



## 7. On Time, Duty Cycle and Measurement methods

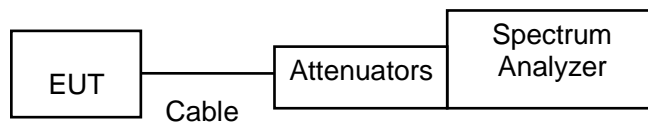
### 7.1. Test Limit

None; for reporting purposes only.

### 7.2. Test Procedure

KDB 789033 Zero-Span Spectrum Analyzer Method.

### 7.3. Test Setup Layout



### 7.4. Test Result and Data

Non-beamforming			
Modulation Type	On Time (ms)	Period Time (ms)	Duty Cycle (%)
802.11a, 6M	1.98	2.08	95.20%
802.11ax HE20	5.46	5.75	95.06%
802.11ax HE40	5.47	5.77	94.80%
802.11ax HE80	5.47	5.72	95.60%

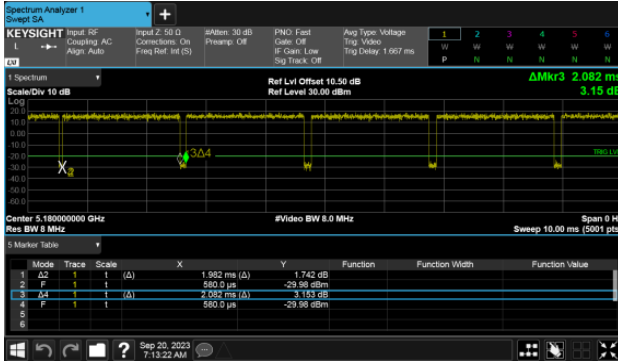
Beamforming			
Modulation Type	On Time (ms)	Period Time (ms)	Duty Cycle (%)
802.11ax HE20	1.99	2.05	96.93%
802.11ax HE40	1.99	2.08	95.39%
802.11ax HE80	2.00	2.06	97.14%

### 7.5. Measurement Methods

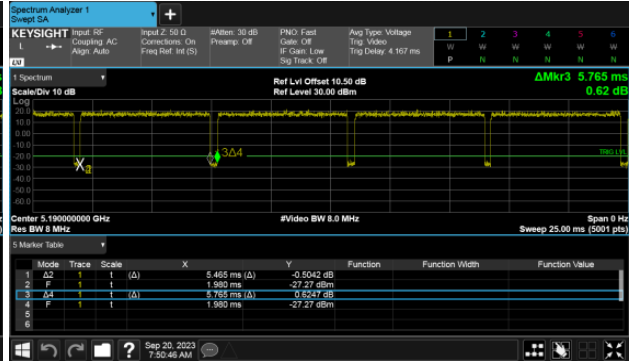
26 dB and 6dB Emission BW	KDB 789033 D02 v02r01, Section C
99% Occupied BW	KDB 789033 D02 v02r01, Section D
Conducted Output Power	KDB 789033 D02 v02r01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 D02 v02r01, Section F
Unwanted emissions in restricted bands	KDB 789033 D02 v02r01, Sections G and H
Unwanted emissions in non-restricted bands	KDB 789033 D02 v02r01, Sections G and H



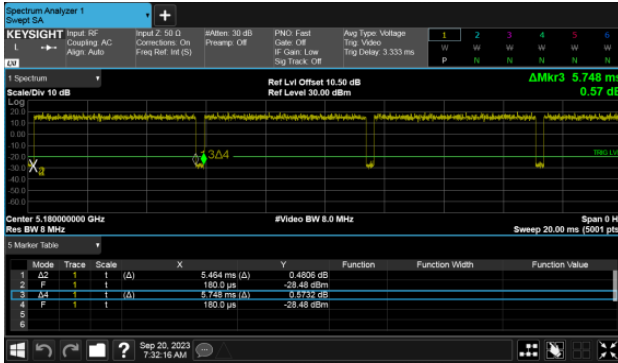
Non-beamforming  
Modulation Type: 802.11a (6Mbps)



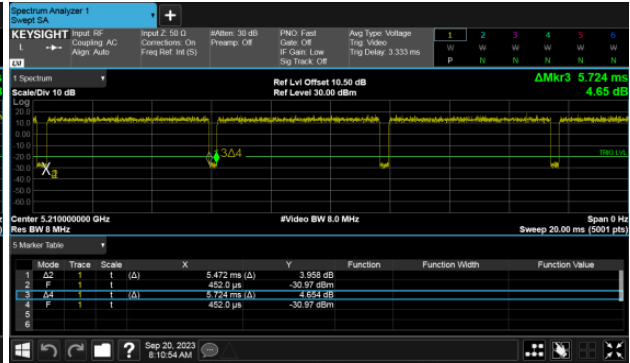
Modulation Type: 802.11ax HE40 (14.6Mbps)



Modulation Type: 802.11ax HE20 (7.3Mbps)

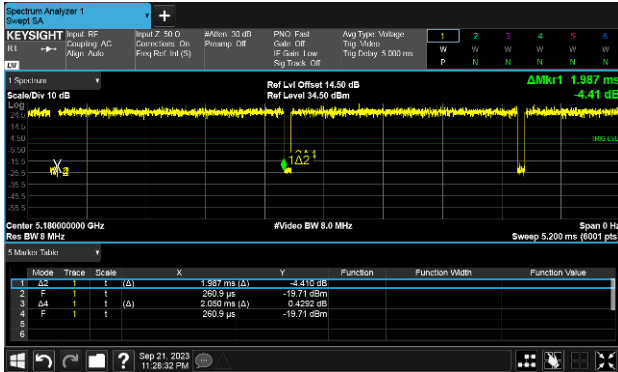


Modulation Type: 802.11ax HE80 (30.6Mbps)

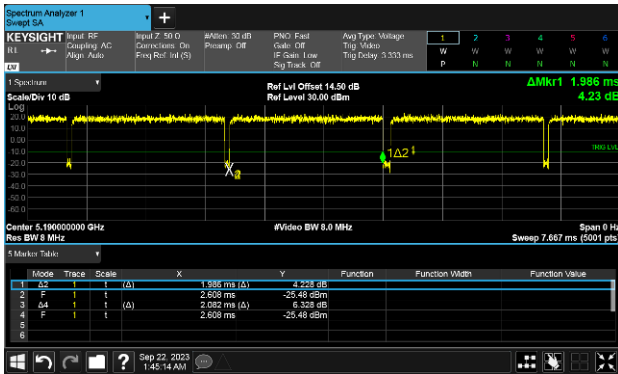




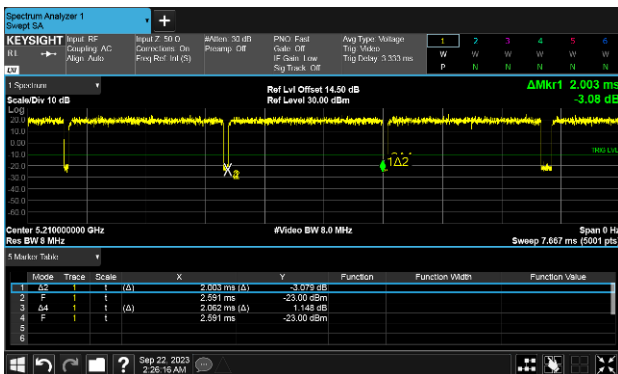
### Beamforming Modulation Type: 802.11ax HE20 (7.3Mbps)



### Modulation Type: 802.11ax HE40 (14.6Mbps)



### Modulation Type: 802.11ax HE80 (30.6Mbps)





### 8. 6dB Bandwidth & 99% Occupied Bandwidth

#### 8.1. Test Limit

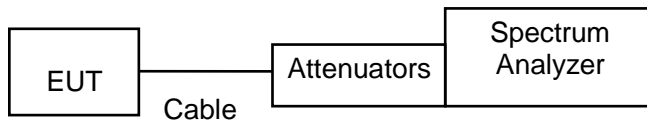
FCC §15.407

The minimum 6 dB bandwidth shall be at least 500 kHz.

#### 8.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW >= 3 x RBW, peak detector and max hold.

#### 8.3. Test Setup Layout



#### 8.4. Test Result and Data

Non-beamforming					
Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)
			ANT C	ANT D	
11a	149	5745	16.49	16.49	0.50
	157	5785	16.49	16.51	0.50
	165	5825	16.49	16.50	0.50
11ax HE20	149	5745	18.57	18.53	0.50
	157	5785	18.59	18.68	0.50
	165	5825	18.64	18.33	0.50
11ax HE40	151	5755	37.72	37.73	0.50
	159	5795	37.89	37.74	0.50
11ax HE80	155	5775	76.26	76.81	0.50

Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)	
			ANT C	ANT D
11a	149	5745	16.67	16.71
	157	5785	16.66	16.72
	165	5825	16.64	16.73
11ax HE20	149	5745	18.91	18.92
	157	5785	18.91	18.90
	165	5825	18.94	18.90
11ax HE40	151	5755	37.89	37.91
	159	5795	37.96	37.90
11ax HE80	155	5775	77.14	77.11



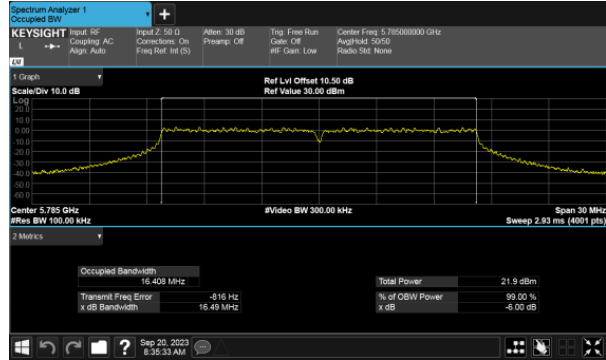
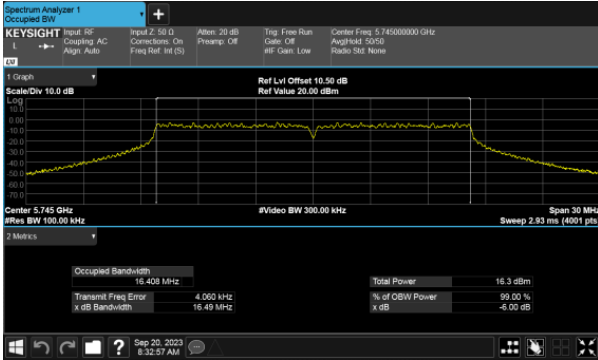
Beamforming					
Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)
			ANT C	ANT D	
11ax HE20	149	5745	18.65	18.46	0.50
	157	5785	18.54	18.52	0.50
	165	5825	18.02	18.50	0.50
11ax HE40	151	5755	37.79	37.76	0.50
	159	5795	37.49	37.87	0.50
11ax HE80	155	5775	74.17	76.18	0.50

Modulation Type	Channel	Frequency (MHz)	99% Bandwidth(MHz)	
			ANT C	ANT D
11ax HE20	149	5745	18.91	18.92
	157	5785	18.88	18.94
	165	5825	18.89	18.93
11ax HE40	151	5755	37.87	37.92
	159	5795	37.91	37.91
11ax HE80	155	5775	77.11	77.00



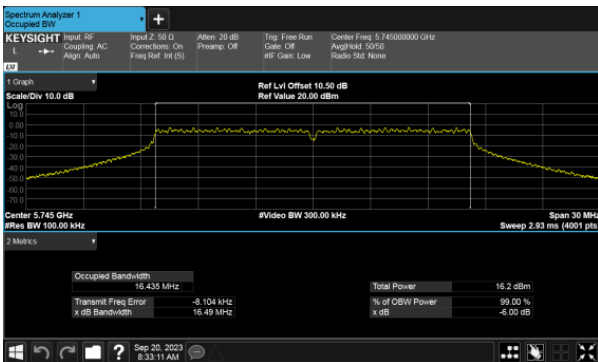
6dB Bandwidth, Non-Beamforming  
Modulation Type: 802.11a CH149  
ANT C

Modulation Type: 802.11a CH157  
ANT C



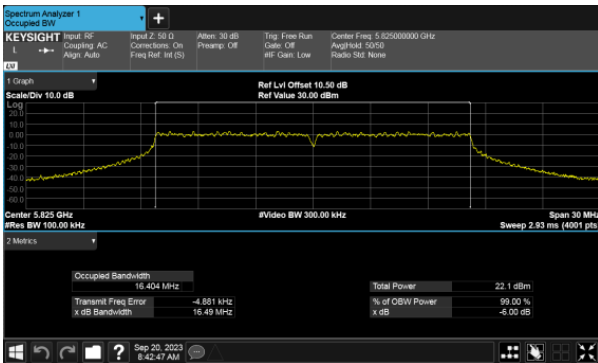
ANT D

ANT D

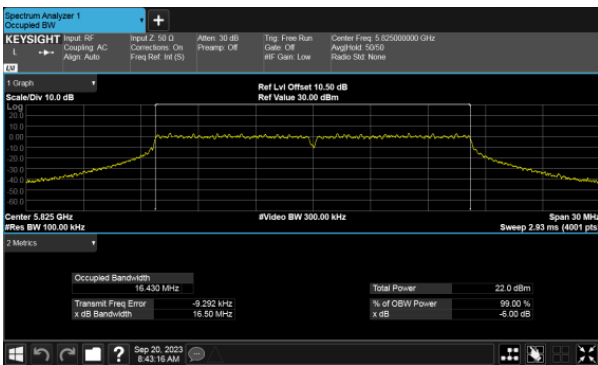




6dB Bandwidth, Non-Beamforming  
Modulation Type: 802.11a CH165  
ANT C



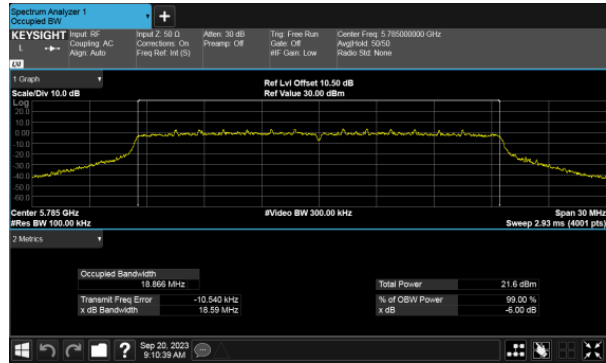
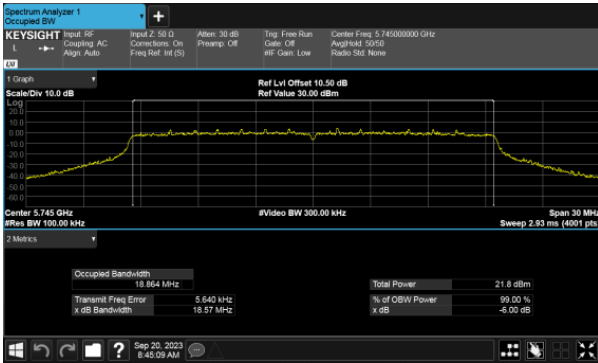
ANT D





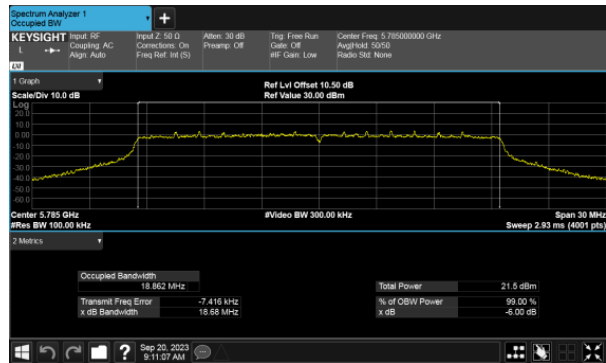
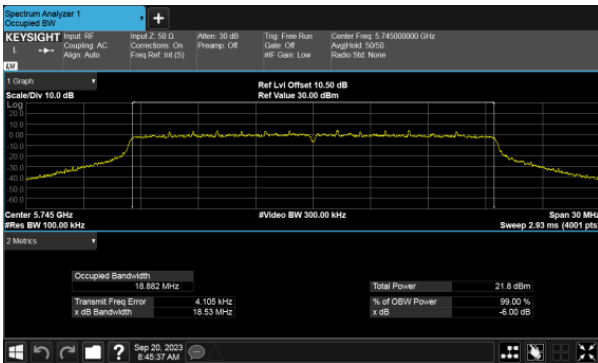
6dB Bandwidth, Non-Beamforming  
Modulation Type: 802.11ax HE20 CH149  
ANT C

Modulation Type: 802.11ax HE20 CH157  
ANT C



ANT D

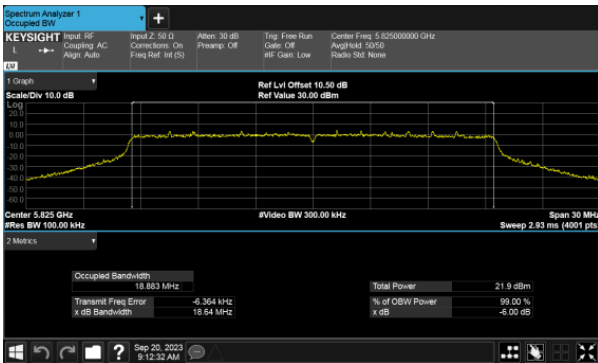
ANT D



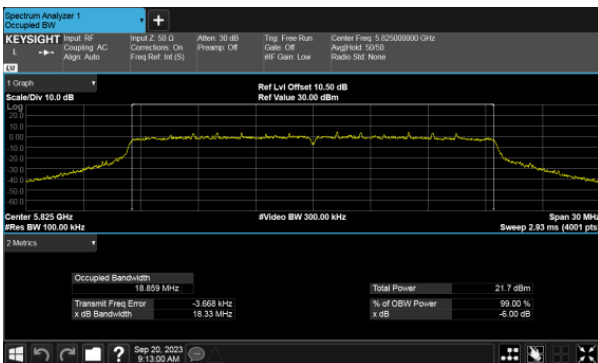




6dB Bandwidth, Non-Beamforming  
Modulation Type: 802.11ax HE20 CH165  
ANT C



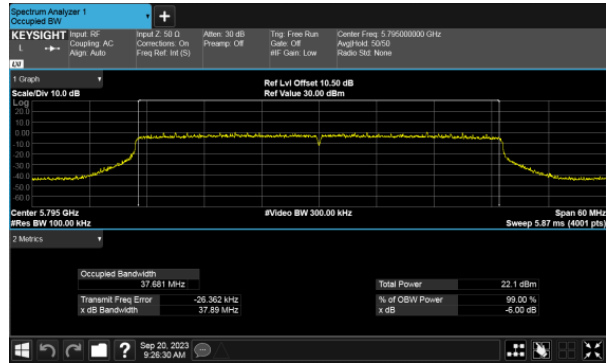
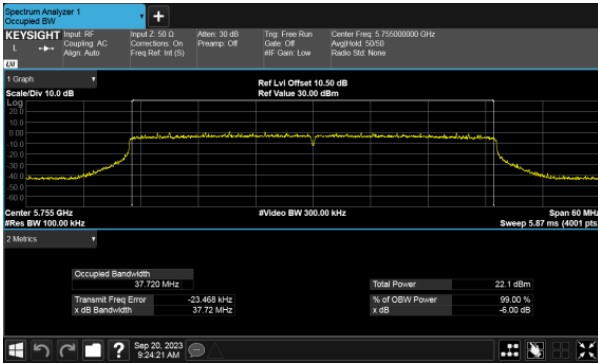
ANT C





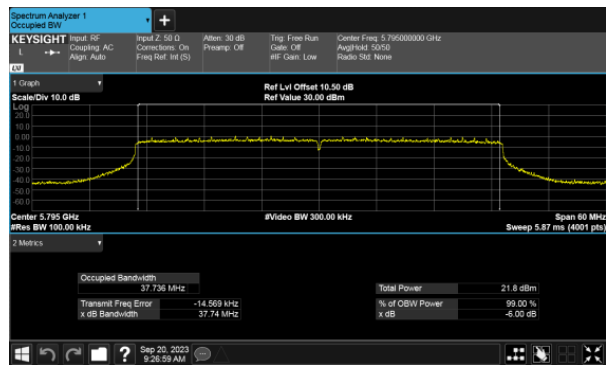
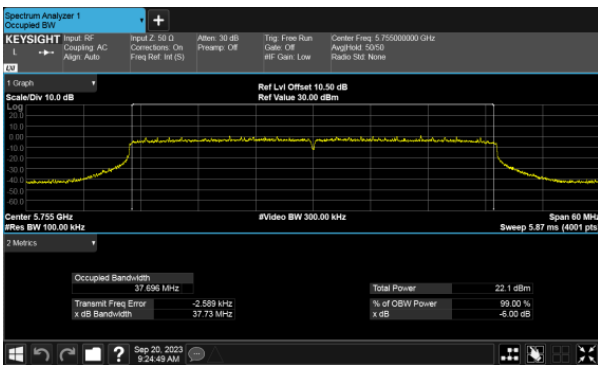
6dB Bandwidth, Non-Beamforming  
Modulation Type: 802.11ax HE40 CH151  
ANT C

Modulation Type: 802.11ax HE40 CH151  
ANT C



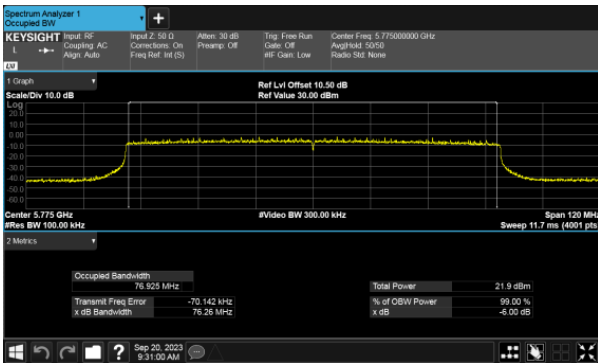
ANT D

ANT D

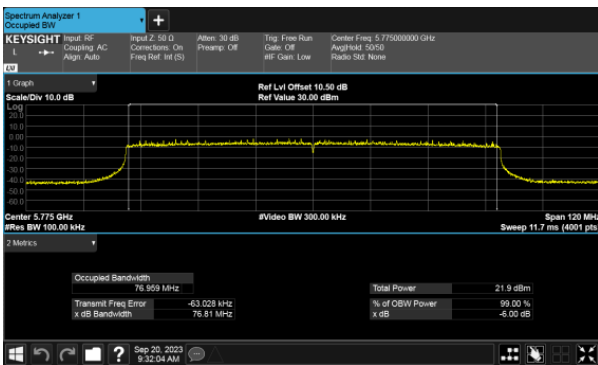




6dB Bandwidth, Non-Beamforming  
Modulation Type: 802.11ax HE80 CH155  
ANT C



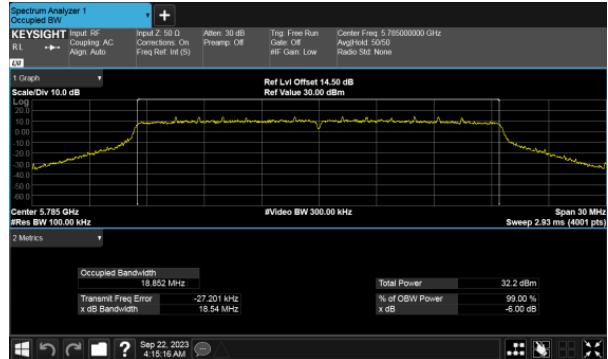
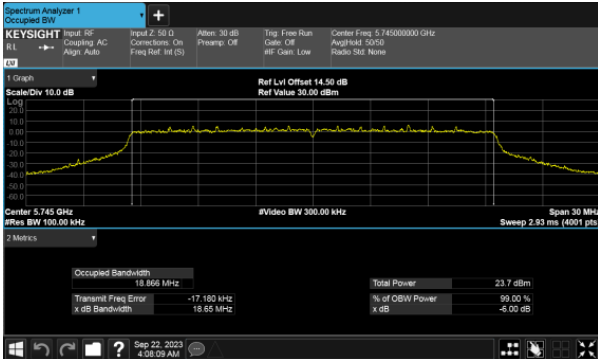
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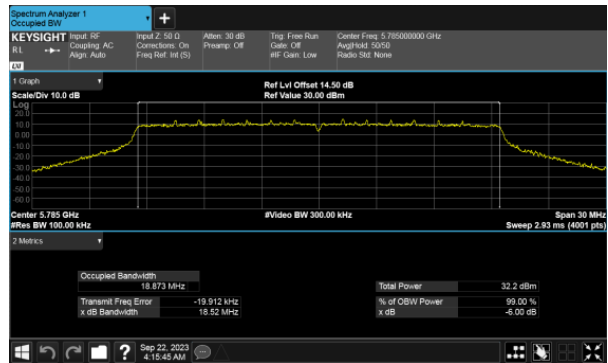
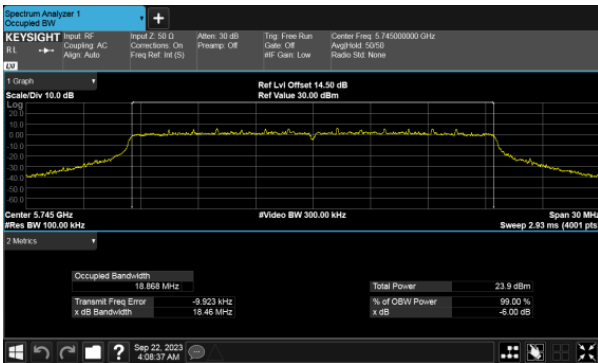
6dB Bandwidth, Beamforming  
Modulation Type: 802.11ax HE20 CH149  
ANT C

Modulation Type: 802.11ax HE20 CH157  
ANT C



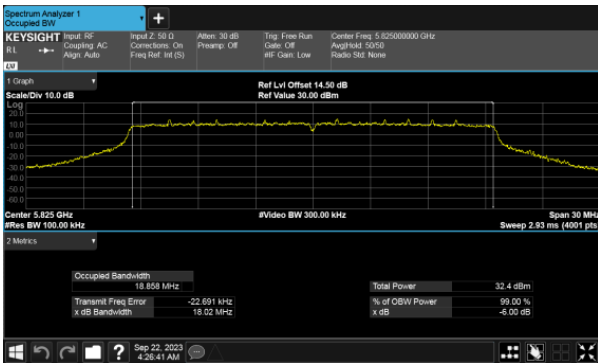
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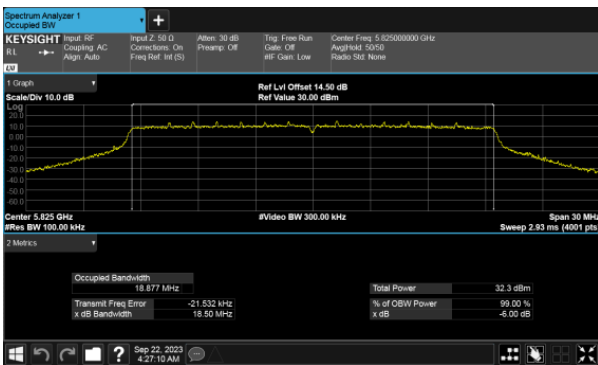




6dB Bandwidth, Beamforming  
Modulation Type: 802.11ax HE20 CH165  
ANT C



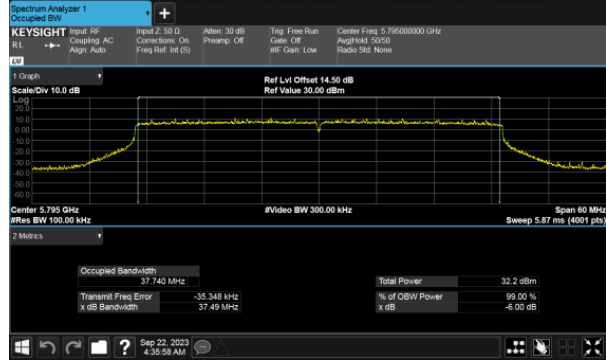
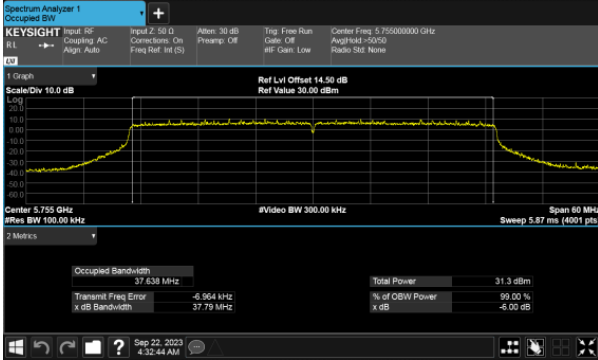
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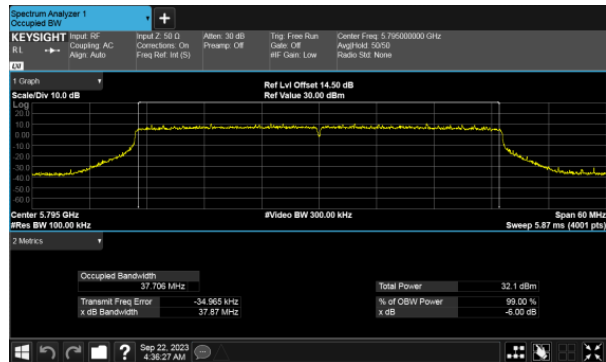
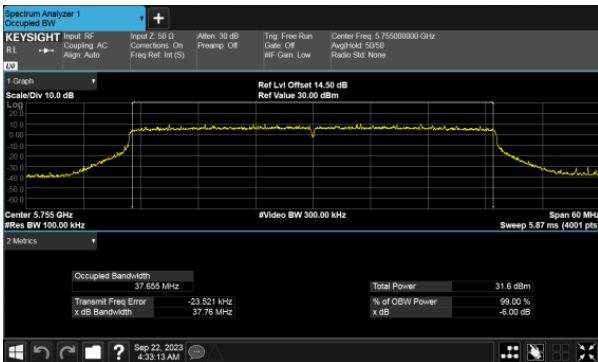
6dB Bandwidth, Beamforming  
Modulation Type: 802.11ax HE40 CH151  
ANT C

Modulation Type: 802.11ax HE40 CH159  
ANT C



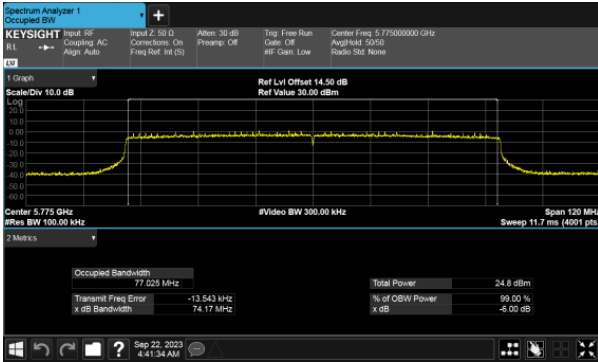
ANT D

ANT D

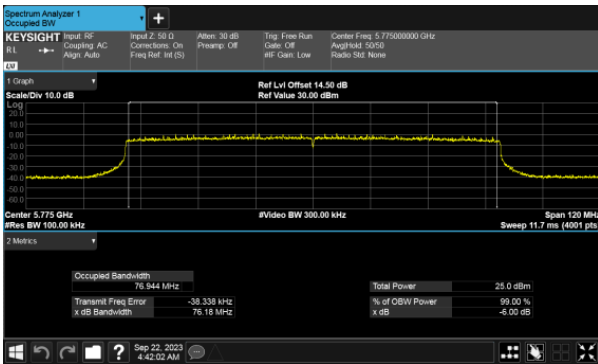




6dB Bandwidth, Beamforming  
Modulation Type: 802.11ax HE80 CH155  
ANT C



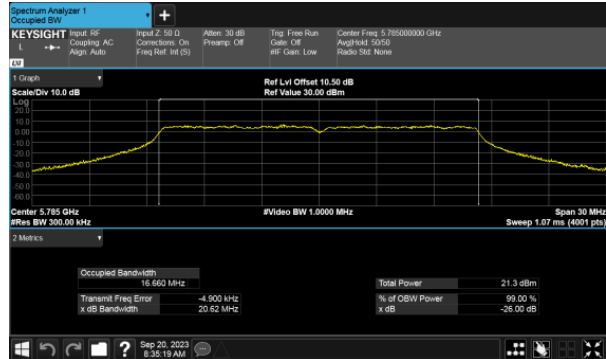
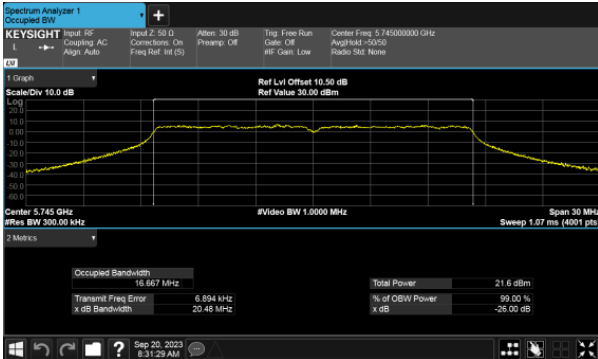
ANT D





99% Bandwidth, Non-Beamforming  
Modulation Type: 802.11a CH149  
ANT

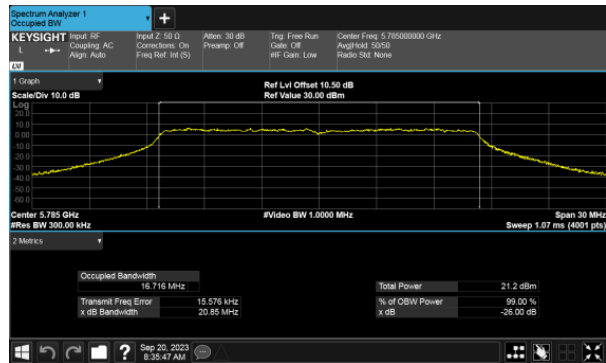
Modulation Type: 802.11a CH157  
ANT C



ANT D



ANT D







99% Bandwidth, Non-Beamforming  
Modulation Type: 802.11a CH165  
ANT C



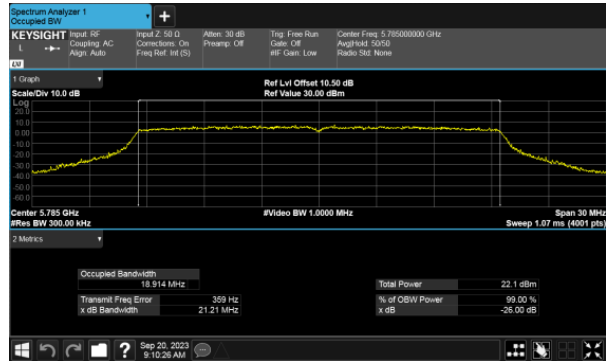
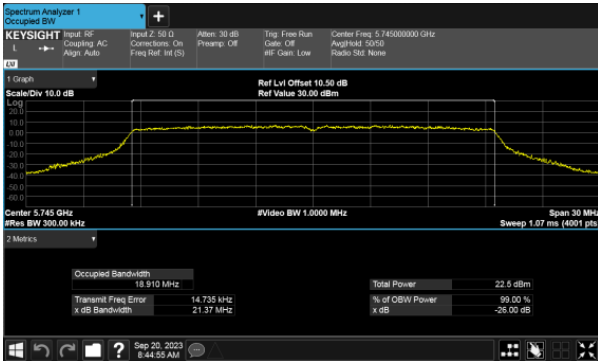
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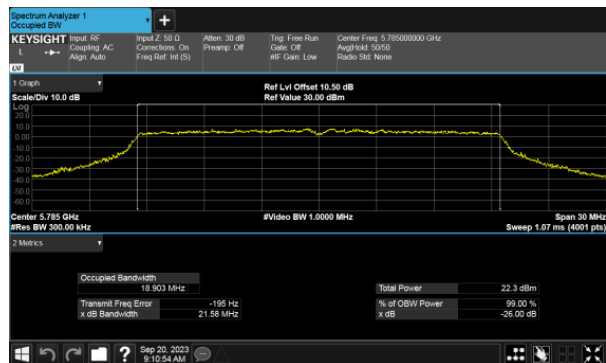
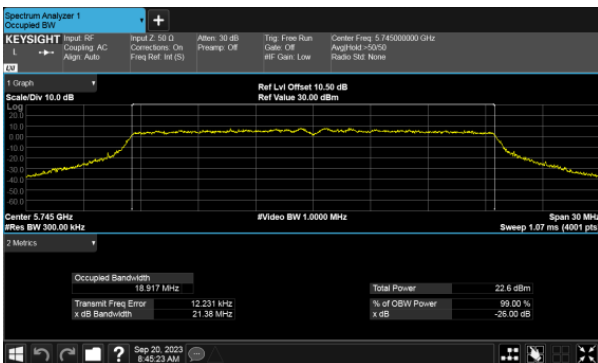
99% Bandwidth, Non-Beamforming  
Modulation Type: 802.11ax HE20 CH149  
ANT C

Modulation Type: 802.11ax HE20 CH157  
ANT C



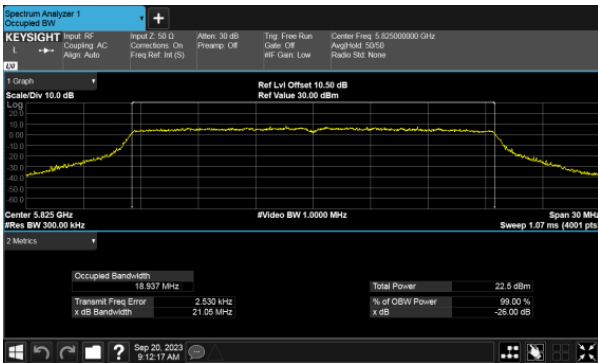
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ANT D

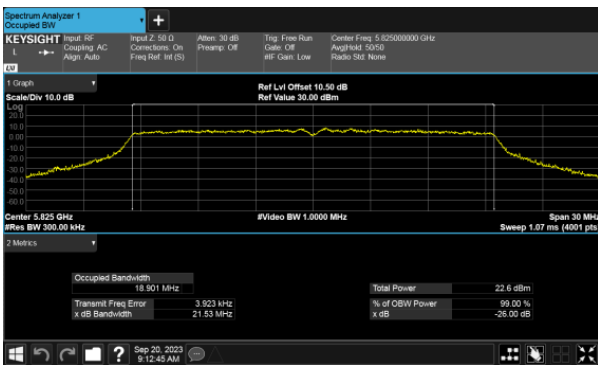




99% Bandwidth, Non-Beamforming  
Modulation Type: 802.11ax HE20 CH165  
ANT C



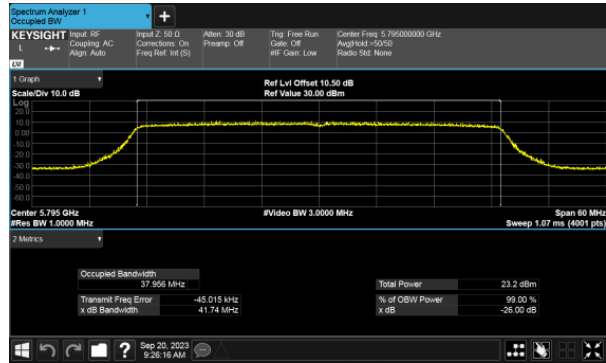
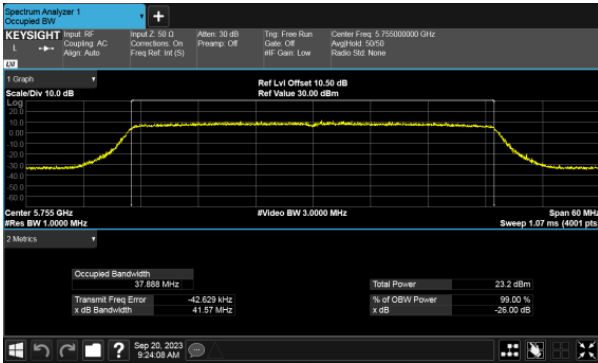
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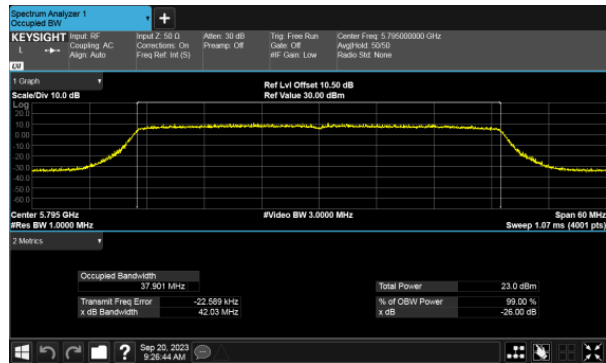
99% Bandwidth, Non-Beamforming  
Modulation Type: 802.11ax HE40 CH159  
ANT C

Modulation Type: 802.11ax HE40 CH159  
ANT C



ANT D

ANT D





99% Bandwidth, Non-Beamforming  
Modulation Type: 802.11ax HE80 CH155  
ANT C



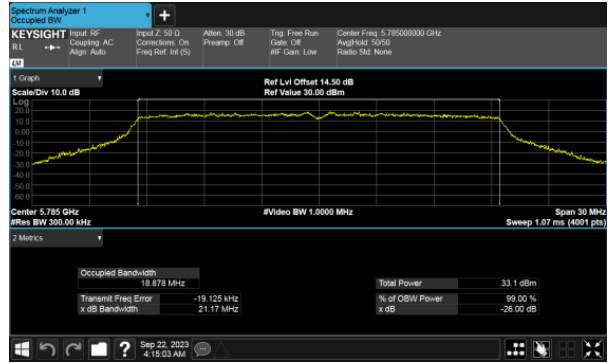
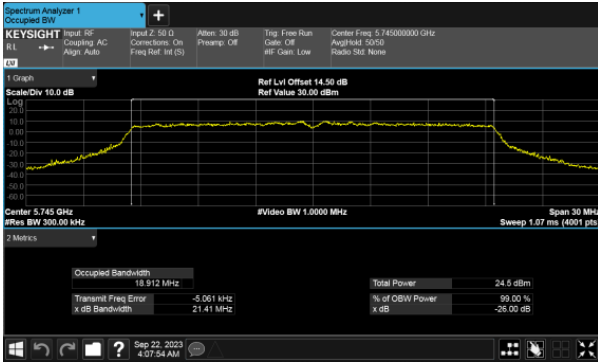
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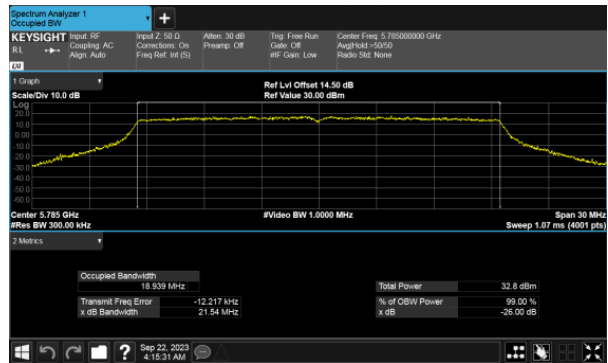
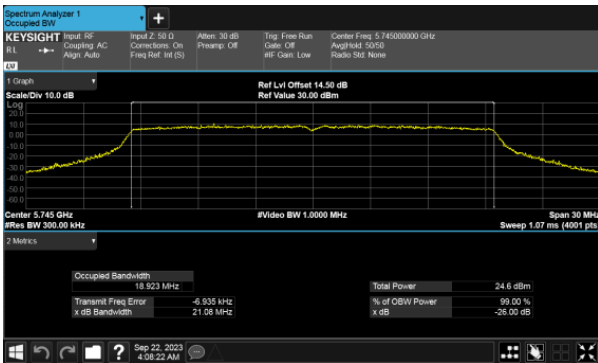
99% Bandwidth, Beamforming  
Modulation Type: 802.11ax HE20 CH149  
ANT C

Modulation Type: 802.11ax HE20 CH157  
ANT C



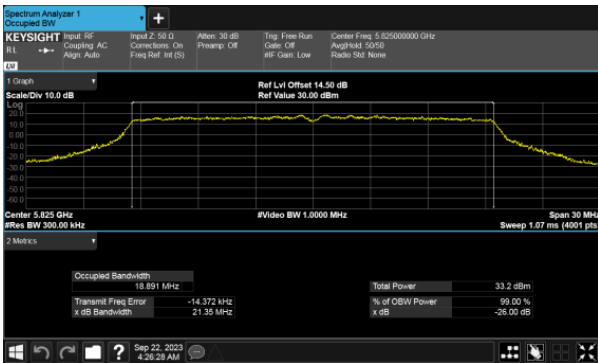
ANT D

ANT D

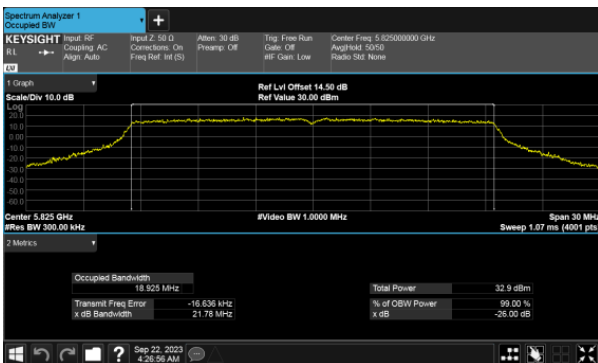




99% Bandwidth, Beamforming  
Modulation Type: 802.11ax HE20 CH165  
ANT C



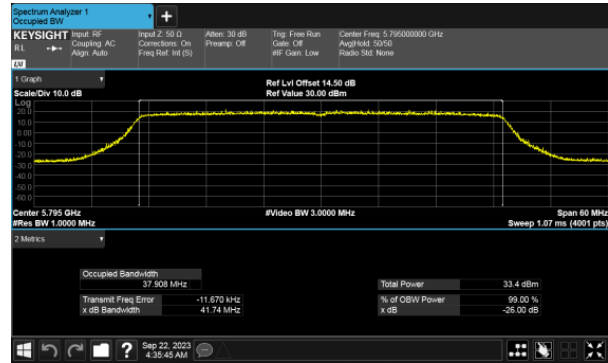
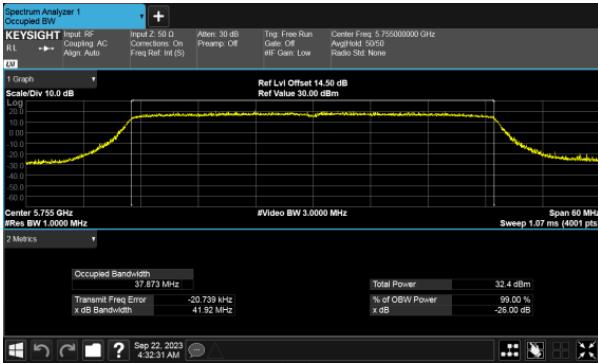
ANT D





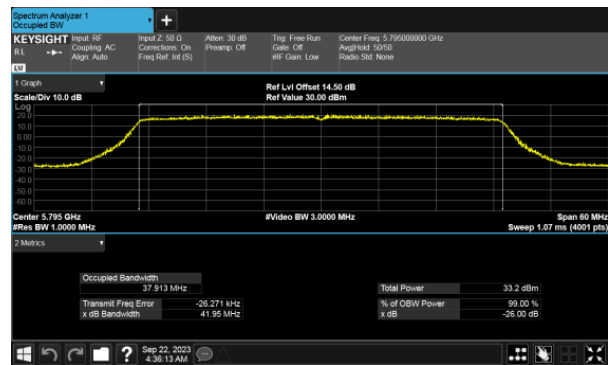
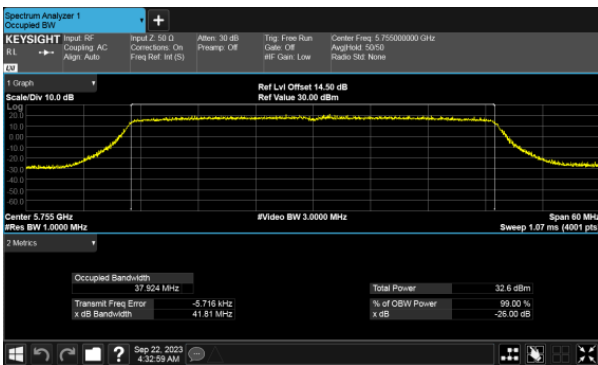
99% Bandwidth, Beamforming  
Modulation Type: 802.11ax HE40 CH151  
ANT C

Modulation Type: 802.11ax HE40 CH159  
ANT C



ANT D

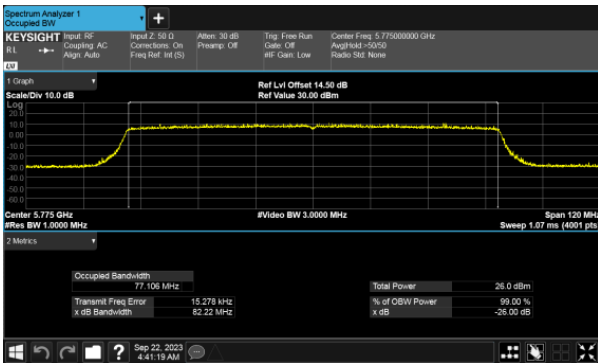
ANT D



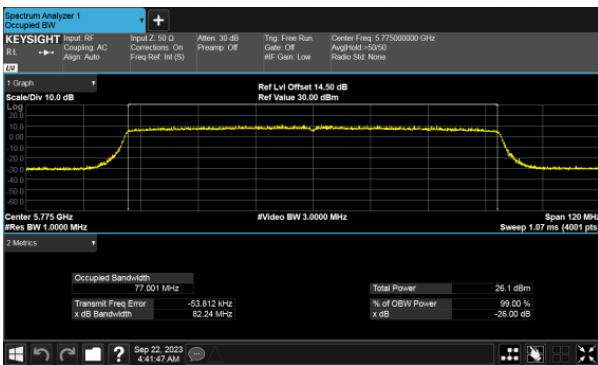




99% Bandwidth, Beamforming  
Modulation Type: 802.11ax HE80 CH155  
ANT C



ANT D





## 9. 26dB Bandwidth & 99% Occupied Bandwidth

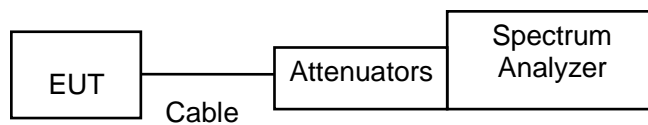
### 9.1. Test Limit

None; for reporting purposes only.

### 9.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW = approximately 1% of the emission bandwidth, the VBW  $\geq$  3 x RBW, peak detector and max hold.

### 9.3. Test Setup Layout



### 9.4. Test Result and Data

Non-beamforming				
Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
			ANT C	ANT D
11a	36	5180	20.59	20.76
	40	5200	20.60	20.68
	48	5240	20.75	20.76
11ax HE20	36	5180	21.32	21.00
	40	5200	21.25	21.40
	48	5240	21.62	21.25
11ax HE40	38	5190	41.90	41.97
	46	5230	41.86	41.53
11ax HE80	42	5210	82.63	82.26

Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)	
			ANT C	ANT D
11a	36	5180	16.43	16.43
	40	5200	16.44	16.43
	48	5240	16.43	16.43
11ax HE20	36	5180	18.91	18.89
	40	5200	18.92	18.89
	48	5240	18.94	18.90
11ax HE40	38	5190	37.93	37.96
	46	5230	37.91	37.89
11ax HE80	42	5210	77.15	77.17



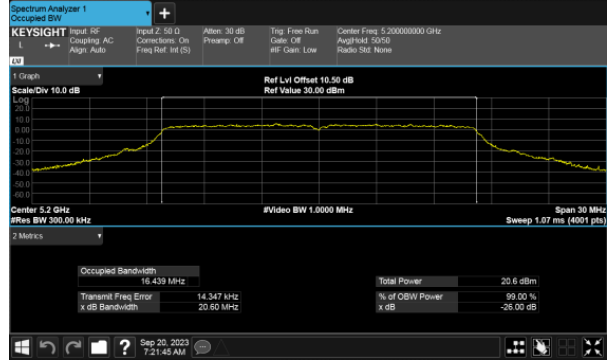
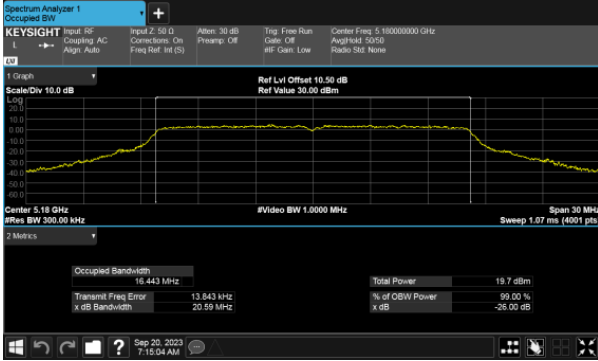
Beamforming				
Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
			ANT C	ANT D
11ax HE20	36	5180	21.76	21.30
	40	5200	21.66	21.26
	48	5240	21.55	21.54
11ax HE40	38	5190	41.98	42.07
	46	5230	42.43	41.62
11ax HE80	42	5210	82.37	82.19

Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)	
			ANT C	ANT D
11ax HE20	36	5180	18.94	18.90
	40	5200	18.94	18.89
	48	5240	18.91	18.88
11ax HE40	38	5190	37.92	37.88
	46	5230	37.89	37.88
11ax HE80	42	5210	77.14	77.20

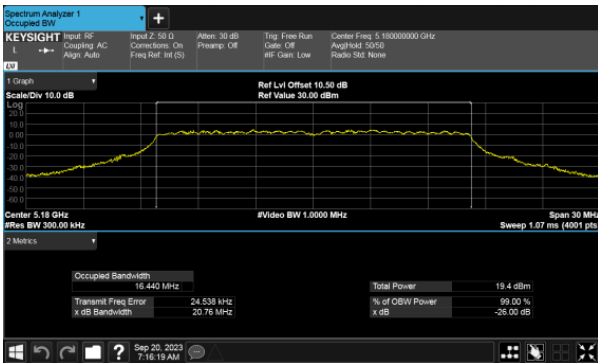


26dB Bandwidth, Non-Beamforming  
Modulation Type: 802.11a CH36  
ANT C

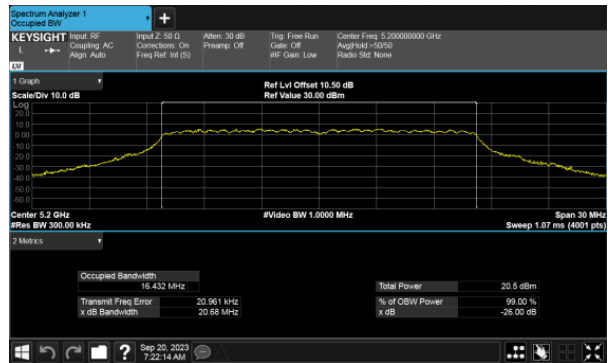
Modulation Type: 802.11a CH40  
ANT C



ANT D

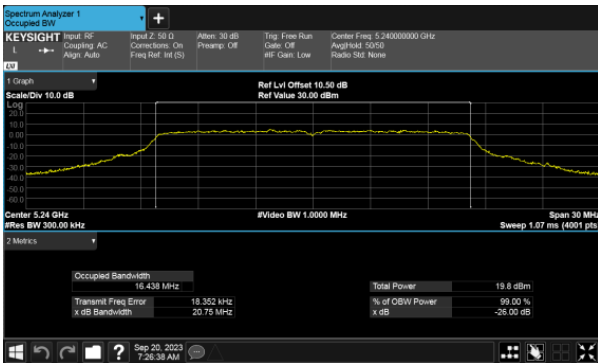


ANT D





26dB Bandwidth, Non-Beamforming  
Modulation Type: 802.11a CH48  
ANT C

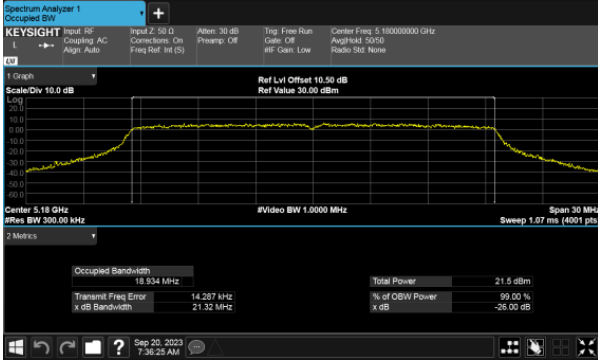


ANT D

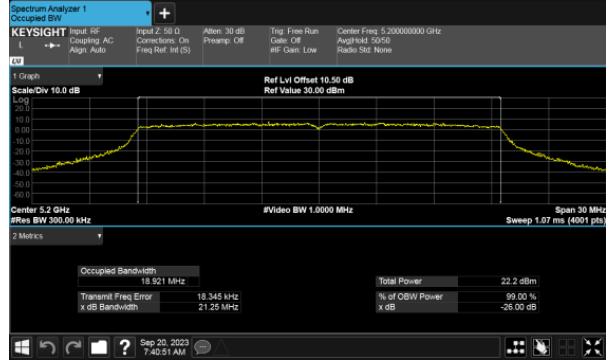




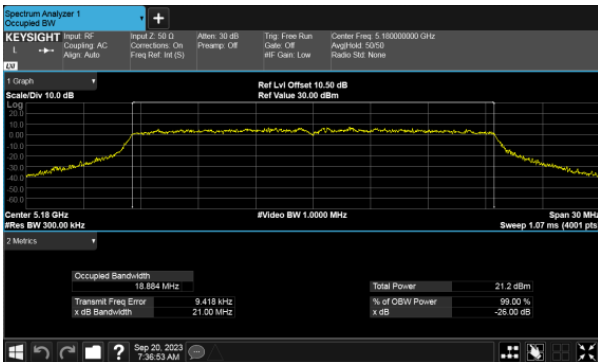
26dB Bandwidth, Non-Beamforming  
Modulation Type: 802.11ax HE20 CH36  
ANT C



Modulation Type: 802.11ax HE20 CH40  
ANT C



ANT D



ANT D

