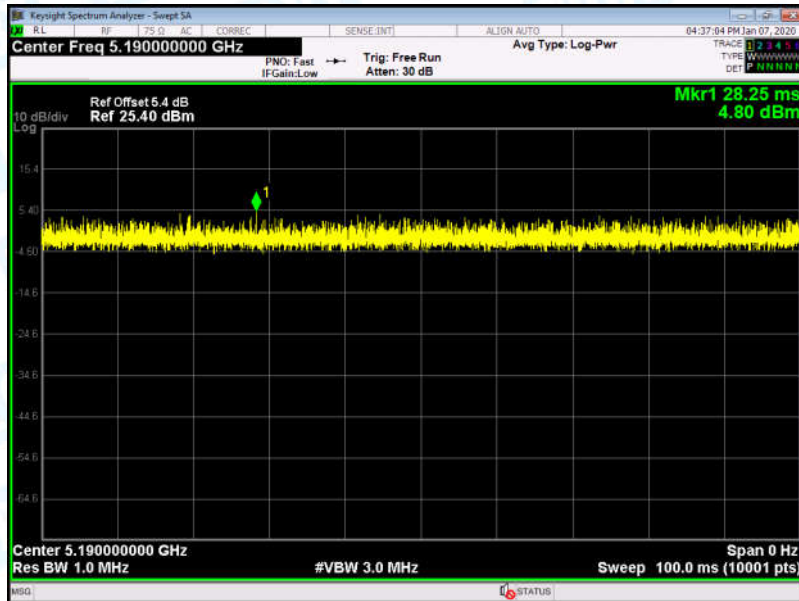
802.11 ac(VHT20) 5200MHz U-NII-1



802.11 n(HT40) 5190MHz U-NII-1



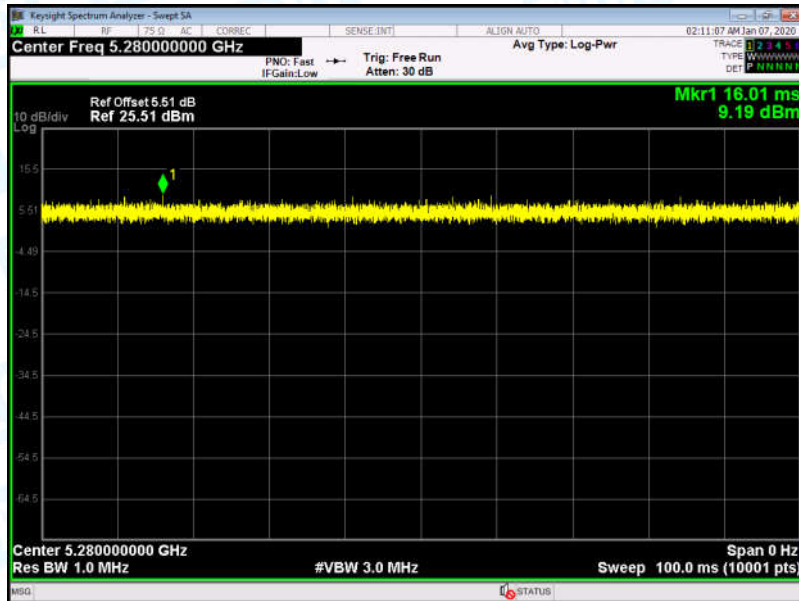
802.11 ac(VHT40) 5190MHz U-NII-1



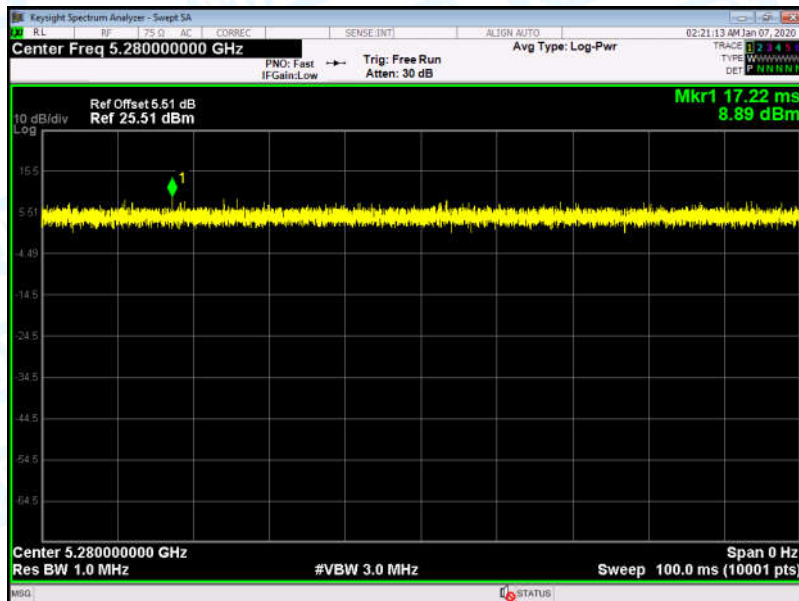
802.11 ac(VHT80) 5210MHz U-NII-1



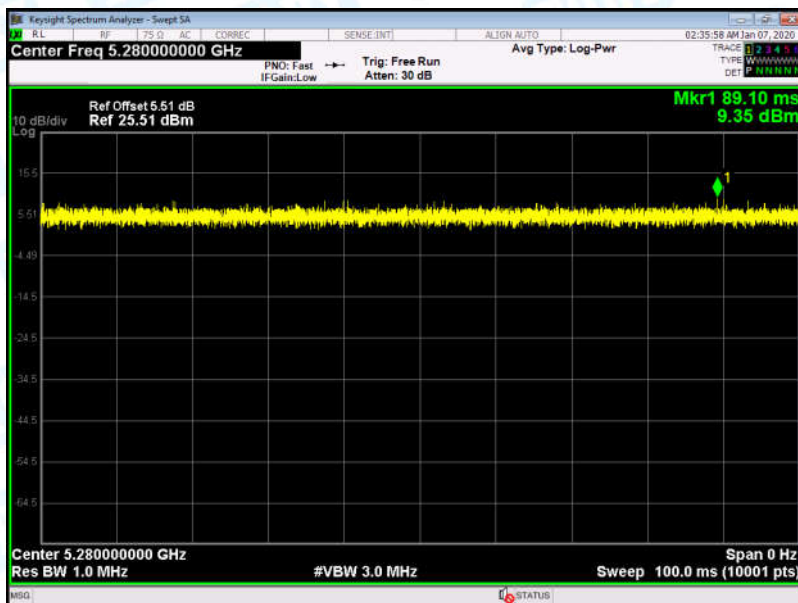
802.11 a 5280MHz U-NII-2A



802.11 n(HT20) 5280MHz U-NII-2A



802.11 ac(VHT20) 5280MHz U-NII-2A



802.11 n(HT40) 5270MHz U-NII-2A

