

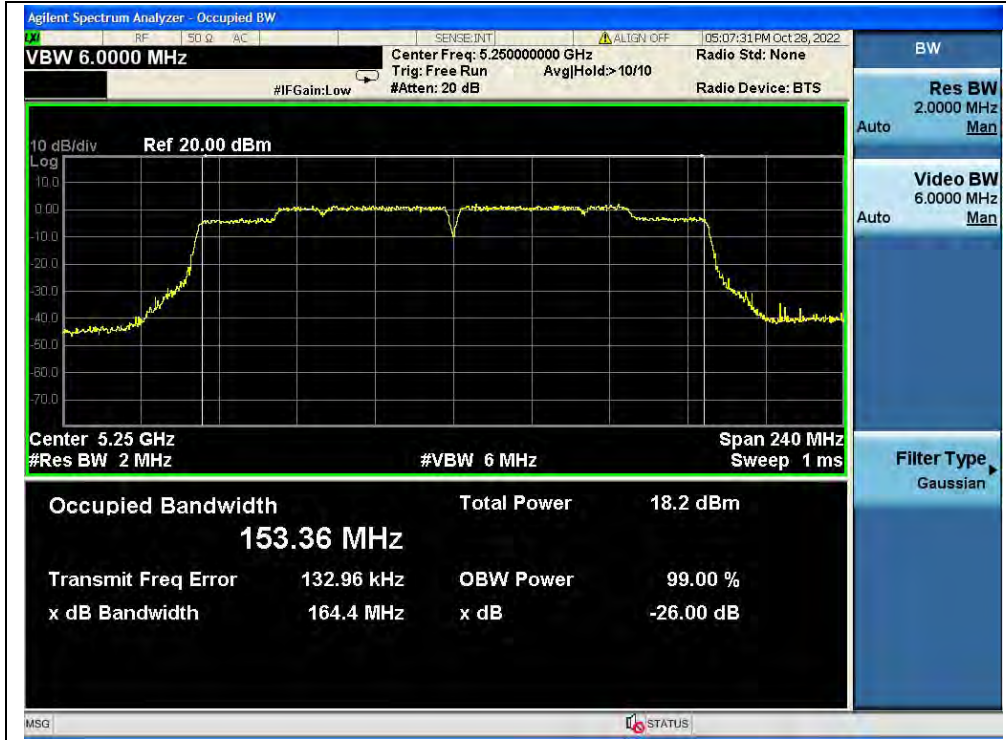


802.11ac (VHT160) Mode

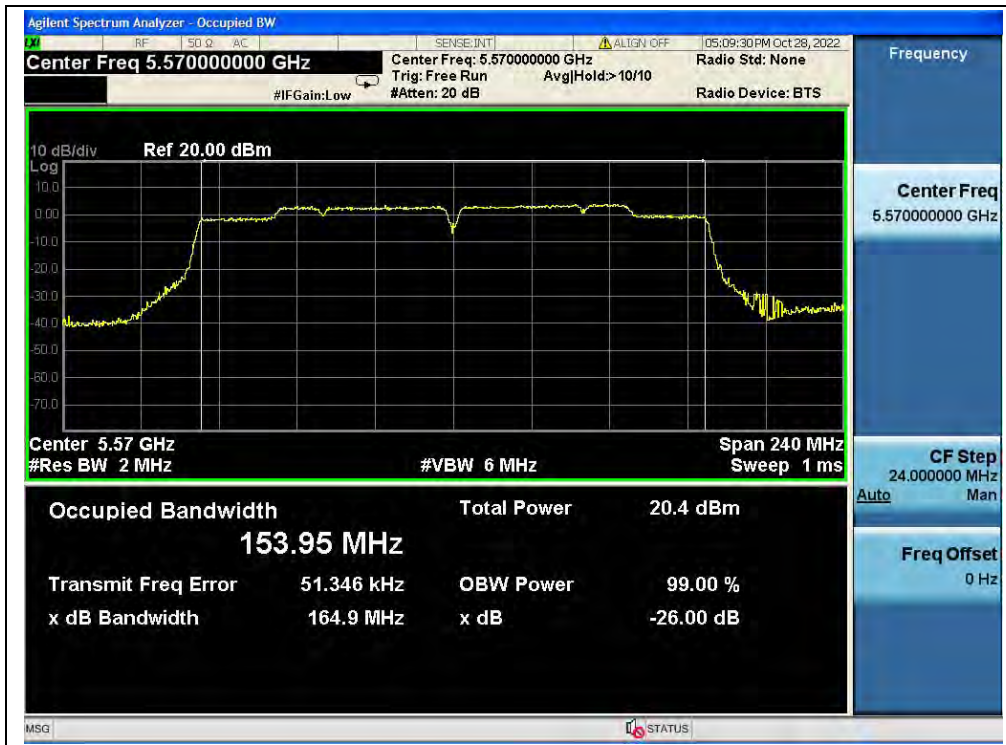
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
50	5250	164.40
114	5570	164.90

B. Test Plot:



(Channel 50, 5250MHz, 802.11ac (VHT160))



(Channel 114, 5570MHz, 802.11ac (VHT160))

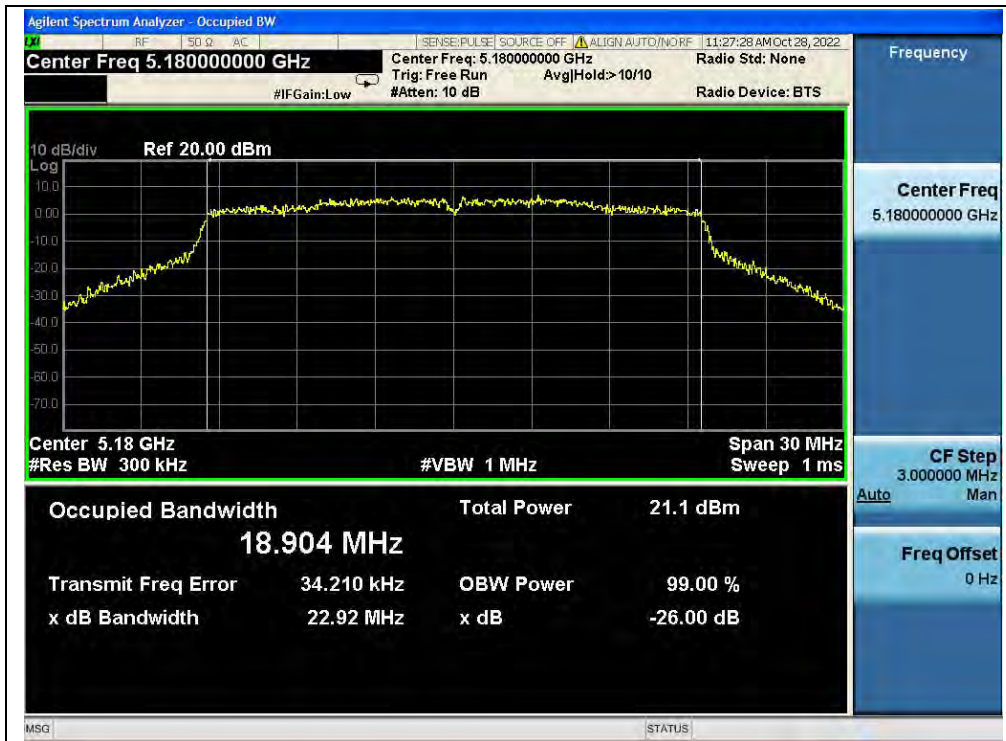


802.11ax (HEW20) Mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	22.92
44	5220	23.75
48	5240	24.13
52	5260	23.41
60	5300	23.09
64	5320	22.59
100	5500	23.33
120	5600	23.30
144	5720	23.27
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	15.12
149	5745	18.10
157	5785	18.35
165	5825	18.50

B. Test Plot:



(Channel 36, 5180MHz, 802.11ax (HEW20))



(Channel 44, 5220MHz, 802.11ax (HEW20))



(Channel 48, 5240MHz, 802.11ax (HEW20))



(Channel 52, 5260MHz, 802.11ax (HEW20))



(Channel 60, 5300MHz, 802.11ax (HEW20))



(Channel 64, 5320MHz, 802.11ax (HEW20))



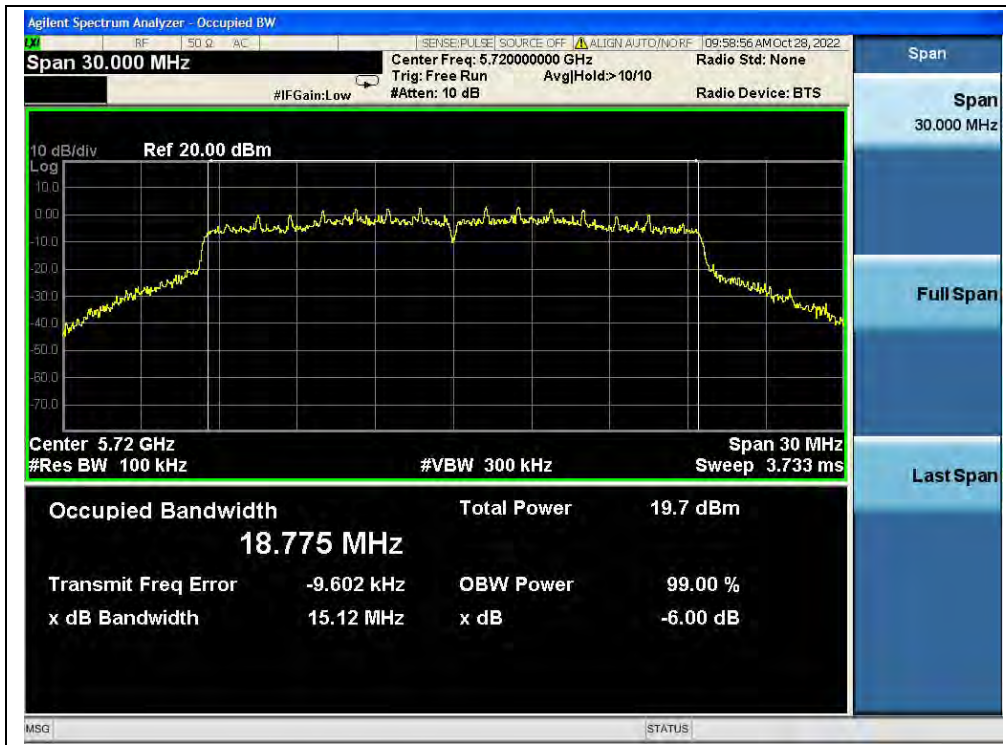
(Channel 100, 5500MHz, 802.11ax (HEW20))



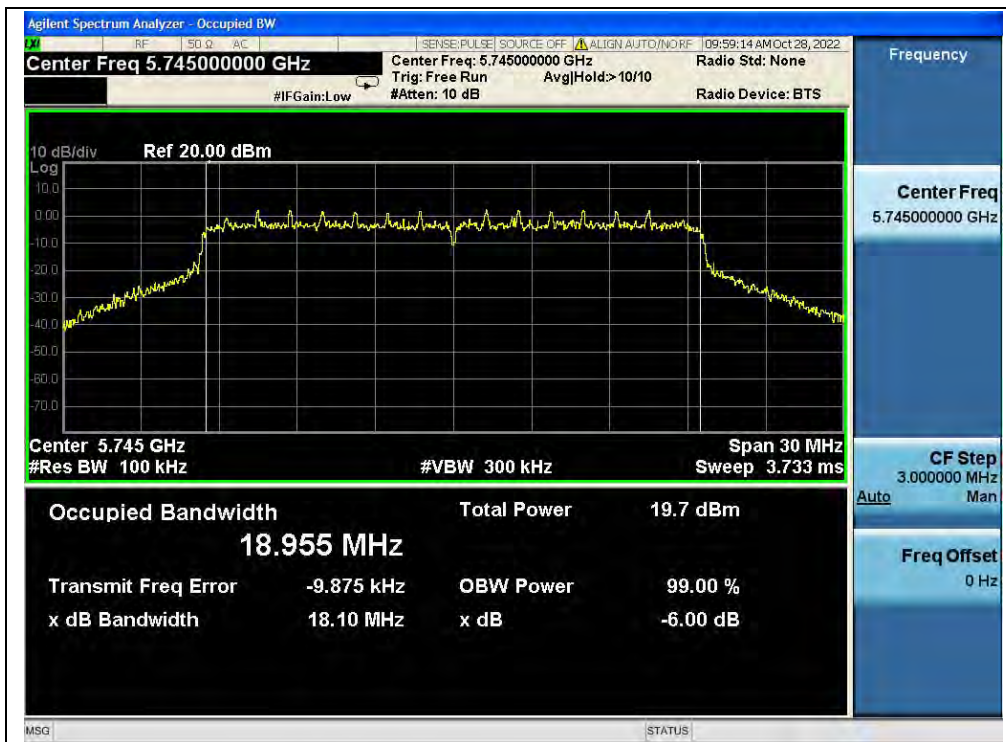
(Channel 120, 5600MHz, 802.11ax (HEW20))



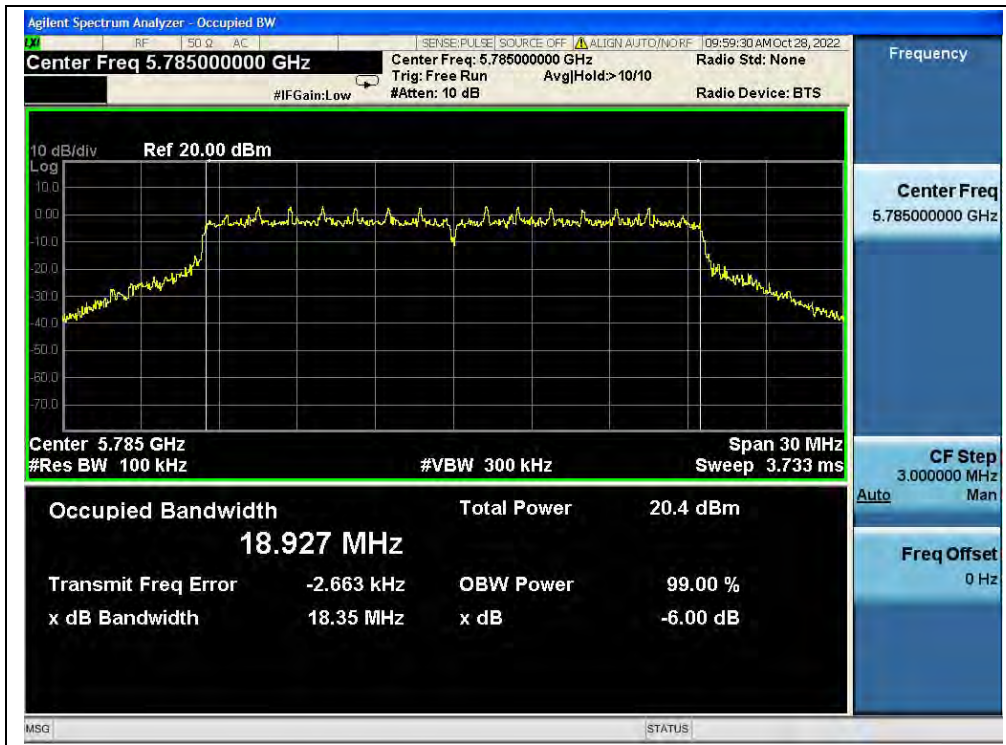
(Channel 144, 5720MHz, 802.11ax (HEW20))



(Channel 144, 5720MHz, 802.11ax (HEW20))



(Channel 149, 5745MHz, 802.11ax (HEW20))



(Channel 157, 5785MHz, 802.11ax (HEW20))



(Channel 165, 5825MHz, 802.11ax (HEW20))

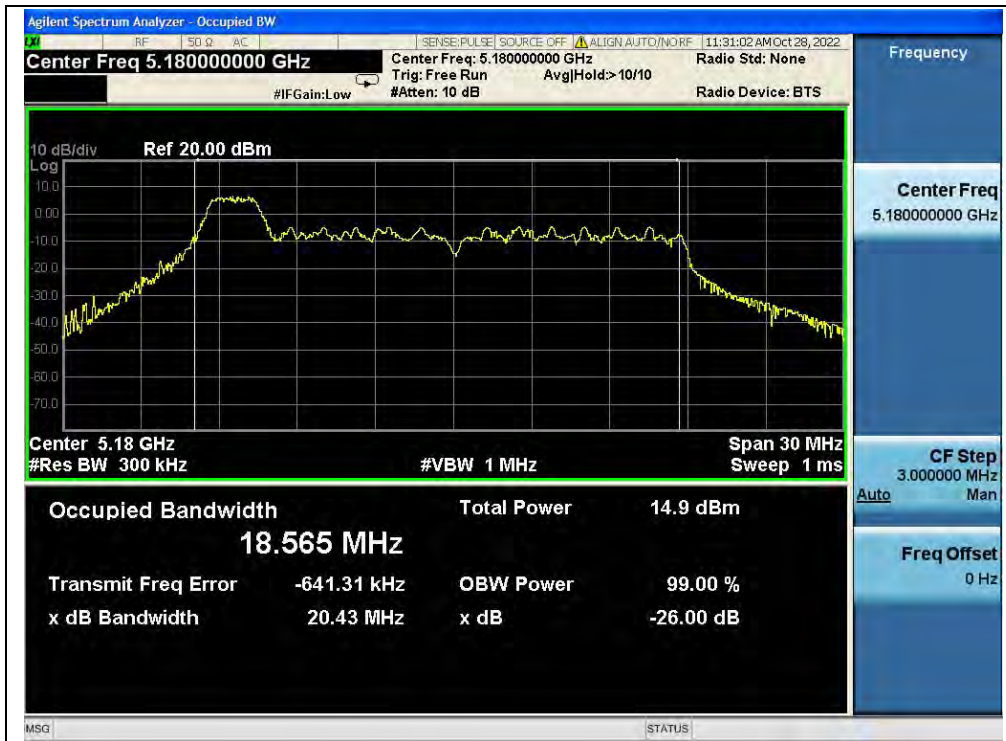


802.11ax (HEW20) RU26 Mode

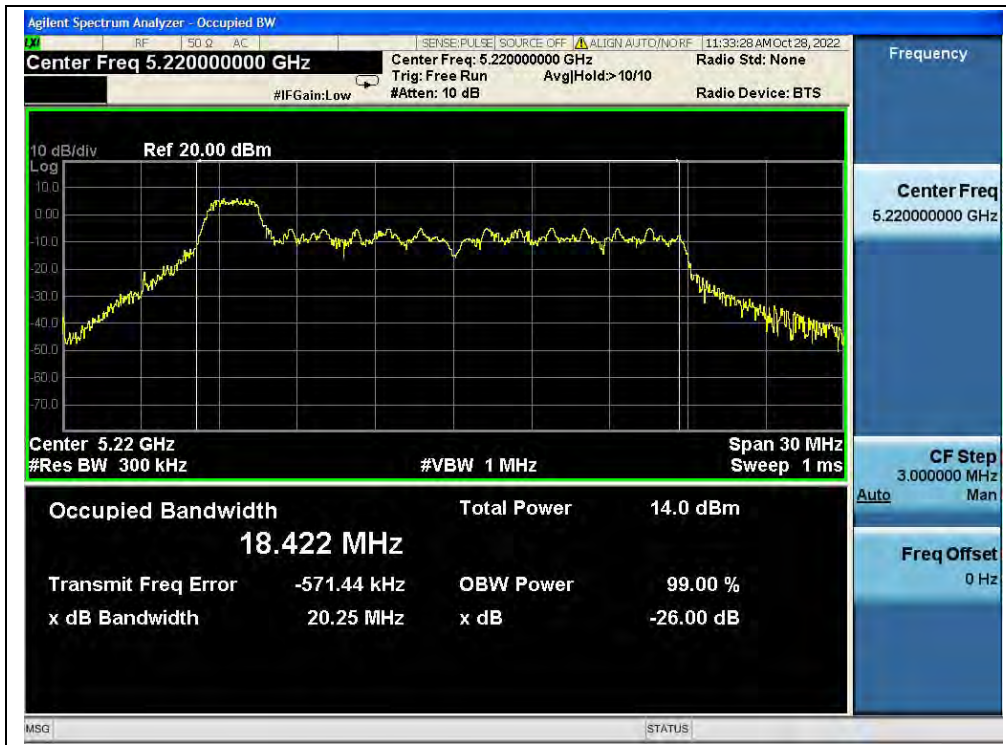
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	20.43
44	5220	20.25
48	5240	20.21
52	5260	20.41
60	5300	20.27
64	5320	20.24
100	5500	20.14
120	5600	20.10
144	5720	21.01
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	2.07
149	5745	2.05
157	5785	2.05
165	5825	2.03

B. Test Plot:



(Channel 36, 5180MHz, 802.11ax (HEW20) RU26)



(Channel 44, 5220MHz, 802.11ax (HEW20) RU26)



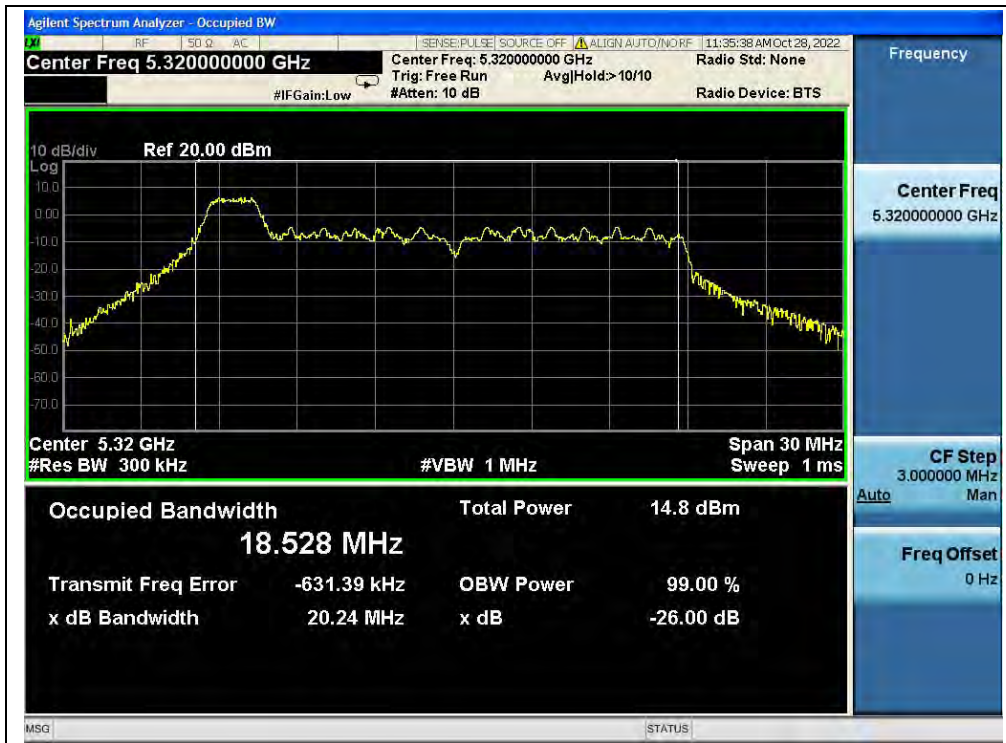
(Channel 48, 5240MHz, 802.11ax (HEW20) RU26)



(Channel 52, 5260MHz, 802.11ax (HEW20) RU26)



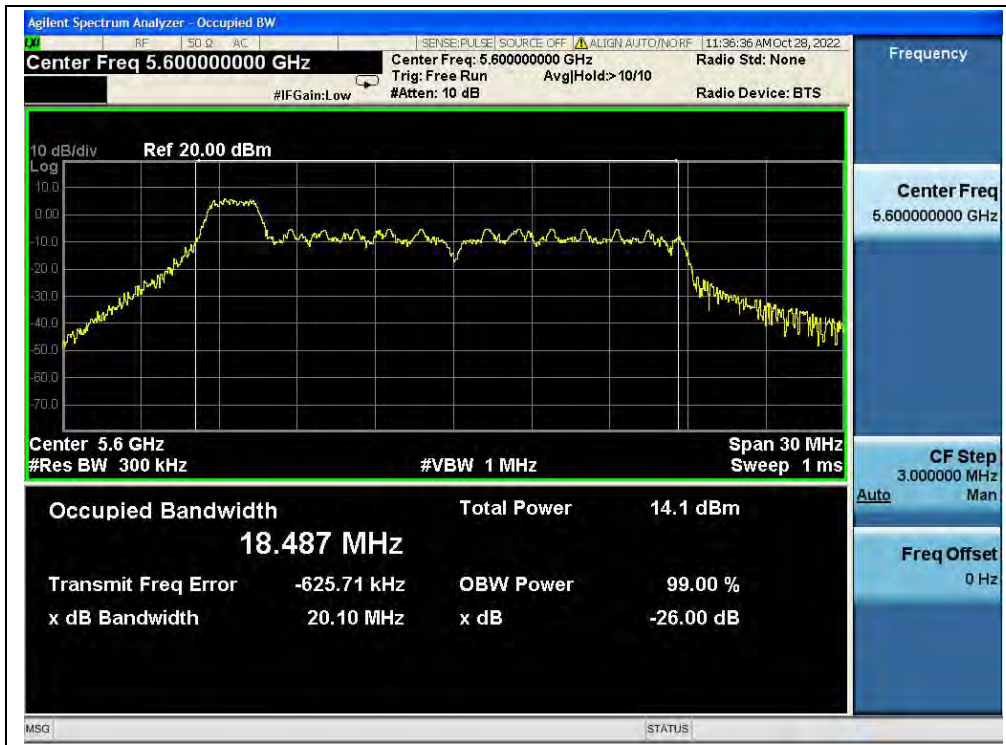
(Channel 60, 5300MHz, 802.11ax (HEW20) RU26)



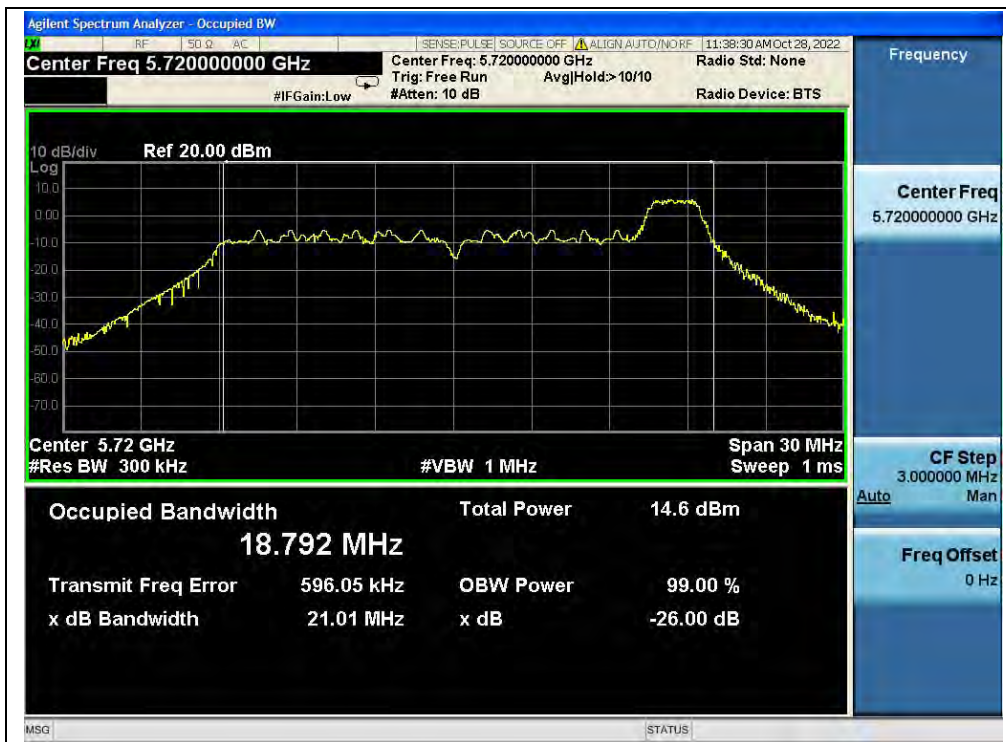
(Channel 64, 5320MHz, 802.11ax (HEW20) RU26)



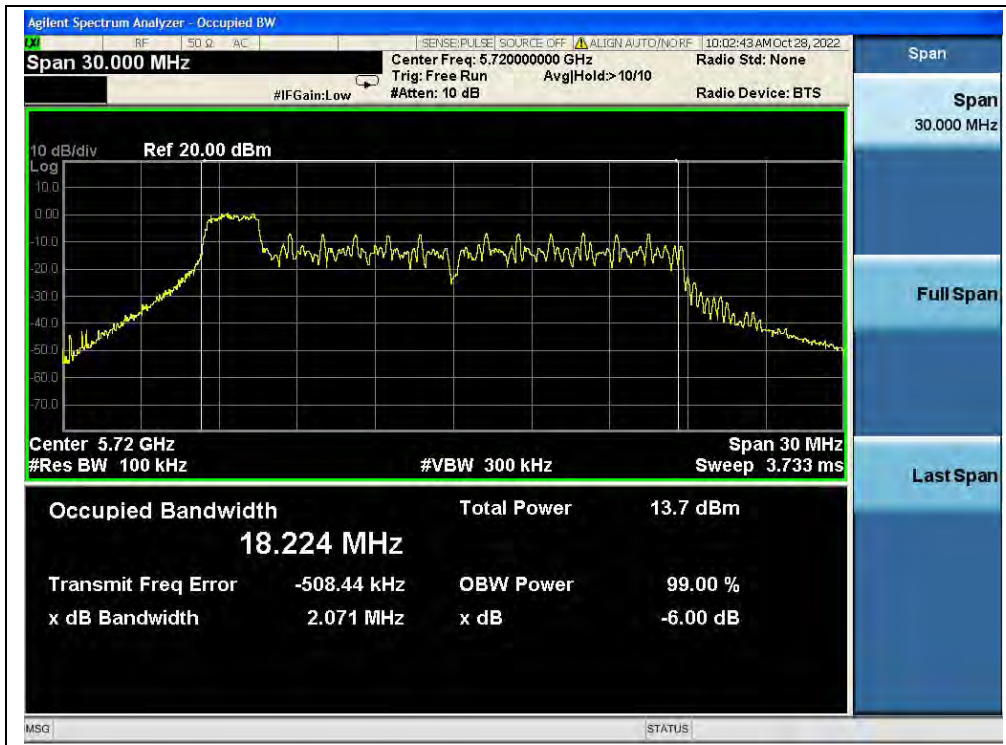
(Channel 100, 5500MHz, 802.11ax (HEW20) RU26)



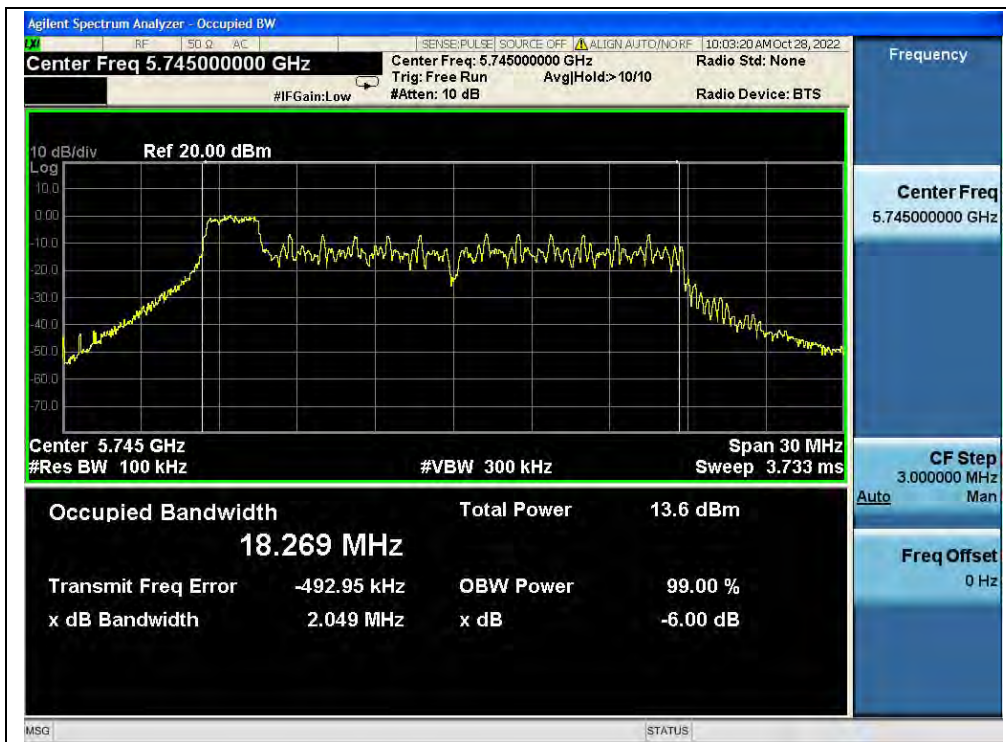
(Channel 120, 5600MHz, 802.11ax (HEW20) RU26)



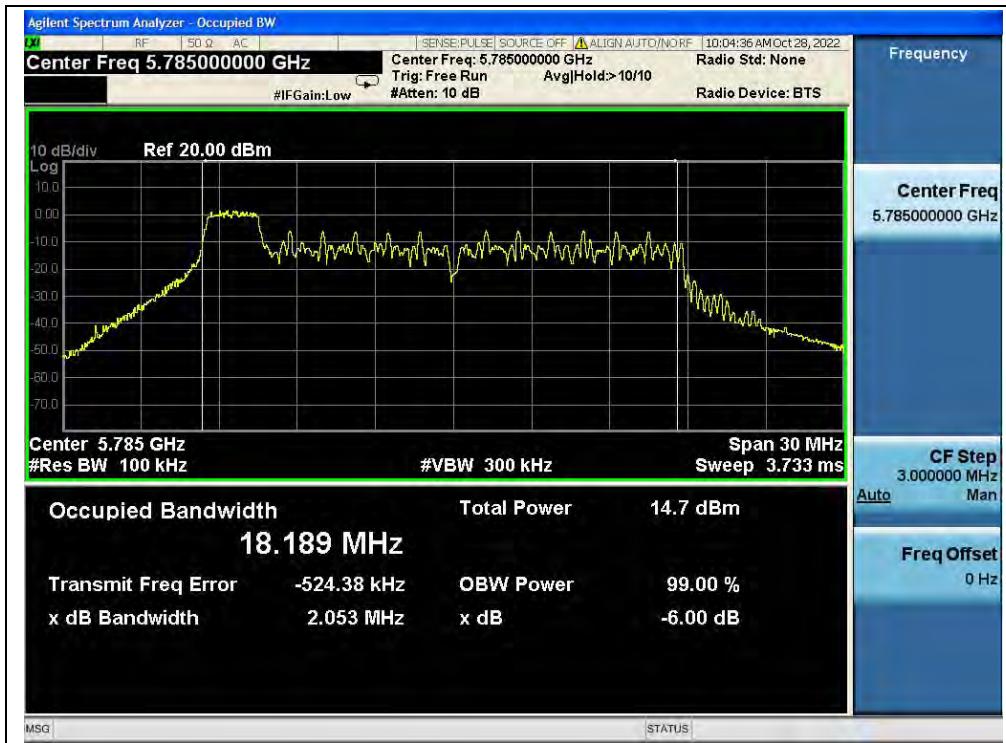
(Channel 144, 5720MHz, 802.11ax (HEW20) RU26)



(Channel 144, 5720MHz, 802.11ax (HEW20) RU26)



(Channel 149, 5745MHz, 802.11ax (HEW20) RU26)



(Channel 157, 5785MHz, 802.11ax (HEW20) RU26)



(Channel 165, 5825MHz, 802.11ax (HEW20) RU26)



802.11ax (HEW20) RU52 Mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	20.87
44	5220	20.48
48	5240	20.23
52	5260	21.03
60	5300	20.28
64	5320	20.82
100	5500	20.85
120	5600	21.03
144	5720	21.76
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	17.02
149	5745	17.02
157	5785	17.04
165	5825	17.00

B. Test Plot:



(Channel 36, 5180MHz, 802.11ax (HEW20) RU52)



(Channel 44, 5220MHz, 802.11ax (HEW20) RU52)



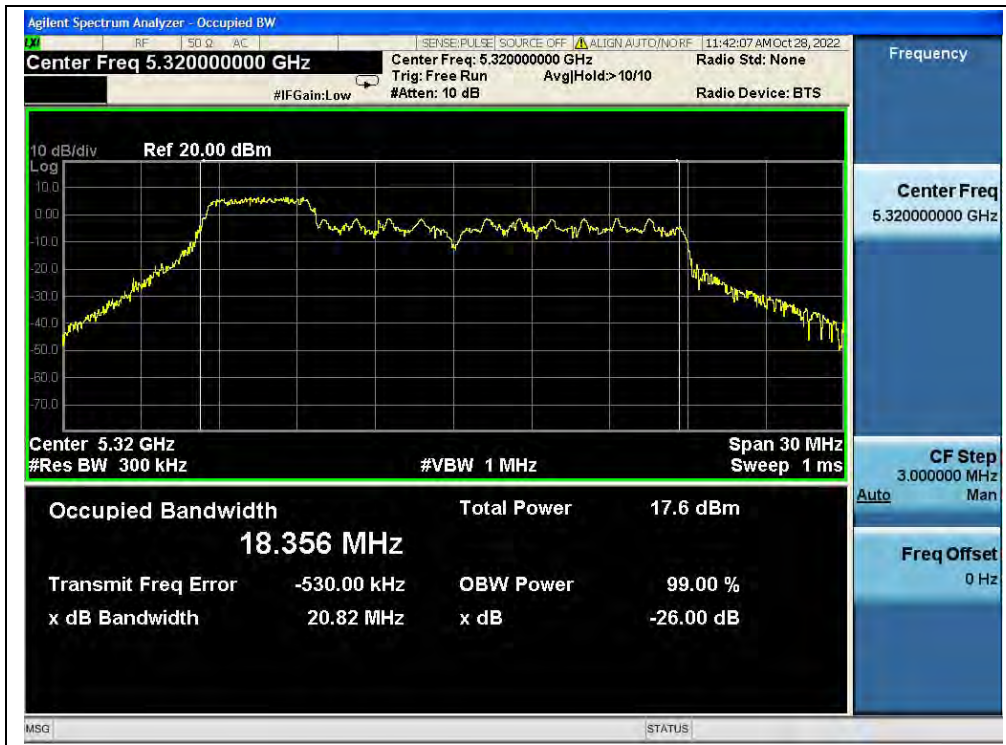
(Channel 48, 5240MHz, 802.11ax (HEW20) RU52)



(Channel 52, 5260MHz, 802.11ax (HEW20) RU52)



(Channel 60, 5300MHz, 802.11ax (HEW20) RU52)



(Channel 64, 5320MHz, 802.11ax (HEW20) RU52)



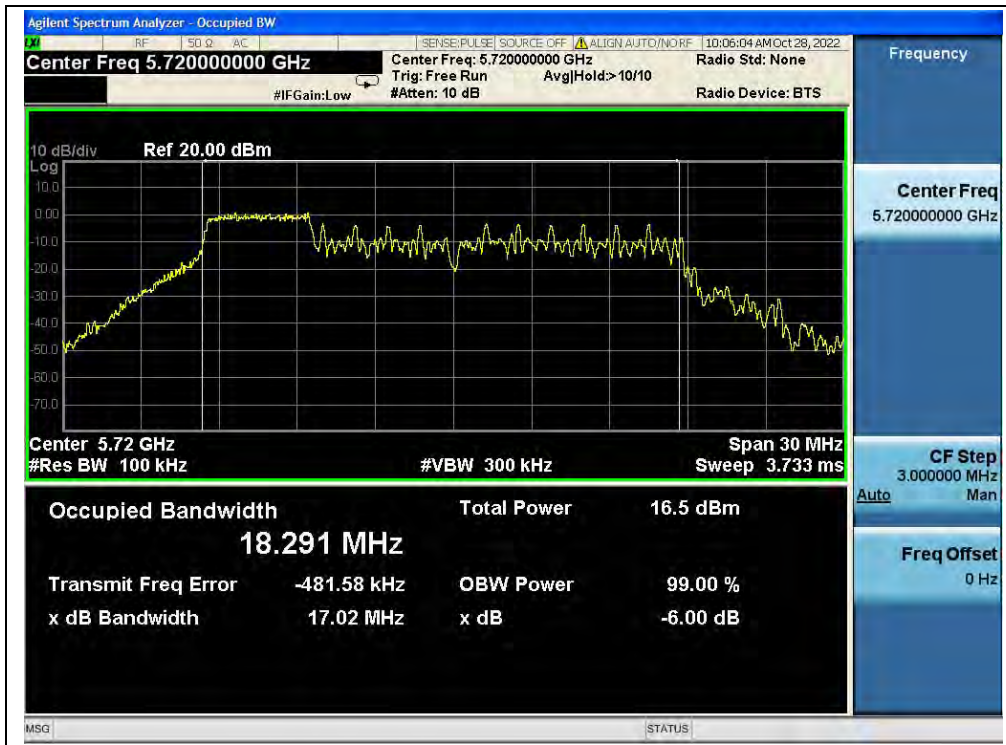
(Channel 100, 5500MHz, 802.11ax (HEW20) RU52)



(Channel 120, 5600MHz, 802.11ax (HEW20) RU52)



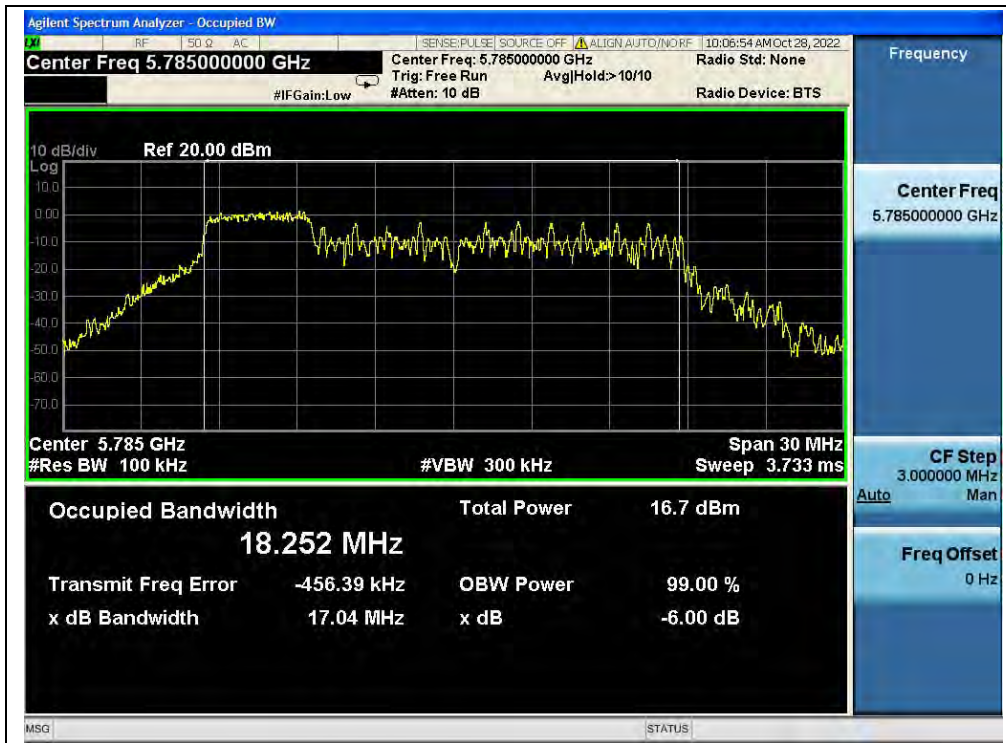
(Channel 144, 5720MHz, 802.11ax (HEW20) RU52)



(Channel 144, 5720MHz, 802.11ax (HEW20) RU52)



(Channel 149, 5745MHz, 802.11ax (HEW20) RU52)



(Channel 157, 5785MHz, 802.11ax (HEW20) RU52)



(Channel 165, 5825MHz, 802.11ax (HEW20) RU52)



802.11ax (HEW20) RU106 Mode

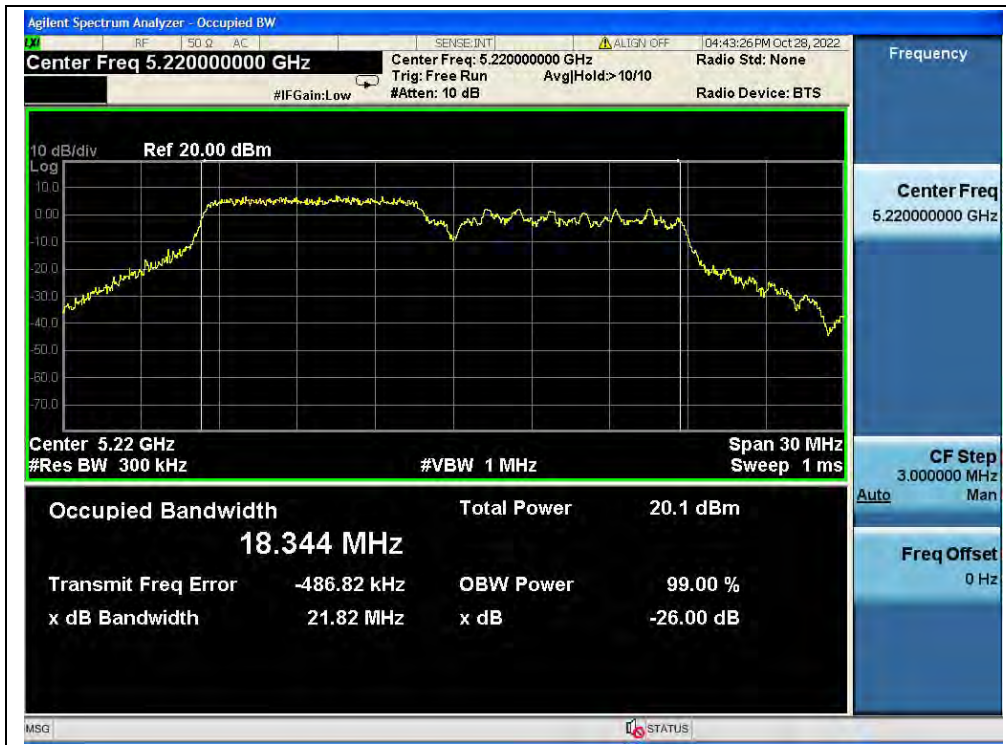
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	21.87
44	5220	21.82
48	5240	22.67
52	5260	21.78
60	5300	22.11
64	5320	22.15
100	5500	21.82
120	5600	22.04
144	5720	22.63
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	17.15
149	5745	17.17
157	5785	17.11
165	5825	17.17

B. Test Plot:



(Channel 36, 5180MHz, 802.11ax (HEW20) RU106)



(Channel 44, 5220MHz, 802.11ax (HEW20) RU106)



(Channel 48, 5240MHz, 802.11ax (HEW20) RU106)



(Channel 52, 5260MHz, 802.11ax (HEW20) RU106)



(Channel 60, 5300MHz, 802.11ax (HEW20) RU106)



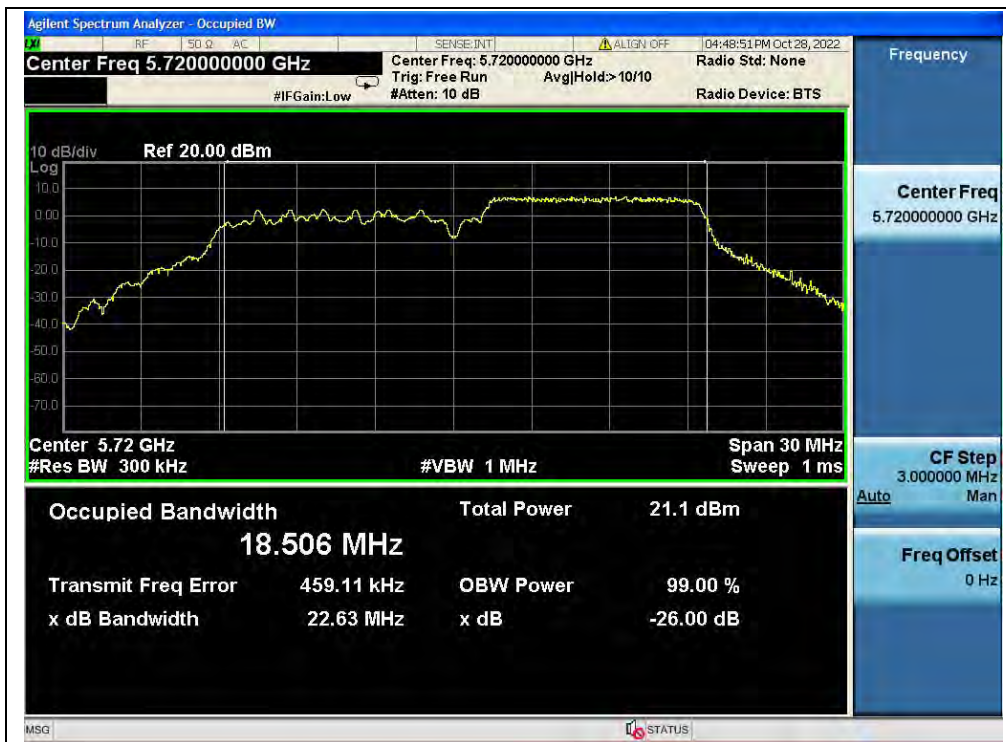
(Channel 64, 5320MHz, 802.11ax (HEW20) RU106)



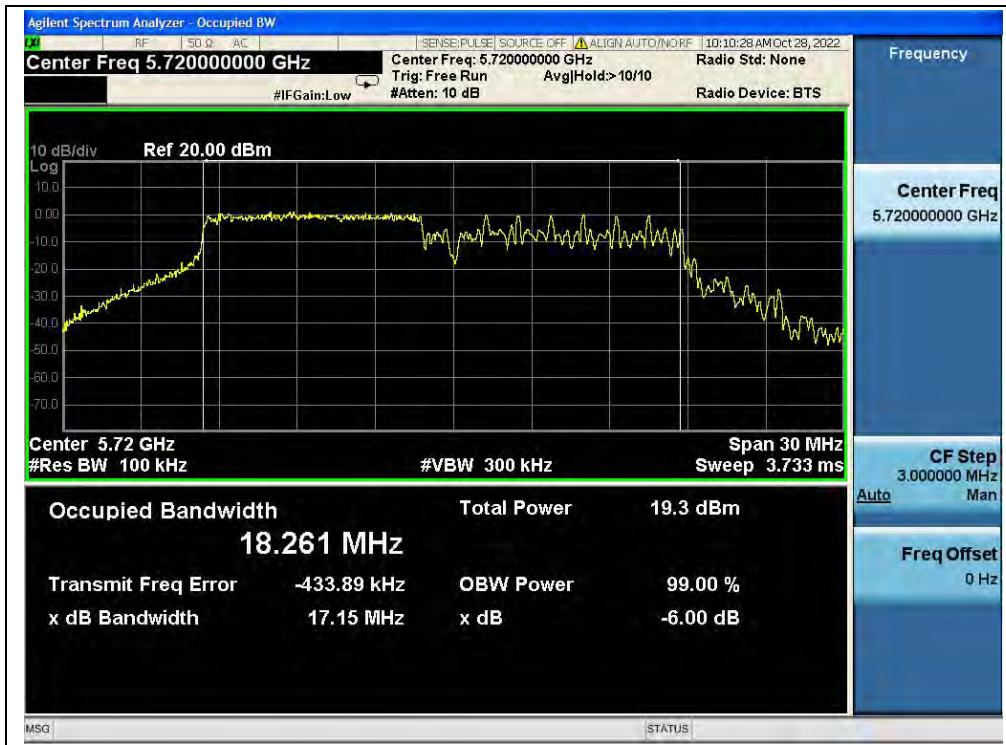
(Channel 100, 5500MHz, 802.11ax (HEW20) RU106)



(Channel 120, 5600MHz, 802.11ax (HEW20) RU106)



(Channel 144, 5720MHz, 802.11ax (HEW20) RU106)



(Channel 144, 5720MHz, 802.11ax (HEW20) RU106)



(Channel 149, 5745MHz, 802.11ax (HEW20) RU106)



(Channel 157, 5785MHz, 802.11ax (HEW20) RU106)



(Channel 165, 5825MHz, 802.11ax (HEW20) RU106)



802.11ax (HEW40) Mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
38	5190	42.59
46	5230	41.74
54	5270	42.77
62	5310	42.11
102	5510	41.72
126	5630	42.35
142	5710	42.49
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
142	5710	35.08
151	5755	37.59
159	5795	37.80

B. Test Plot:



(Channel 38, 5190MHz, 802.11ax (HEW40))



(Channel 46, 5230MHz, 802.11ax (HEW40))



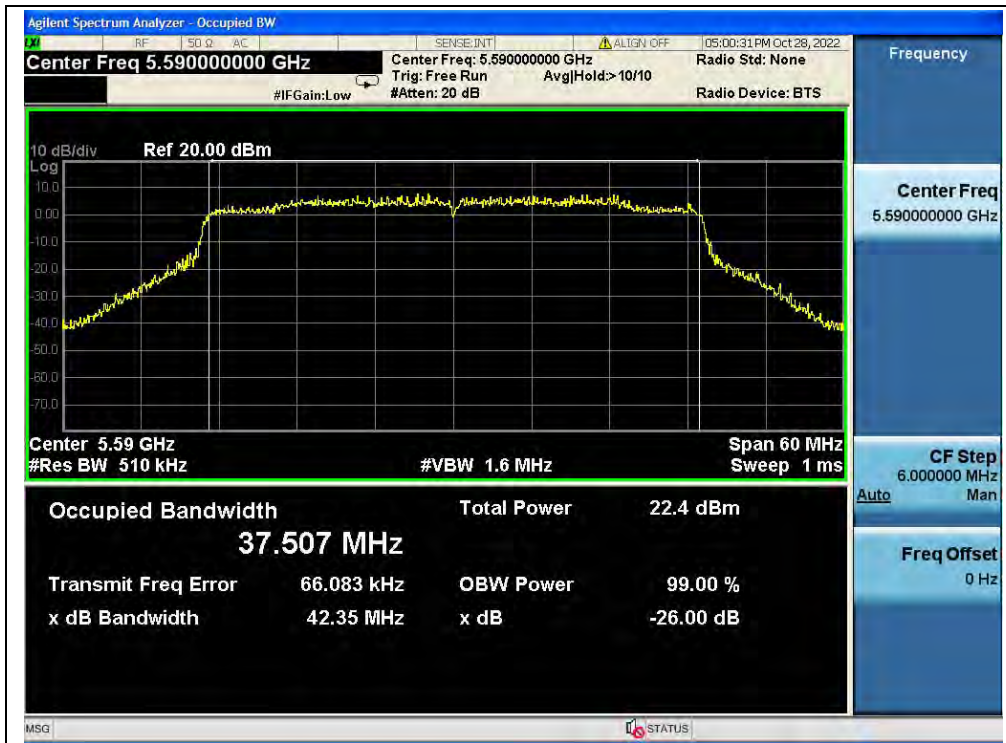
(Channel 54, 5270MHz, 802.11ax (HEW40))



(Channel 62, 5310MHz, 802.11ax (HEW40))



(Channel 102, 5510MHz, 802.11ax (HEW40))



(Channel 126, 5630MHz, 802.11ax (HEW40))



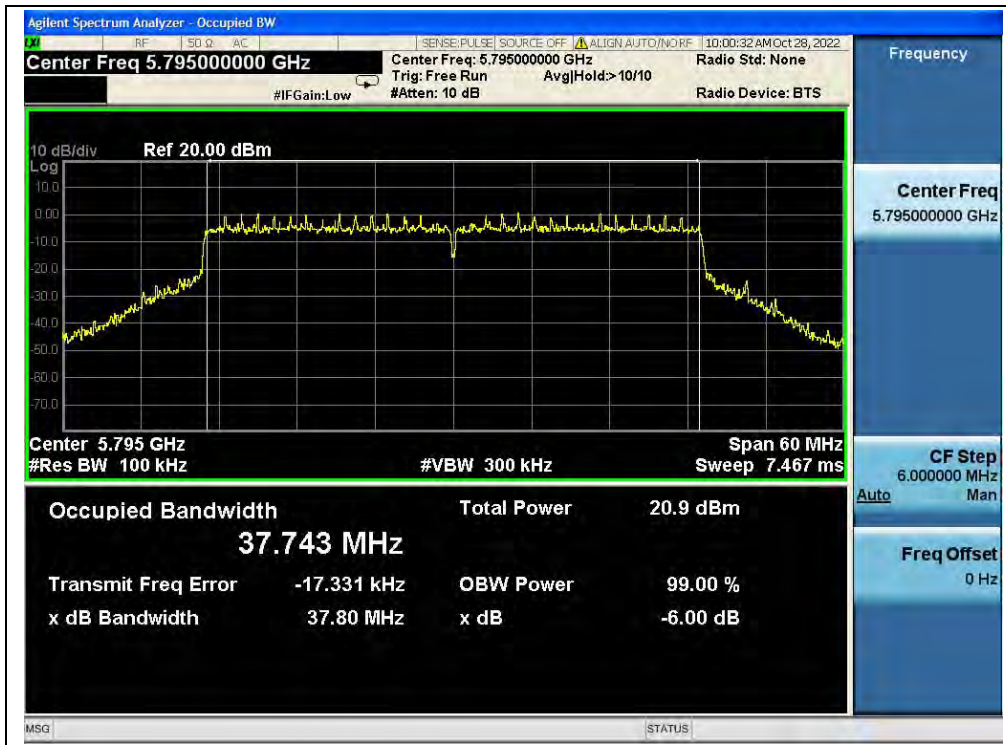
(Channel 142, 5710MHz, 802.11ax (HEW40))



(Channel 142, 5710MHz, 802.11ax (HEW40))



(Channel 151, 5755MHz, 802.11ax (HEW40))



(Channel 159, 5795MHz, 802.11ax (HEW40))

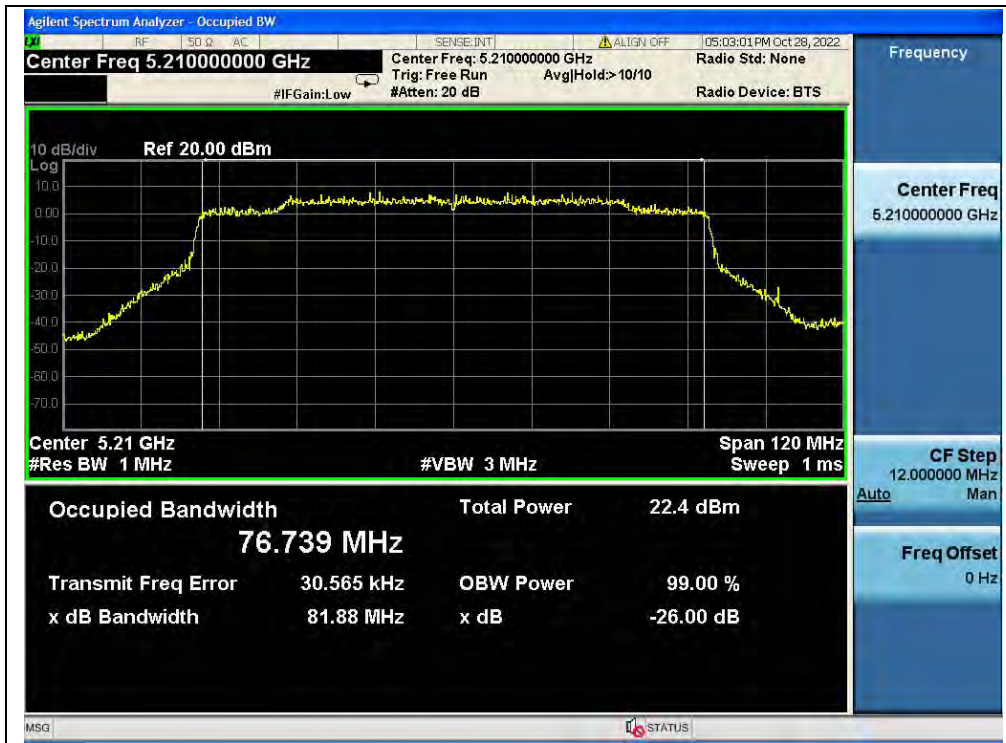


802.11ax (HEW80) Mode

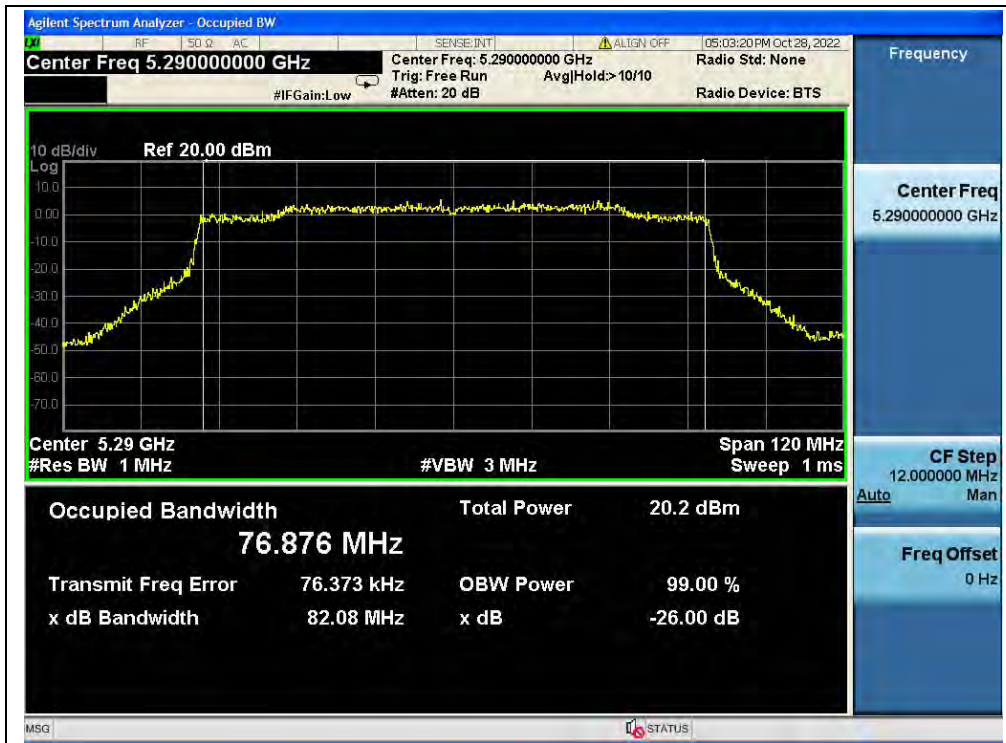
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
42	5210	81.88
58	5290	82.08
106	5530	82.39
122	5610	81.56
138	5690	82.60
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
138	5690	75.08
155	5775	75.07

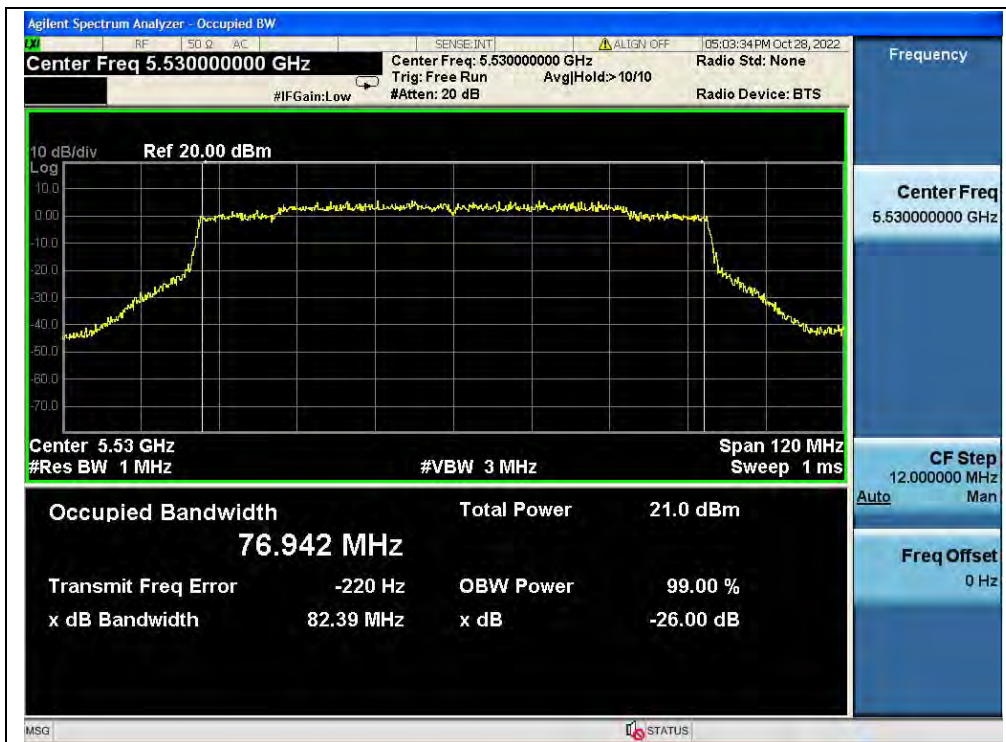
B. Test Plot:



(Channel 42, 5210MHz, 802.11ax (HEW80))



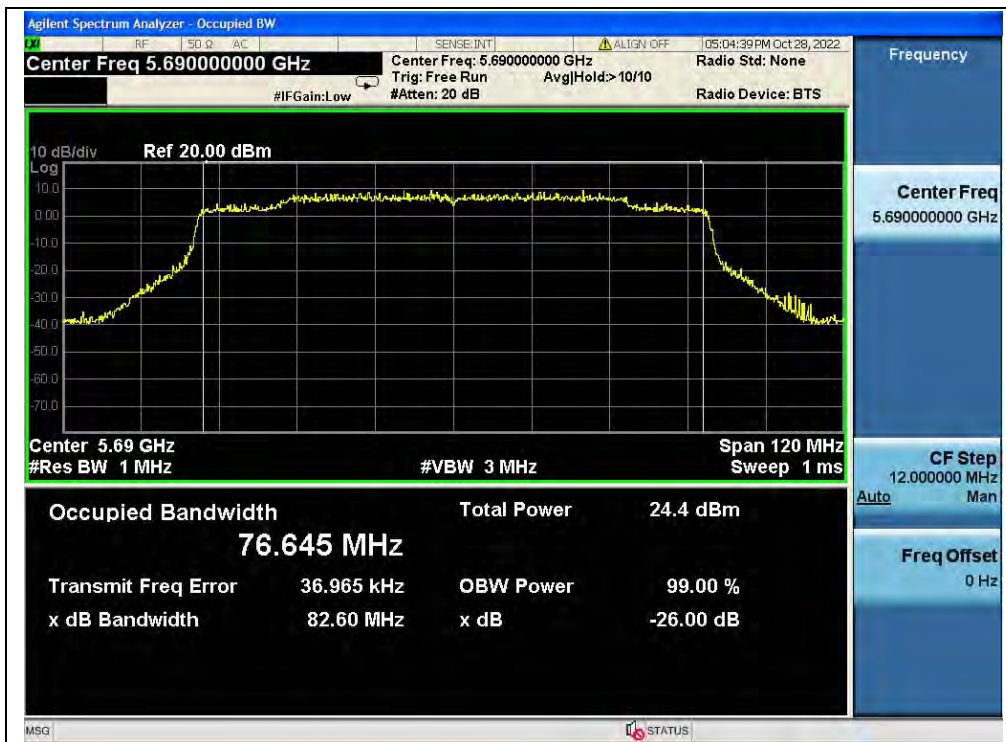
(Channel 58, 5290MHz, 802.11ax (HEW80))



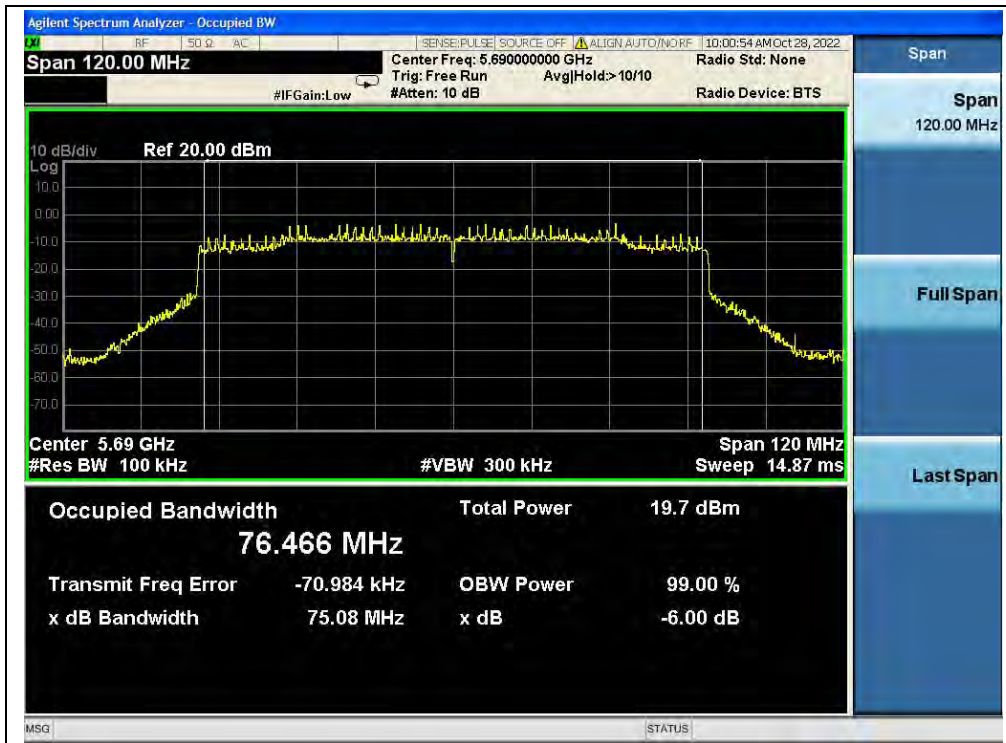
(Channel 106, 5530MHz, 802.11ax (HEW80))



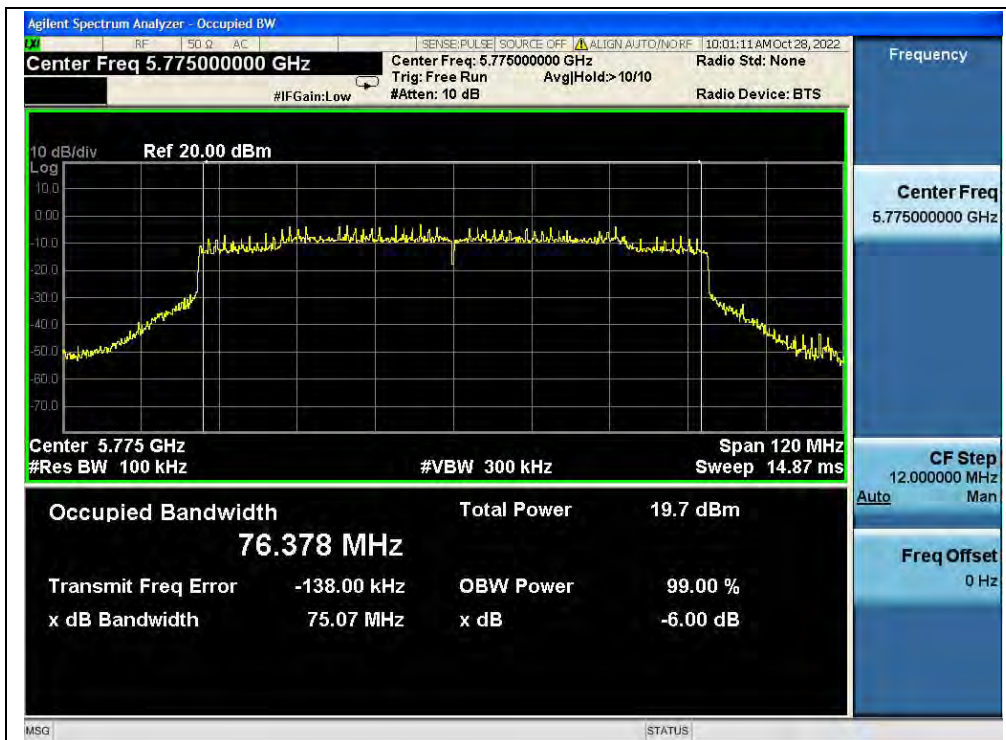
(Channel 122, 5610MHz, 802.11ax (HEW80))



(Channel 138, 5690MHz, 802.11ax (HEW80))



(Channel 138, 5690MHz, 802.11ax (HEW80))



(Channel 155, 5775MHz, 802.11ax (HEW80))

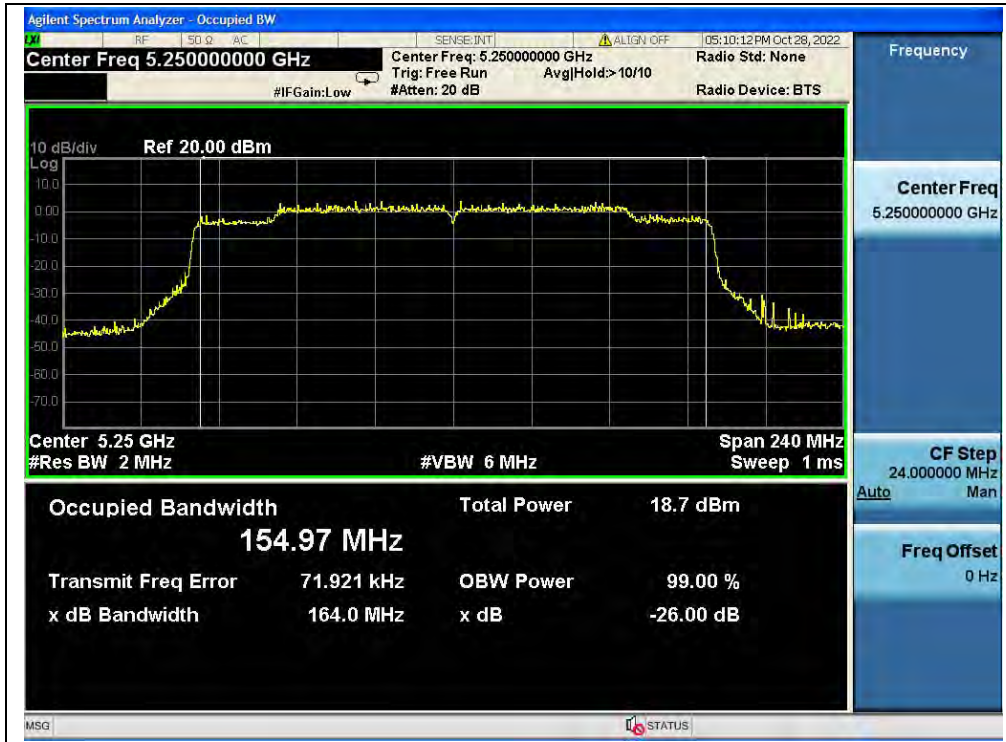


802.11ax (HEW160) Mode

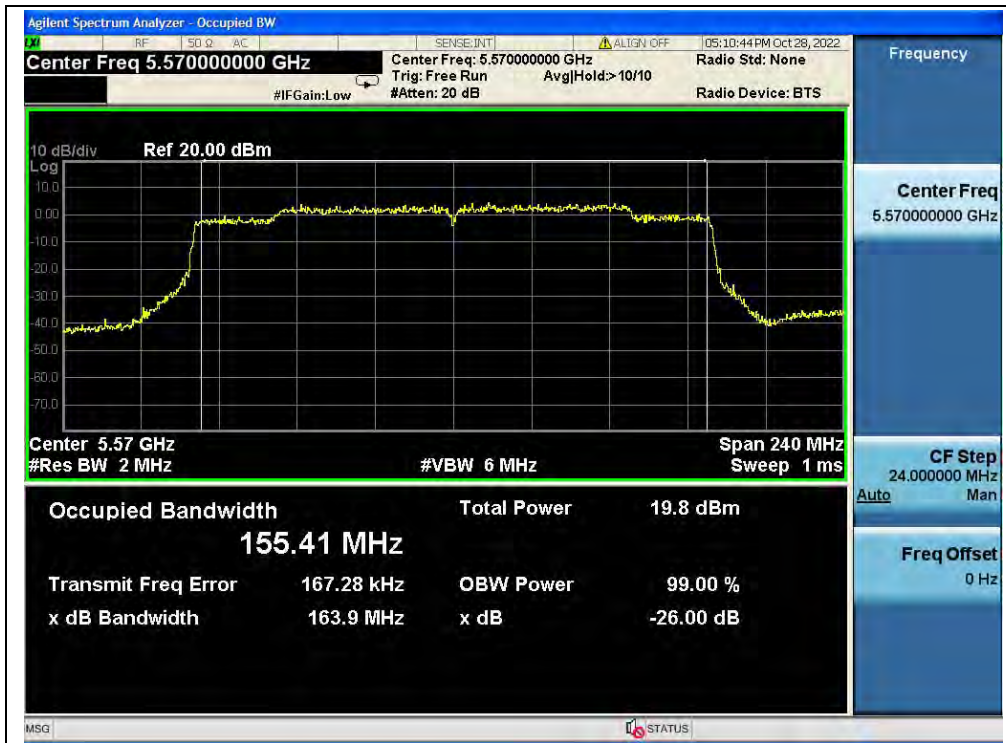
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
50	5250	164.00
114	5570	163.90

B. Test Plot:



(Channel 50, 5250MHz, 802.11ax (HEW160))



(Channel 114, 5570MHz, 802.11ax (HEW160))

2.5. Peak Power Spectral Density

2.5.1. Requirement

(1) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30dBm in any 500kHz band.

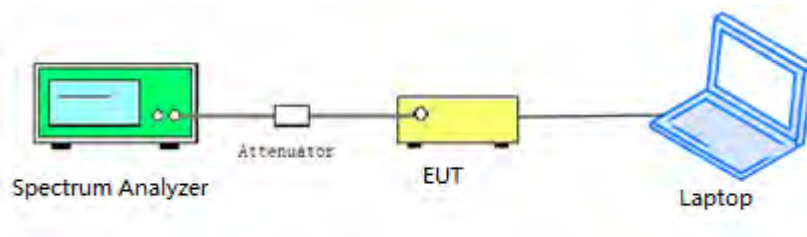
If transmitting antennas of directional gain greater than 6dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

(4) According to KDB662911D01 Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in units that are directly proportional to power.

(5) According to KDB 662911 D01, the directional gain = $G_{ANT} + 10\log(N_{ANT})$ dBi, where G_{ANT} is the antenna gain in dBi, N_{ANT} is the number of outputs.

2.5.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.



2.5.3. Test Procedure

KDB 789033 Section F) Maximum Power Spectral Density (PSD) Method SA-3 was used in order to prove compliance

- 1) Set span to encompass the entire 26-dB emission bandwidth
- 2) Set RBW = 1MHz. Set VBW ≥ 3MHz
- 3) Number of points in sweep ≥ 2 Span / RBW. Sweep time = auto
- 4) Detector = Average
- 5) Trace mode=Max hold
- 6) Record the max value

2.5.4. Test Result

802.11a Mode

A.Test Verdict:

Frequency (MHz)	Measured PPSD (dBm/MHz)		Duty Factor	Corrected PPSD (dBm/MHz)		Limit (dBm/MHz)	Verdict
	ANT0	ANT1		ANT0	ANT1		
5180	4.30	4.50	1.18	5.48	5.68	11	PASS
5220	4.53	4.58		5.71	5.76		
5240	4.32	4.57		5.50	5.75		
5260	3.93	4.24		5.11	5.42		
5300	4.37	4.52		5.55	5.70		
5320	4.36	4.55		5.54	5.73		
5500	3.66	4.10		4.84	5.28		
5600	3.36	3.83		4.54	5.01		
5720	3.64	4.15		4.82	5.33		
Frequency (MHz)	Measured PPSD (dBm/500KHz)		Duty Factor	Total PPSD (dBm/500KHz)		Limit (dBm/500KHz)	Verdict
	ANT0	ANT1		ANT0	ANT1		
5720	1.04	1.52	1.18	2.22	2.70	30	PASS
5745	0.12	0.39		1.30	1.57		
5785	0.29	0.38		1.47	1.56		
5825	-0.11	0.65		1.07	1.83		



B.Test Plot:



(Channel 36, 5180MHz, 802.11a, ANT0)



(Channel 44, 5220MHz, 802.11a, ANT0)



(Channel 48, 5240MHz, 802.11a, ANT0)



(Channel 52, 5260MHz, 802.11a, ANT0)



(Channel 60, 5300MHz, 802.11a, ANT0)



(Channel 64, 5320MHz, 802.11a, ANT0)



(Channel 100, 5500MHz, 802.11a, ANT0)



(Channel 120, 5600MHz, 802.11a, ANT0)



(Channel 144, 5720MHz, 802.11a, ANT0)



(Channel 144, 5720MHz, 802.11a, ANT0)



(Channel 149, 5745MHz, 802.11a, ANT0)



(Channel 157, 5785MHz, 802.11a, ANT0)



(Channel 165, 5825MHz, 802.11a, ANT0)



802.11n (HT20) Mode

A.Test Verdict:

Frequency (MHz)	Measured PPSD (dBm/MHz)		Duty Factor	Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
	ANT0	ANT1				
5180	2.06	1.97	1.05	6.08	6.51	PASS
5220	2.31	1.89		6.17		
5240	2.12	1.81		6.03		
5260	2.09	1.69		5.95		
5300	2.10	1.77		6.00		
5320	2.16	1.84		6.06		
5500	1.49	2.32		5.99		
5600	1.02	2.06		5.63		
5720	1.99	2.43		6.28		
Frequency (MHz)	Measured PPSD (dBm/500KHz)		Duty Factor	Total PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
	ANT0	ANT1				
5720	1.09	1.76	1.05	5.50	25.51	PASS
5745	0.06	0.44		4.31		
5785	0.35	0.31		4.39		
5825	-0.01	0.62		4.38		
<p>Note: Directional gain = 7.48dBi +10log(2) = 10.49dBi > 6dBi, so the limit shall be reduced to 11-(10.49-6) = 6.51dBm for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to 30-(10.49-6) = 25.51dBm for 5.745-5.825GHz band.</p>						



B.Test Plot:



(Channel 36, 5180MHz, 802.11n (HT20), ANT0)



(Channel 44, 5220MHz, 802.11n (HT20), ANT0)



(Channel 48, 5240MHz, 802.11n (HT20), ANT0)



(Channel 52, 5260MHz, 802.11n (HT20), ANT0)



(Channel 60, 5300MHz, 802.11n (HT20), ANT0)



(Channel 64, 5320MHz, 802.11n (HT20), ANT0)



(Channel 100, 5500MHz, 802.11n (HT20), ANT0)



(Channel 120, 5600MHz, 802.11n (HT20), ANT0)



(Channel 144, 5720MHz, 802.11n (HT20), ANT0)



(Channel 144, 5720MHz, 802.11n (HT20), ANT0)



(Channel 149, 5745MHz, 802.11n (HT20), ANT0)



(Channel 157, 5785MHz, 802.11n (HT20), ANT0)



(Channel 165, 5825MHz, 802.11n (HT20), ANT0)



802.11n (HT40) Mode

A.Test Verdict:

Frequency (MHz)	Measured PPSD (dBm/MHz)		Duty Factor	Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
	ANT0	ANT1				
5190	0.97	0.64	0.99	4.81	6.51	PASS
5230	1.07	0.44		4.77		
5270	0.82	0.25		4.54		
5310	0.89	0.68		4.79		
5510	0.07	0.07		4.07		
5630	0.43	0.18		4.31		
5710	0.89	0.07		4.50		
Frequency (MHz)	Measured PPSD (dBm/500KHz)		Duty Factor	Total PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
	ANT0	ANT1				
5710	0.42	-0.47	0.99	4.00	25.51	PASS
5755	-0.47	-1.44		3.07		
5795	-0.91	-1.40		2.85		
<p>Note: Directional gain = $7.48\text{dBi} + 10\log(2) = 10.49\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (10.49 - 6) = 6.51\text{dBm}$ for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to $30 - (10.49 - 6) = 25.51\text{dBm}$ for 5.745-5.825GHz band.</p>						



B.Test Plot:



(Channel 38, 5190MHz, 802.11n (HT40), ANT0)



(Channel 46, 5230MHz, 802.11n (HT40), ANT0)



(Channel 54, 5270MHz, 802.11n (HT40), ANT0)



(Channel 62, 5310MHz, 802.11n (HT40), ANT0)



(Channel 102, 5510MHz, 802.11n (HT40), ANTO)



(Channel 126, 5630 MHz, 802.11n (HT40), ANTO)



(Channel 142, 5710MHz, 802.11n (HT40), ANTO)



(Channel 142, 5710MHz, 802.11n (HT40), ANTO)



(Channel 151, 5755MHz, 802.11n (HT40), ANT0)



(Channel 159, 5795MHz, 802.11n (HT40), ANT0)



802.11ac (VHT20) Mode

A.Test Verdict:

Frequency (MHz)	Measured PPSD (dBm/MHz)		Duty Factor	Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
	ANT0	ANT1				
5180	1.69	2.36	1.09	6.14	6.51	PASS
5220	1.96	2.40		6.29		
5240	1.83	2.42		6.24		
5260	1.71	2.14		6.03		
5300	1.72	2.22		6.08		
5320	1.72	2.33		6.14		
5500	1.54	2.24		6.00		
5600	1.12	2.00		5.68		
5720	2.01	2.30		6.26		
Frequency (MHz)	Measured PPSD (dBm/500KHz)		Duty Factor	Total PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
	ANT0	ANT1				
5720	2.04	1.46	1.09	5.86	25.51	PASS
5745	1.12	0.45		4.90		
5785	0.82	0.20		4.62		
5825	0.62	0.59		4.71		
<p>Note: Directional gain = 7.48dBi +10log(2) = 10.49dBi > 6dBi, so the limit shall be reduced to 11-(10.49-6) = 6.51dBm for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to 30-(10.49-6) = 25.51dBm for 5.745-5.825GHz band.</p>						



B.Test Plot:



(Channel 36, 5180MHz, 802.11ac (VHT20), ANT0)



(Channel 44, 5220MHz, 802.11ac (VHT20), ANT0)



(Channel 48, 5240MHz, 802.11ac (VHT20), ANT0)



(Channel 52, 5260MHz, 802.11ac (VHT20), ANT0)



(Channel 60, 5300MHz, 802.11ac (VHT20), ANT0)



(Channel 64, 5320MHz, 802.11ac (VHT20), ANT0)



(Channel 100, 5500MHz, 802.11ac (VHT20), ANT0)



(Channel 120, 5600MHz, 802.11ac (VHT20), ANT0)