



TEST REPORT

APPLICANT : Reliance Communications LLC

PRODUCT NAME : Orbic AirSurf 5G UW

MODEL NAME : R141TL5

BRAND NAME : Orbic

FCC ID : 2ABGH-R141TL5

STANDARD(S) : 47 CFR Part 15 Subpart E

RECEIPT DATE : 2021-07-29

TEST DATE : 2021-08-11 to 2021-11-30

ISSUE DATE : 2021-12-01

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Change History		
Version	Date	Reason for change
1.0	2021-12-01	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Reliance Communications LLC
Applicant Address:	91 Colin Drive, Unit 1, HOLBROOK, New York 11741, United States
Manufacturer:	Unimaxcomm
Manufacturer Address:	35F,HBC HuiLong Center Building-II Minzhi Street,Longhua, Shenzhen, P.R. China 518110

1.2. Equipment Under Test (EUT) Description

Product Name:	Orbic AirSurf 5G UW
Sample No.:	1#
Hardware Version:	R141-REV12
Software Version:	ORB141TL5_V1.1.9_SVZ
Modulation Technology:	OFDM
Modulation Mode:	802.11a, 802.11n (HT20), 802.11n (HT40) 802.11ac (VHT20), 802.11ac (VHT40),802.11ac (VHT80) 802.11ax (HEW20), 802.11ax (HEW40),802.11ax (HEW80)
Operating Frequency Range:	5180MHz-5240MHz; 5260MHz-5320MHz; 5500MHz-5720MHz; 5745MHz-5825MHz
Channel Number:	Refer to 1.3
Antenna Type:	Fixed Internal Antenna
Antenna Gain:	ANT 0: 3.35dBi; ANT 1: 3.36dBi
Directional Gain:	6.37dBi ^{Note 2}



Accessory Information:	Battery	
	Brand Name:	Orbic
	Model No.:	BTE-6002
	Serial No.:	N/A
	Capacity:	6000mAh
	Rated Voltage:	7.6V
	Charge Limit:	8.7V
	Manufacturer:	GANZHOU NOVEL BATTERY TECHNOLOGY CO.LTD
	AC Adapter	
	Brand Name:	Orbic
	Model No.:	JHD-AP065U-190342BA-A
	Serial No.:	N/A
	Rated Output:	19V \approx 3420mA
	Rated Input:	100-240V \sim 50/60Hz, 1.5A
	Manufacturer:	Shenzhen Jihongda Power Co., Ltd

Note 1: The EUT supports a MIMO function. Physically, the EUT provides two completed transmitters and two receivers for 802.11n, 802.11ac and 802.11ax modulation mode.

Modulation Mode:	TX Function
802.11n	2TX
802.11ac	2TX
802.11ax	2TX

Note 2: According to KDB 662911 D01, the directional gain = $G_{ANT} + 10\log(N_{ANT})$ dBi, where G_{ANT} is the maximum antenna gain in dBi, N_{ANT} is the number of outputs.

Note 3: For conducted test item Conducted Output Power and Peak Power Spectral Density of each modulation mode, we recorded the test result of two antennas separately, for other conducted test items both of the two antennas were tested separately, we only recorded the worst test result (ANT1) in this report.

Note 4: All radiation test items for 802.11n, 802.11ac and 802.11ax modulation mode operate at MIMO mode during the test. Other modulation mode operate at SISO mode, both of the two antennas were tested separately, we only recorded the worst test result(ANT1) in this report.

Note 5: WIFI hotspot does not support U-NII band.

Note 6: We use the dedicated software to control the EUT continuous transmission.

Note 7: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



1.3. Modulation Type and Data Rate of EUT

Mode	Bandwidth (MHz)	Modulation Technology	Modulation Type	Data Rate	RU Size
802.11a	20	OFDM	DBPSK	1/2/5.5/11Mbps	NA
			DQPSK		
			CCK		
802.11n	20/40 (HT20/40)	OFDM	BPSK	MCS0~MCS7	NA
			QPSK		
			16QAM		
			64QAM		
802.11ac	20/40/80 (VHT20/40/80)	OFDM	BPSK	MSC0~MCS9	NA
			QPSK		
			16QAM		
			64QAM		
			256QAM		
802.11ax	20/40/80 (HEW20/40/80)	OFDMA	BPSK	MSC0~MCS11	26/52/106/242/484/996
			QPSK		
			16QAM		
			64QAM		
			256QAM		
			1024QAM		

Note1: The worst-case mode(black bold) in all data rates has been determined during the pre-scan, only the test data of the worst-case were recorded in this report.

1.4. The Channel Number and Frequency

(U-NII-1) 5180MHz-5240MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	36	5180	40	5200
	44	5220	48	5240
40MHz	38	5190	46	5230
80MHz	42	5210		
(U-NII-2A) 5260MHz-5320MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	52	5260	56	5280
	60	5300	64	5320
40MHz	54	5270	62	5310
80MHz	58	5290		
(U-NII-2C) 5500MHz-5720MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	100	5500	105	5520
			108	5540
			116	5580
			120	5600
			124	5620
			132	5660
40MHz	140	5700	144	5720
	102	5510	110	5550
	118	5590	126	5630
80MHz	134	5670	142	5710
	106	5530	122	5610
	138	5690		
(U-NII-3) 5745MHz-5825MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	149	5745	153	5765
	157	5785	161	5805
	165	5825		
40MHz	151	5775	159	5795
80MHz	155	5775		

Note 1: The black bold channels were selected for test.



1.5. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart E (U-NII band) for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15(5-1-14 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result	Method determination /Remark
1	15.203	Antenna Requirement	N/A	N/A	PASS	No deviation
2	ANSI C63.10	Duty Cycle of the Test Signal	Oct 14, 2021 Nov 29, 2021	Meng Shurui	PASS	No deviation
3	15.407(a)	Maximum Conducted Output Power	Oct 23, 2021 Nov 29, 2021	Meng Shurui	PASS	No deviation
4	15.407(a)(e)	Emission Bandwidth	Oct 23, 2021 Nov 29, 2021	Meng Shurui	PASS	No deviation
5	15.407(a)	Peak Power Spectral Density	Oct 23, 2021 Nov 29, 2021	Meng Shurui	PASS	No deviation
6	15.407(g)	Frequency Stability	Nov 29, 2021	Meng Shurui	PASS	No deviation
7	15.207	Conducted Emission	Oct 19, 2021	Su Zhan	PASS	No deviation
8	15.407(b)	Restricted Frequency Bands	Nov 18&20&21, 2021	Gao Jianrou	PASS	No deviation
9	15.407(b)	Radiated Emission	Nov 19&23&25, 2021	Gao Jianrou	PASS	No deviation

Note 1: The DFS test report was documented in a separate report (Report No.: SZ21070331W05).

Note 2: The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.102013.

Note 3: These RF tests were performed according to the method of measurements prescribed in



KDB789033 D02 v02r01.

Note 4: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipments. The ref offset 12.0dB contains two parts that cable loss 2.0dB and Attenuator 10dB.

Note 5: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

Note 6: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

1.6. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15-35
Relative Humidity (%):	30-60
Atmospheric Pressure (kPa):	86-106



2. 47 CFR Part 15E Requirements

2.1. Antenna Requirement

2.1.1. Applicable Standard

According to FCC 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

2.1.2. Test Result: Compliant

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

2.2. Duty Cycle of the Test Signal

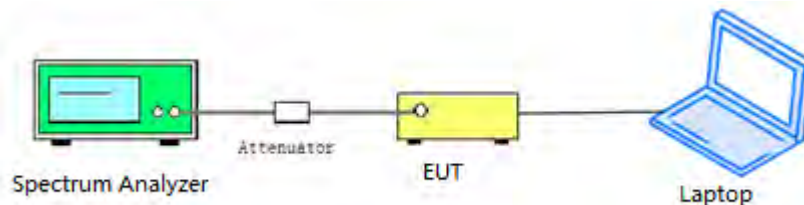
2.2.1. Requirement

Preferably, all measurements of maximum conducted (average) output power will be performed with the EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%). When continuous operation cannot be realized, then the use of sweep triggering/signal gating techniques can be used to ensure that measurements are made only during transmissions at the maximum power control level. Such sweep triggering/signal gating techniques will require knowledge of the minimum transmission duration (T) over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation. Sweep triggering/signal gating techniques can then be used if the measurement/sweep time of the analyzer can be set such that it does not exceed T at any time that data are being acquired (i.e., no transmitter OFF-time is to be considered).

When continuous transmission cannot be achieved and sweep triggering/signal gating cannot be implemented, alternative procedures are provided that can be used to measure the average power; however, they will require an additional measurement of the transmitter duty cycle (D). Within this sub clause, the duty cycle refers to the fraction of time over which the transmitter is ON and is transmitting at its maximum power control level. The duty cycle is considered to be constant if variations are less than $\pm 2\%$; otherwise, the duty cycle is considered to be nonconstant.

2.2.2. 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.

2.2.3. Test Procedure

KDB 789033 Section B was used in order to prove compliance.

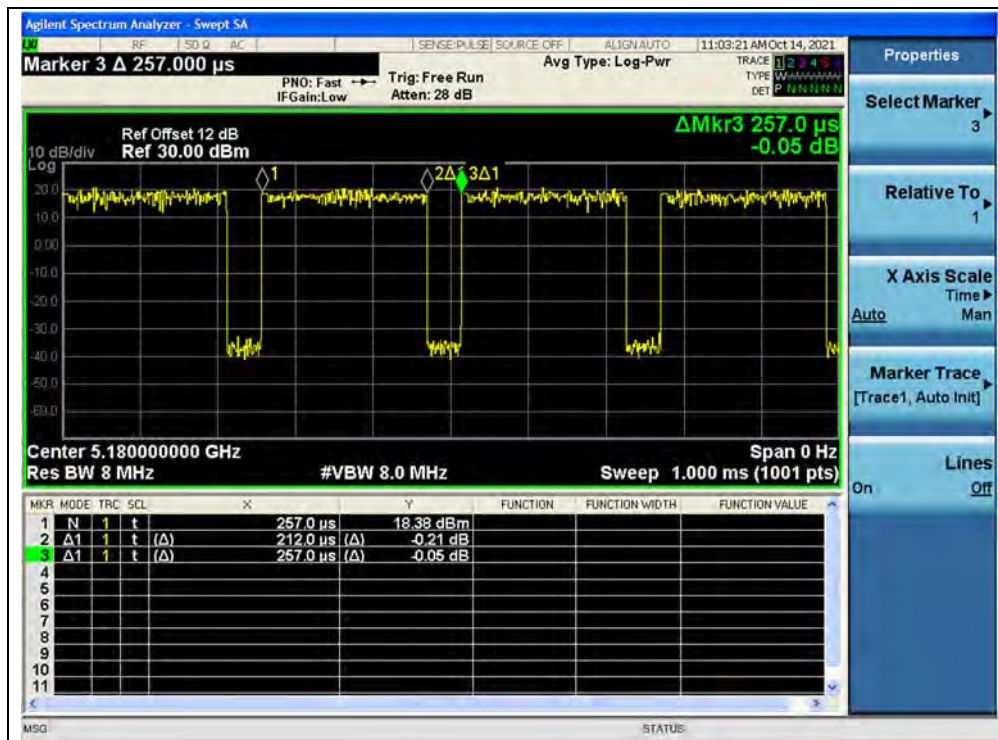


2.2.4. Test Result

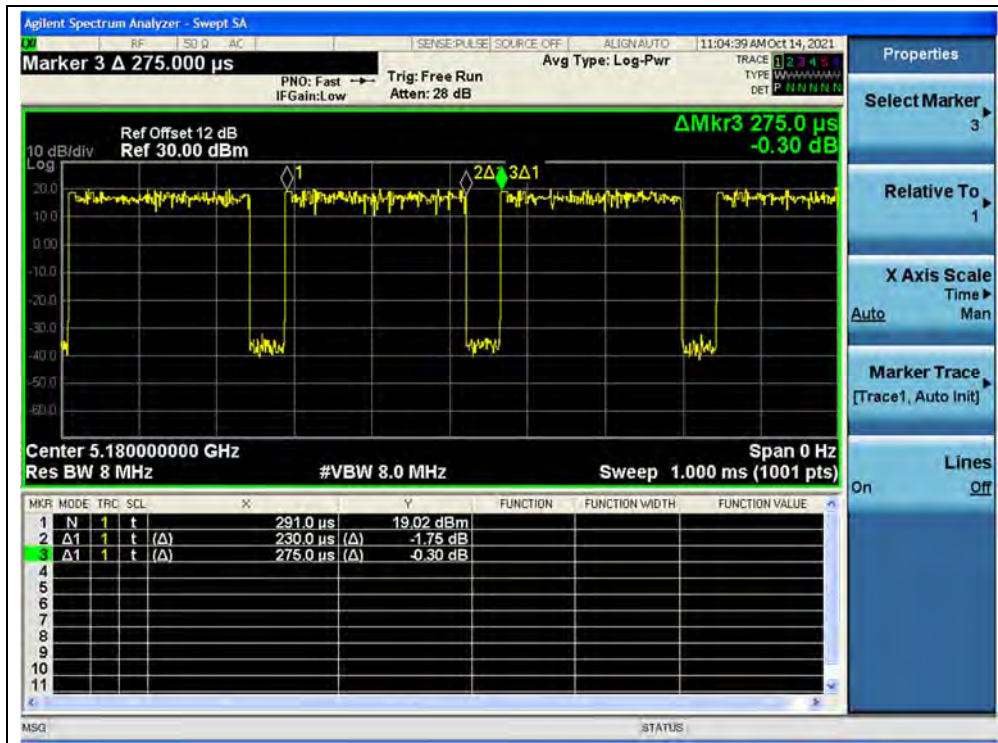
A. Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor (10*log[1/D])
802.11a	80.77	0.93
802.11n(HT20)	82.14	0.85
802.11n(HT40)	82.76	0.82
802.11ac(VHT20)	81.48	0.89
802.11ac(VHT40)	81.48	0.89
802.11ac(VHT80)	85.19	0.70
802.11ax(HEW20)	82.92	0.81
802.11ax(HEW40)	83.21	0.80
802.11ax(HEW80)	83.67	0.77
802.11ax(HEW20)(RU26)	89.27	0.49
802.11ax(HEW20)(RU52)	82.88	0.82
802.11ax(HEW20)(RU106)	83.28	0.79

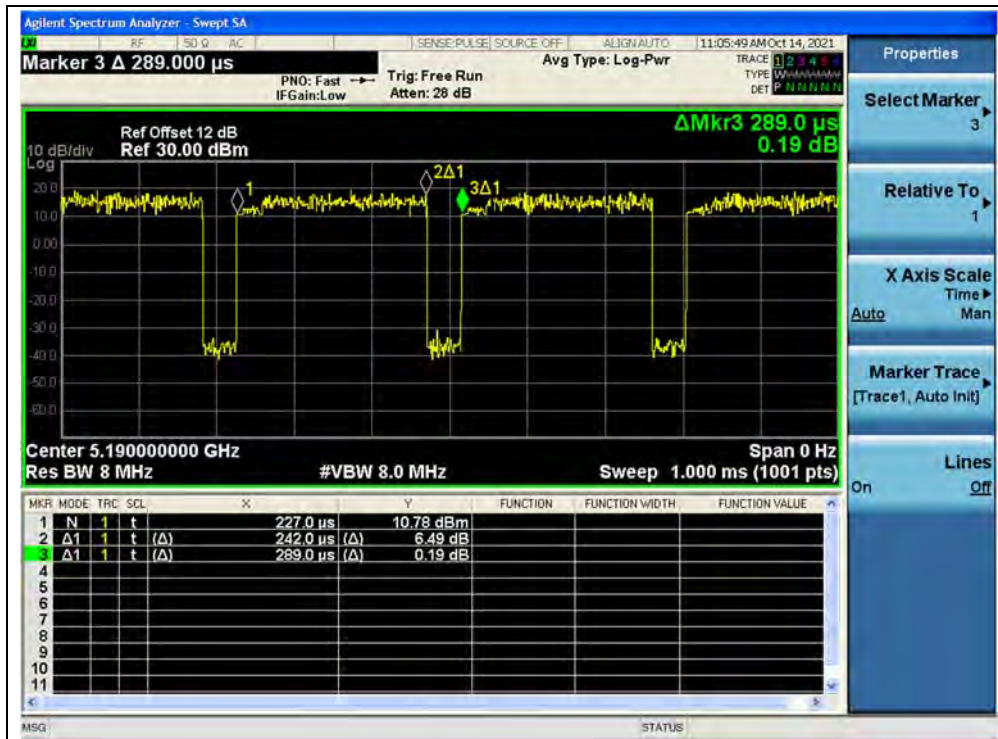
B. Test Plot:



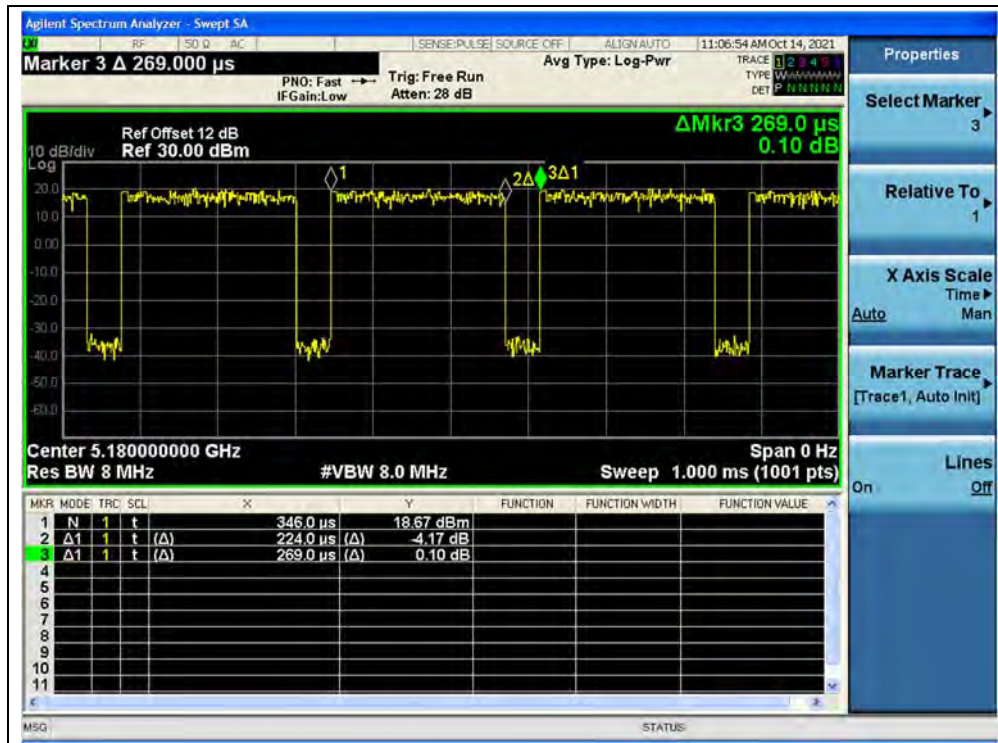
(Channel 36, 5180MHz, 802.11a)



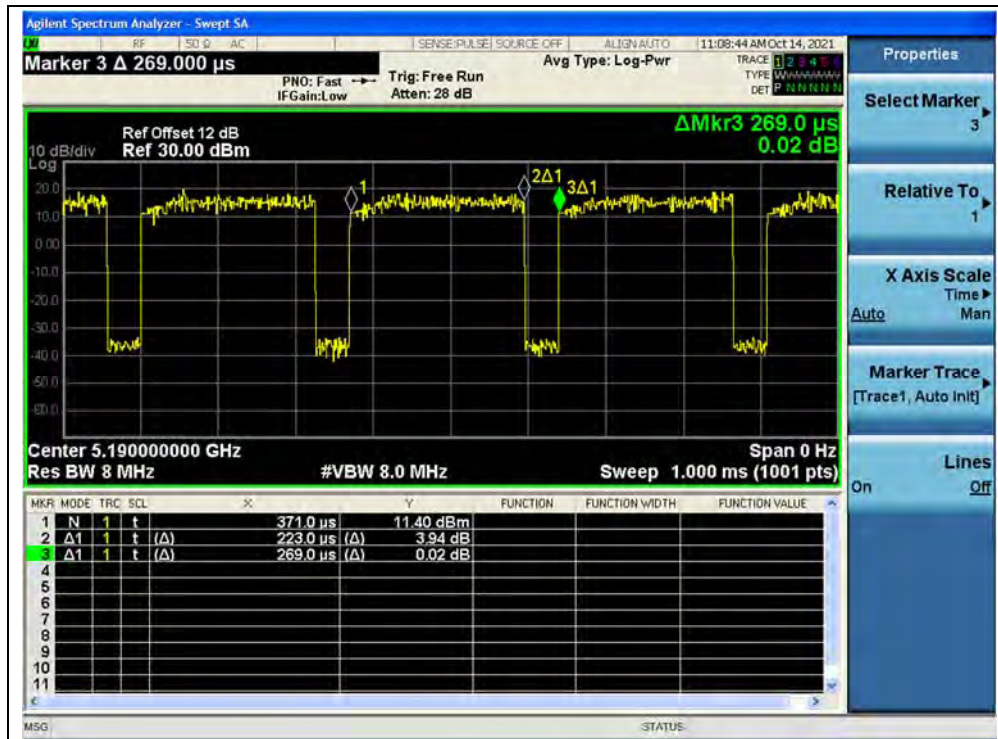
(Channel 36, 5180MHz, 802.11n (HT20))



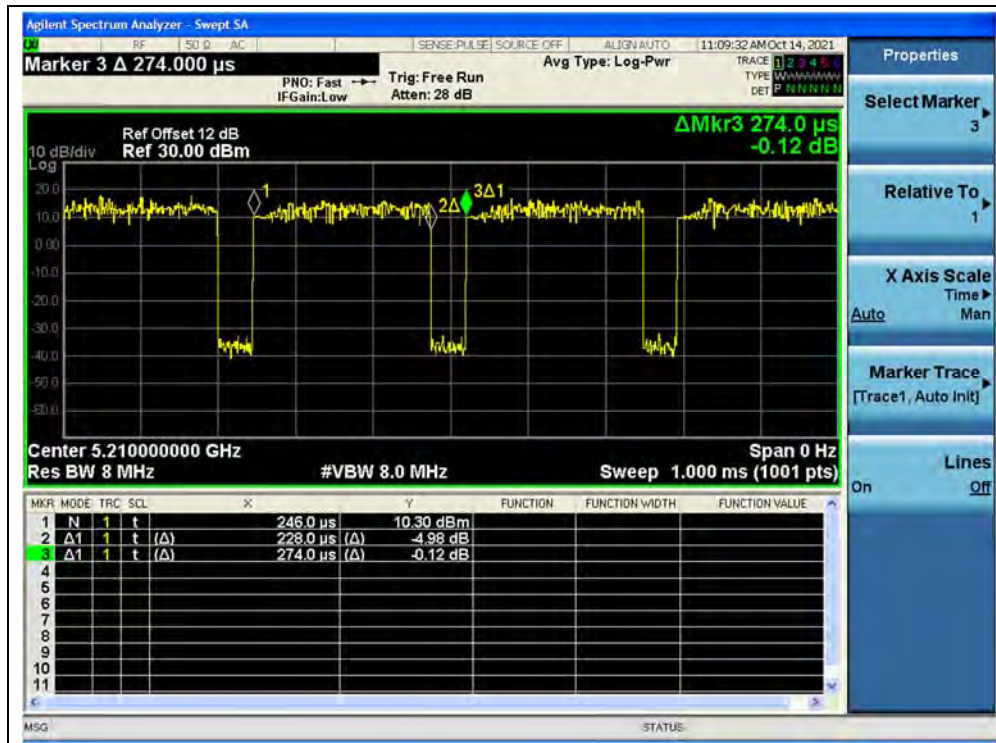
(Channel 38, 5190MHz, 802.11n (HT40))



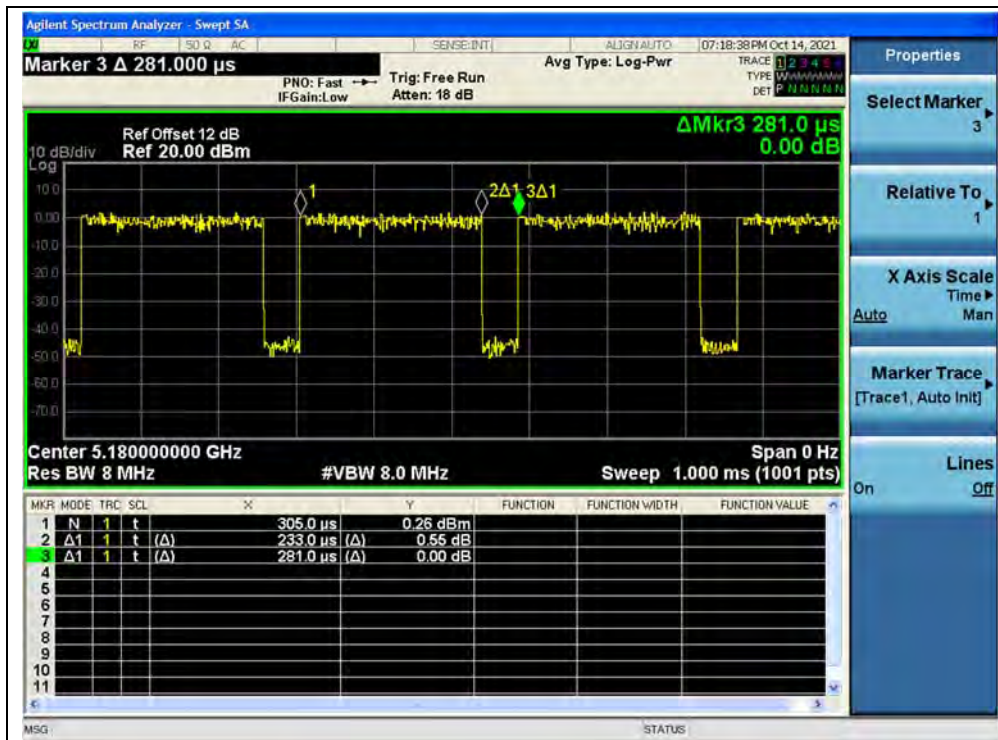
(Channel 36, 5180MHz, 802.11ac (VHT20))



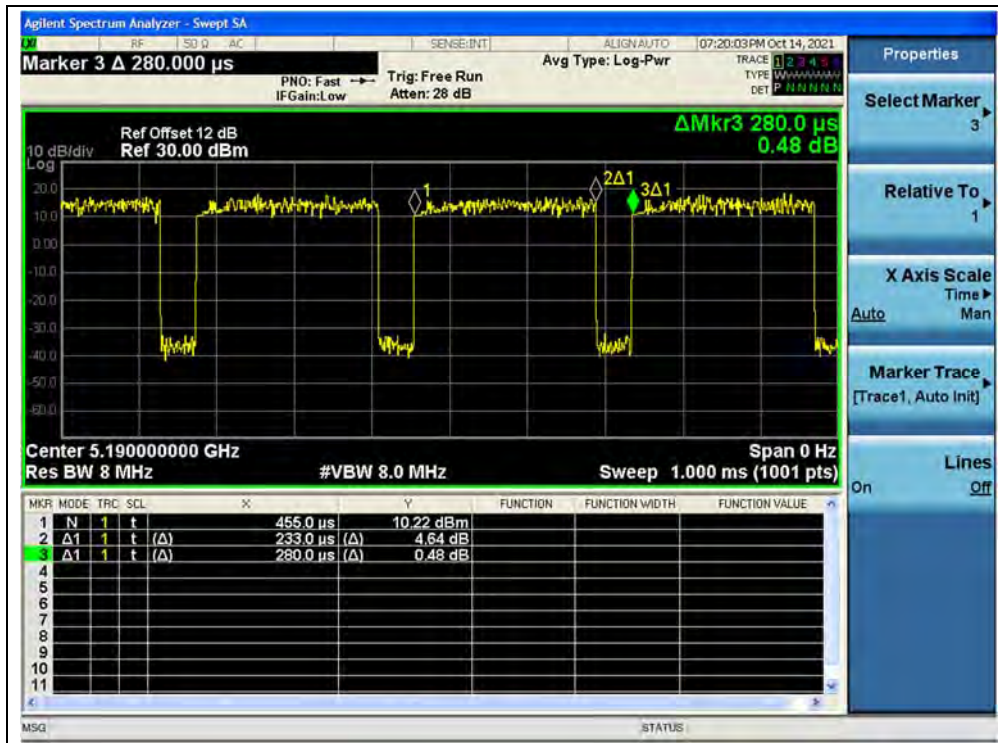
(Channel 38, 5190MHz, 802.11ac (VHT40))



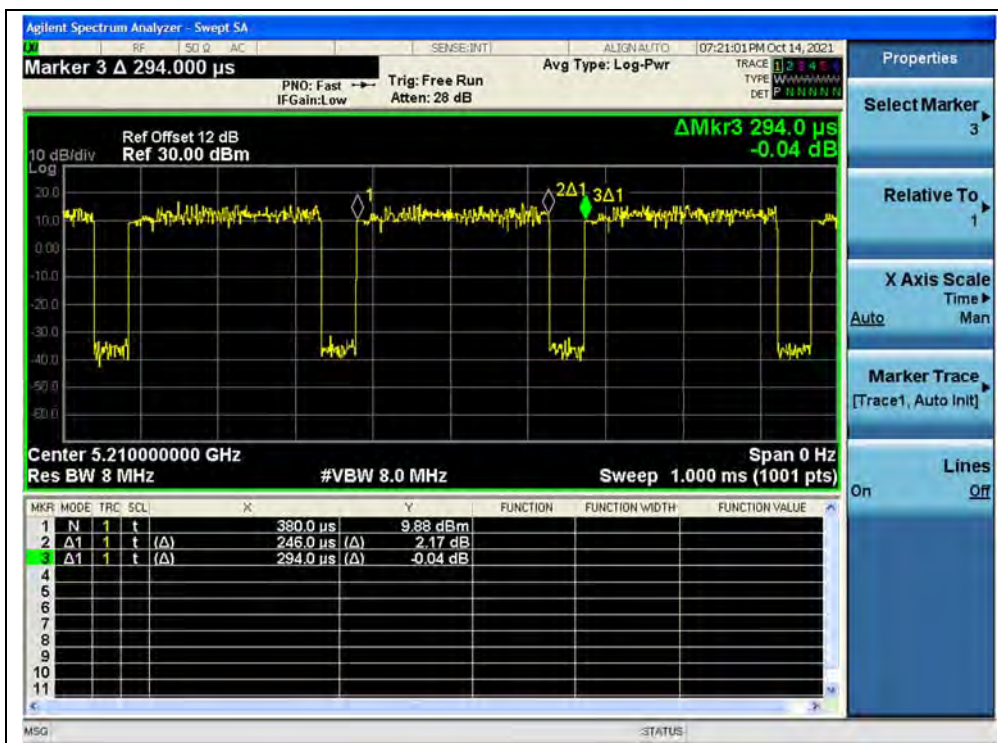
(Channel 42, 5210MHz, 802.11ac (VHT80))



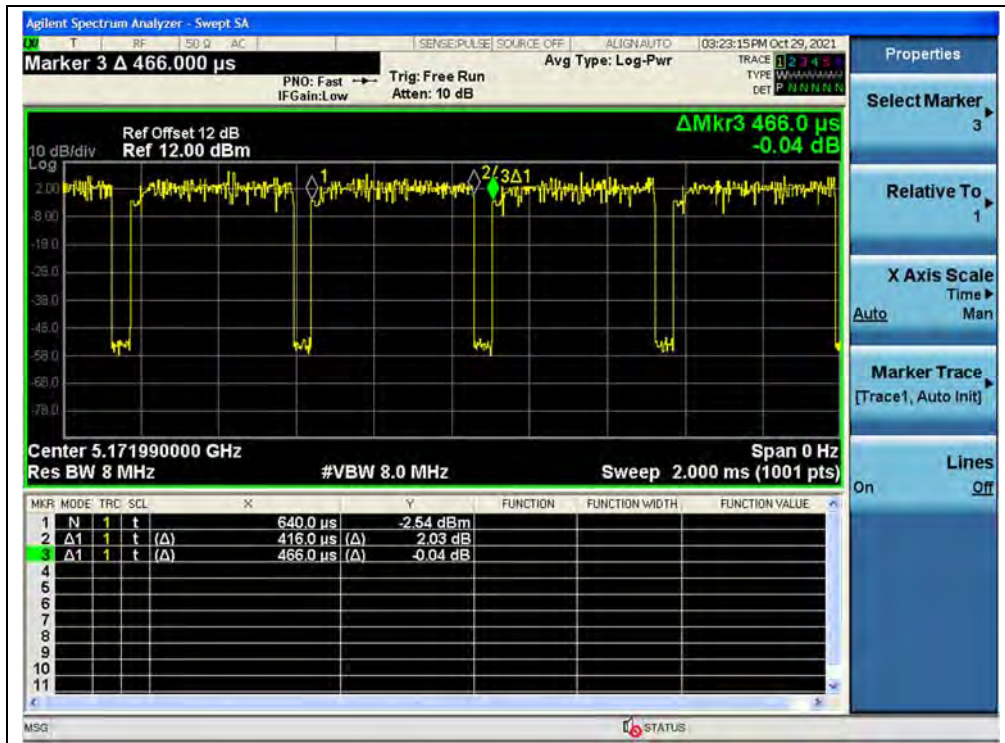
(CH36, 5180MHz, 802.11ax (HEW20))



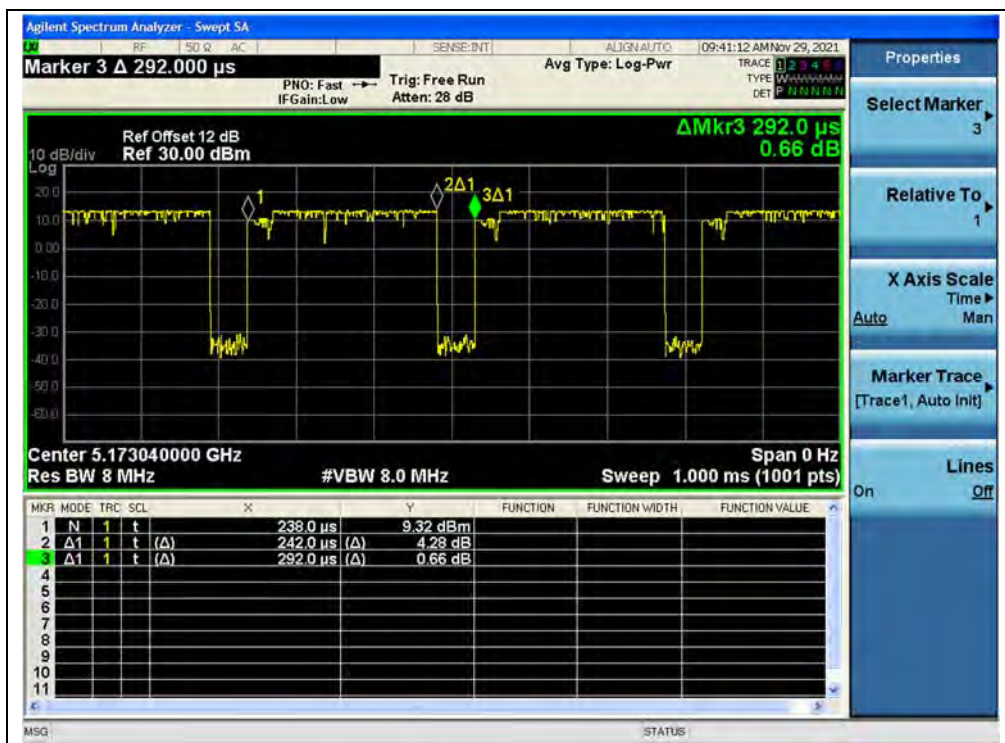
(CH38, 5190MHz, 802.11ax (HEW40))



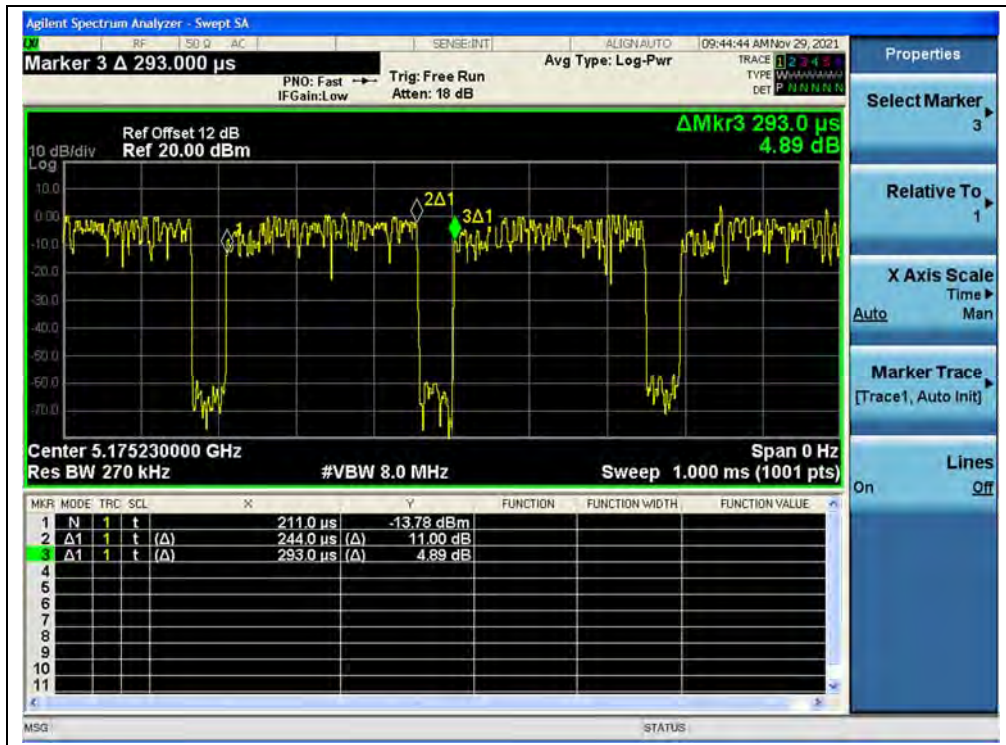
(CH42, 5210MHz, 802.11ax (HEW80))



(CH36, 5180MHz, 802.11ax (HEW20)(RU26))



(CH36, 5180MHz, 802.11ax (HEW20)(RU52))



(CH36, 5180MHz, 802.11ax (HEW20)(RU106))

2.3. Maximum Conducted Output Power

2.3.1. Requirement

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

(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 250mW or $11\text{dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz.

(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.

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

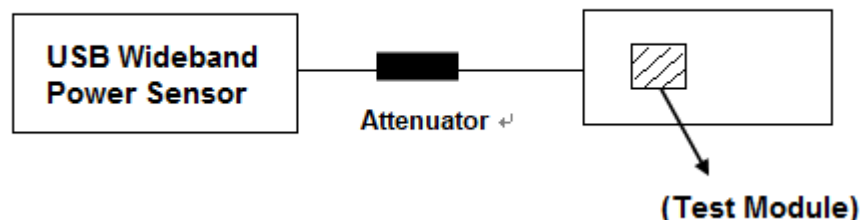
(4) According to KDB662911D01 Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the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

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

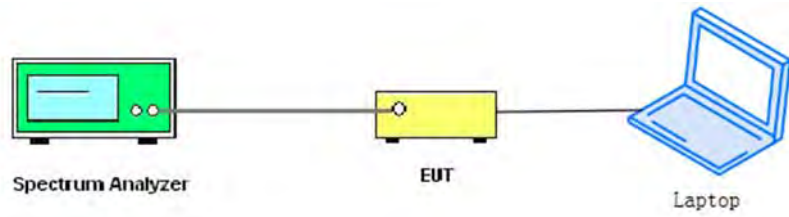
2.3.2. Test Description

Section E) 3) of KDB 789033 defines a methodology using a USB Wideband Power Sensor.

Test Setup:



The EUT (Equipment under the test) which is coupled to the USB Wideband Power Sensor; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading, all test result in USB Wideband Power Sensor.

For ac (VHT80) mode power

The EUT (Equipment under the test) 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, all test result in Spectrum analyzer.



2.3.3. Limits

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 $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz.

Mode	Band	Channel (MHz)	26dB BW (MHz)	$10+10\log(26\text{dB BW})$	Limits (dBm)
a	UNII-2a	5260	23.26	24.67	24.00
		5300	23.67	24.74	24.00
		5320	23.33	24.68	24.00
	UNII-2c	5500	22.96	24.61	24.00
		5600	23.62	24.73	24.00
		5720	23.01	24.62	24.00
n20	UNII-2a	5260	23.65	24.74	24.00
		5300	23.54	24.72	24.00
		5320	24.52	24.90	24.00
	UNII-2c	5500	24.06	24.81	24.00
		5600	23.22	24.66	24.00
		5720	23.46	24.70	24.00
ac20	UNII-2a	5260	24.01	24.80	24.00
		5300	23.49	24.71	24.00
		5320	24.25	24.85	24.00
	UNII-2c	5500	23.36	24.68	24.00
		5600	23.58	24.73	24.00
		5720	23.93	24.79	24.00
ax20	UNII-2a	5260	22.52	24.53	24.00
		5300	23.86	24.78	24.00
		5320	23.76	24.76	24.00
	UNII-2c	5500	23.78	24.76	24.00
		5600	22.98	24.61	24.00
		5720	23.17	24.65	24.00
ax_RU26	UNII-2a	5260	20.02	24.01	24.00
		5300	20.56	24.13	24.00
		5320	20.10	24.03	24.00
	UNII-2c	5500	20.07	24.03	24.00
		5600	19.80	23.97	24.00
		5720	19.94	24.00	24.00



2.3.4. Test Result

Maximum Average Conducted Output Power
802.11a Mode

Frequency (MHz)	Average Power							Limit		Verdict
	Measured		Duty Factor	Duty Factor Calculated						
	ANT0	ANT1		ANT0		ANT1				
	dBm	dBm		dBm	W	dBm	W	dBm	W	
5180	7.11	7.36	0.93	8.04	0.006	8.29	0.007	24	0.25	PASS
5220	7.38	7.52		8.31	0.007	8.45	0.007			
5240	7.31	7.61		8.24	0.007	8.54	0.007			
5260	7.39	7.41		8.32	0.007	8.34	0.007			
5300	7.47	7.83		8.4	0.007	8.76	0.008			
5320	7.55	8.01		8.48	0.007	8.94	0.008			
5500	7.24	7.35		8.17	0.007	8.28	0.007			
5600	7.59	7.68		8.52	0.007	8.61	0.007			
5720	7.06	7.60		7.99	0.006	8.53	0.007			
5745	7.25	7.70		8.18	0.007	8.63	0.007			30
5785	8.02	7.38		8.95	0.008	8.31	0.007			
5825	7.38	7.35		8.31	0.007	8.28	0.007			



802.11n (HT20) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor		dBm		W
	ANT0	ANT1		dBm	W			
5180	7.47	7.44	0.85	11.46	0.014	23.63	0.23	PASS
5220	7.44	7.60		11.46	0.014			
5240	7.41	7.69		11.46	0.014			
5260	7.32	7.50		11.14	0.013			
5300	7.55	7.93		11.46	0.014			
5320	7.61	8.08		11.76	0.015			
5500	7.11	7.41		11.14	0.013			
5600	6.66	7.73		11.14	0.013			
5720	7.08	7.80		11.46	0.014			
5745	7.26	7.59		11.14	0.013			
5785	7.68	7.47		11.46	0.014			
5825	7.50	7.52		11.46	0.014			

Note: Directional gain = 3.36dBi +10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.

802.11n (HT40) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor		dBm		W
	ANT0	ANT1		dBm	W			
5190	7.51	7.51	0.82	11.46	0.014	23.63	0.23	PASS
5230	7.47	7.71		11.46	0.014			
5270	7.33	7.61		11.14	0.013			
5310	8.07	8.13		12.04	0.016			
5510	7.12	7.50		11.14	0.013			
5630	6.99	7.84		11.14	0.013			
5710	7.64	7.79		11.46	0.014			
5755	7.44	7.67		11.46	0.014	29.63	0.92	
5795	8.19	7.65		11.76	0.015			

Note: Directional gain = 3.36dBi +10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.



802.11ac (VHT20) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1		dBm	W	dBm		W
5180	7.31	7.43	0.89	11.14	0.013	23.63	0.23	PASS
5220	7.60	7.59		11.46	0.014			
5240	7.39	7.63		11.46	0.014			
5260	7.67	7.52		11.46	0.014			
5300	7.98	7.95		11.76	0.015			
5320	7.57	8.11		11.76	0.015			
5500	7.10	7.42		11.14	0.013			
5600	6.63	7.70		11.14	0.013			
5720	7.80	7.73		11.76	0.015			
5745	7.24	7.54		11.14	0.013	29.63	0.92	
5785	7.65	7.48		11.46	0.014			
5825	7.45	7.51		11.46	0.014			

Note: Directional gain = 3.36dBi +10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.

802.11ac (VHT40) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1		dBm	W	dBm		W
5190	7.59	7.45	0.89	11.46	0.014	23.63	0.23	PASS
5230	7.45	7.66		11.46	0.014			
5270	7.31	7.55		11.46	0.014			
5310	7.55	8.01		11.76	0.015			
5510	7.15	7.43		11.14	0.013			
5630	6.76	7.77		11.14	0.013			
5710	7.31	7.72		11.46	0.014	29.63	0.92	
5755	8.54	7.59		12.04	0.016			
5795	7.59	7.39		11.46	0.014			

Note: Directional gain = 3.36dBi +10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.



802.11ac (VHT80) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1		W	dBm	dBm		W
5210	7.76	7.80	0.70	11.46	0.014	23.63	0.23	PASS
5290	7.61	7.90		11.46	0.014			
5530	7.12	7.63		11.14	0.013			
5610	6.84	7.96		11.14	0.013			
5690	6.94	8.01		11.14	0.013			
5775	8.42	7.64		11.76	0.015	29.63	0.92	

Note: Directional gain = 3.36dBi + 10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.

802.11ax (HEW20) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1		dBm	W	dBm		W
5180	4.97	7.30	0.81	10.00	0.010	23.63	0.23	PASS
5220	4.98	7.31		10.00	0.010			
5240	5.01	7.38		10.00	0.010			
5260	5.14	7.25		10.00	0.010			
5300	5.25	6.99		10.00	0.010			
5320	5.31	7.15		10.00	0.010			
5500	5.43	7.06		10.00	0.010			
5600	5.21	7.11		10.00	0.010			
5720	5.19	7.29		10.00	0.010			
5745	5.32	7.22		10.00	0.010			
5785	5.46	7.02		10.00	0.010			
5825	5.47	7.19		10.41	0.011			

Note: Directional gain = 3.36dBi + 10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.



802.11ax (HEW20)(RU26) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor		dBm		W
	ANT0	ANT1		dBm	W			
	dBm	dBm						
5180	5.88	6.13	0.49	9.54	0.009	23.63	0.23	PASS
5220	5.86	6.58		9.54	0.009			
5240	5.54	6.54		9.54	0.009			
5260	5.12	6.48		9.54	0.009			
5300	5.41	6.50		9.54	0.009			
5320	5.62	6.42		9.54	0.009			
5500	5.35	6.51		9.54	0.009			
5600	5.64	6.62		9.54	0.009			
5720	5.62	6.78		9.54	0.009			
5745	5.57	6.80		9.54	0.009			
5785	5.21	6.77		9.54	0.009			
5825	5.29	6.78		9.54	0.009			

Note: Directional gain = 3.36dBi +10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.



802.11ax (HEW20)(RU52) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1		dBm	W	dBm		W
	dBm	dBm						
5180	6.88	7.16	0.49	10.41	0.011	23.63	0.23	PASS
5220	7.38	7.57		11.14	0.013			
5240	7.57	7.61		11.14	0.013			
5260	7.37	7.30		10.79	0.012			
5300	7.28	7.53		10.79	0.012			
5320	7.59	7.95		11.14	0.013			
5500	6.65	7.00		10.41	0.011			
5600	6.26	6.99		10.00	0.010			
5720	7.13	7.46		10.79	0.012			
5745	6.52	7.75		10.79	0.012			
5785	7.49	7.60		11.14	0.013			
5825	6.89	7.39		10.79	0.012			

Note: Directional gain = 3.36dBi +10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.



802.11ax (HEW20)(RU106) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor		dBm		W
	ANT0	ANT1		dBm	W			
5180	6.91	6.97	0.49	10.41	0.011	23.63	0.23	PASS
5220	7.17	7.56		10.79	0.012			
5240	7.18	7.23		10.79	0.012			
5260	7.25	7.01		10.79	0.012			
5300	7.29	7.45		10.79	0.012			
5320	7.45	7.84		11.14	0.013			
5500	6.98	6.96		10.41	0.011			
5600	7.11	7.03		10.41	0.011			
5720	7.05	7.63		10.79	0.012			
5745	7.07	7.57		10.79	0.012			
5785	7.42	7.31		10.79	0.012			
5825	7.80	7.27		11.14	0.013			

Note: Directional gain = 3.36dBi +10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.

802.11ax (HEW40) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor		dBm		W
	ANT0	ANT1		dBm	W			
5190	5.05	7.21	0.80	10.00	0.010	23.63	0.23	PASS
5230	5.11	7.00		10.00	0.010			
5270	5.22	6.88		10.00	0.010			
5310	5.26	6.98		10.00	0.010			
5510	5.31	7.11		10.00	0.010			
5630	5.28	7.23		10.00	0.010			
5710	5.29	7.18		10.00	0.010			
5755	5.18	7.09		10.00	0.010	29.63	0.92	
5795	5.14	7.04		10.00	0.010			

Note: Directional gain = 3.36dBi +10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.



802.11ax (HEW80) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1		W	dBm	dBm		W
	dBm	dBm						
5210	5.56	7.59	0.77	10.41	0.011	23.63	0.23	PASS
5290	5.54	7.54		10.41	0.011			
5530	5.51	7.42		10.41	0.011			
5610	5.45	7.51		10.41	0.011			
5690	5.52	7.35		10.41	0.011			
5775	5.39	7.22		10.00	0.010	29.63	0.92	

Note: Directional gain = 3.36dBi + 10log(2) = 6.37dBi > 6dBi, so the power limit shall be reduced to 24-(6.37-6) = 23.63dBm for 5.18-5.24 GHz, 5.260-5.320 GHz, 5.500-5.720 GHz band and reduced to 30-(6.37-6) = 29.63dBm for 5.745-5.825 GHz band.

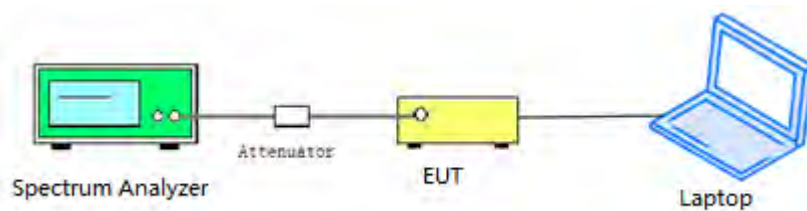
2.4. Emission Bandwidth

2.4.1. Requirement

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement. Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

2.4.2. 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.

2.4.3. Test Procedure

1. KDB 789033 Section C) 1) Emission Bandwidth was used in order to prove compliance
 - a) Set RBW = approximately 1% of the emission bandwidth.
 - b) Set VBW > RBW.
 - c) Detector = Peak.
 - d) Trace mode = max hold.
 - e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
2. KDB 789033 Section C) 2) minimum emission bandwidth for the band 5.725-5.85GHz was used in order to prove compliance.
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for theband5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:



- a) Set RBW = 100 kHz.
- b) Set video bandwidth (VBW) $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

2.4.4. Test Result

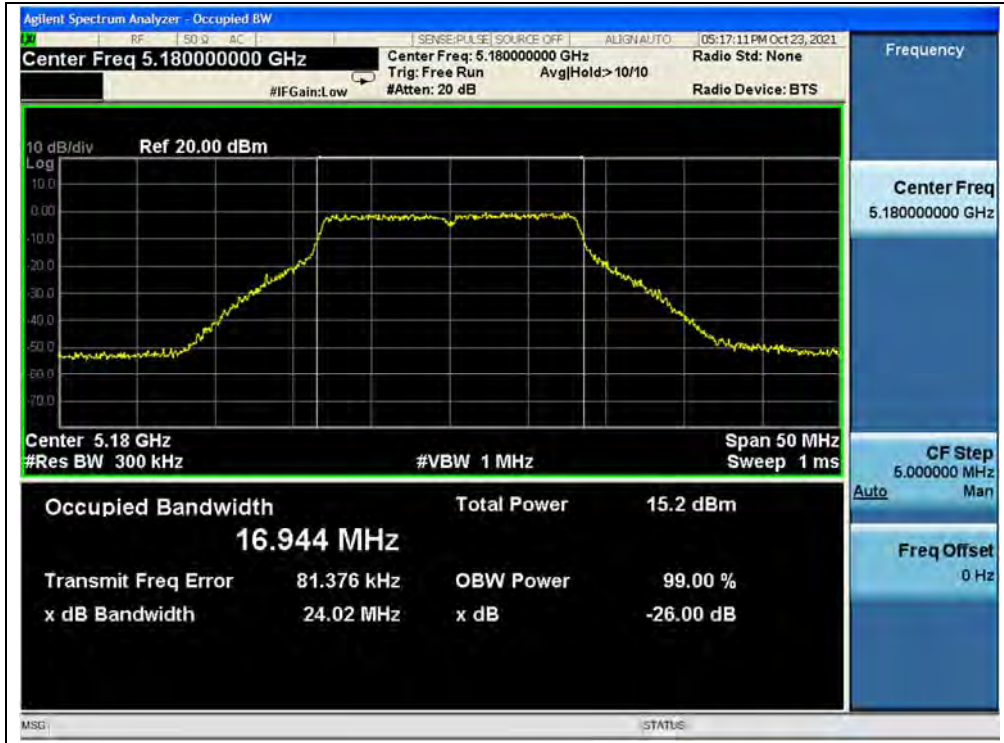
802.11a Mode

A. Test Verdict:

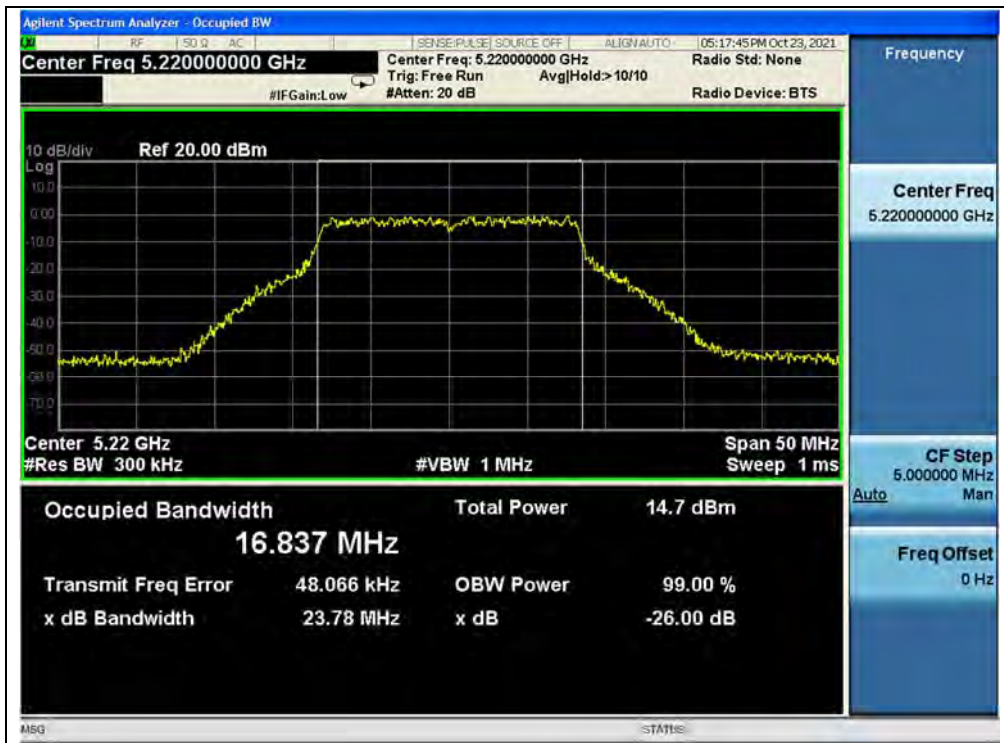
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	24.02
44	5220	23.78
48	5240	24.73
52	5260	23.26
60	5300	23.67
64	5320	23.33
100	5500	22.96
120	5600	23.62
144	5720	23.01
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	16.34
149	5745	16.35
157	5785	16.31
165	5825	16.40



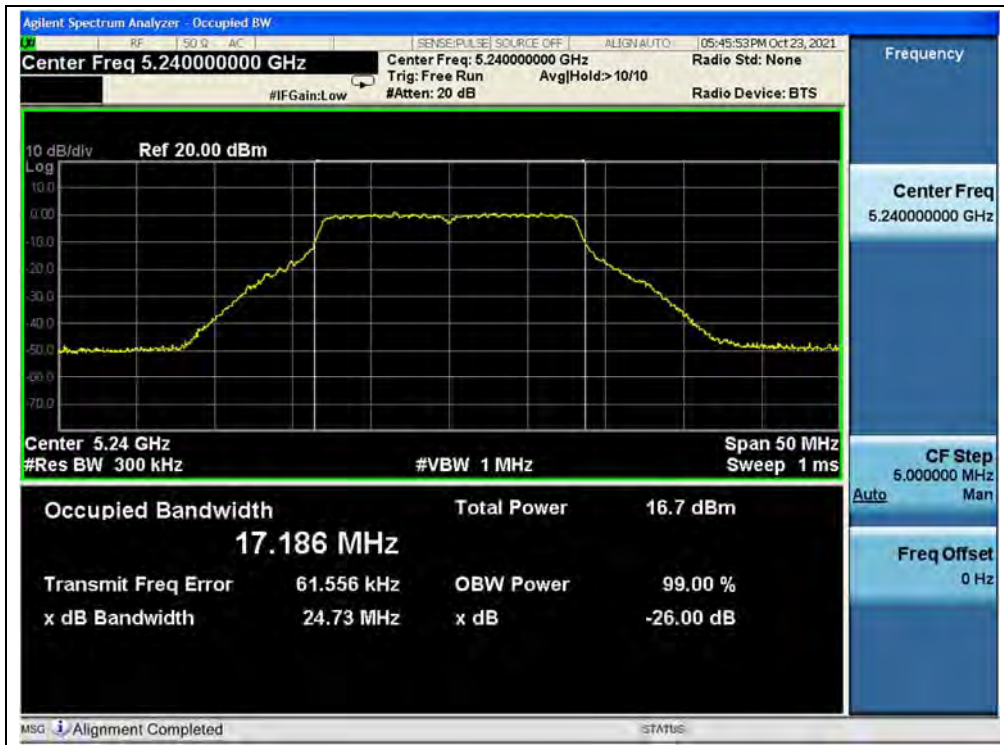
B.Test Plot:



(Channel 36, 5180MHz, 802.11a)



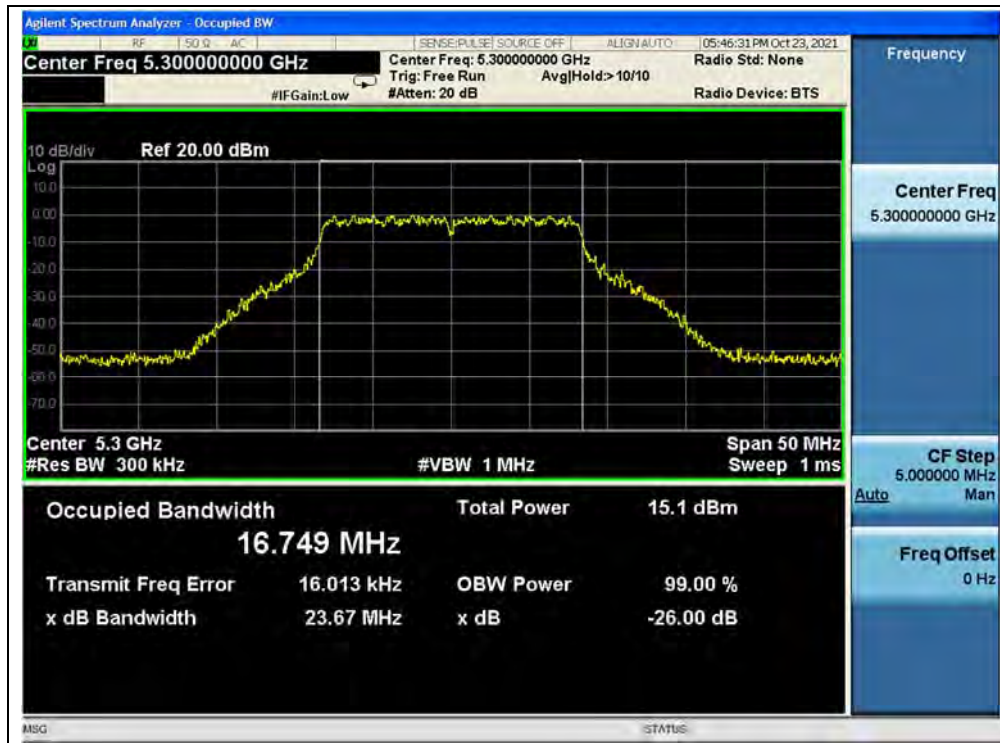
(Channel 44, 5220 MHz, 802.11a)



(Channel 48, 5240MHz, 802.11a)



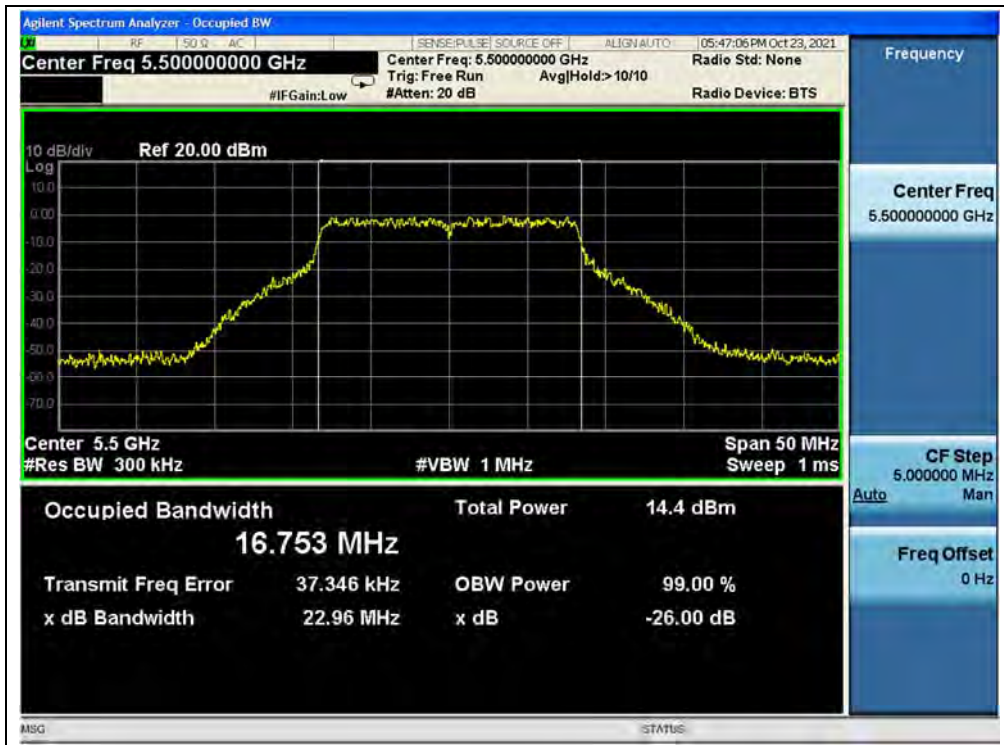
(Channel 52, 5260MHz, 802.11a)



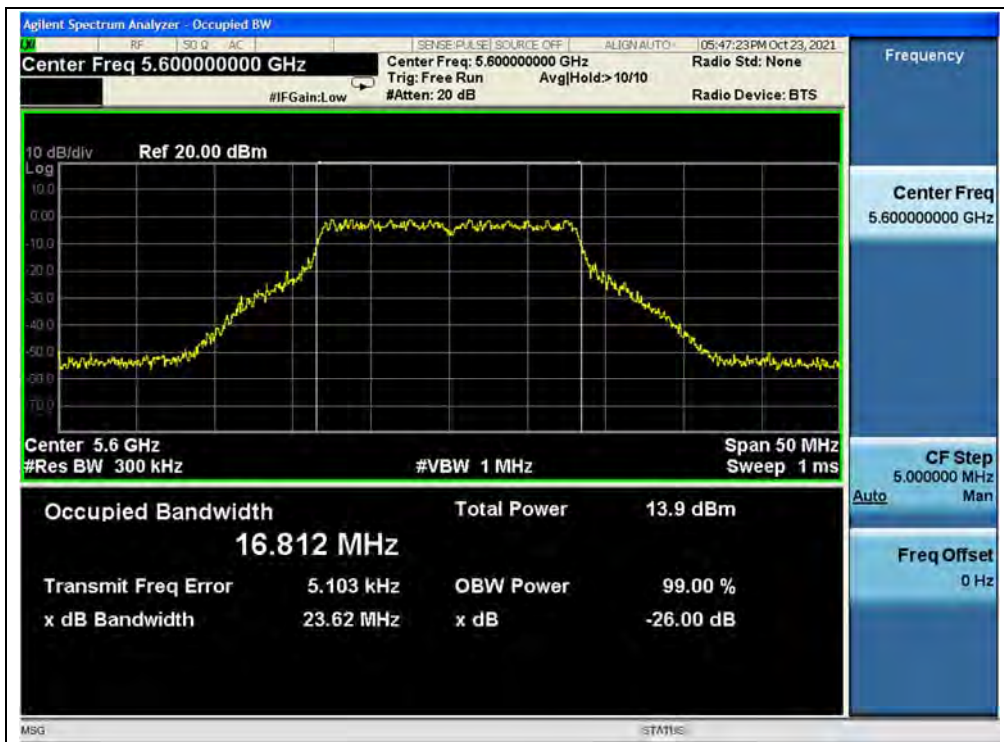
(Channel 60, 5300 MHz, 802.11a)



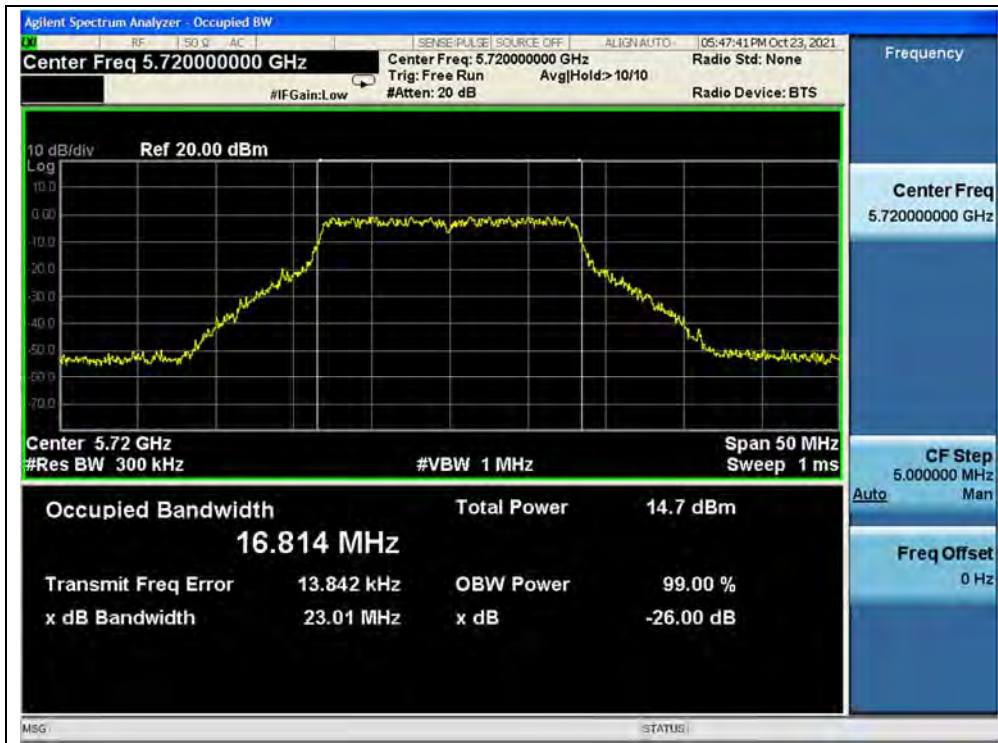
(Channel 64, 5320MHz, 802.11a)



(Channel 100, 5500 MHz, 802.11a)



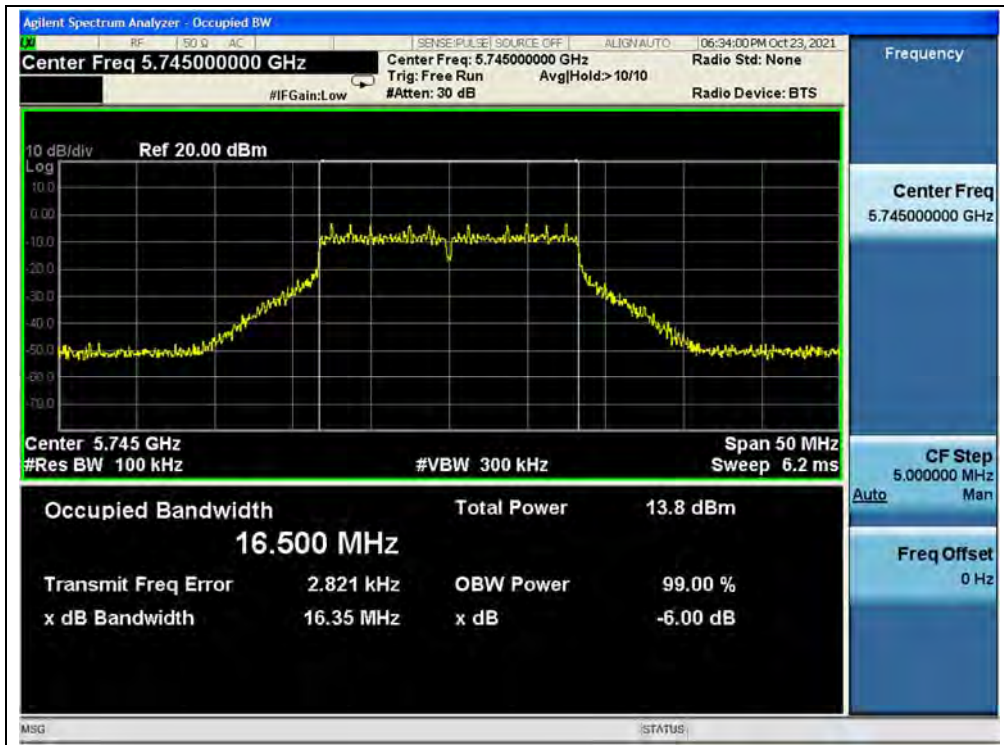
(Channel 120, 5600 MHz, 802.11a)



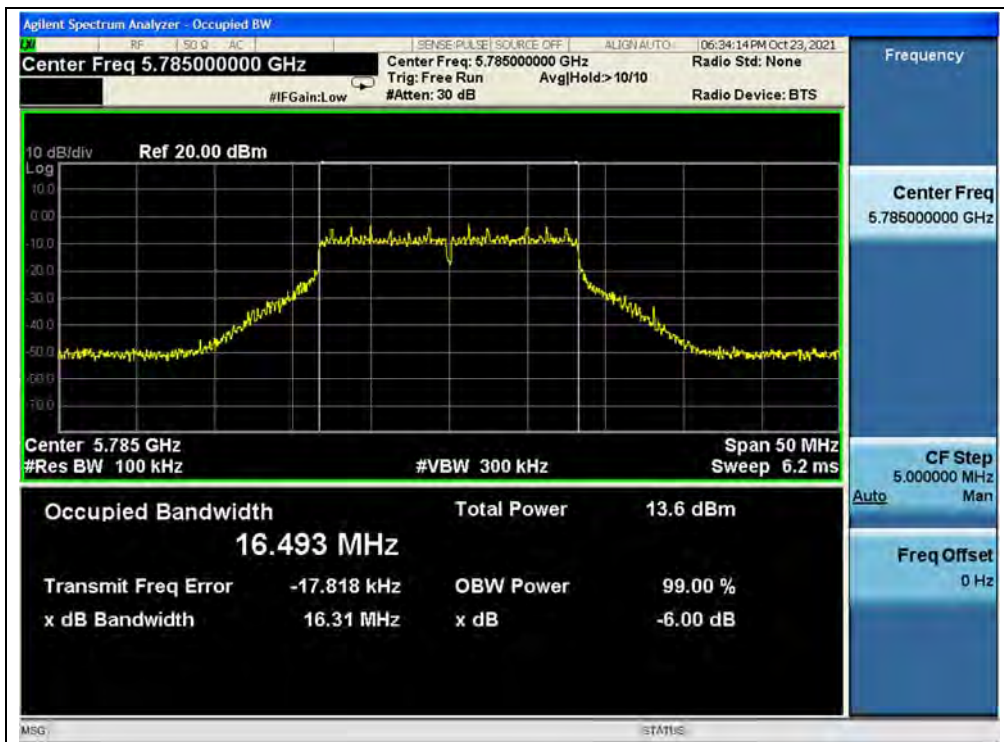
(Channel 144, 5720MHz, 802.11a)



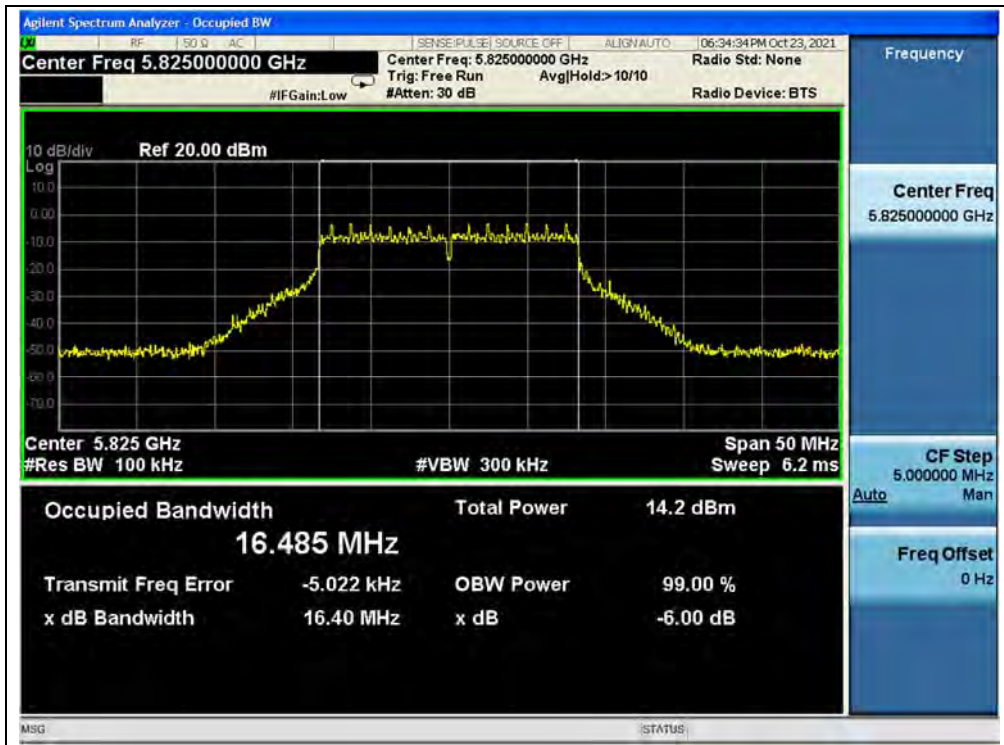
(Channel 144, 5720MHz, 802.11a)



(Channel 149,5745MHz, 802.11a)



(Channel 157,5785MHz, 802.11a)



(Channel 165, 5825MHz, 802.11a)

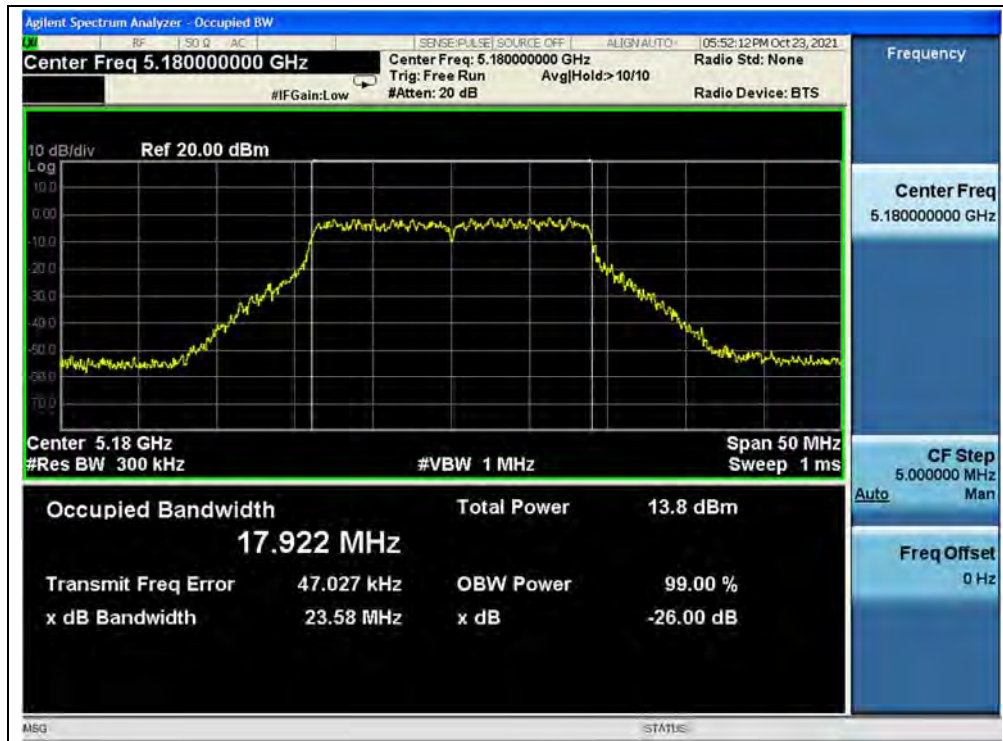


802.11n (HT20) Mode

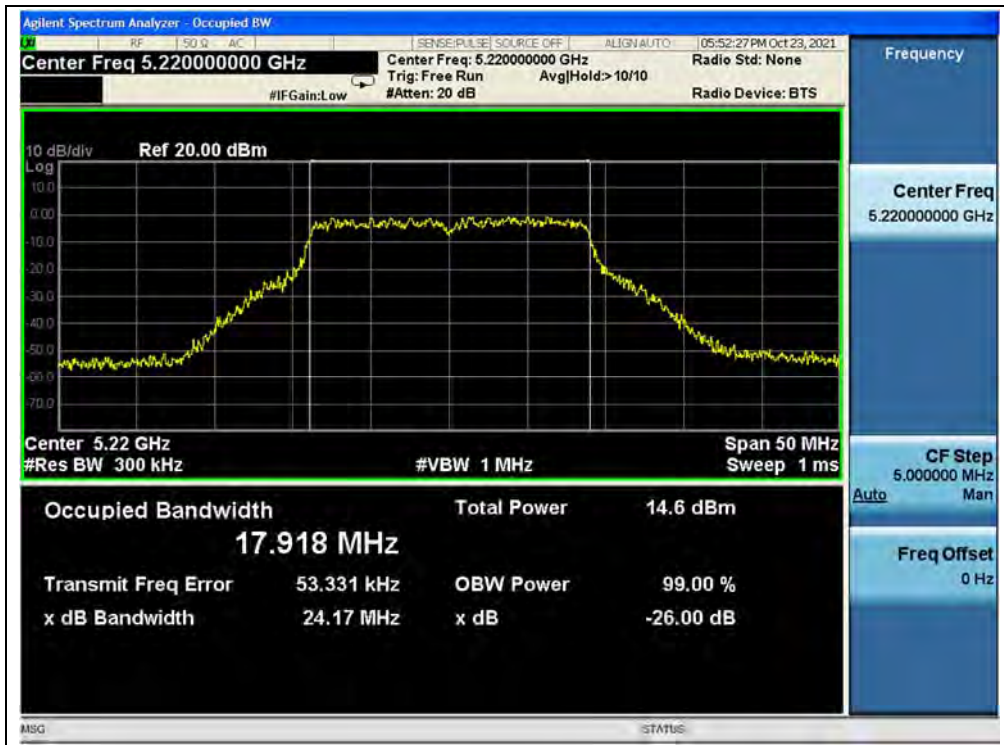
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	23.58
44	5220	24.17
48	5240	23.06
52	5260	23.65
60	5300	23.54
64	5320	24.52
100	5500	24.06
120	5600	23.22
144	5720	23.46
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	17.55
149	5745	17.29
157	5785	17.61
165	5825	17.59

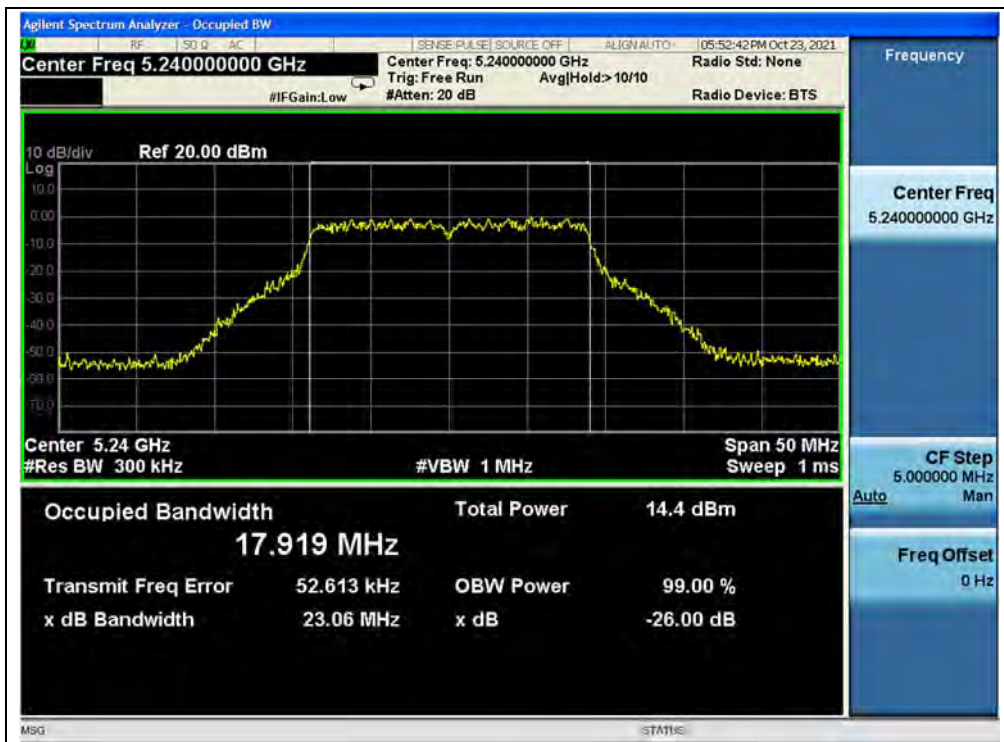
B. Test Plot:



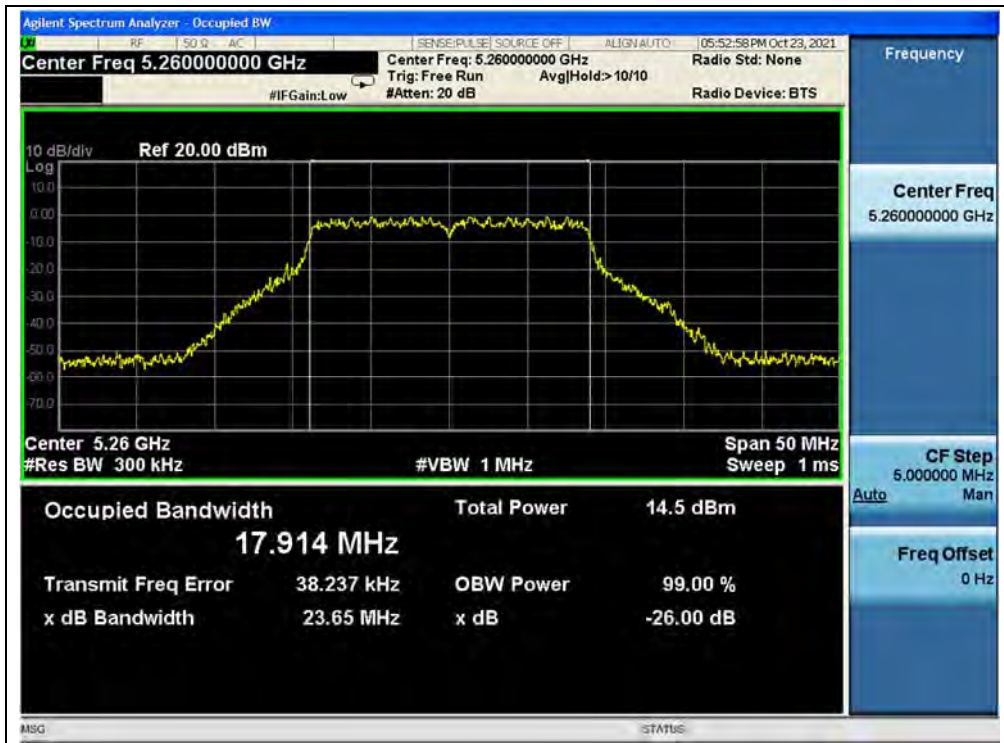
(Channel 36, 5180MHz, 802.11n (HT20))



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



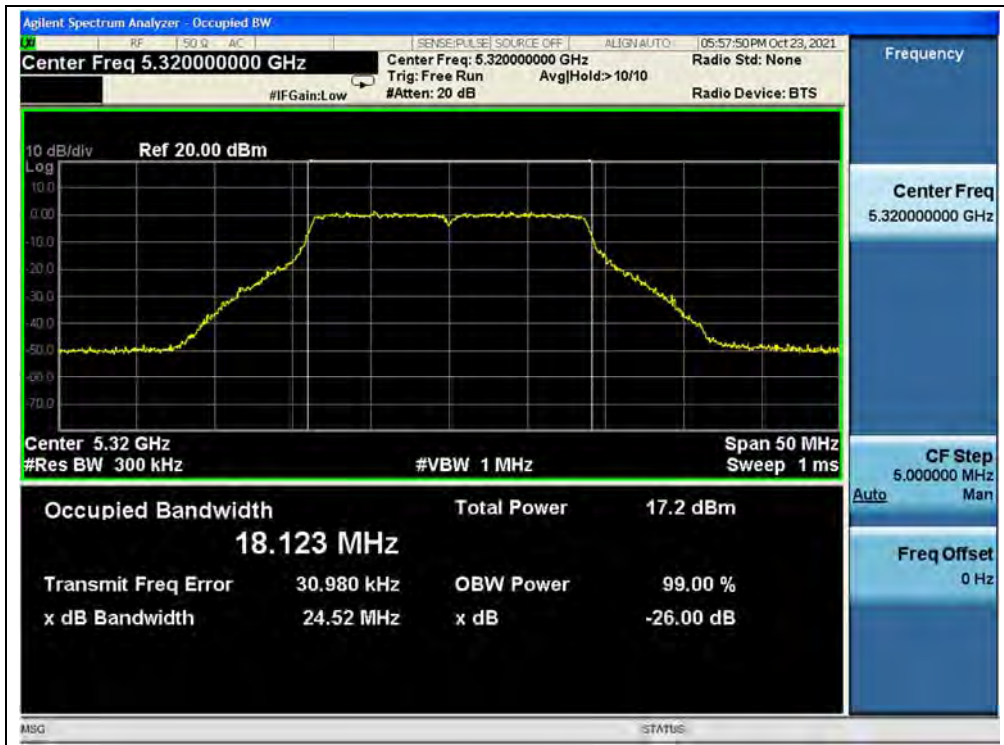
(Channel 48, 5240MHz, 802.11n (HT20))



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



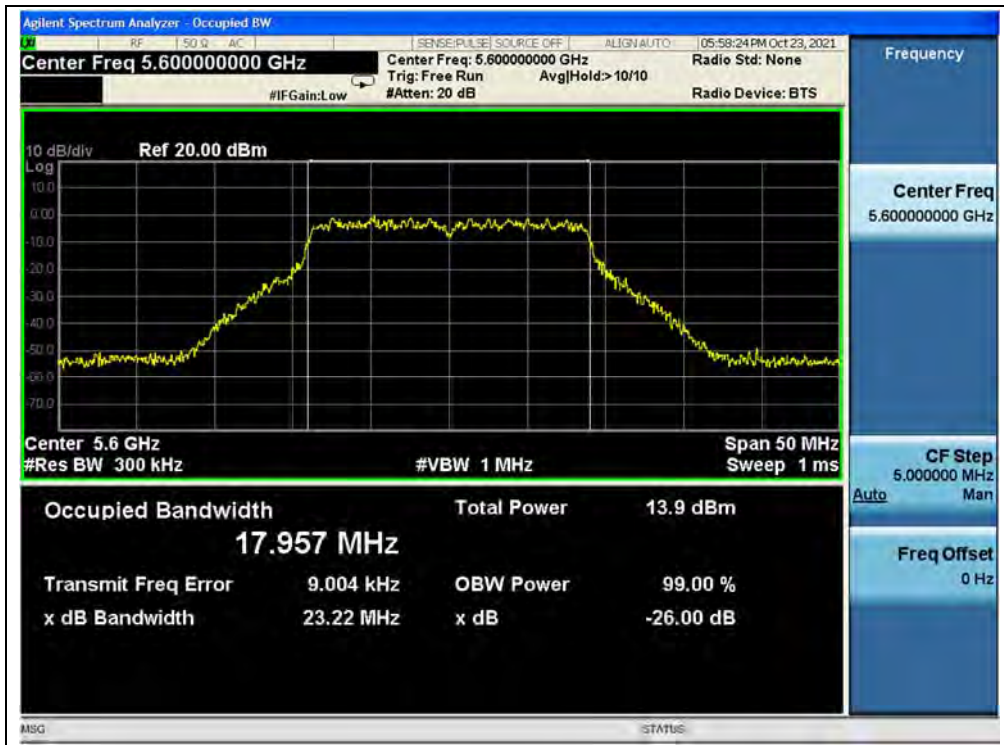
(Channel 60, 5300MHz, 802.11n (HT20))



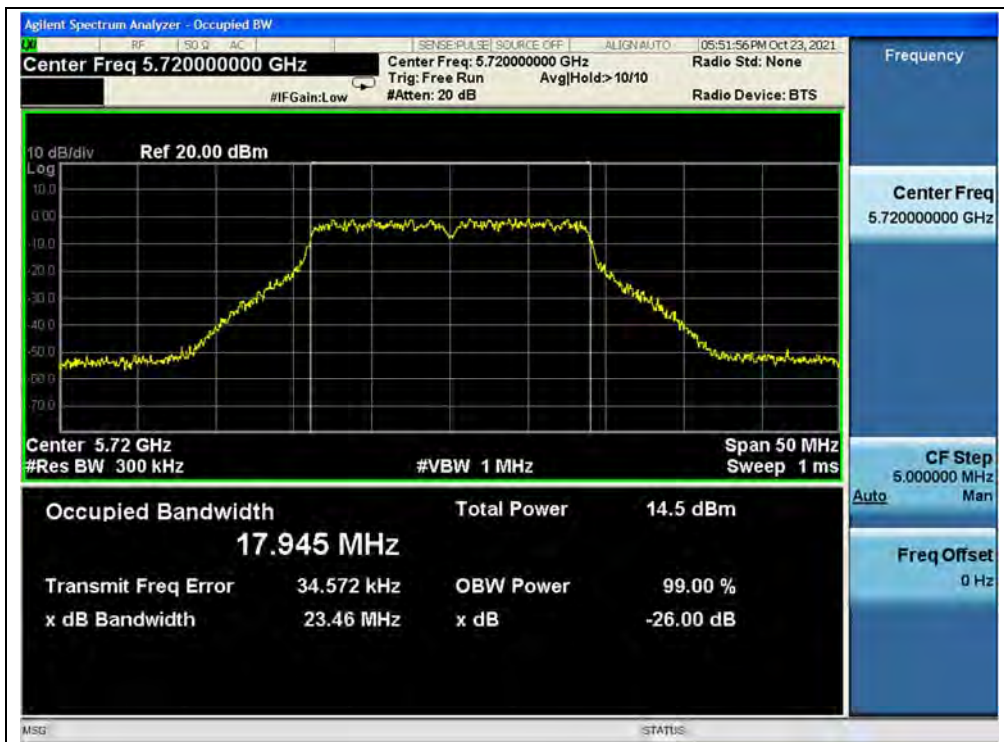
(Channel 64, 5320MHz, 802.11n (HT20))



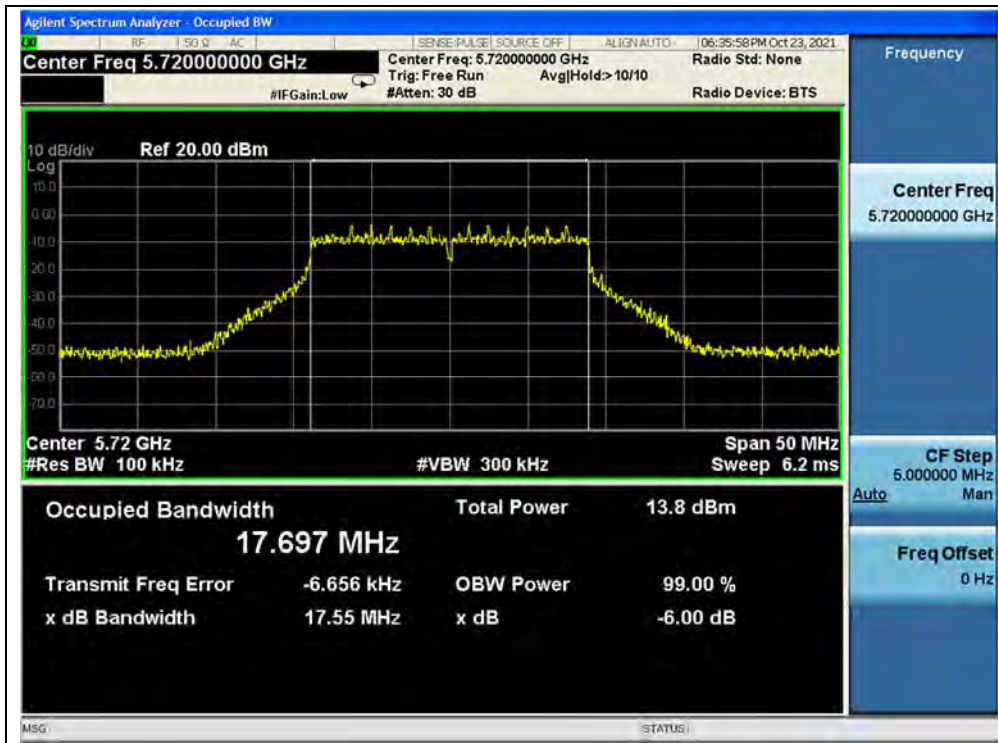
(Channel 100, 5500MHz, 802.11n (HT20))



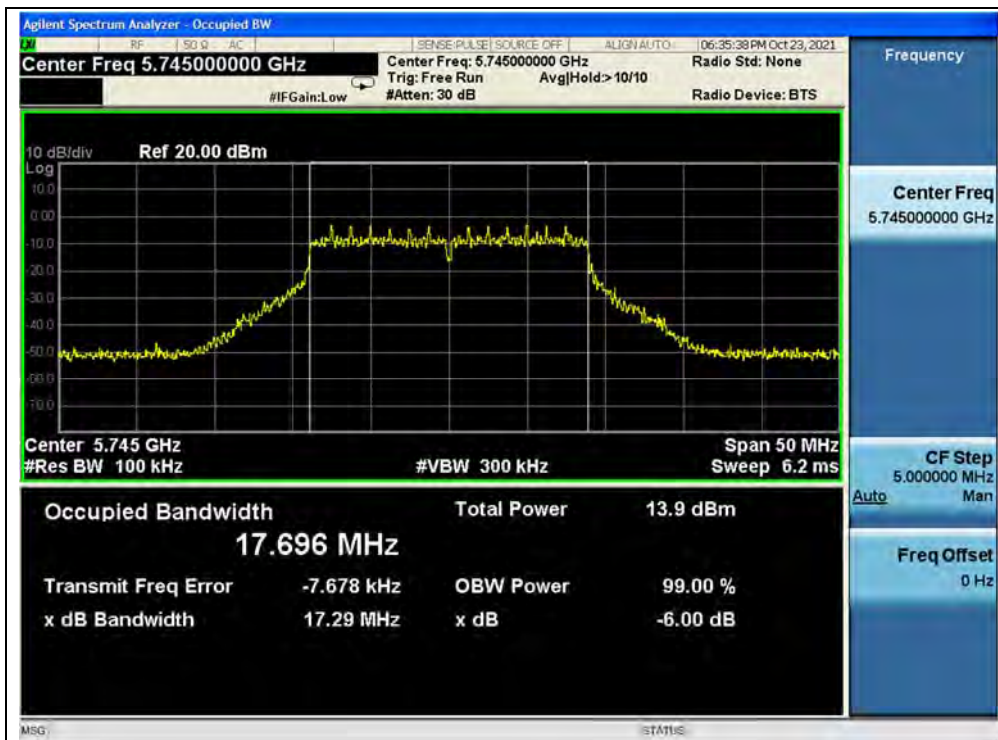
(Channel 120, 5600MHz, 802.11n (HT20))



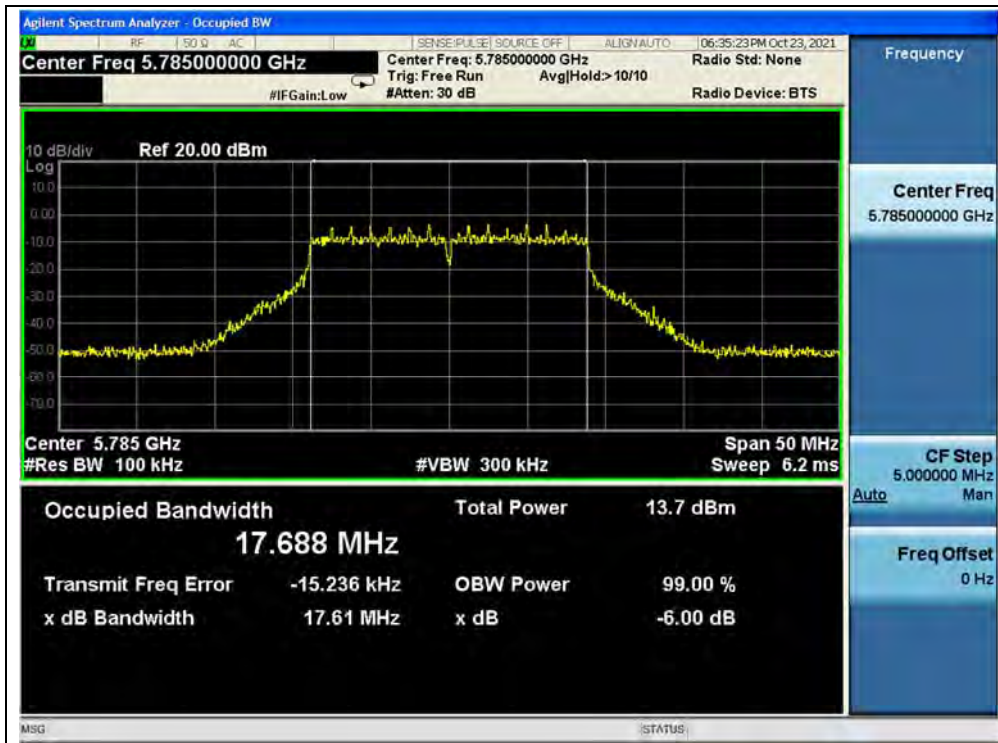
(Channel 144, 5720MHz, 802.11n (HT20))



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



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



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



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

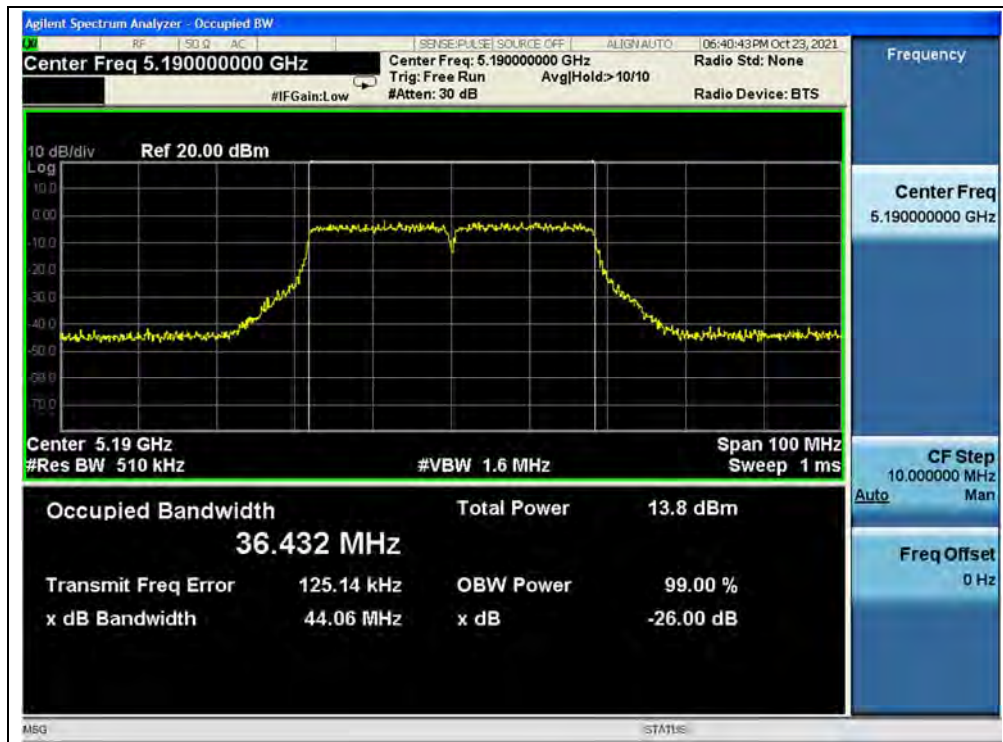


802.11n (HT40) Test mode

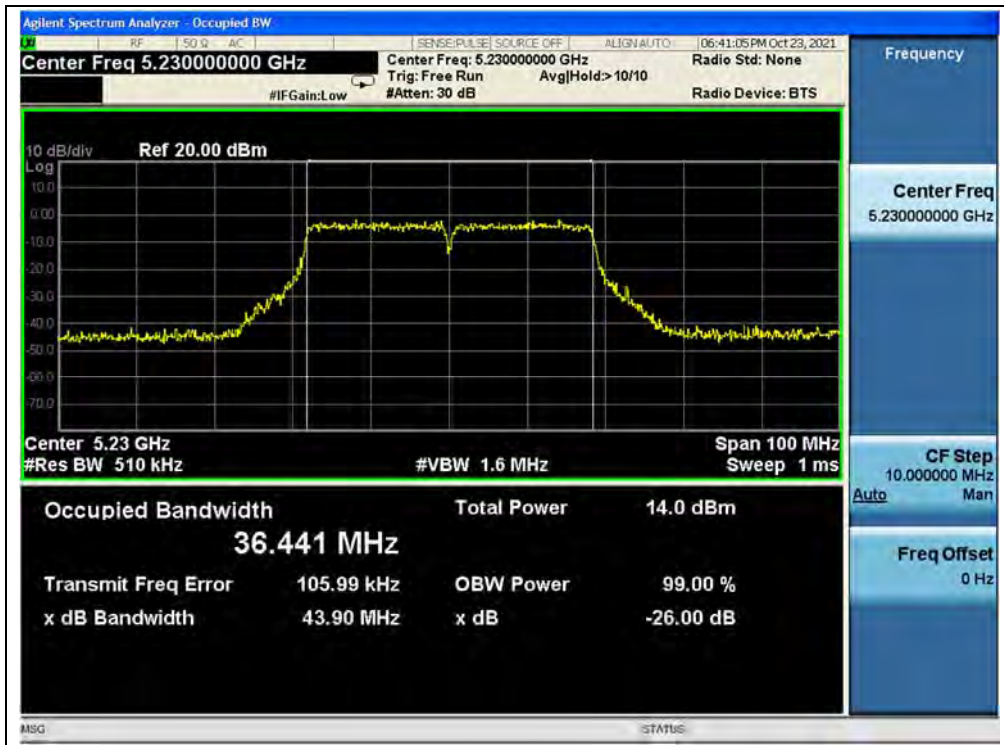
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
38	5190	44.06
46	5230	43.90
54	5270	44.81
62	5310	43.07
102	5510	43.56
126	5630	43.83
142	5710	44.20
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
142	5710	36.09
151	5755	36.43
159	5795	36.34

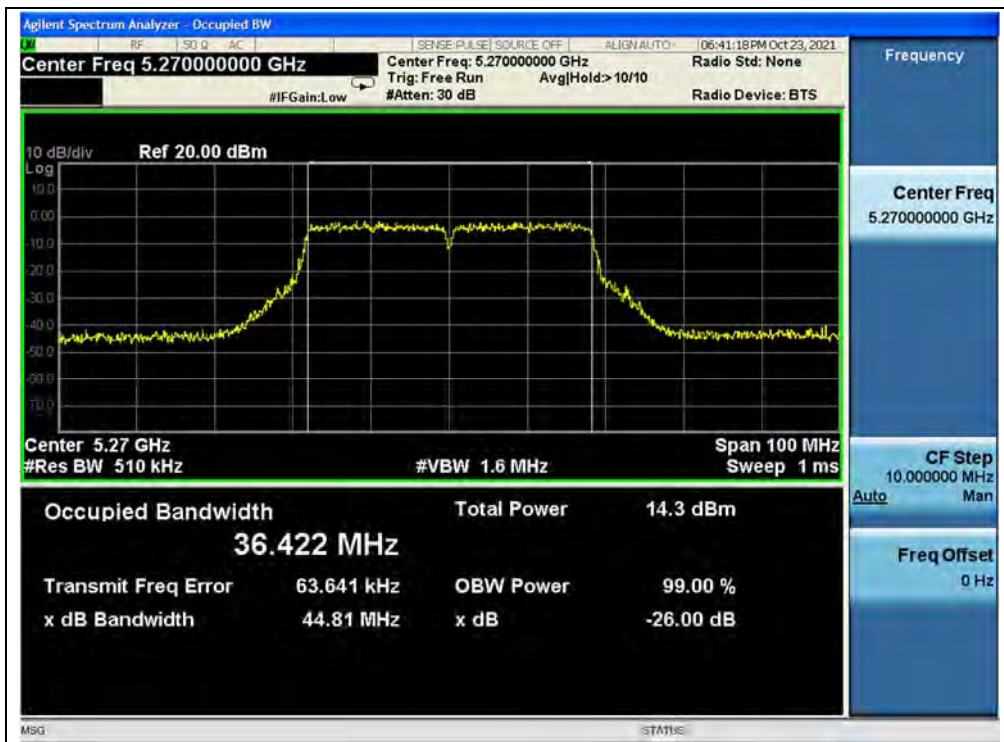
B. Test Plot:



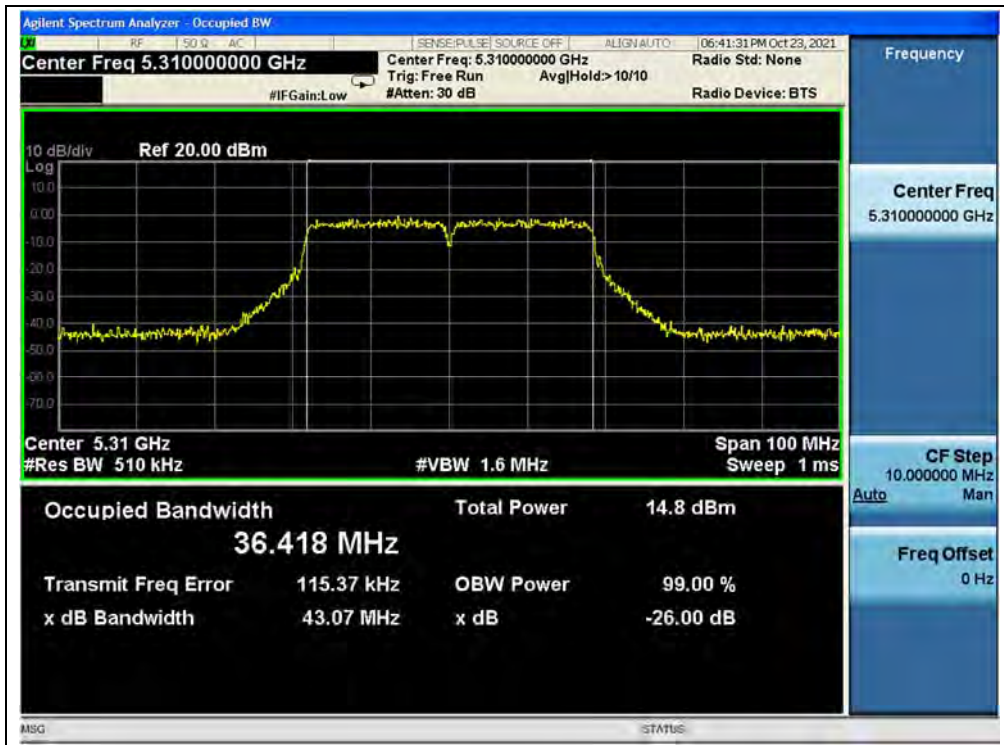
(Channel 38, 5190MHz, 802.11n (HT40))



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



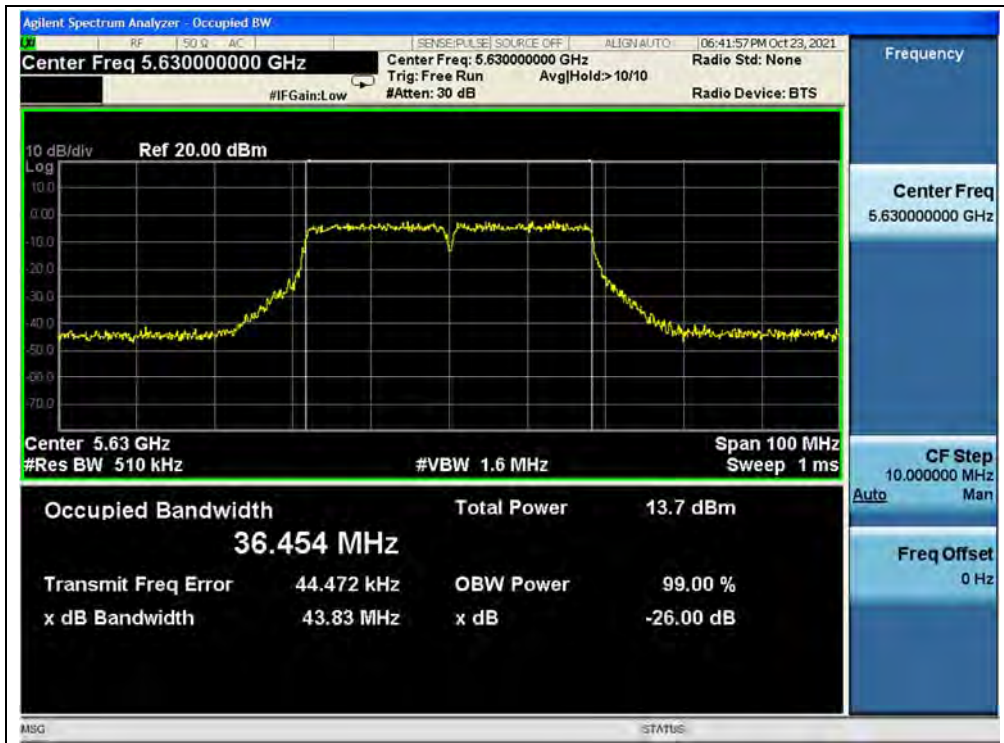
(Channel 54, 5270MHz, 802.11n (HT40))



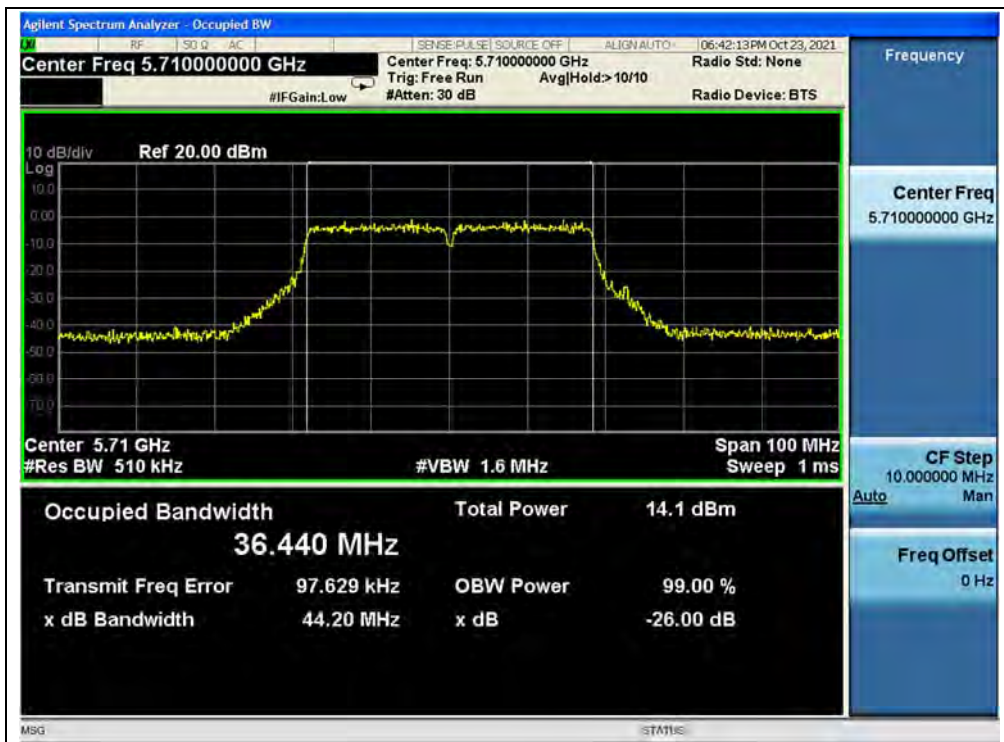
(Channel 62, 5310MHz, 802.11n (HT40))



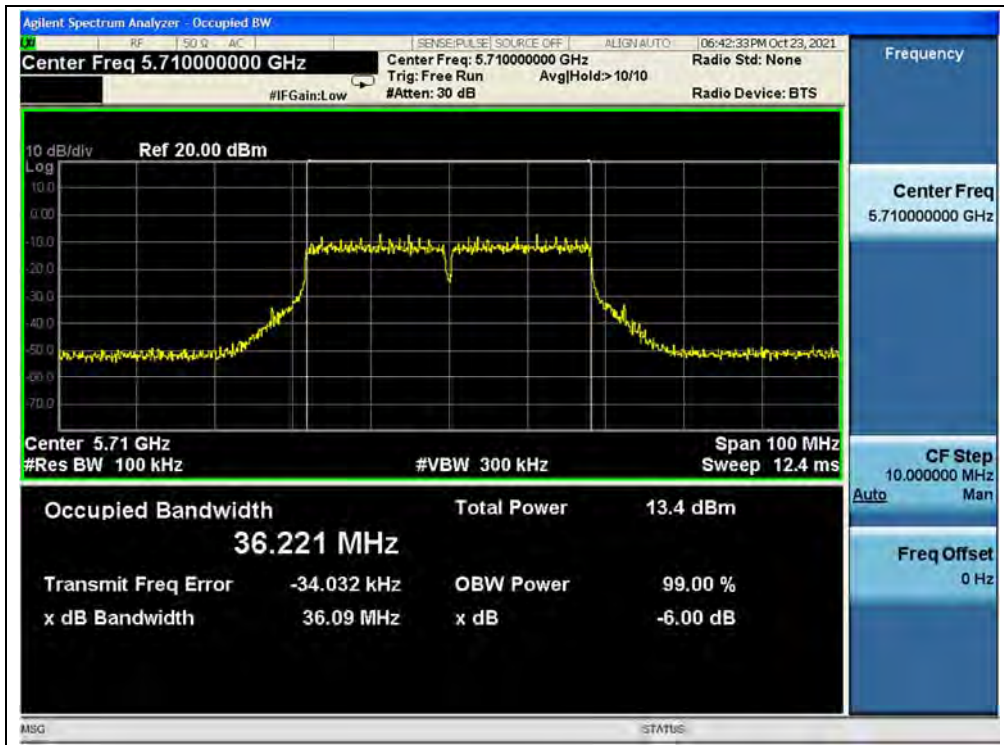
(Channel 102, 5510MHz, 802.11n (HT40))



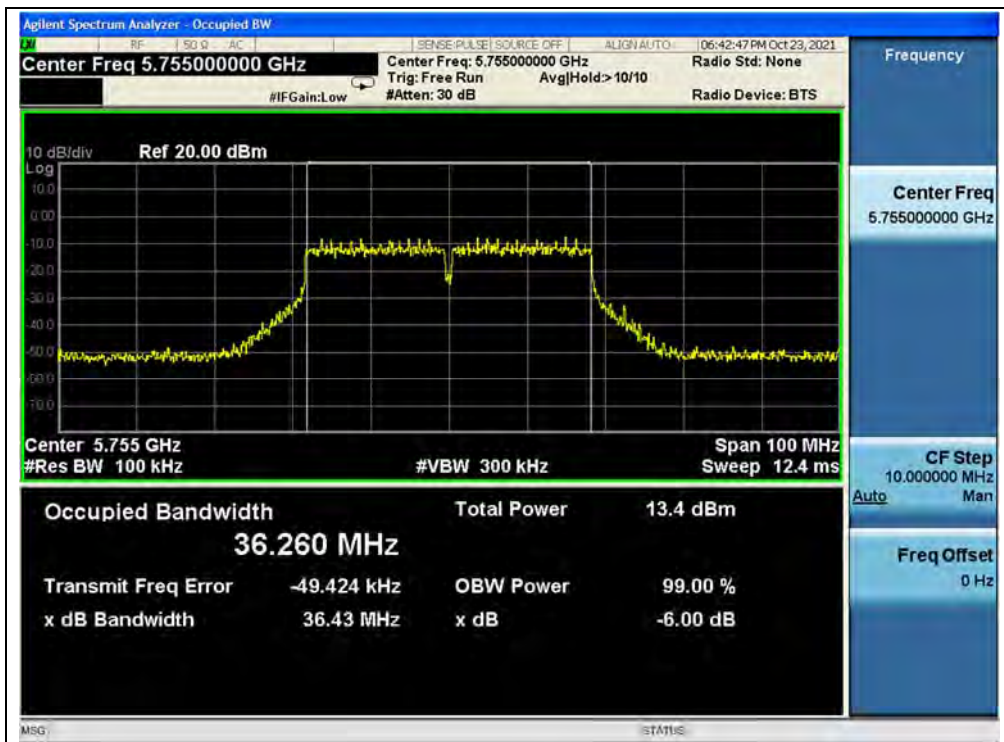
(Channel 126, 5630MHz, 802.11n (HT40))



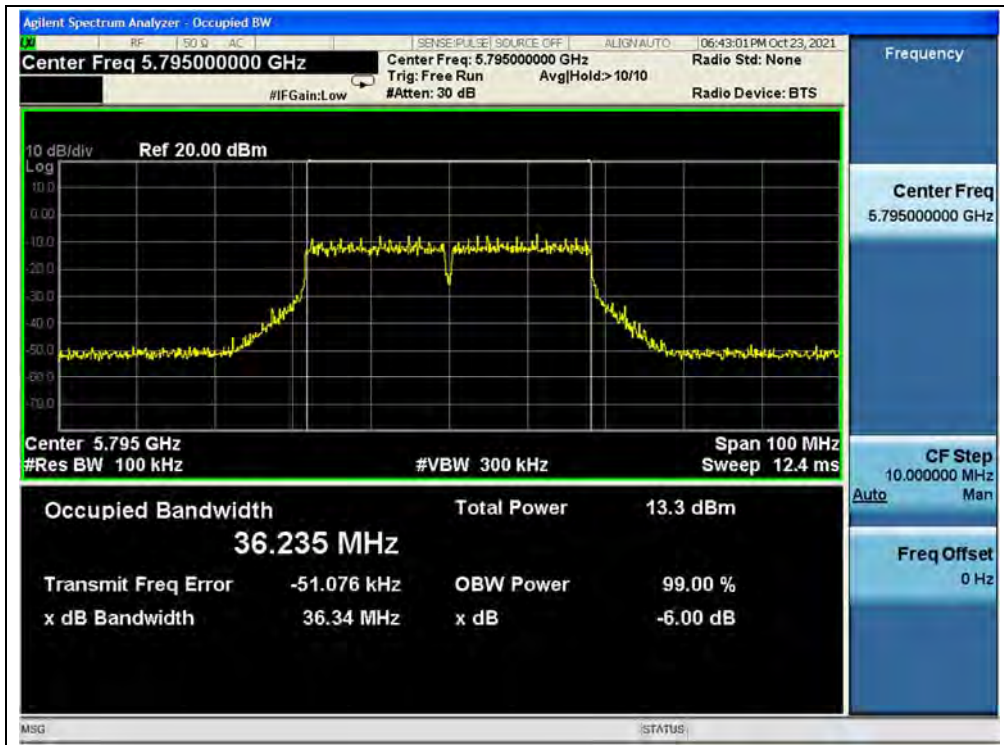
(Channel 142, 5710MHz, 802.11n (HT40))



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



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



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

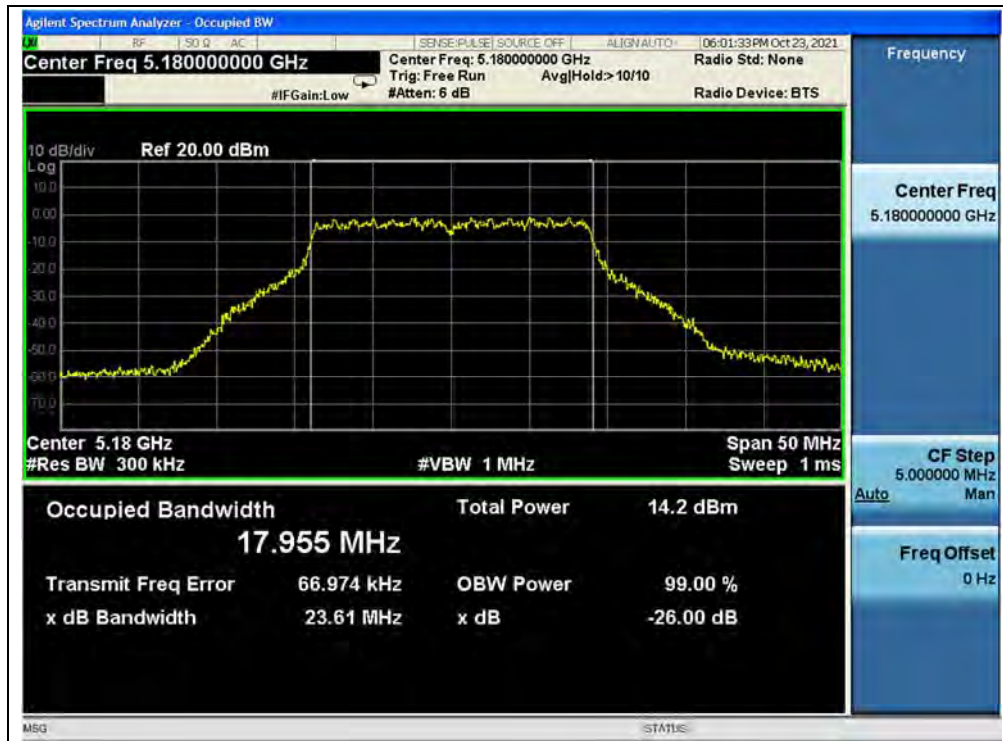


802.11ac (VHT20) Mode

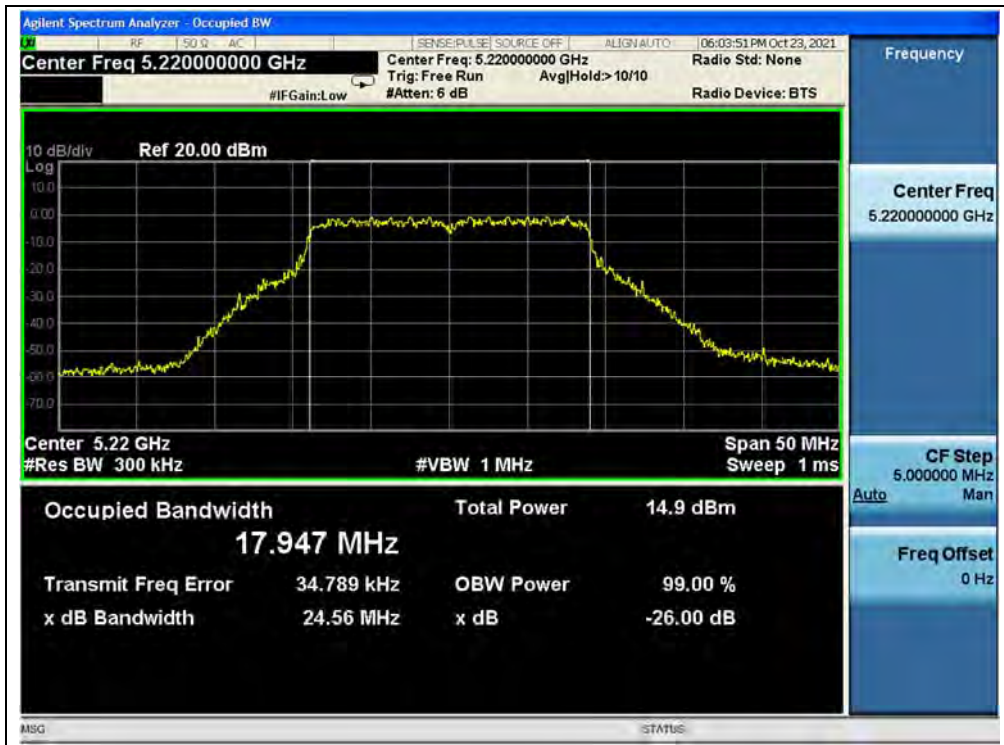
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	23.61
44	5220	24.56
48	5240	23.66
52	5260	24.01
60	5300	23.49
64	5320	24.25
100	5500	23.36
120	5600	23.58
144	5720	23.93
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	17.58
149	5745	17.57
157	5785	17.35
165	5825	17.58

B. Test Plot:



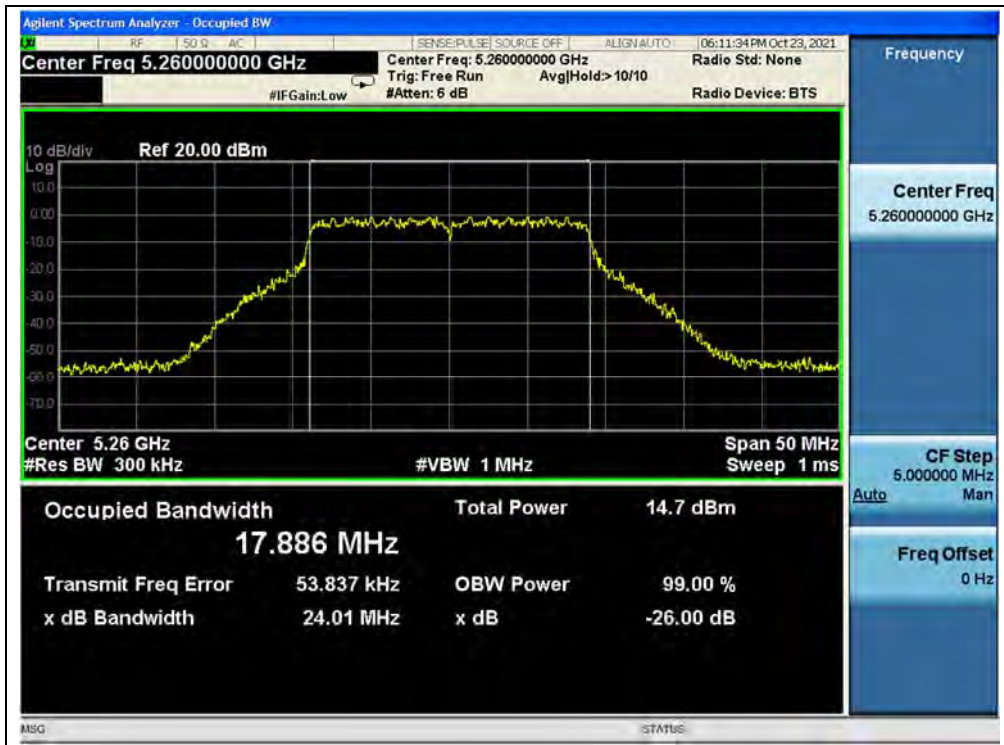
(Channel 36, 5180MHz, 802.11ac (VHT20))



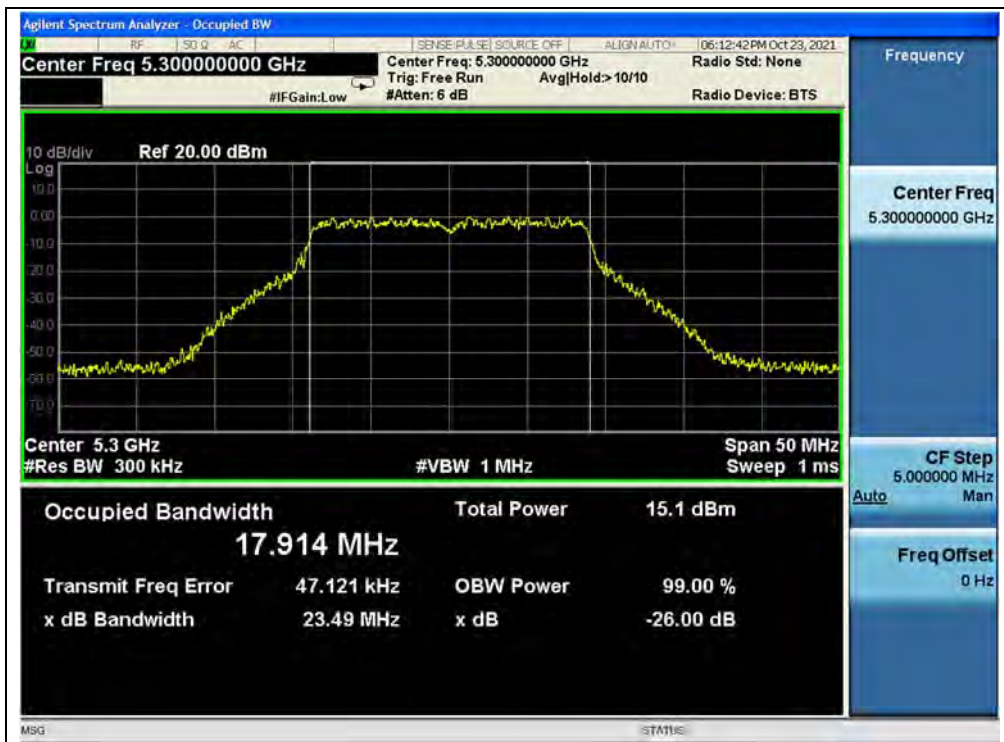
(Channel 44, 5220MHz, 802.11ac (VHT20))



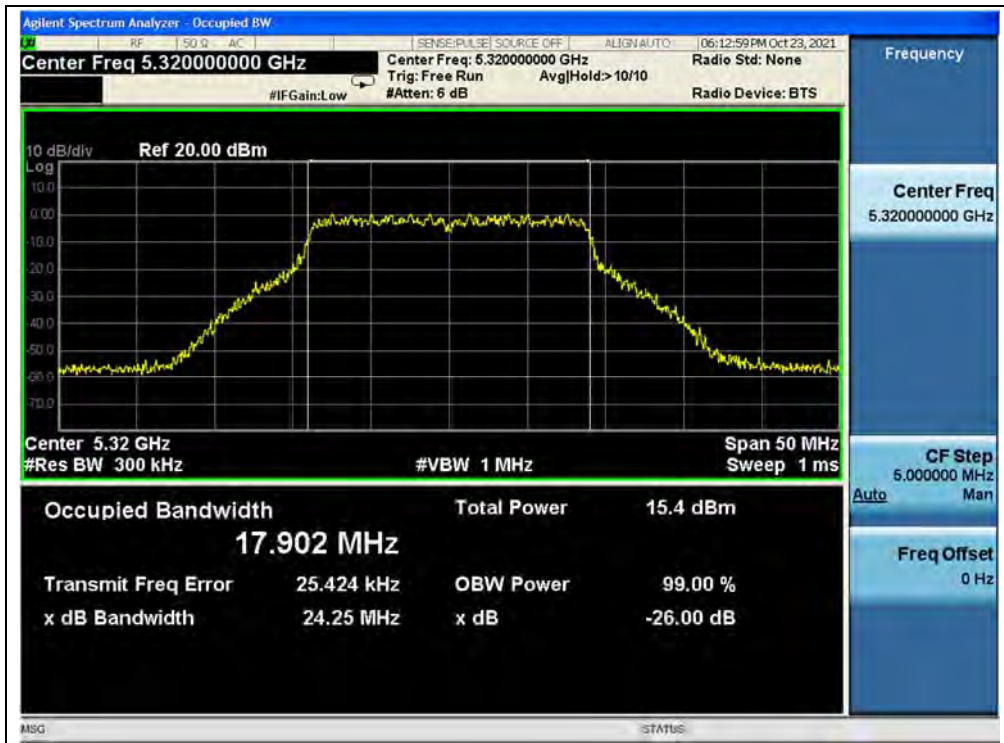
(Channel 48, 5240MHz, 802.11ac (VHT20))



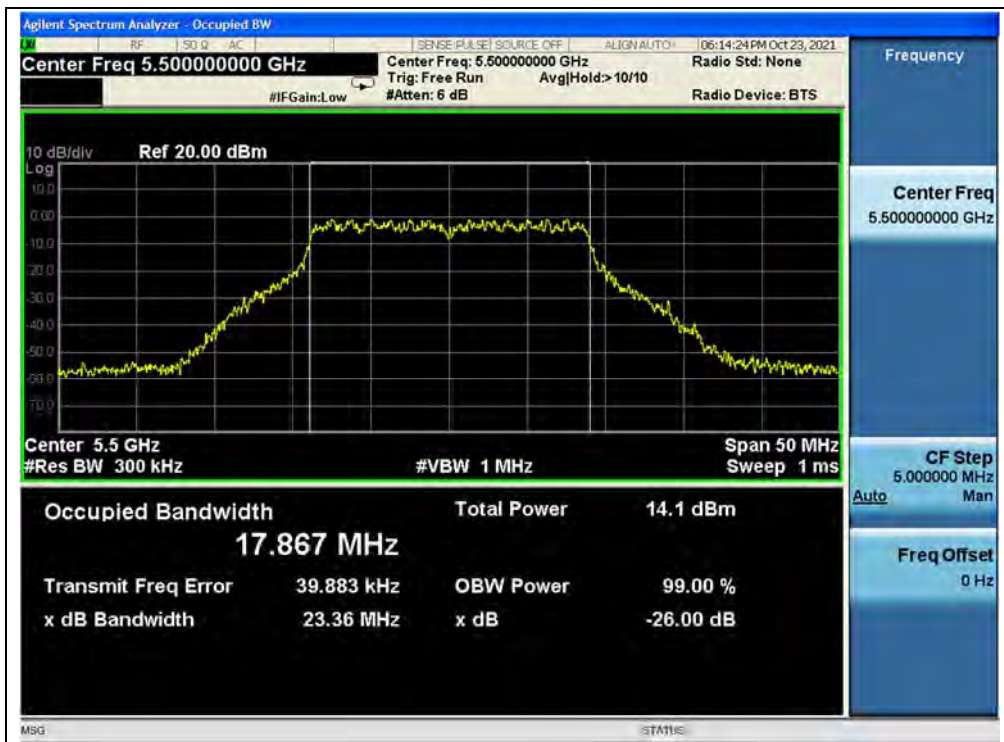
(Channel 52, 5260MHz, 802.11ac (VHT20))



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



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



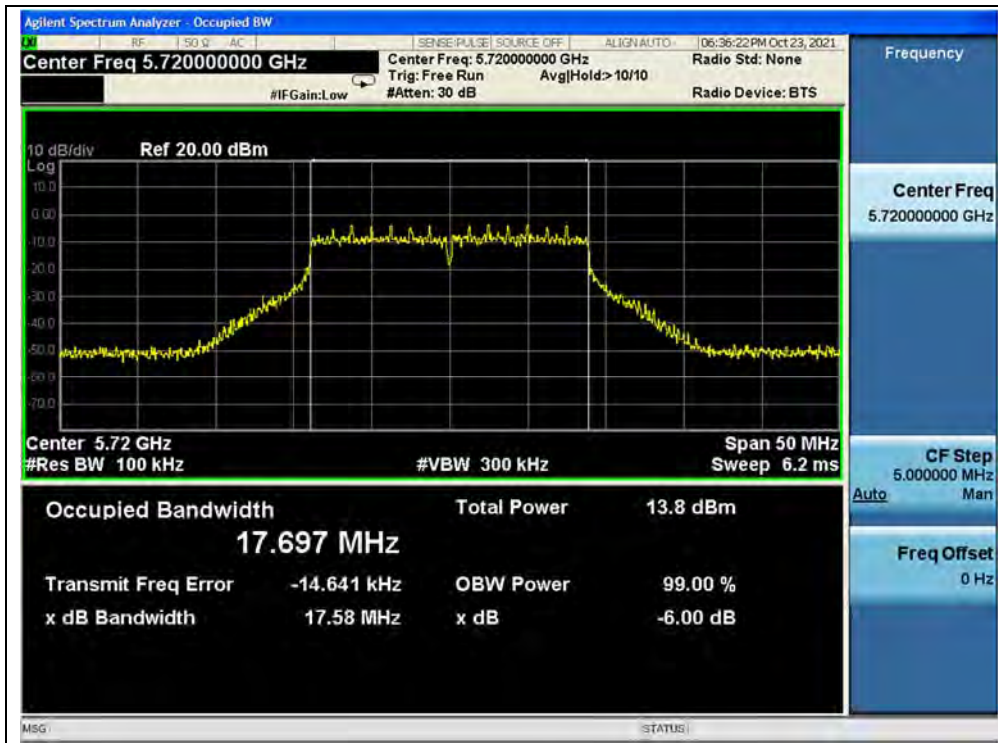
(Channel 100, 5500MHz, 802.11ac (VHT20))



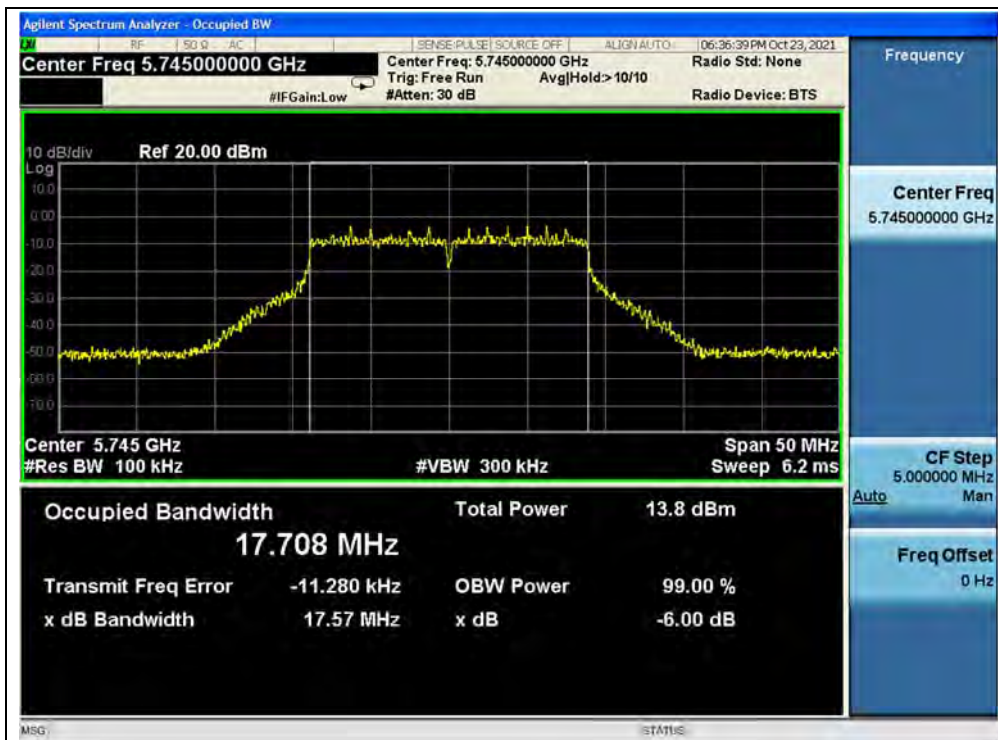
(Channel 120, 5600MHz, 802.11ac (VHT20))



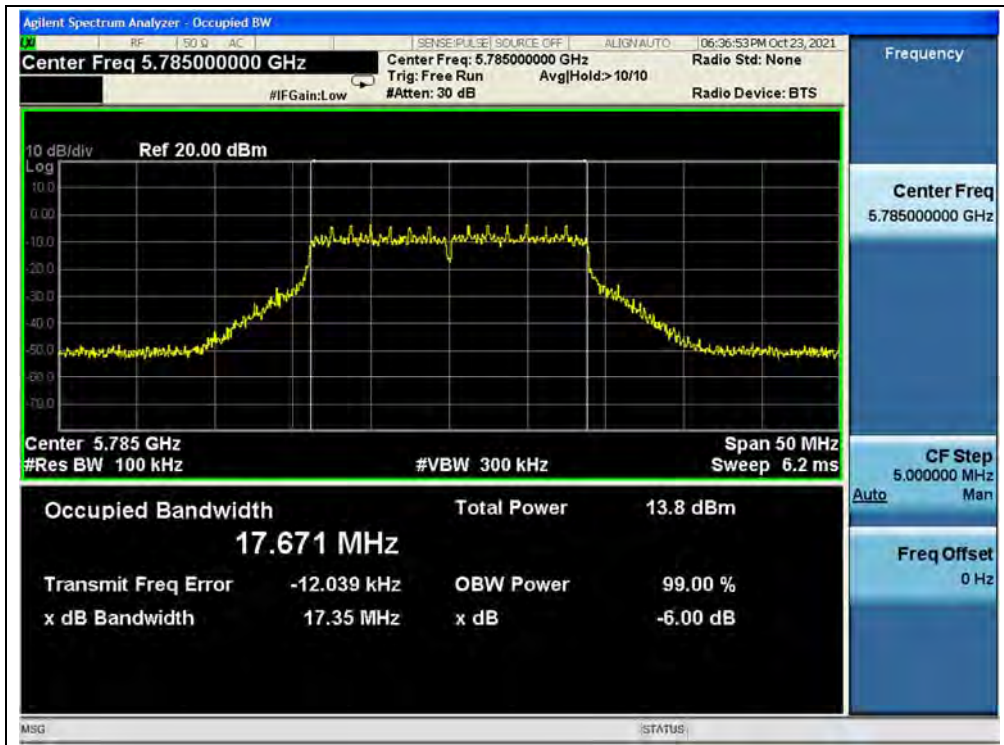
(Channel 144, 5720MHz, 802.11ac (VHT20))



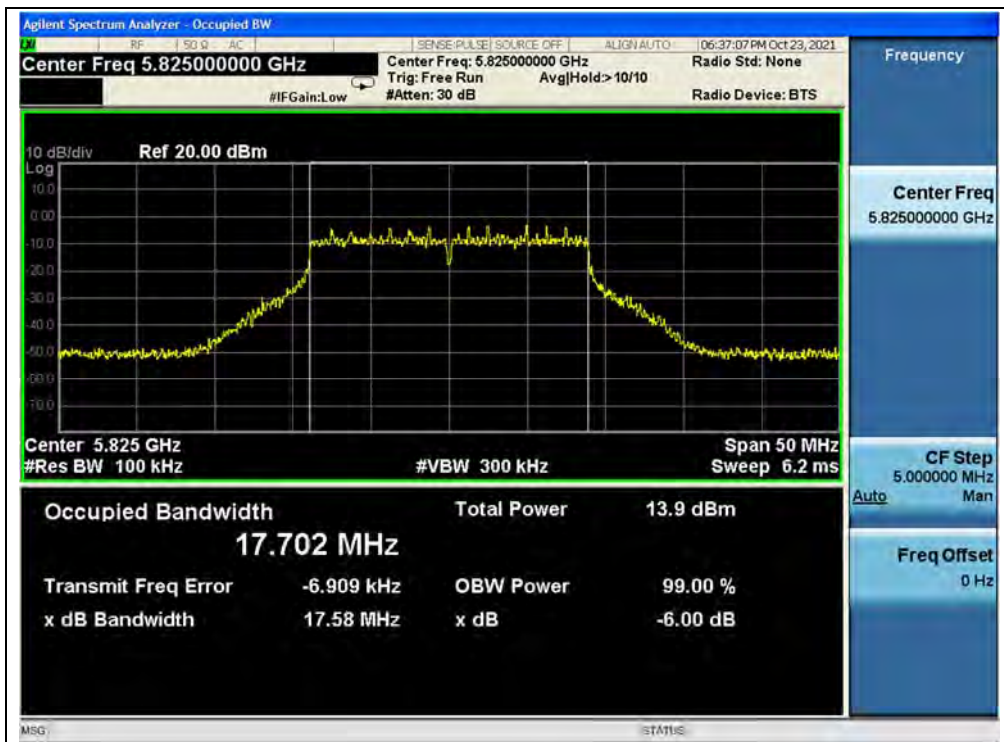
(Channel 144, 5720MHz, 802.11ac (VHT20))



(Channel 149, 5745MHz, 802.11 ac (VHT20))



(Channel 157, 5785MHz, 802.11 ac (VHT20))



(Channel 165, 5825MHz, 802.11 ac (VHT20))

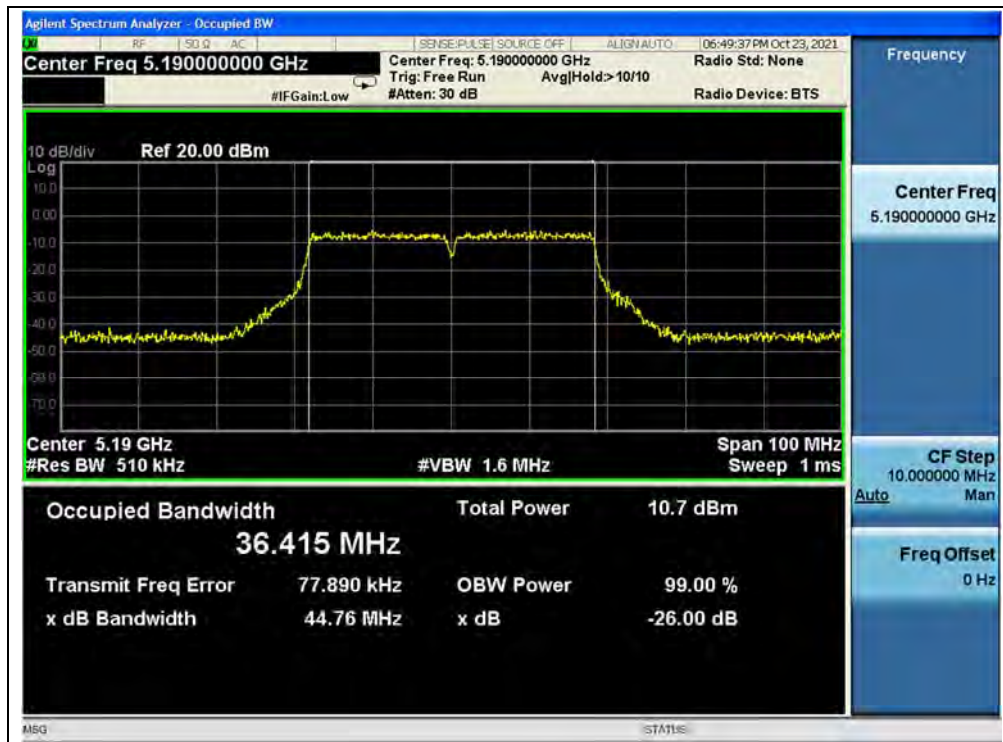


802.11ac (VHT40) Mode

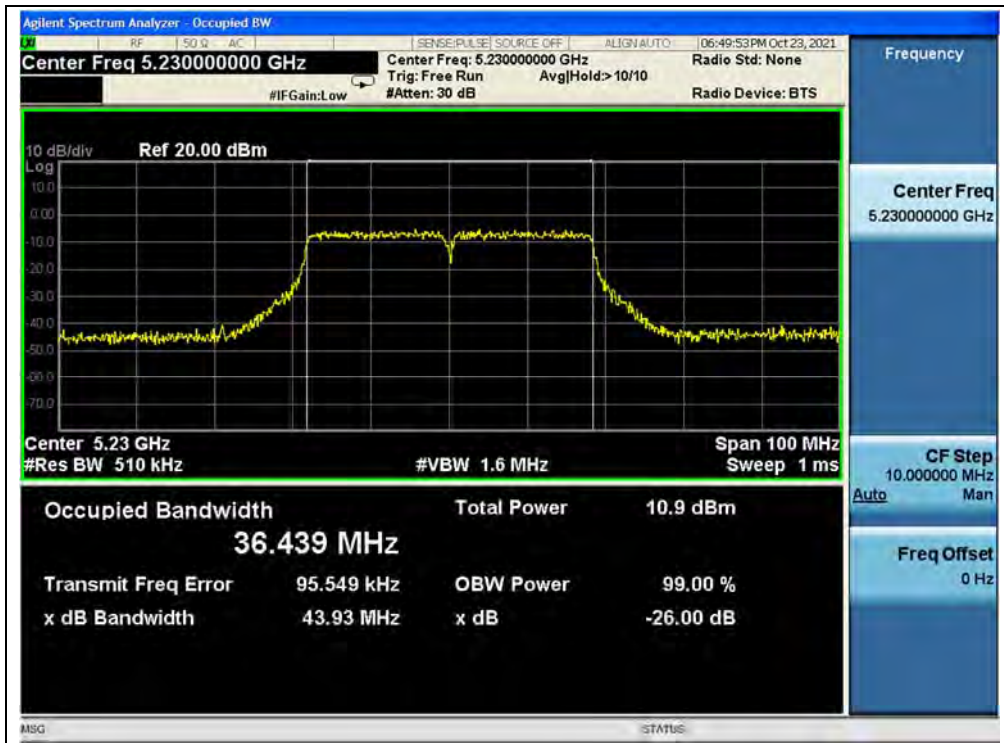
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
38	5190	44.73
46	5230	43.93
54	5270	44.14
62	5310	44.30
102	5510	44.10
126	5630	43.86
142	5710	44.28
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
142	5710	36.40
151	5755	36.43
159	5795	36.10

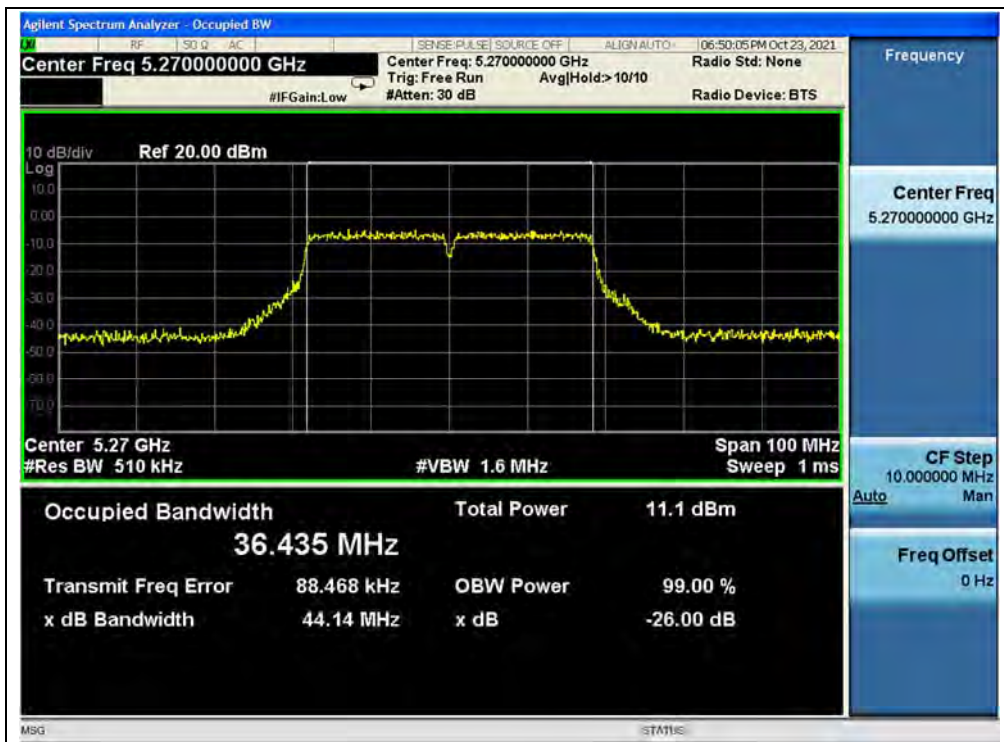
B. Test Plot:



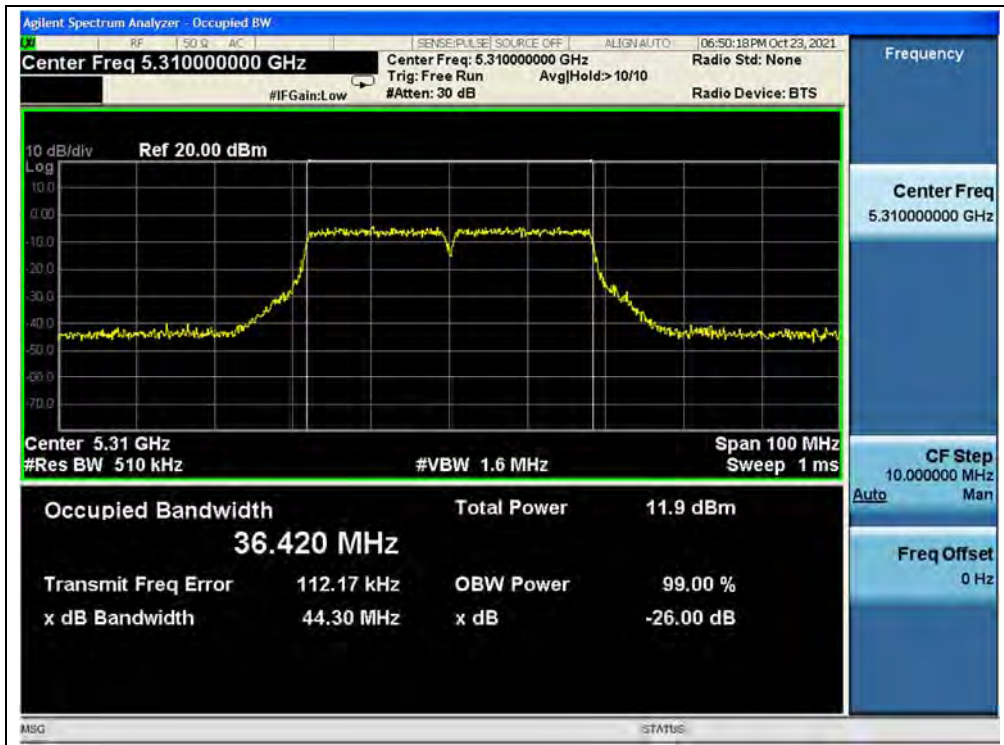
(Channel 38, 5190MHz, 802.11ac (VHT40))



(Channel 46, 5230MHz, 802.11ac (VHT40))



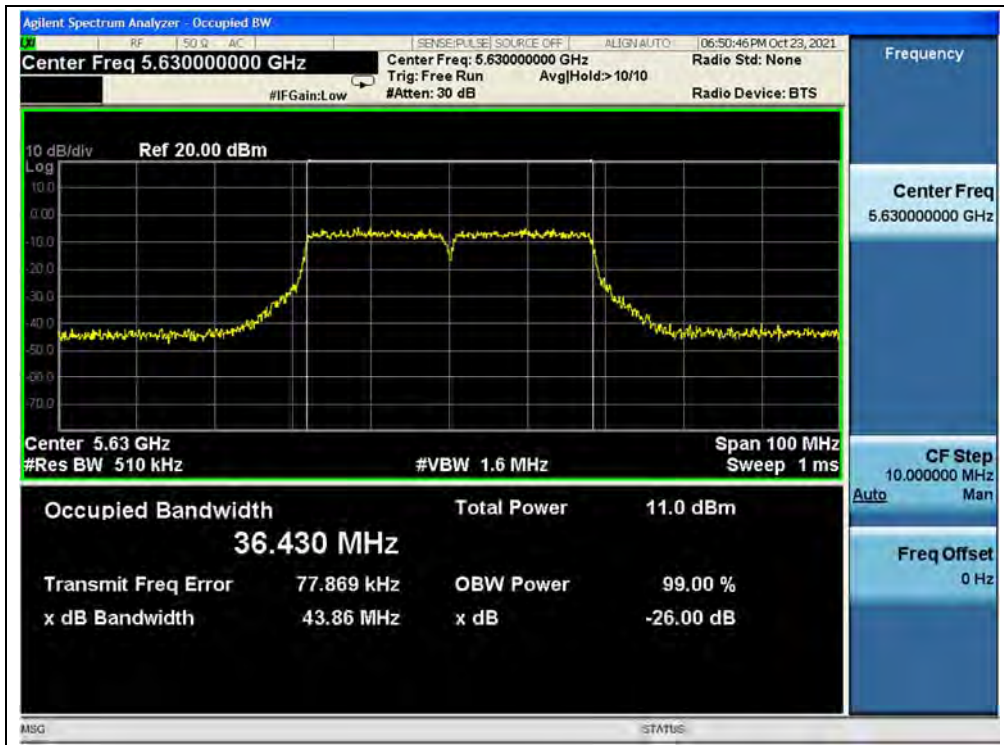
(Channel 54, 5270MHz, 802.11ac (VHT40))



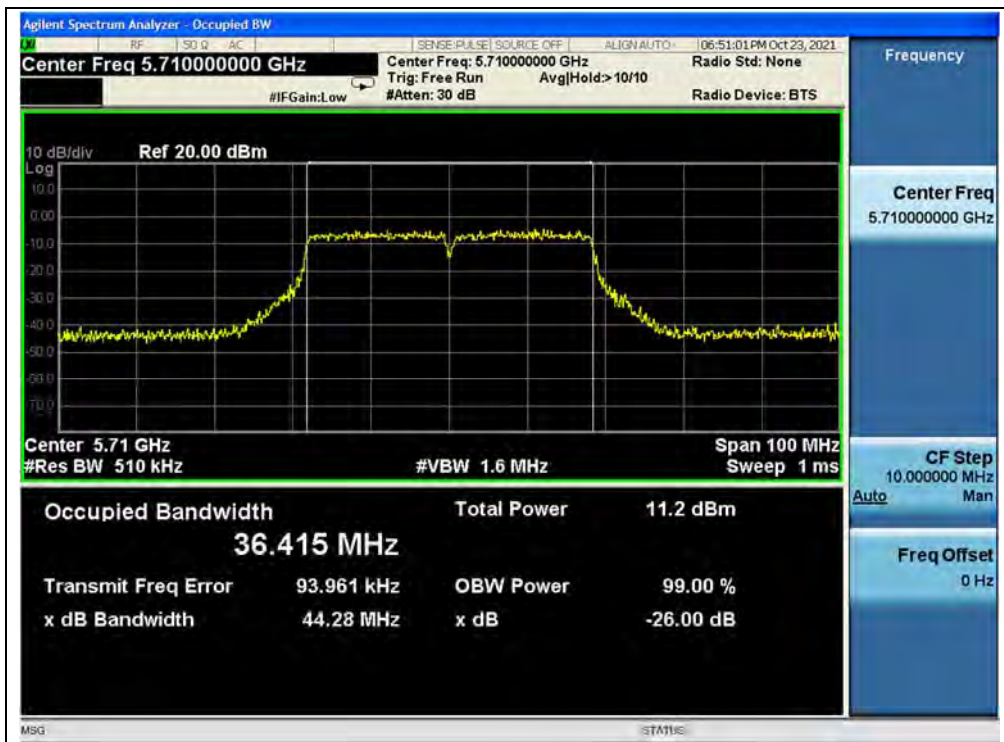
(Channel 62, 5310MHz, 802.11ac (VHT40))



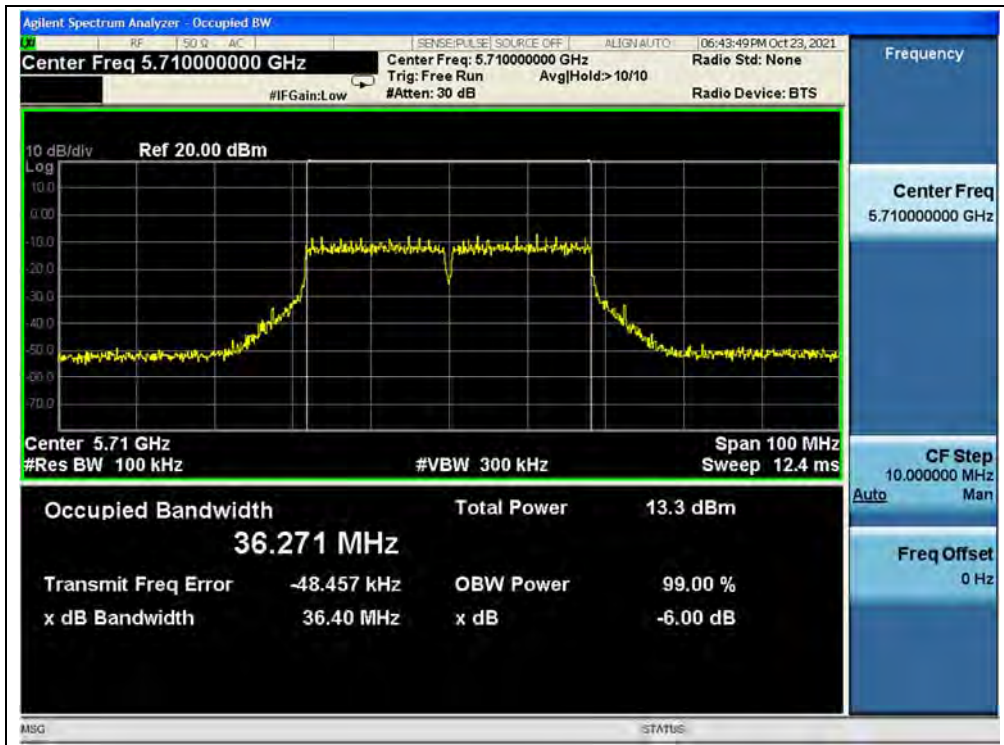
(Channel 102, 5510MHz, 802.11ac (VHT40))



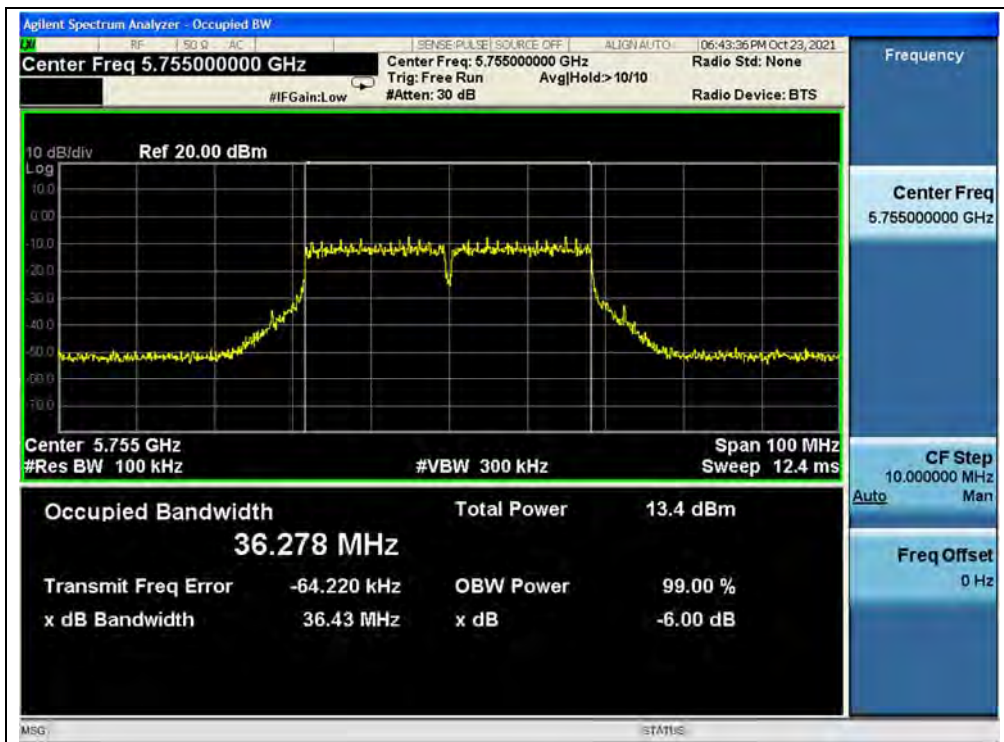
(Channel 126, 5630MHz, 802.11ac (VHT40))



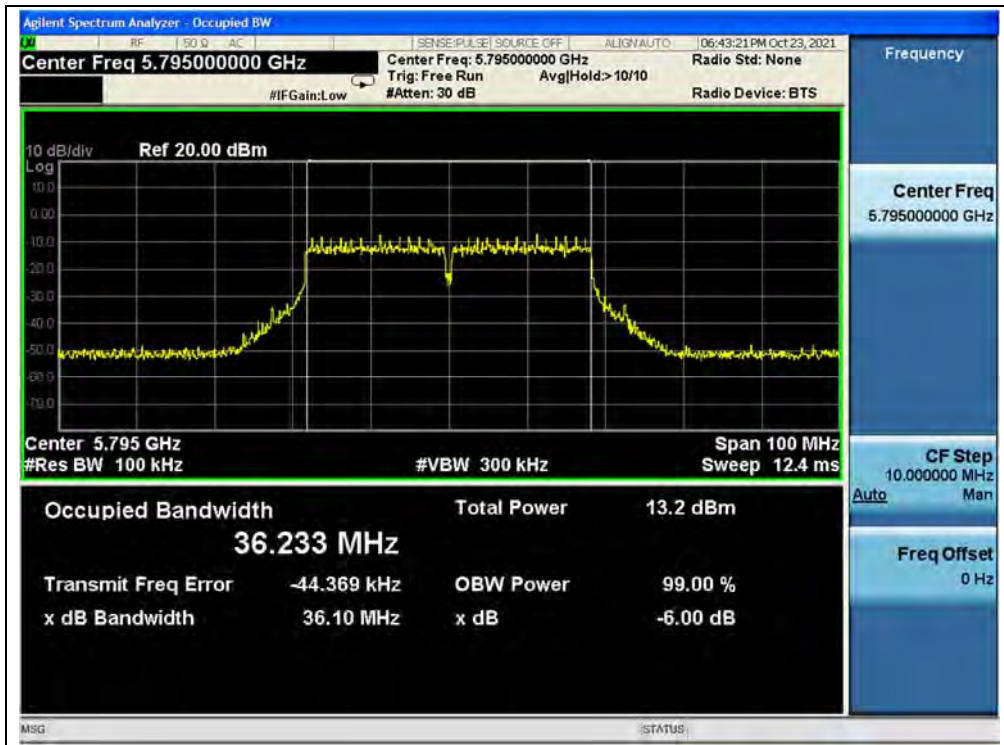
(Channel 142, 5710MHz, 802.11ac (VHT40))



(Channel 142, 5710MHz, 802.11ac (VHT40))



(Channel 151, 5755MHz, 802.11ac (VHT40))



(Channel 159, 5795MHz, 802.11ac (VHT40))



802.11ac (VHT80) Mode

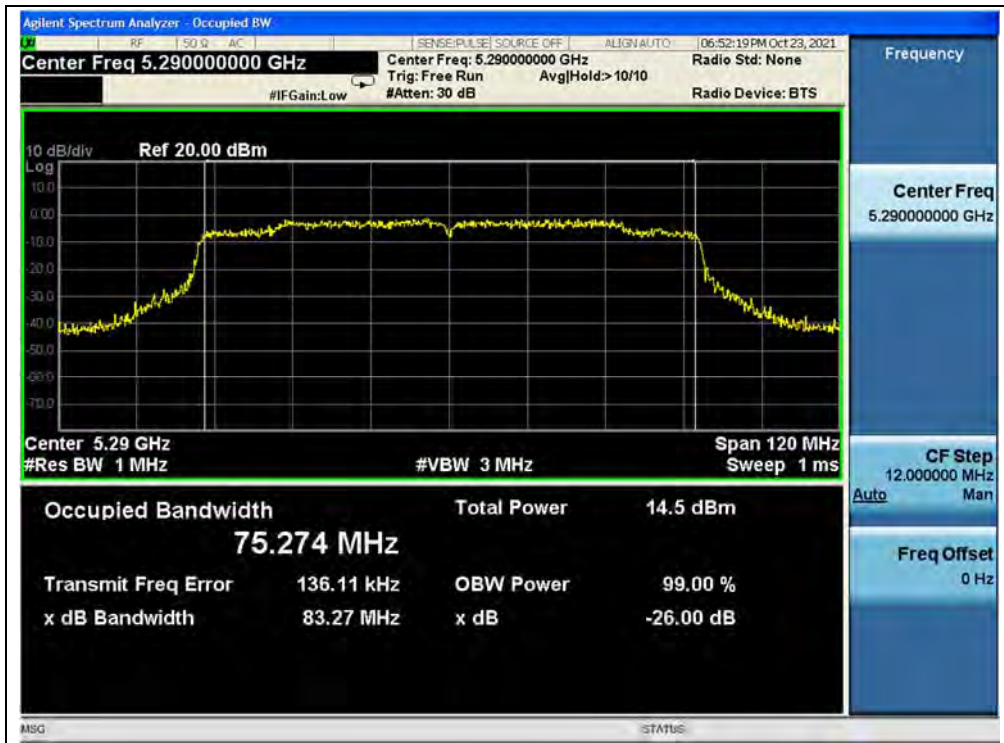
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
42	5210	83.69
58	5290	83.27
106	5530	83.81
122	5610	83.93
138	5690	85.50
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
138	5690	73.86
155	5775	75.08

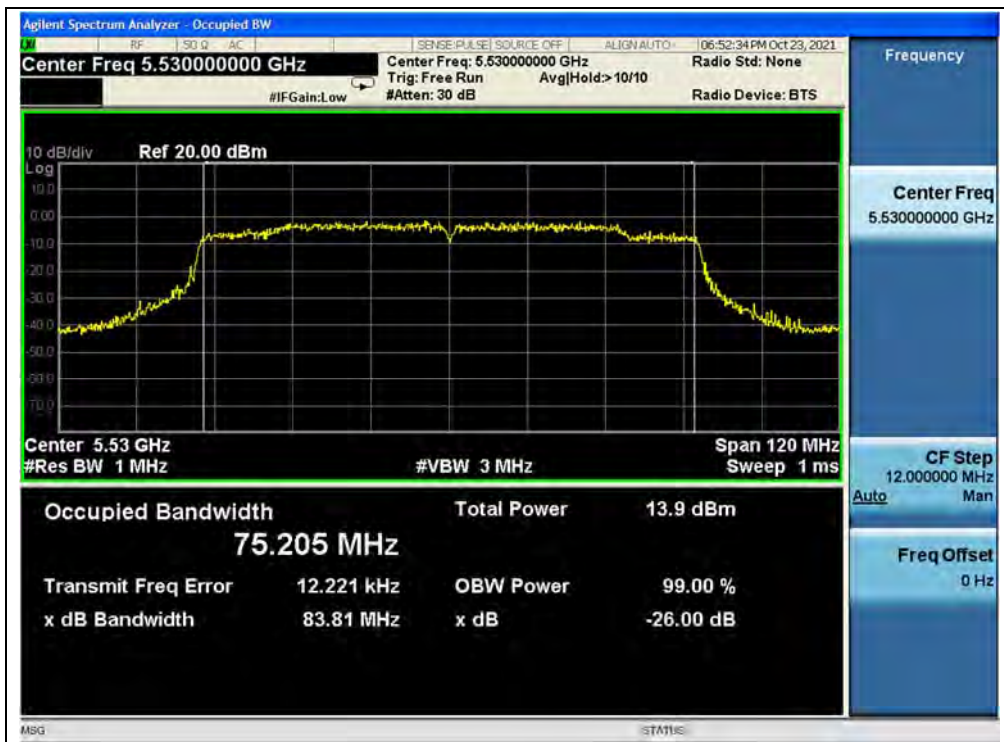
B. Test Plot:



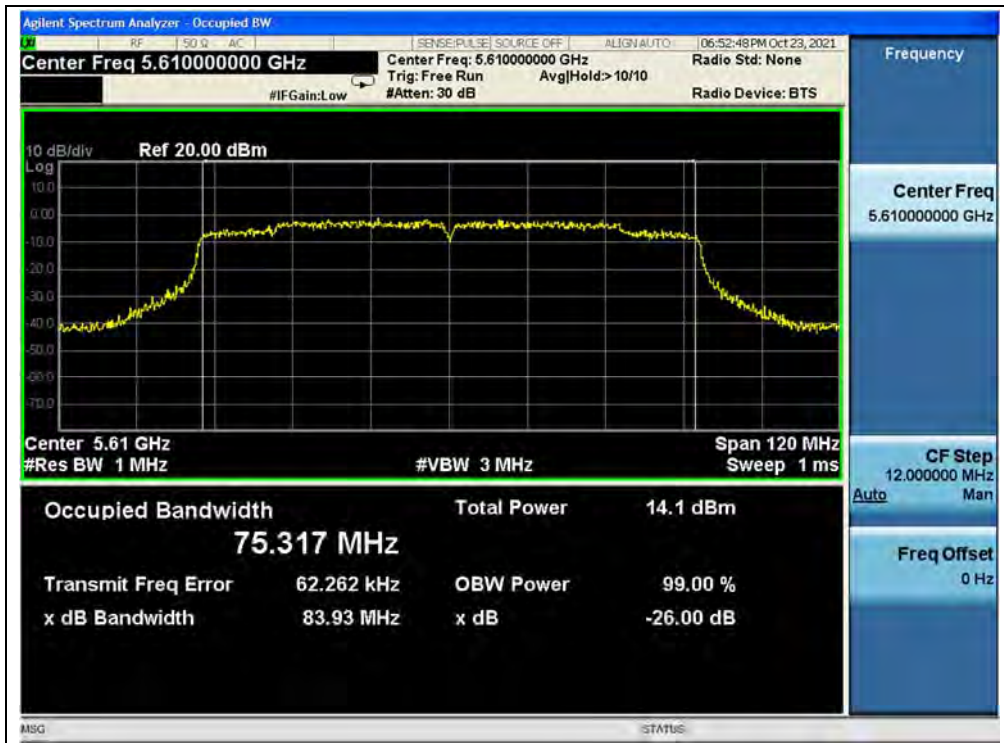
(Channel 42, 5210MHz, 802.11ac (VHT80))



(Channel 58, 5290MHz, 802.11ac (VHT80))



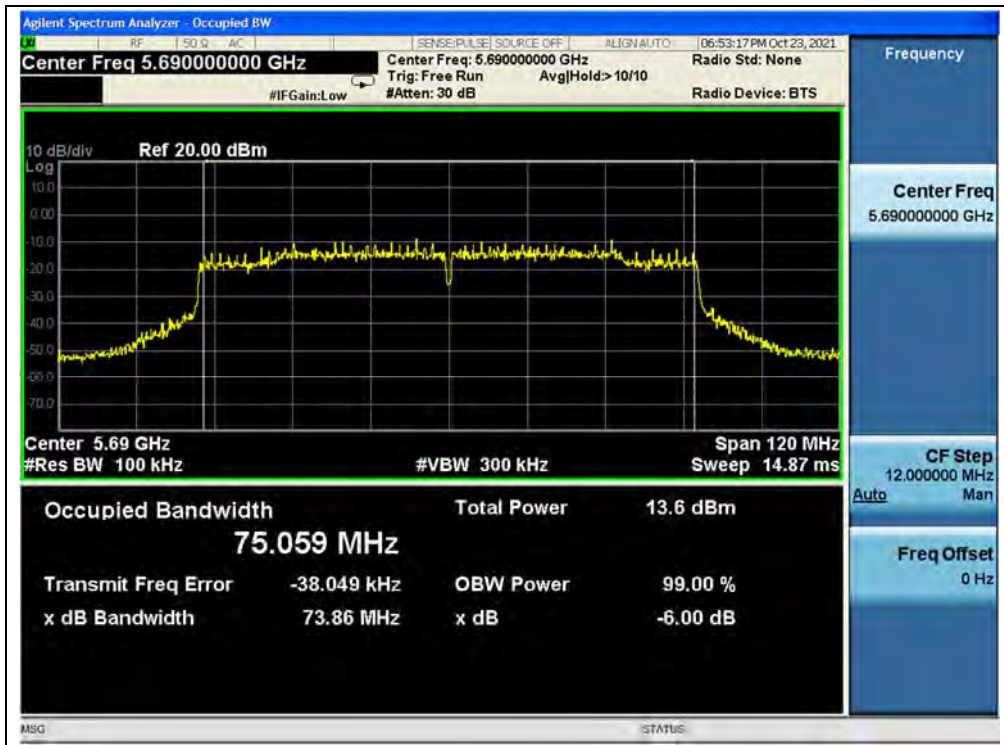
(Channel 106, 5530MHz, 802.11ac (VHT80))



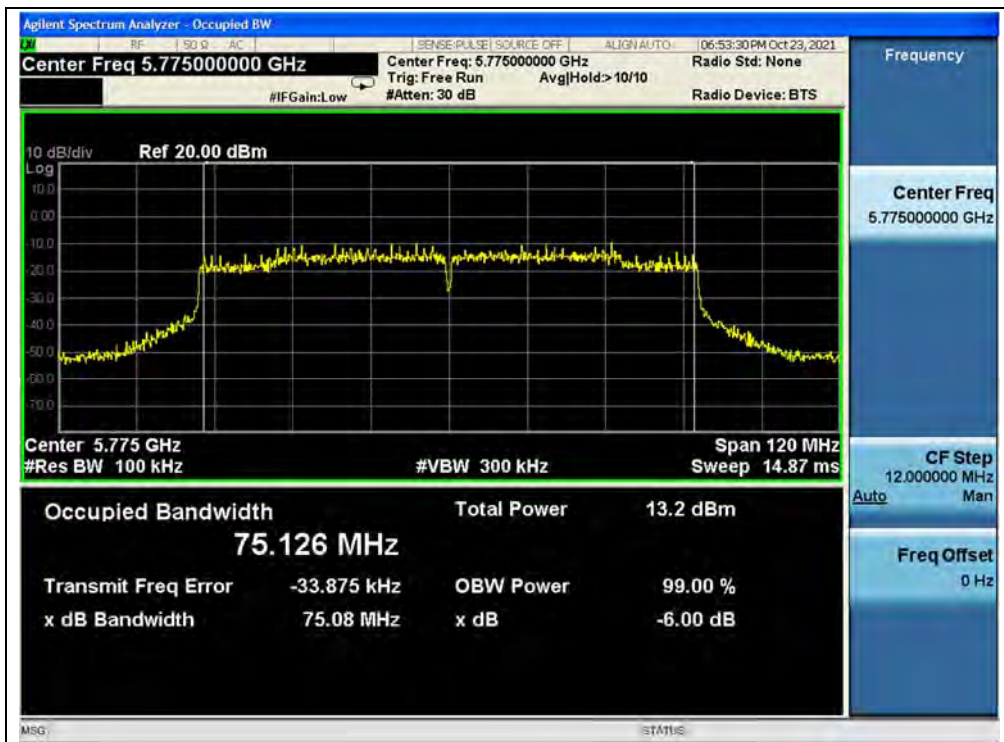
(Channel 122, 5610MHz, 802.11ac (VHT80))



(Channel 138, 5690MHz, 802.11ac (VHT80))



(Channel 138, 5690MHz, 802.11ac (VHT80))



(Channel 155, 5775MHz, 802.11ac (VHT80))

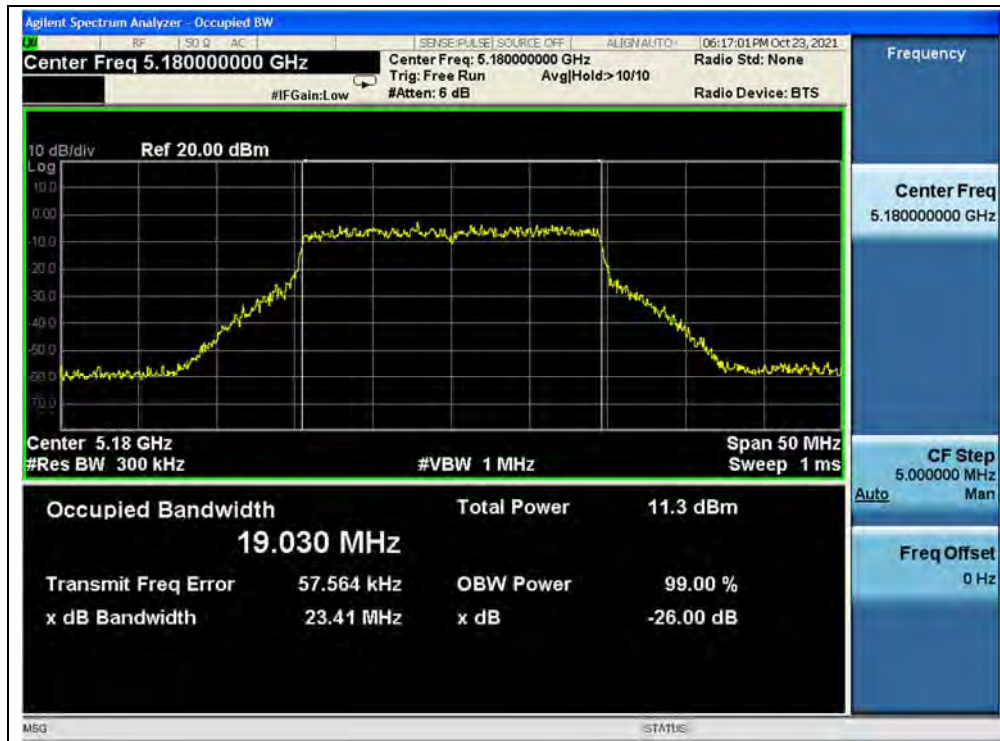


802.11ax (HEW20) Mode

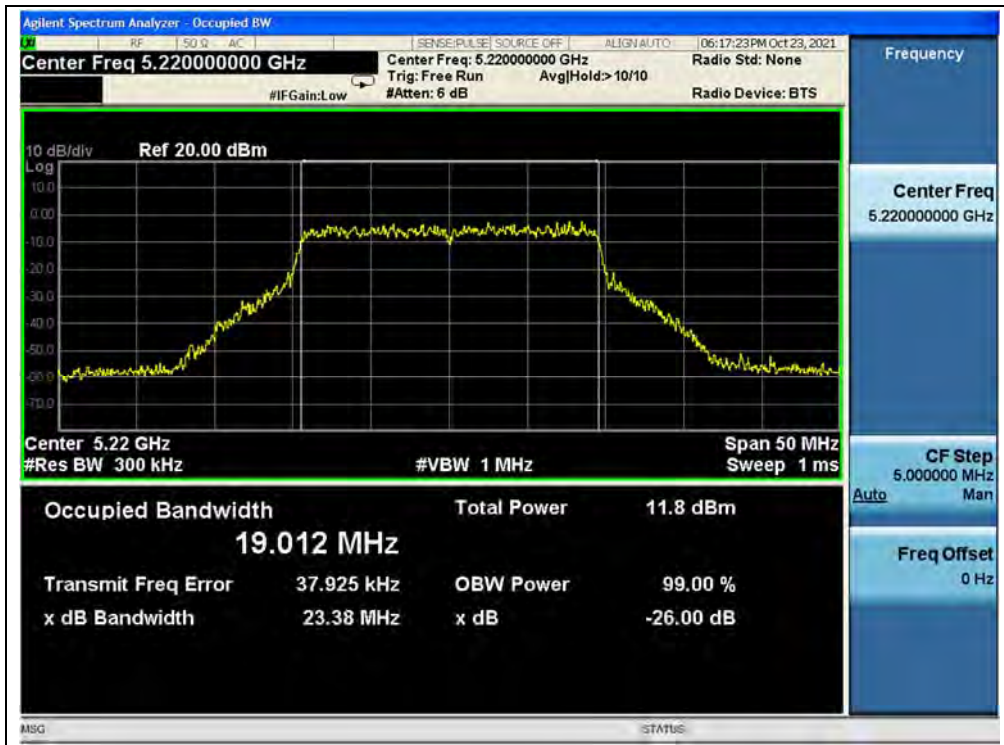
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	23.41
44	5220	23.38
48	5240	23.50
52	5260	22.52
60	5300	23.86
64	5320	23.76
100	5500	23.78
120	5600	22.98
144	5720	23.17
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	17.97
149	5745	18.34
157	5785	18.52
165	5825	18.17

B. Test Plot:



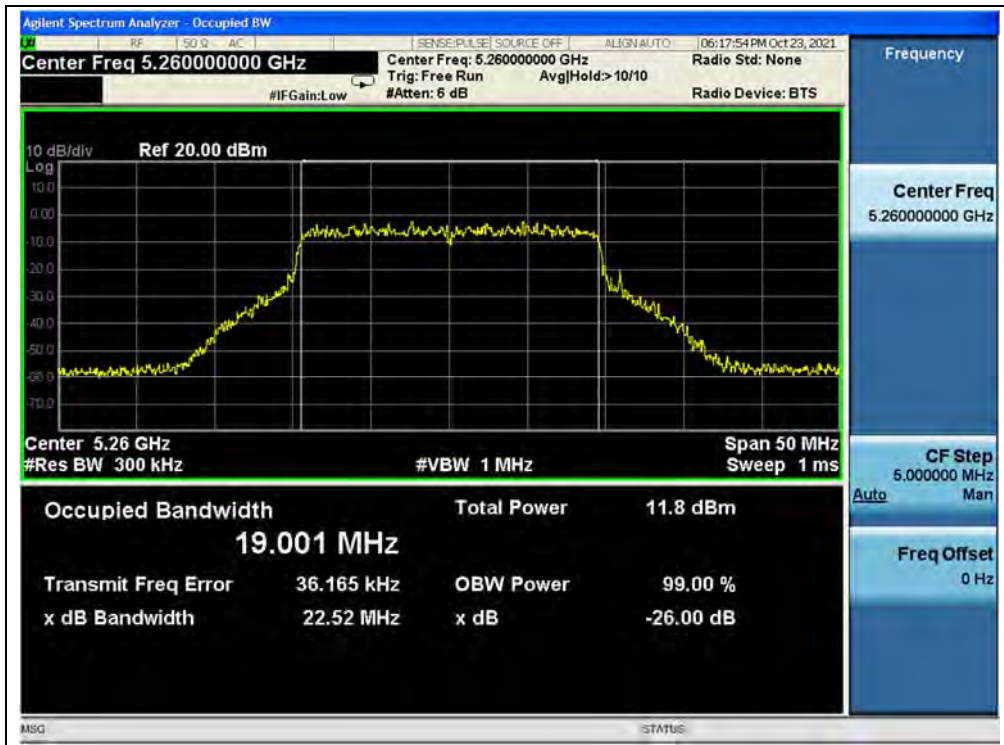
(Channel 36, 5180MHz, 802.11ax (HEW20))



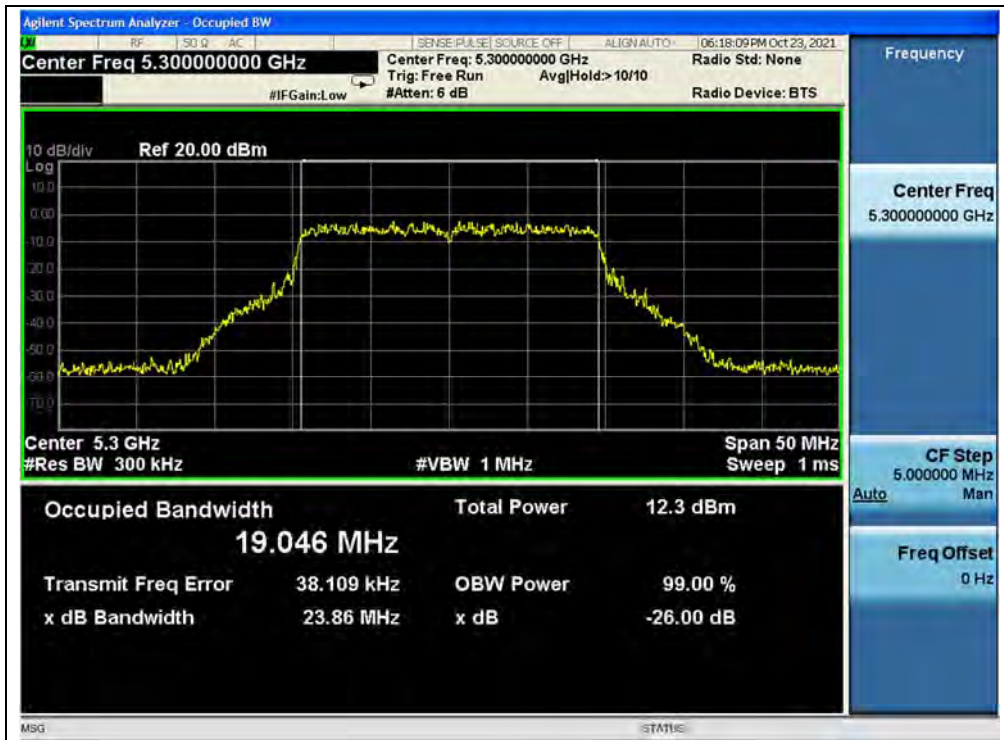
(Channel 44, 5220MHz, 802.11ax (HEW20))



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



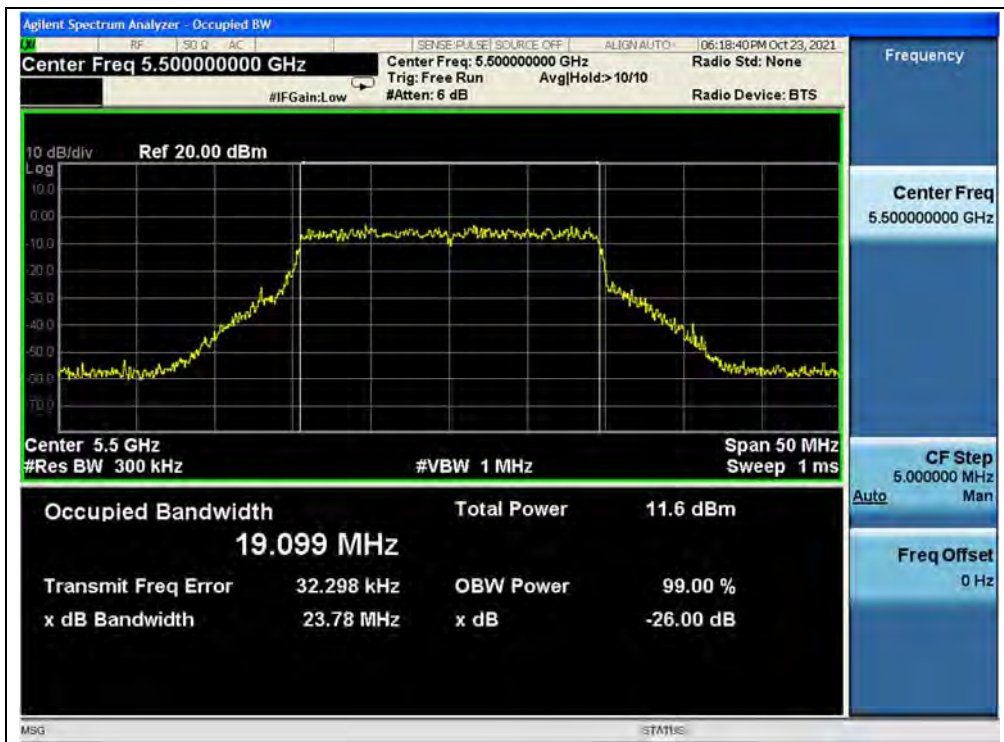
(Channel 52, 5260MHz, 802.11ax (HEW20))



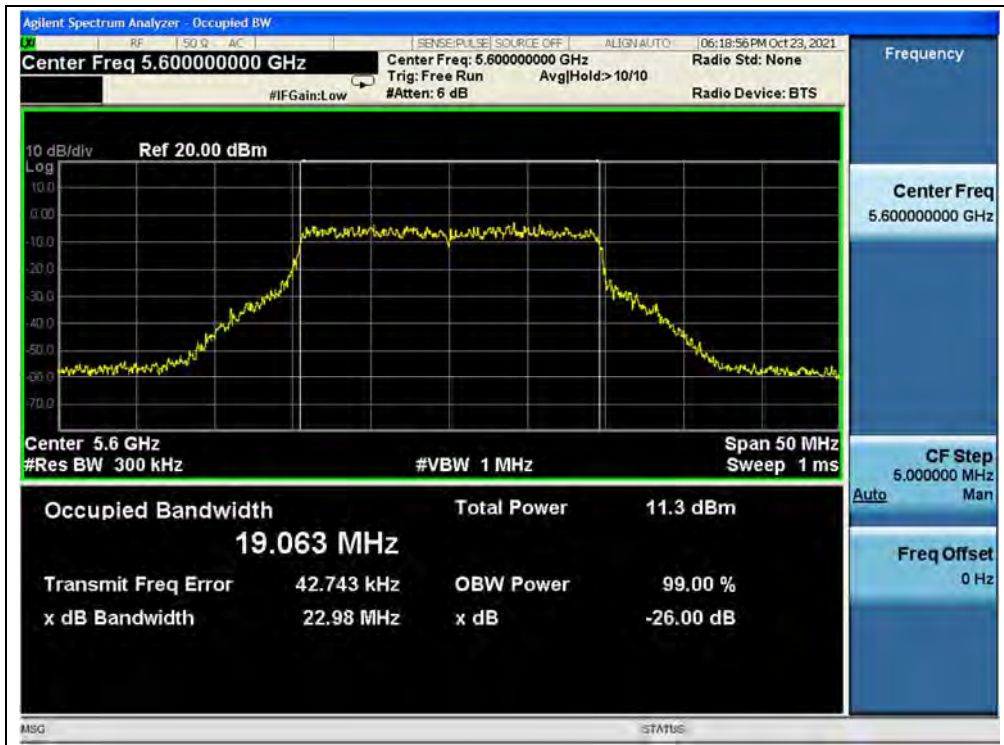
(Channel 60, 5300MHz, 802.11ax (HEW20))



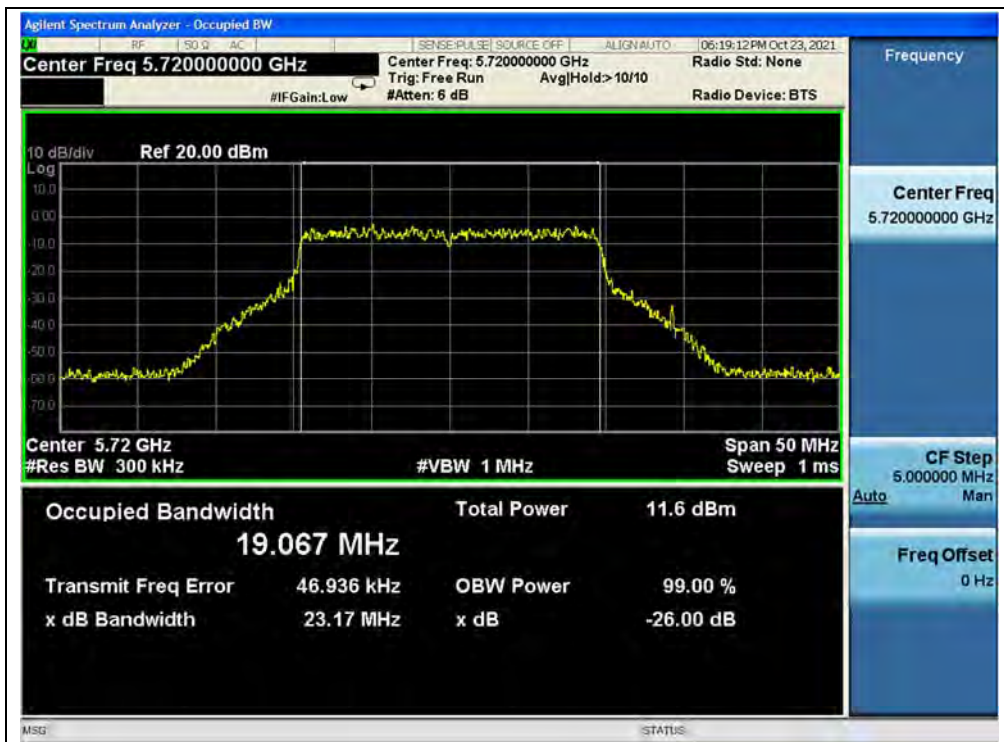
(Channel 64, 5320MHz, 802.11ax (HEW20))



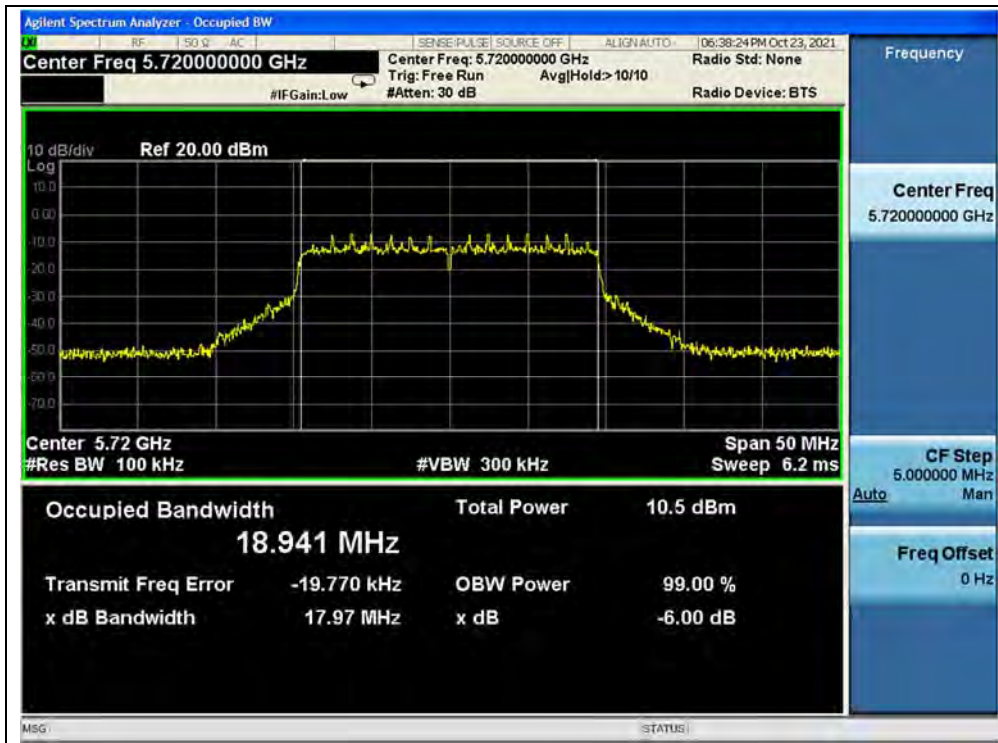
(Channel 100, 5500MHz, 802.11ax (HEW20))



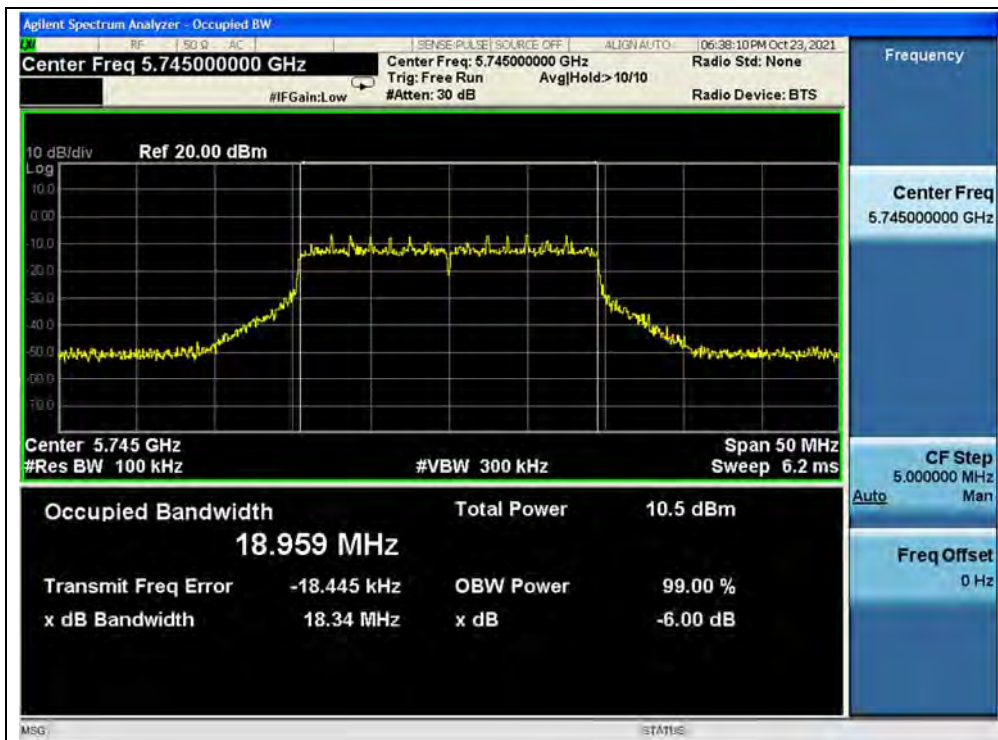
(Channel 120, 5600MHz, 802.11ax (HEW20))



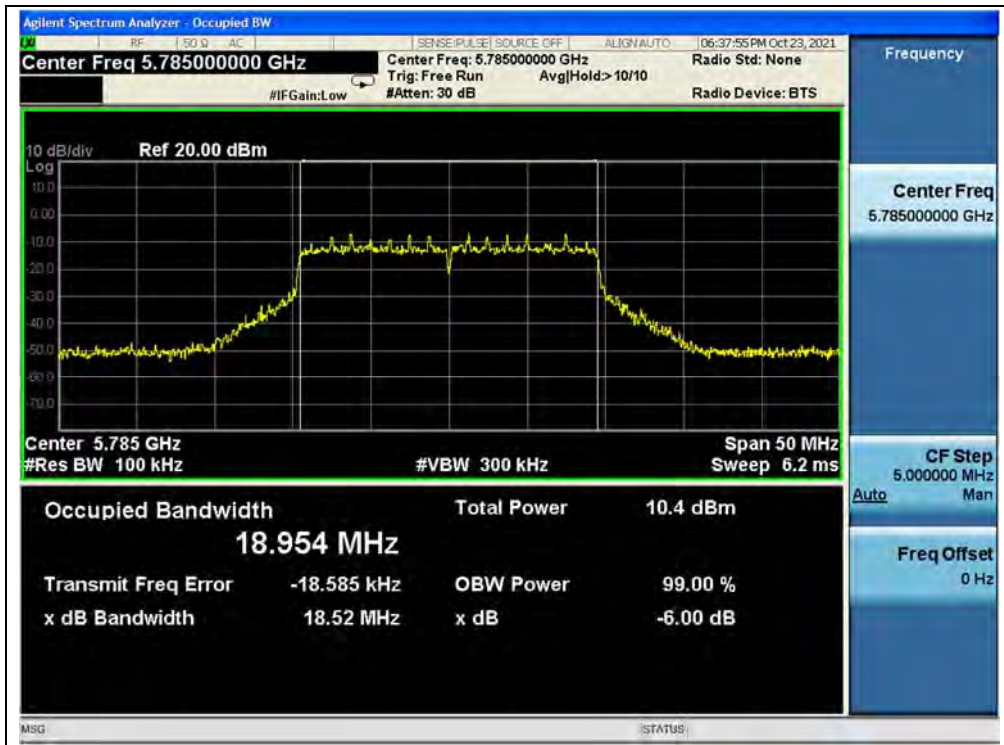
(Channel 144, 5720MHz, 802.11ax (HEW20))



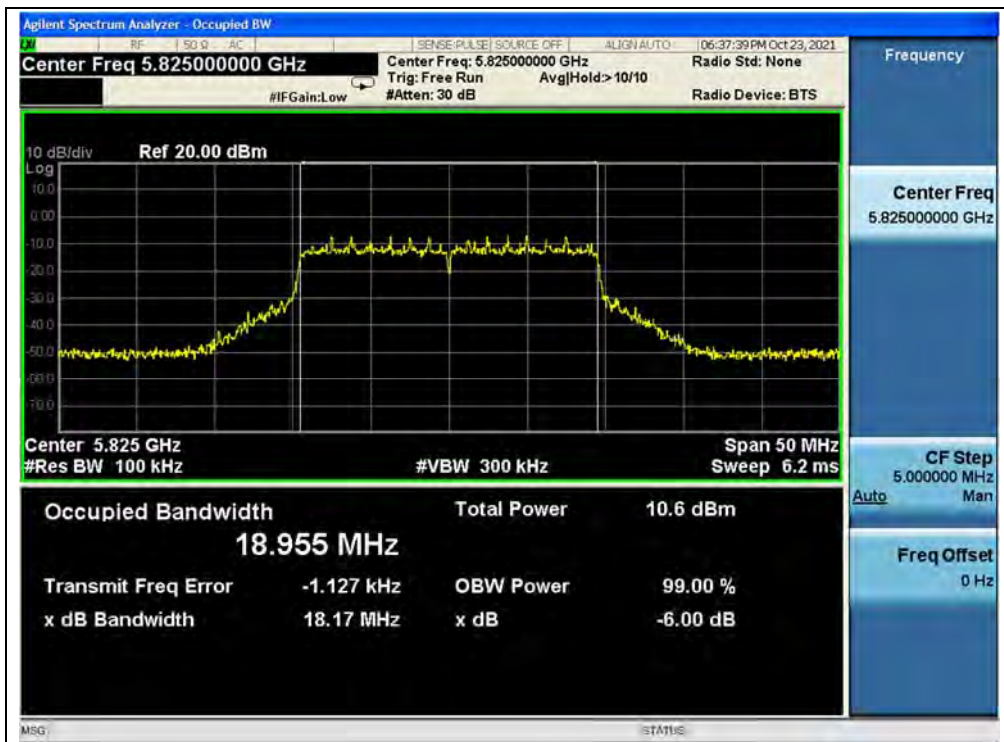
(Channel 144, 5720MHz, 802.11ax (HEW20))



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



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



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



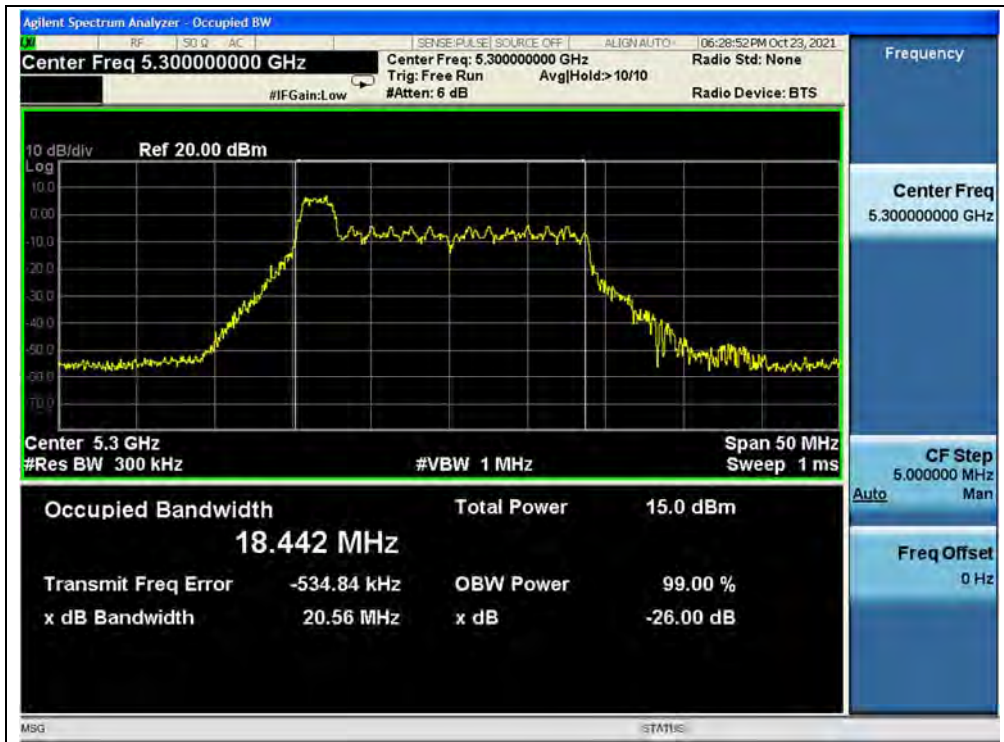
(Channel 44, 5220MHz, 802.11ax (HEW20)(RU26))



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



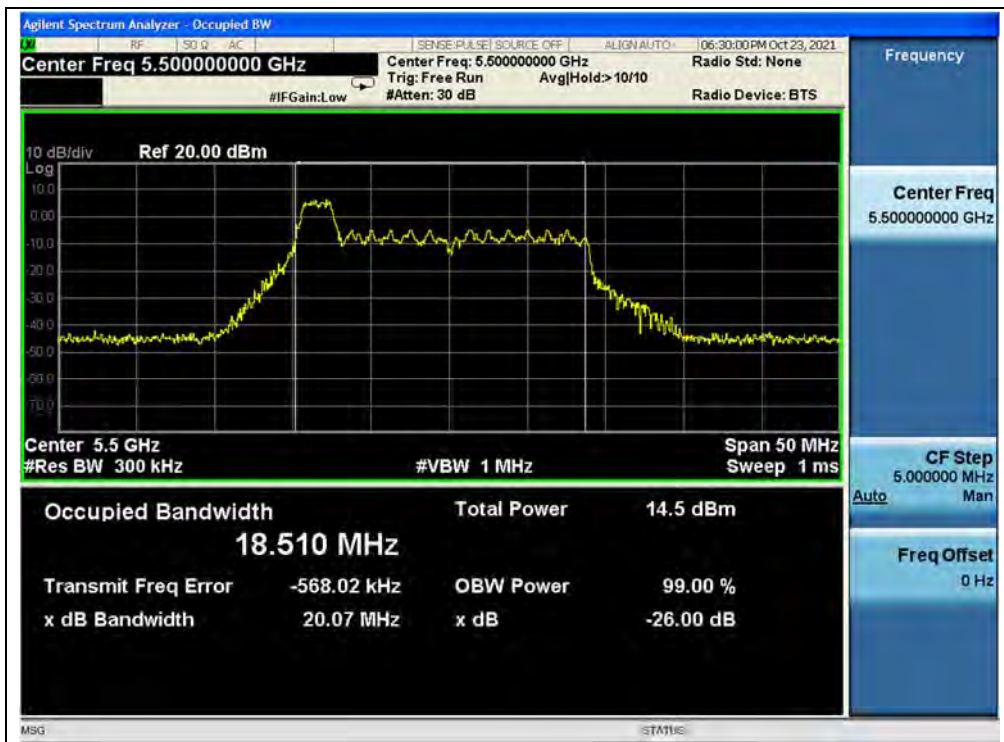
(Channel 52, 5260MHz, 802.11ax (HEW20)(RU26))



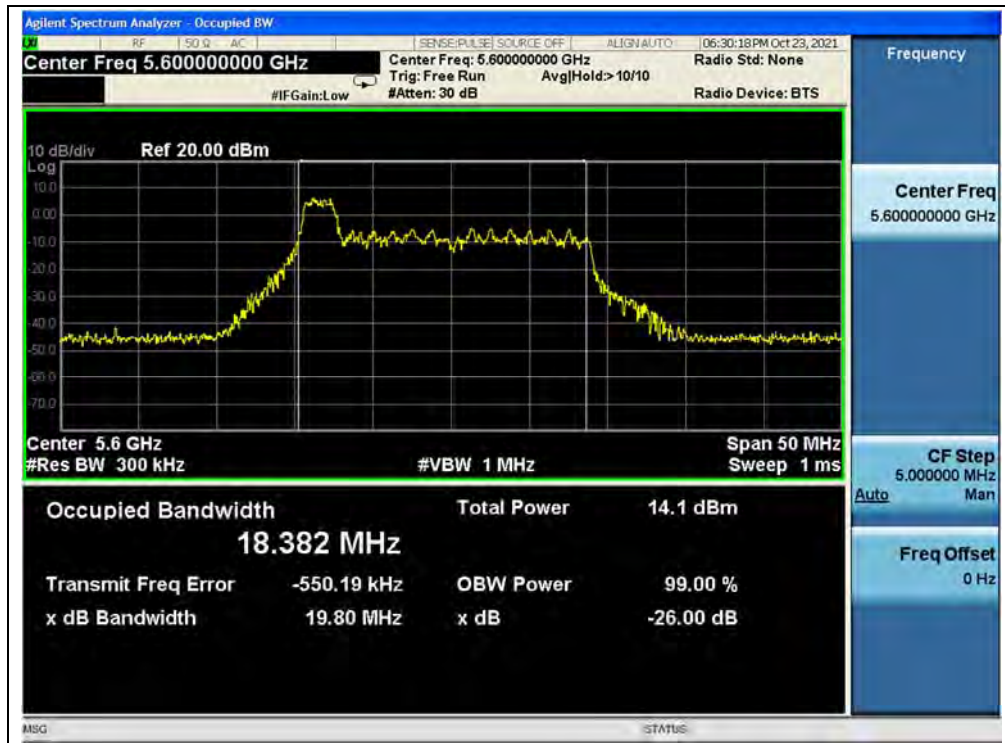
(Channel 60, 5300MHz, 802.11ax (HEW20)(RU26))



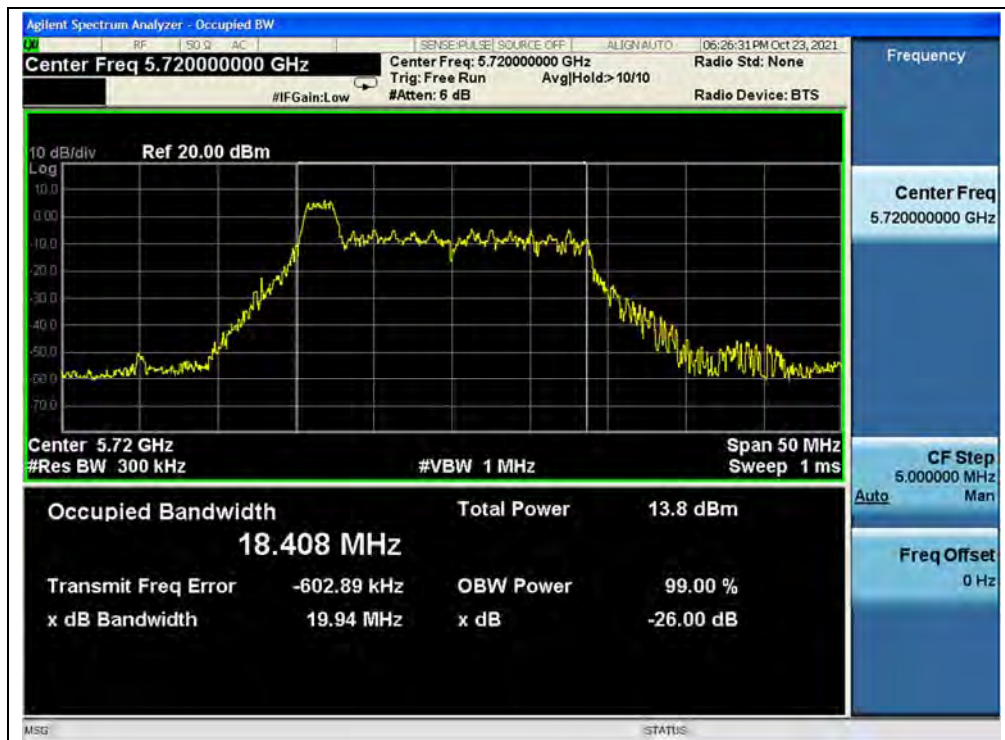
(Channel 64, 5320MHz, 802.11ax (HEW20)(RU26))



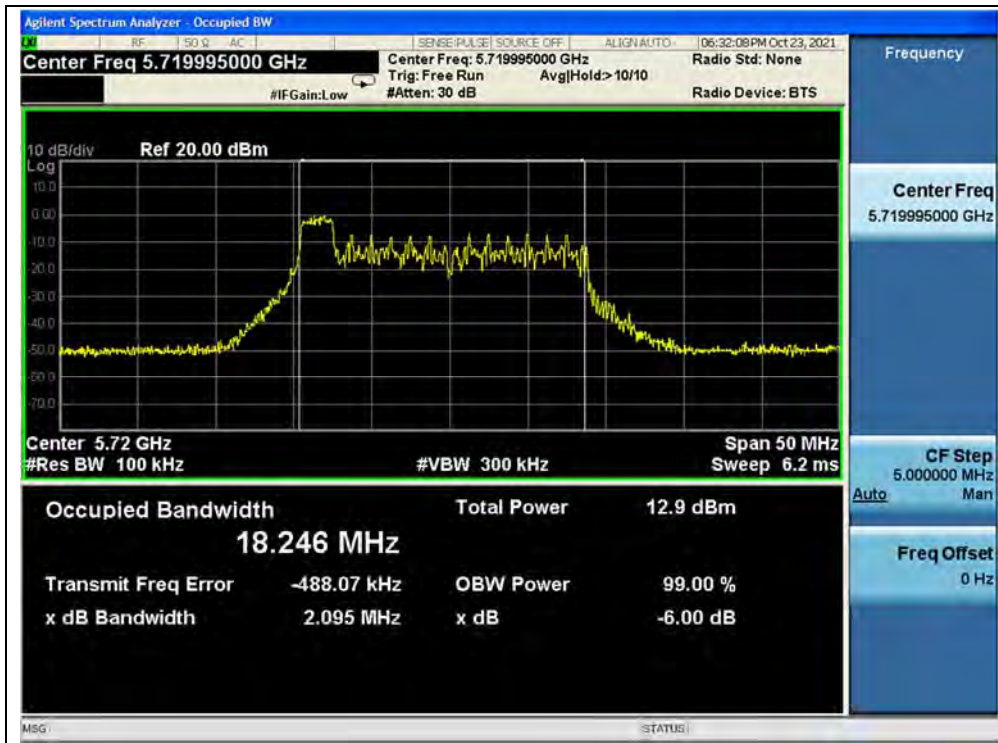
(Channel 100, 5500MHz, 802.11ax (HEW20)(RU26))



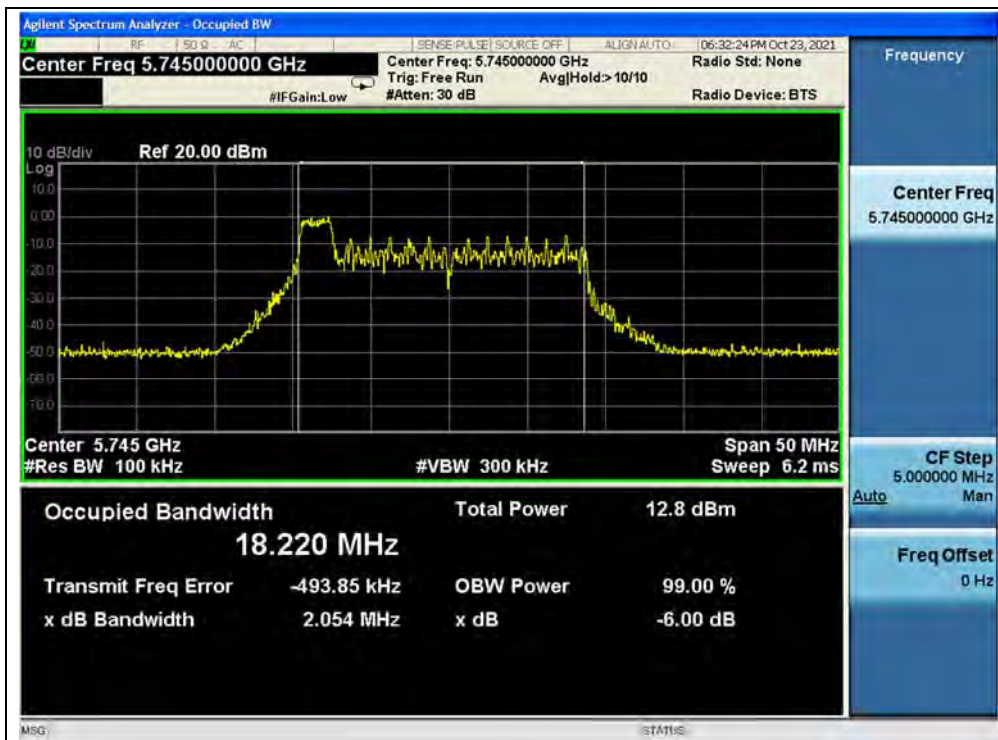
(Channel 120, 5600MHz, 802.11ax (HEW20)(RU26))



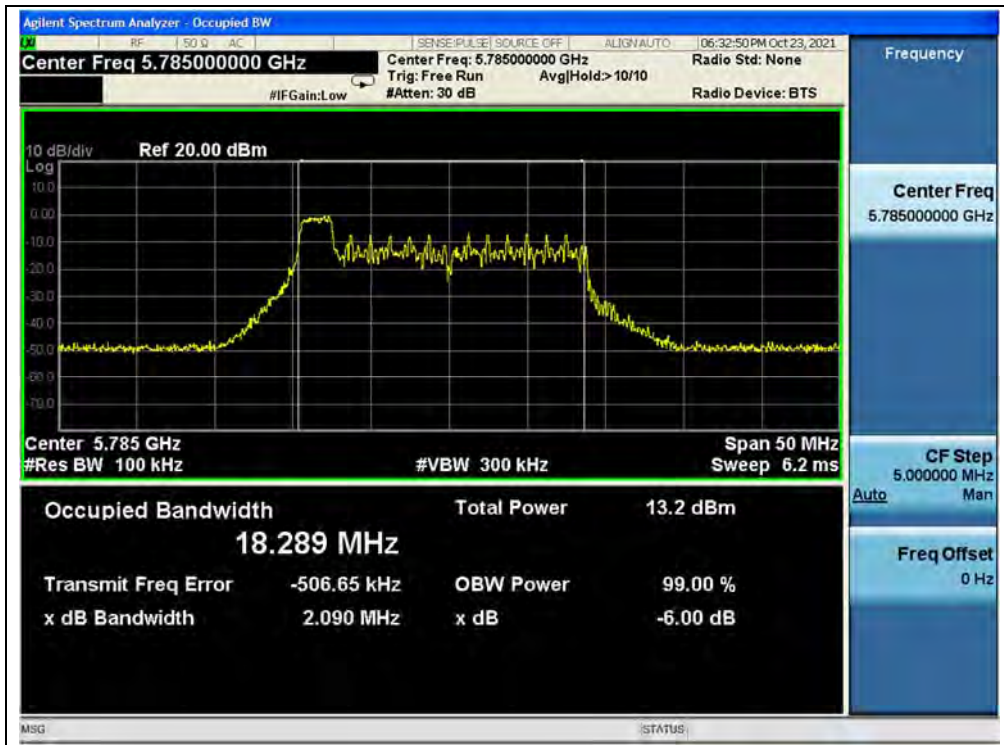
(Channel 144, 5720MHz, 802.11ax (HEW20)(RU26))



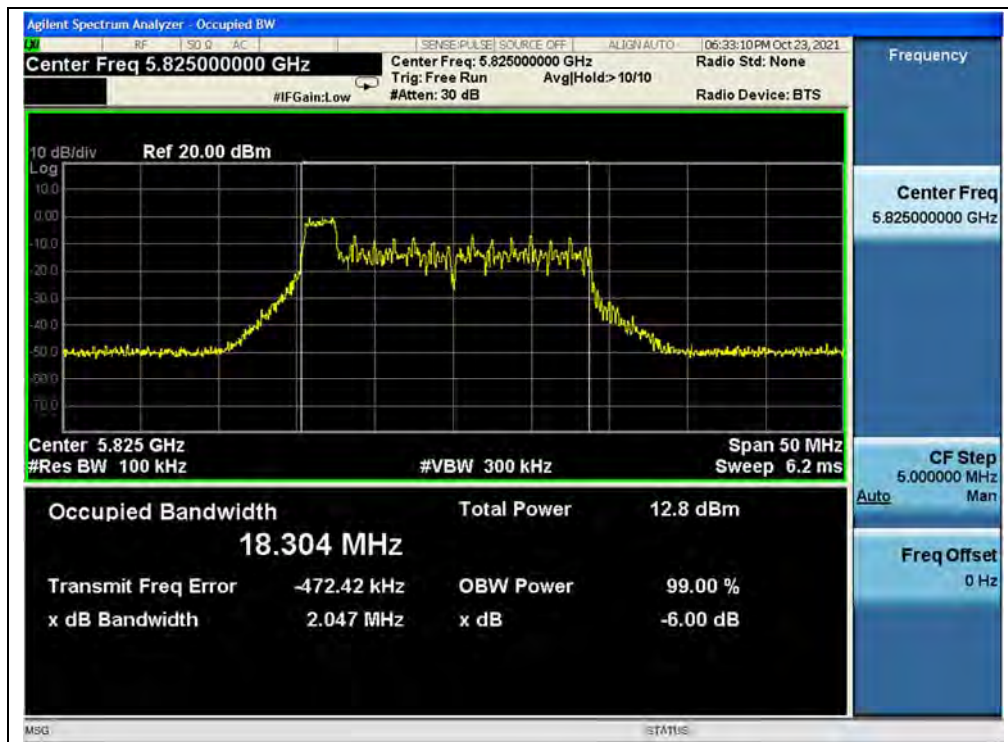
(Channel 144, 5720MHz, 802.11ax (HEW20)(RU26))



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



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



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

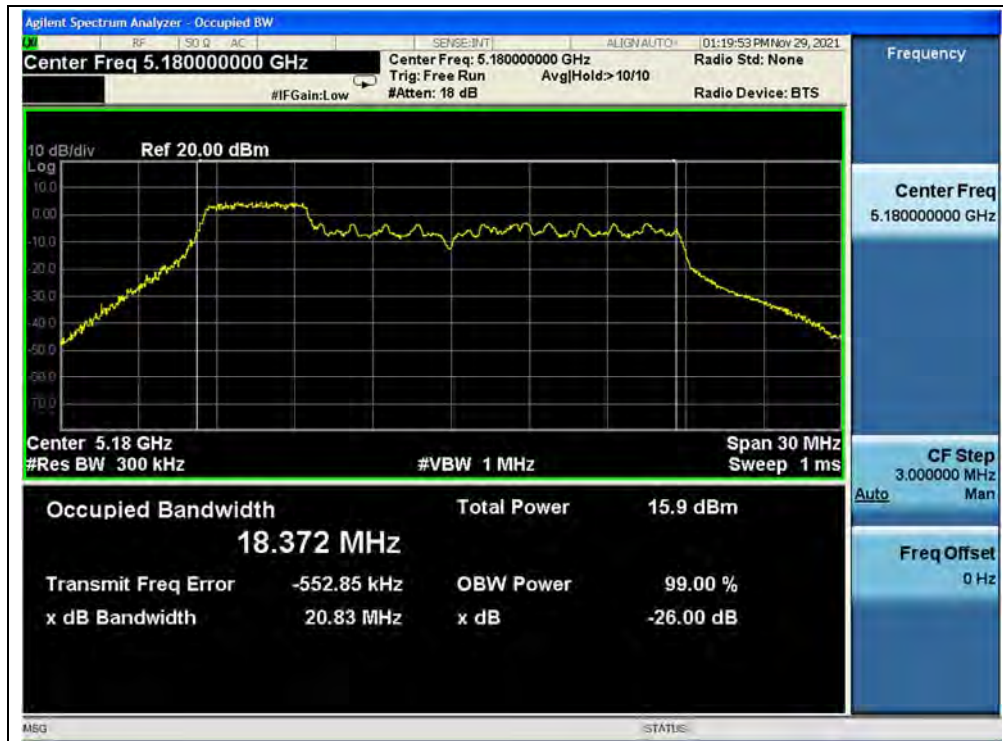


802.11ax (HEW20)(RU52) Mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	20.83
44	5220	20.74
48	5240	20.28
52	5260	20.57
60	5300	20.74
64	5320	20.50
100	5500	20.83
120	5600	20.62
144	5720	20.58
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	17.03
149	5745	17.03
157	5785	17.01
165	5825	17.03

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))



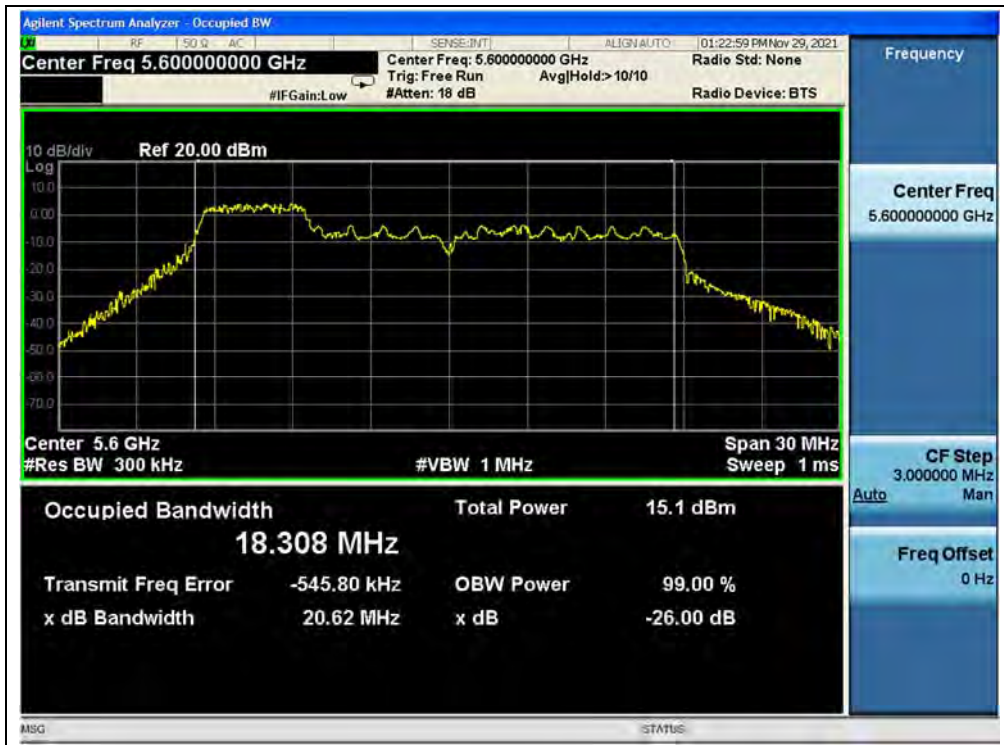
(Channel 60, 5300MHz, 802.11ax (HEW20)(RU52))



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



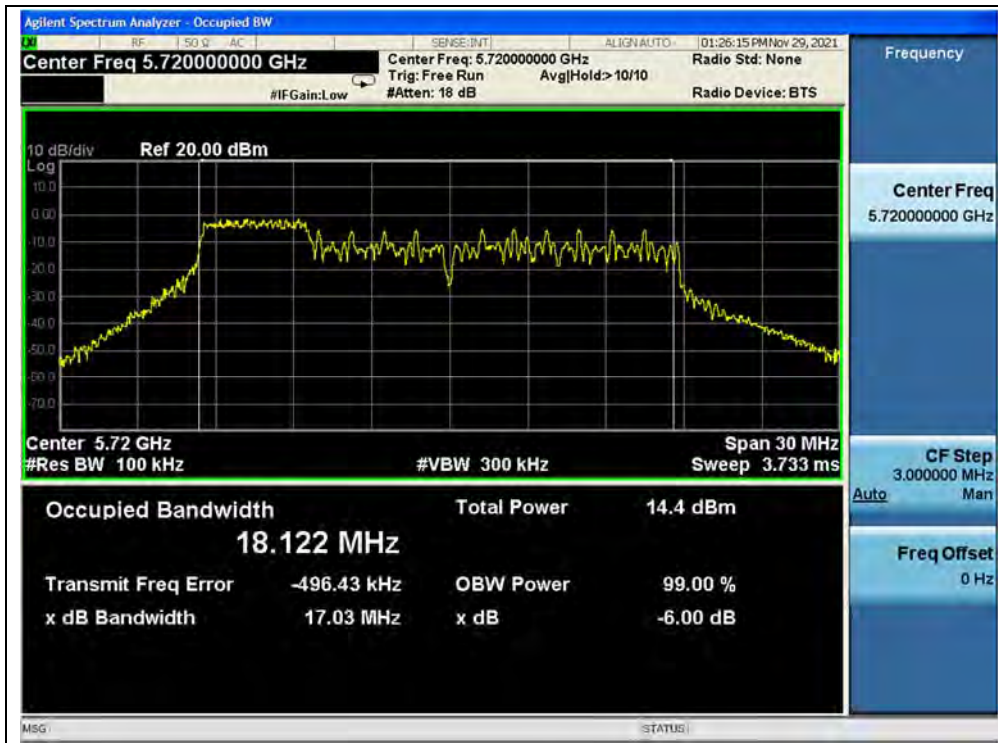
(Channel 100, 5500MHz, 802.11ax (HEW20)(RU52))



(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	21.09
44	5220	20.95
48	5240	20.82
52	5260	21.02
60	5300	20.54
64	5320	21.00
100	5500	21.32
120	5600	20.79
144	5720	20.91
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	17.11
149	5745	17.08
157	5785	17.16
165	5825	17.10

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))



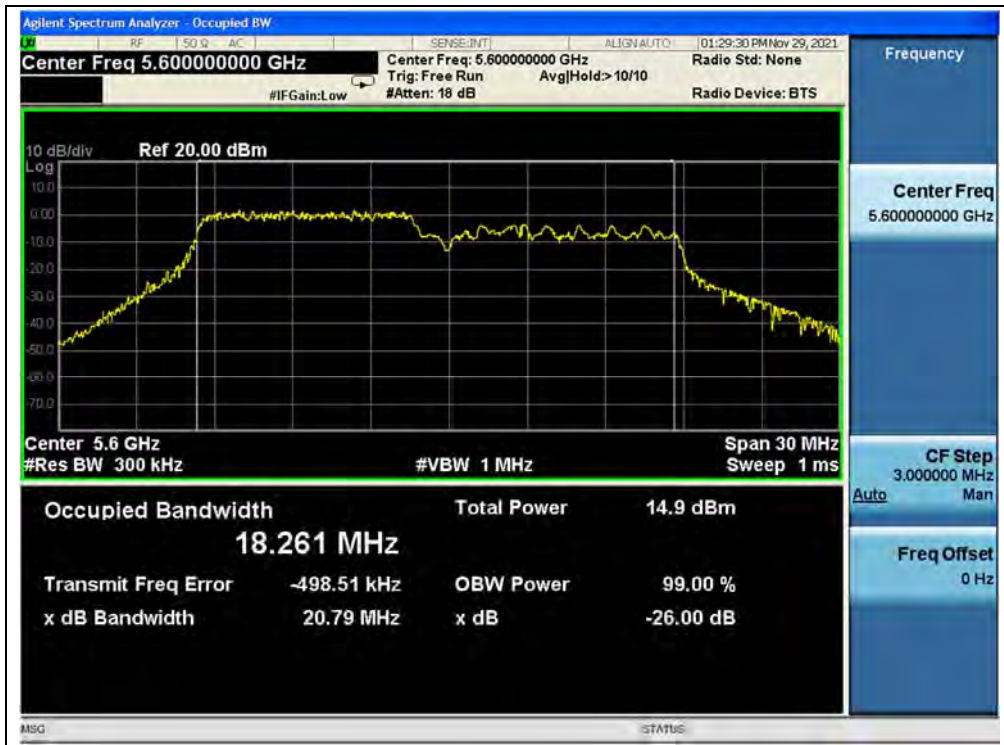
(Channel 60, 5300MHz, 802.11ax (HEW20)(RU106))



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



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



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



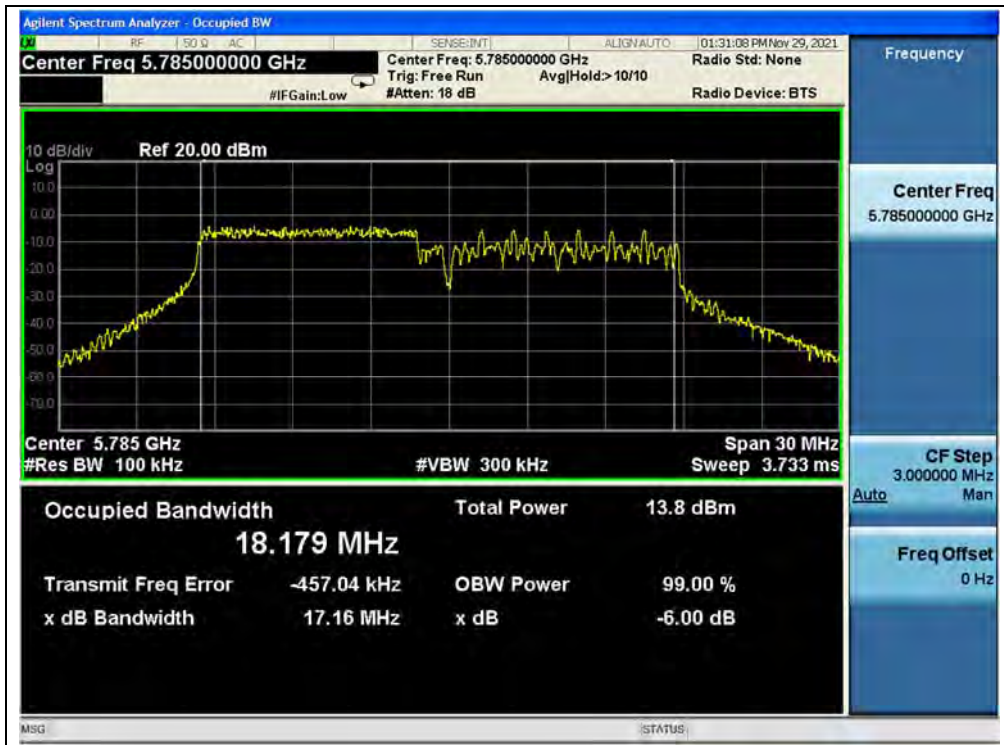
(Channel 144, 5720MHz, 802.11ax (HEW20)(RU106))



(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))

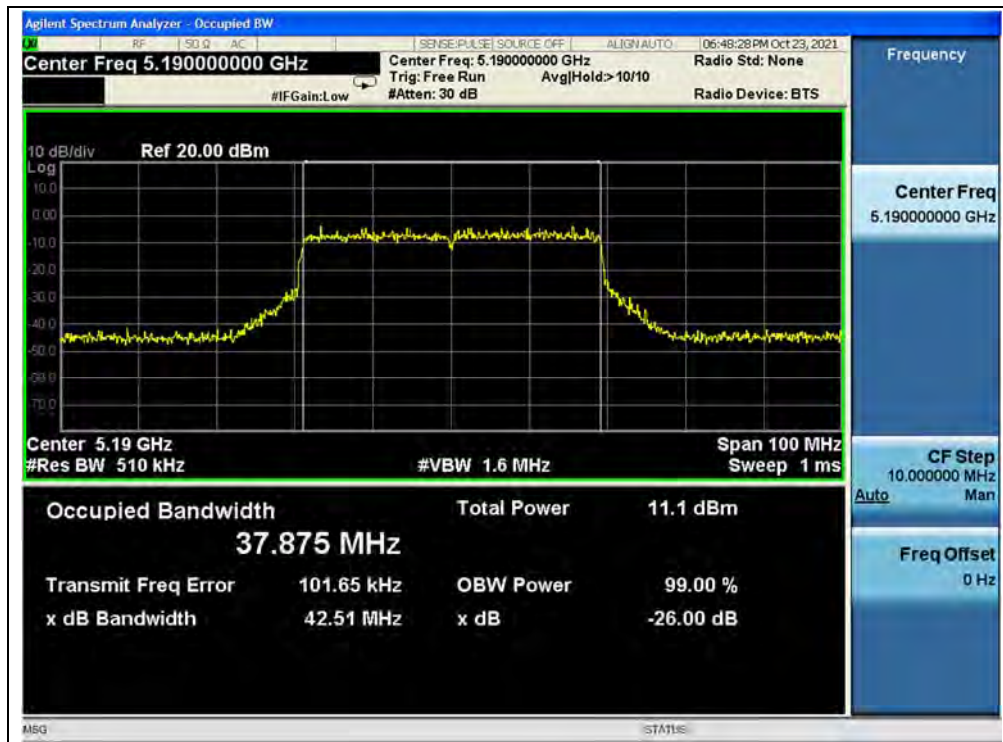


802.11ax (HEW40) Mode

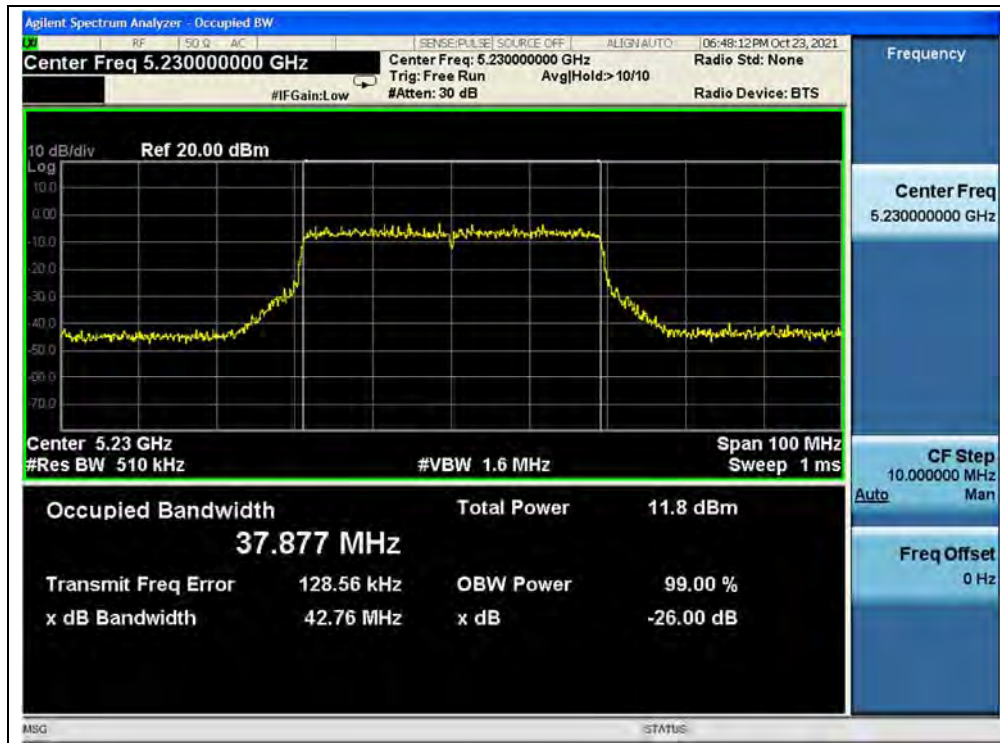
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
38	5190	42.51
46	5230	42.76
54	5270	43.42
62	5310	42.50
102	5510	41.11
126	5630	43.25
142	5710	43.40
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
142	5710	36.30
151	5755	37.28
159	5795	37.44

B. Test Plot:



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



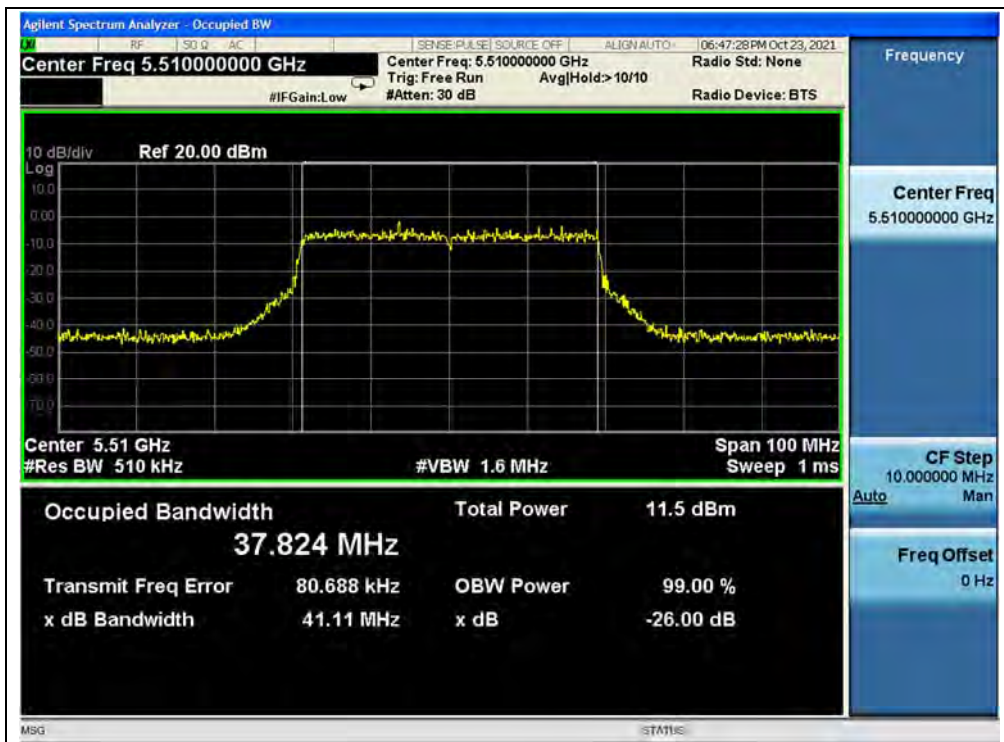
(Channel 46, 5230MHz, 802.11ax (HEW40))



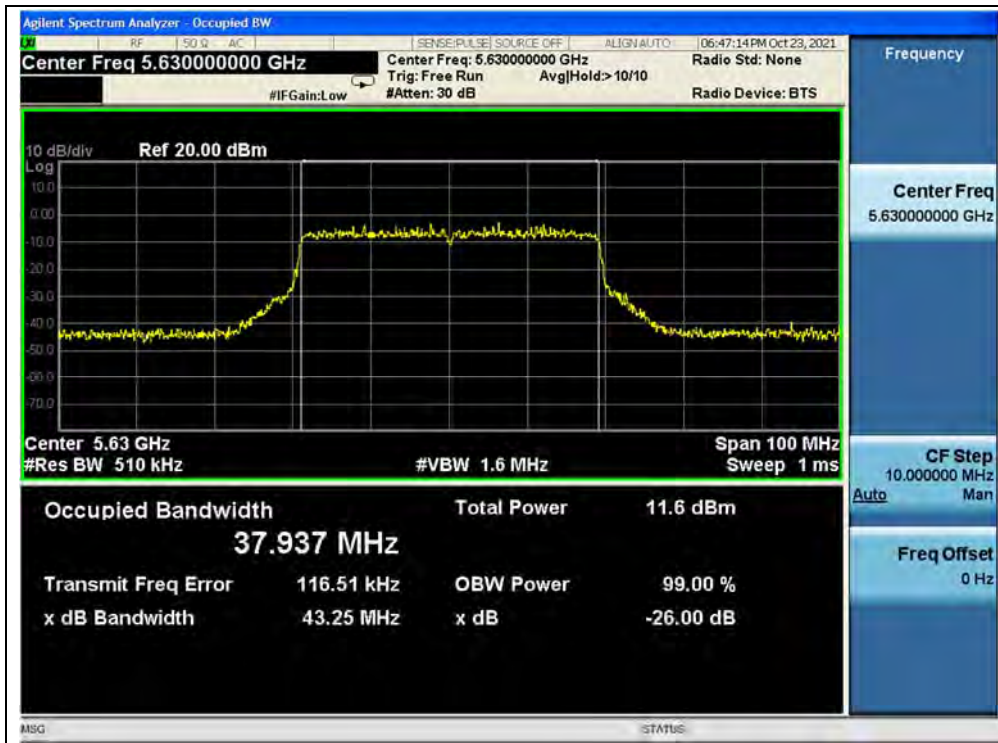
(Channel 54, 5270MHz, 802.11ax (HEW40))



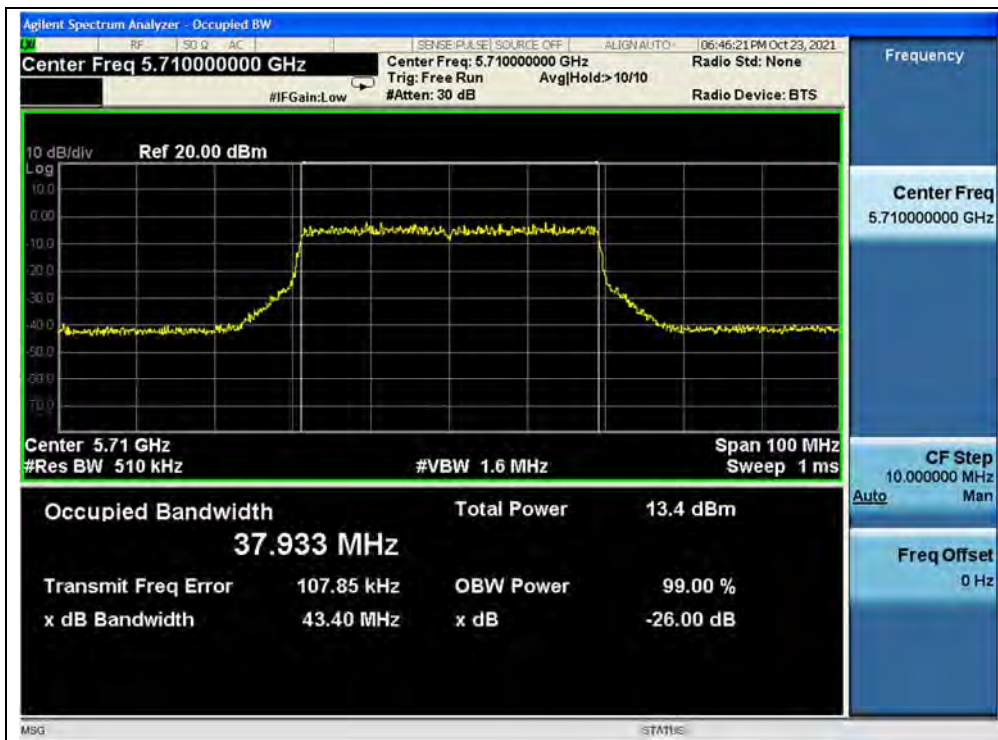
(Channel 62, 5310MHz, 802.11ax (HEW40))



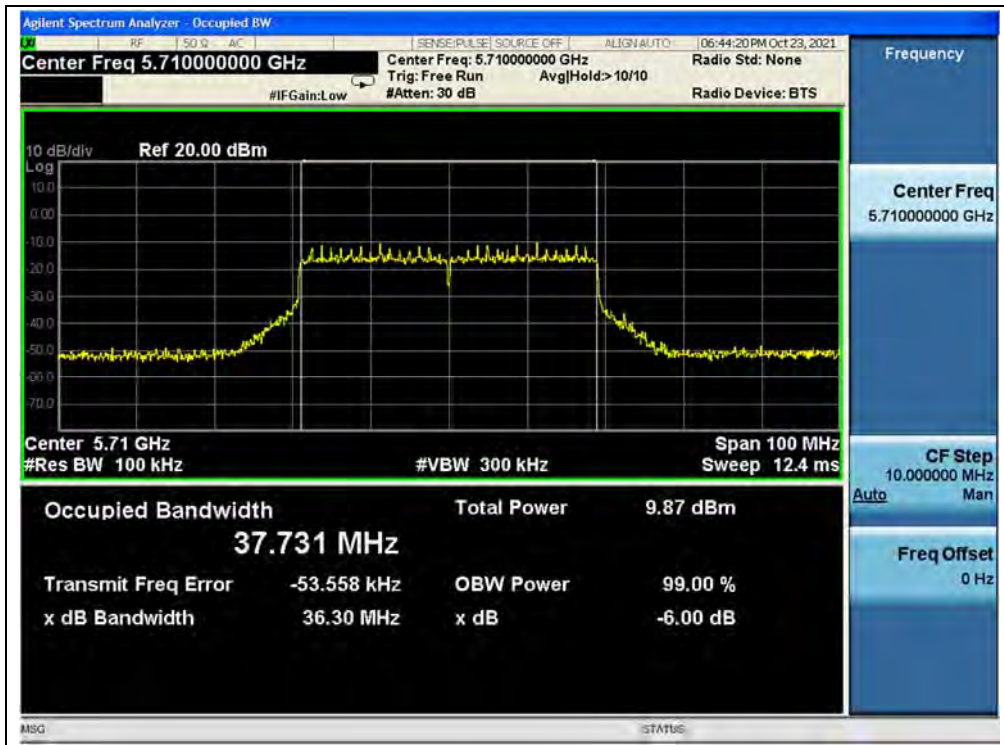
(Channel 102, 5510MHz, 802.11ax (HEW40))



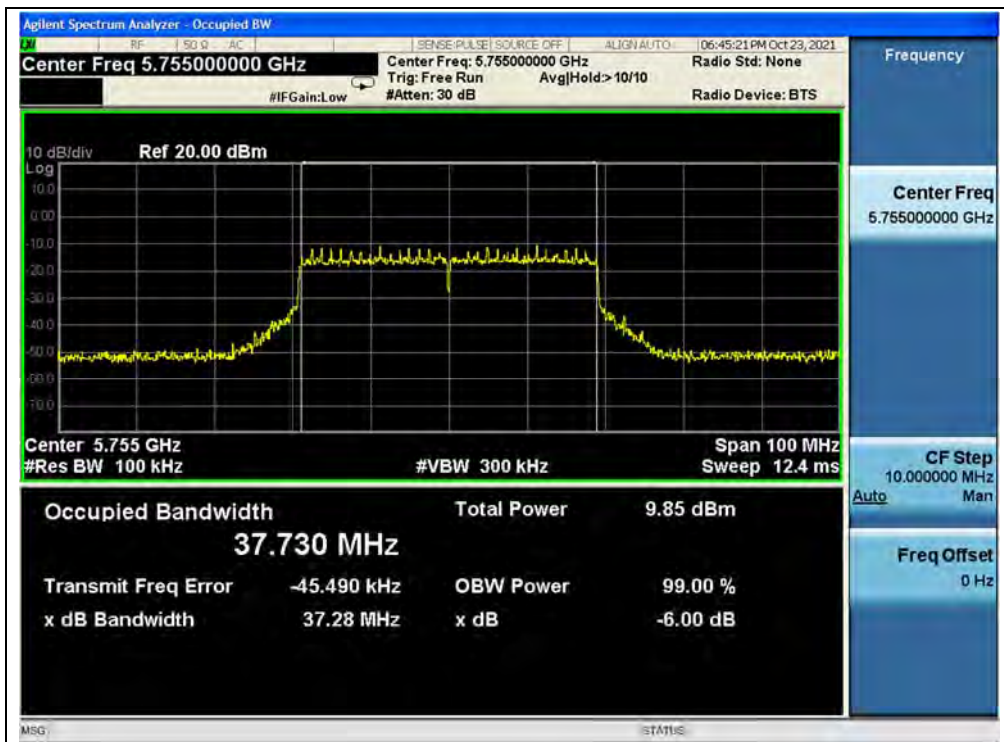
(Channel 126, 5630MHz, 802.11ax (HEW40))



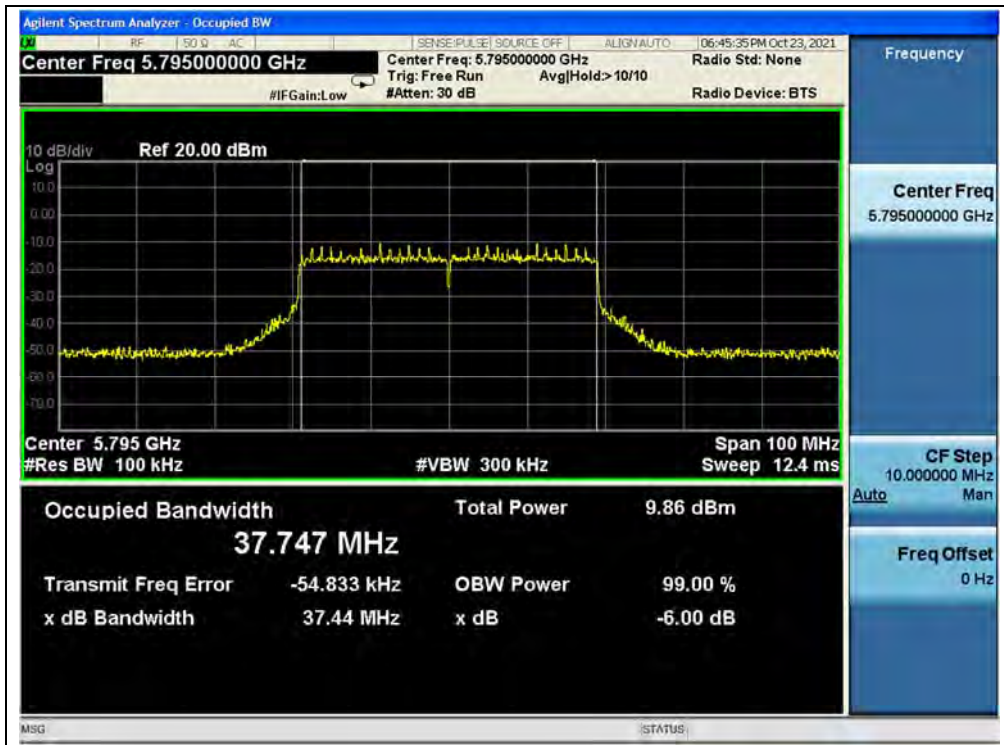
(Channel 142, 5710MHz, 802.11ax (HEW40))



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



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



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

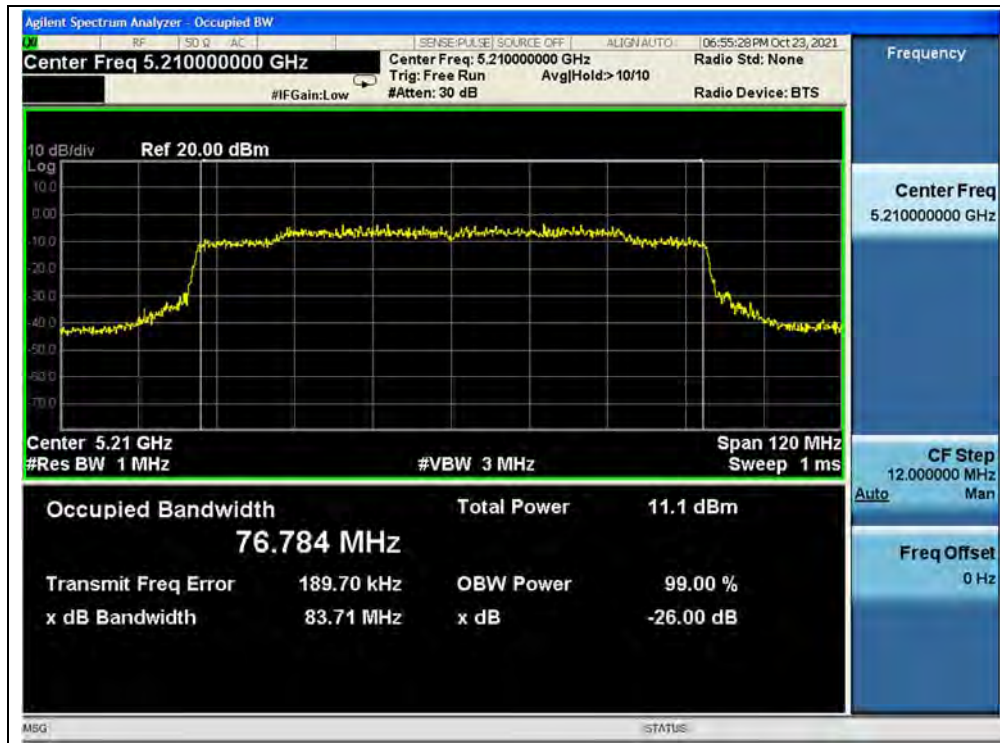


802.11ax (HEW80) Mode

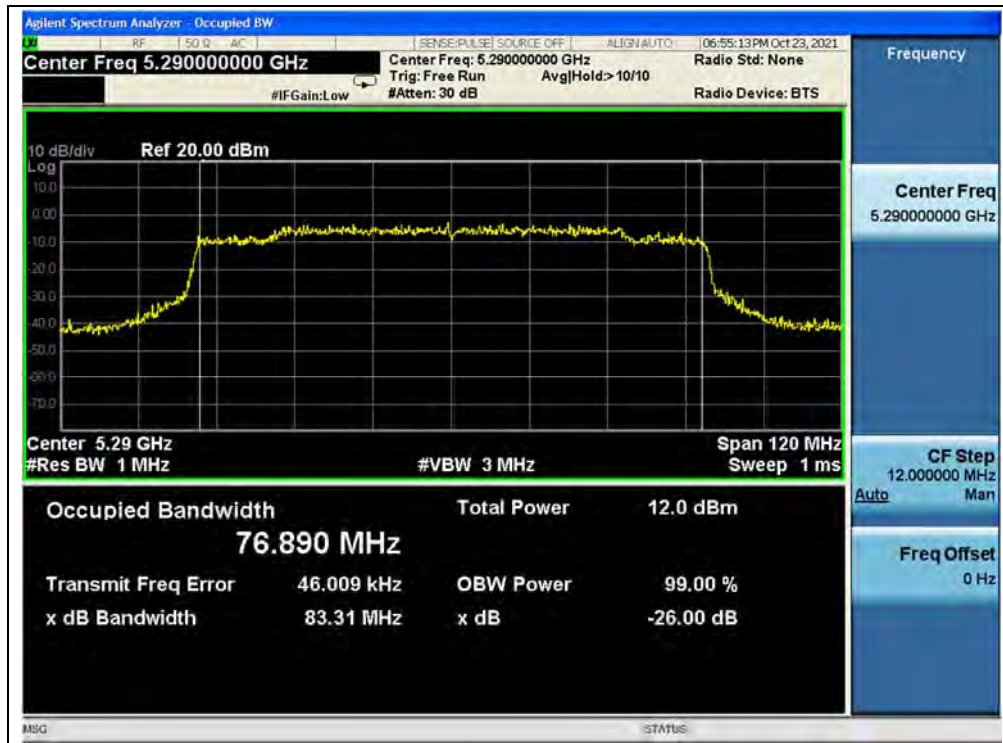
A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
42	5210	83.71
58	5290	83.31
106	5530	81.55
122	5610	84.61
138	5690	81.78
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
138	5690	75.10
155	5775	75.09

B. Test Plot:



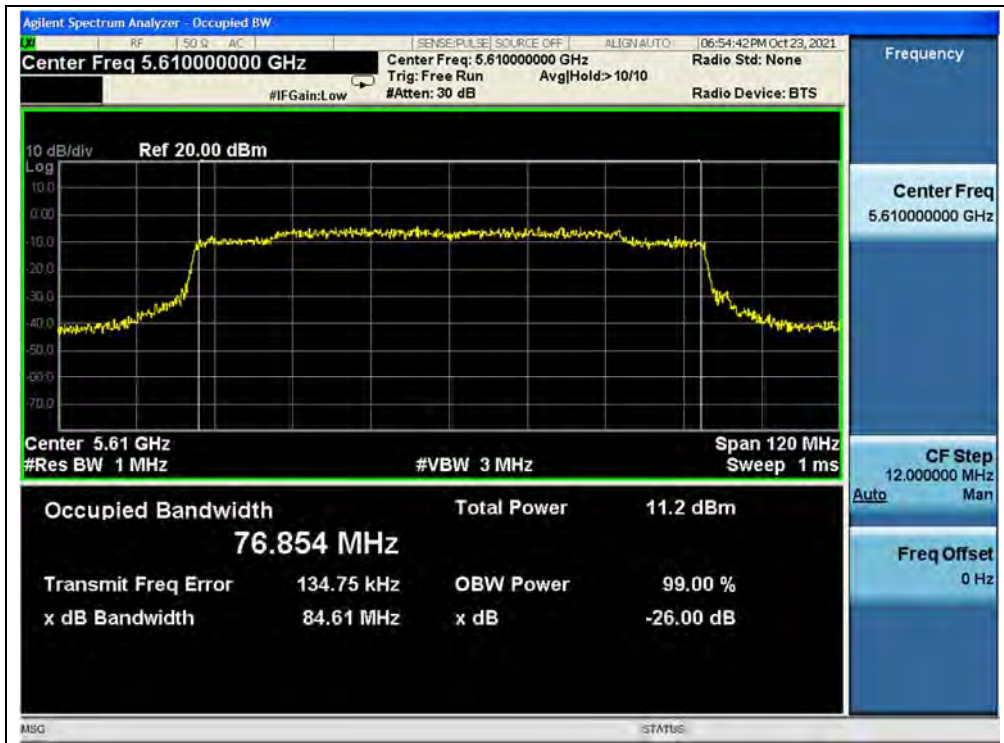
(Channel 42, 5210MHz, 802.11ax (HEW80))



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



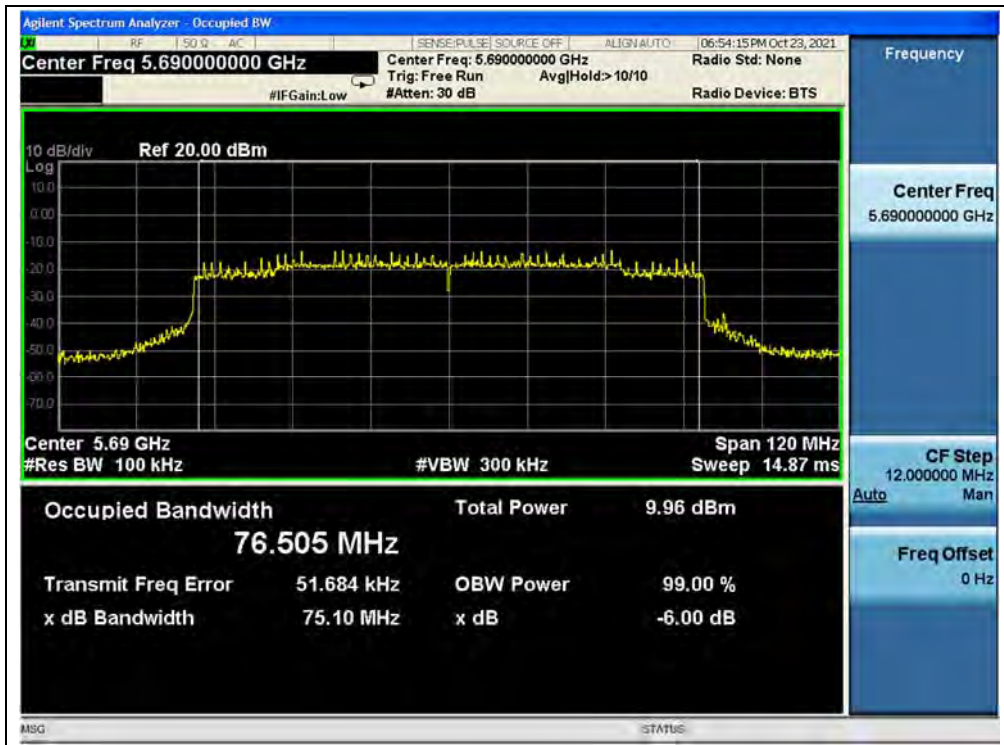
(Channel 106, 5530MHz, 802.11ax (HEW80))



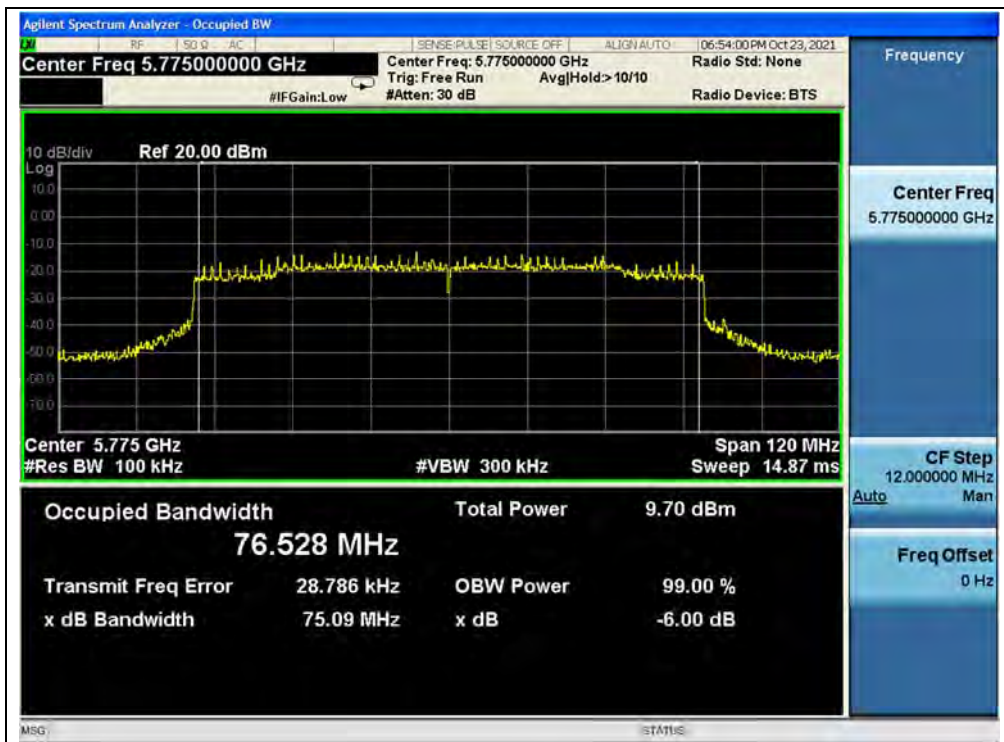
(Channel 122, 5610MHz, 802.11ax (HEW80))



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



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



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

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.

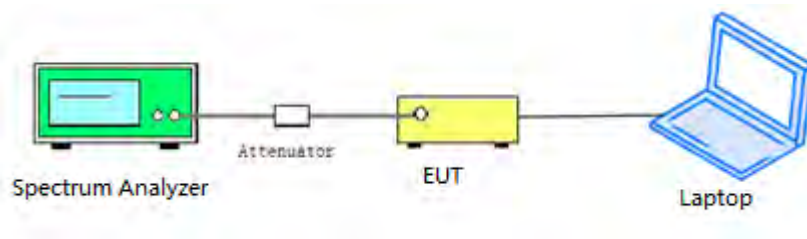
If transmitting antennas of directional gain greater than 6dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

(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	-3.66	-2.95	0.93	-2.73	-2.02	11	PASS
5220	-3.00	-2.44		-2.07	-1.51		
5240	-3.18	-2.43		-2.25	-1.50		
5260	-3.09	-2.53		-2.16	-1.60		
5300	-2.82	-2.02		-1.89	-1.09		
5320	-2.52	-1.66		-1.59	-0.73		
5500	-3.55	-2.65		-2.62	-1.72		
5600	-4.39	-2.56		-3.46	-1.63		
5720	-3.92	-2.39		-2.99	-1.46		
Frequency (MHz)	Measured PPSD (dBm/500KHz)		Duty Factor	Total PPSD (dBm/500KHz)		Limit (dBm/500KHz)	Verdict
	ANT0	ANT1		ANT0	ANT1		
5720	-6.52	-5.18	0.93	-5.59	-4.25	30	PASS
5745	-6.10	-5.13		-5.17	-4.20		
5785	-5.88	-5.37		-4.95	-4.44		
5825	-5.99	-5.36		-5.06	-4.43		