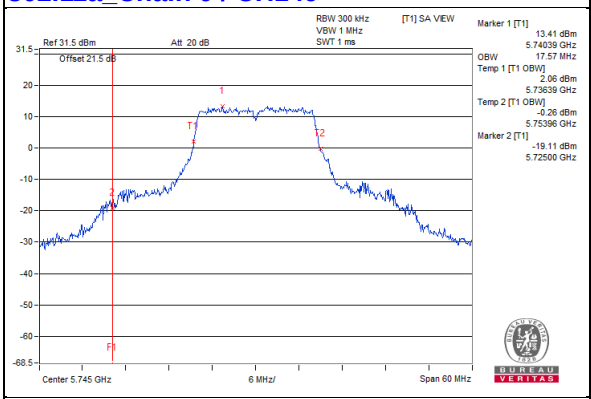
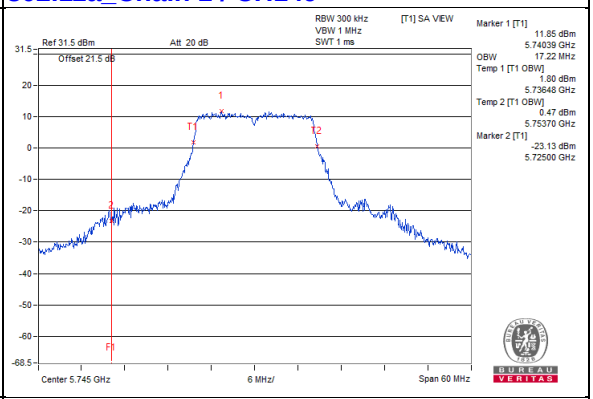
Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

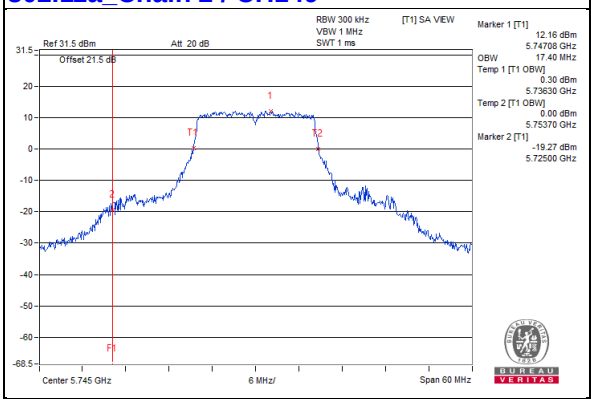
802.11a_Chain 0 / CH149



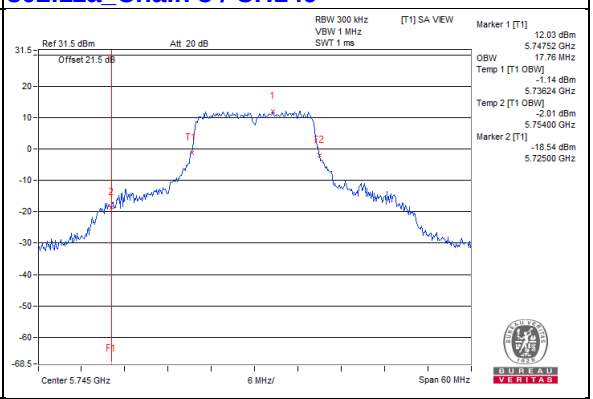
802.11a_Chain 1 / CH149



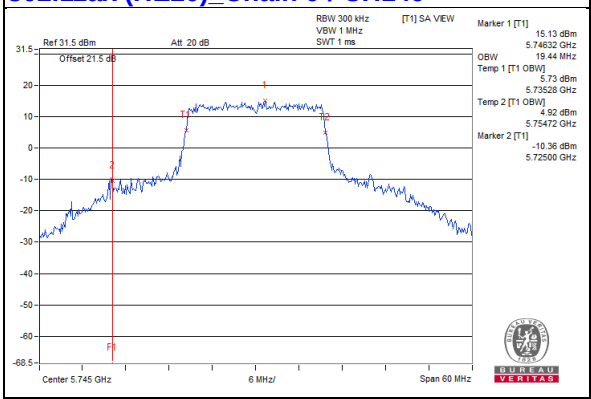
802.11a_Chain 2 / CH149



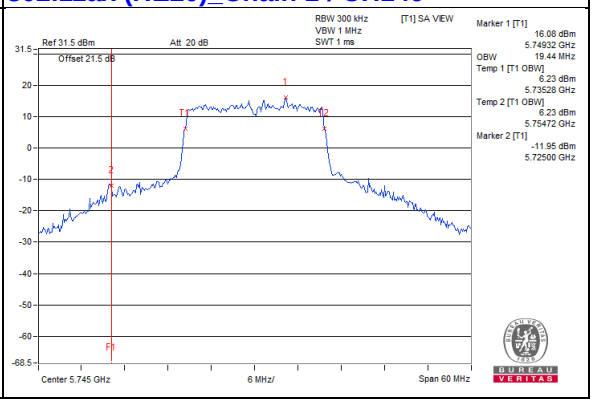
802.11a_Chain 3 / CH149



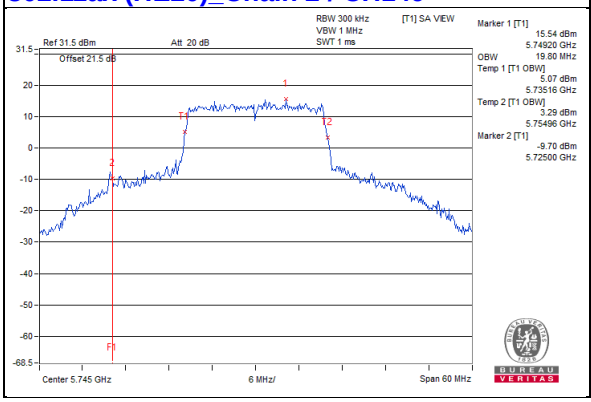
802.11ax (HE20)_Chain 0 / CH149



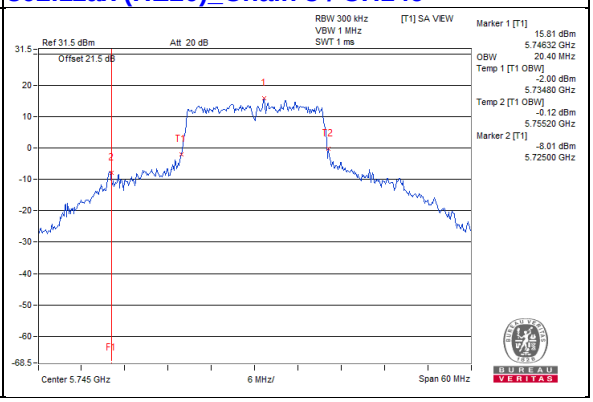
802.11ax (HE20)_Chain 1 / CH149



802.11ax (HE20)_Chain 2 / CH149

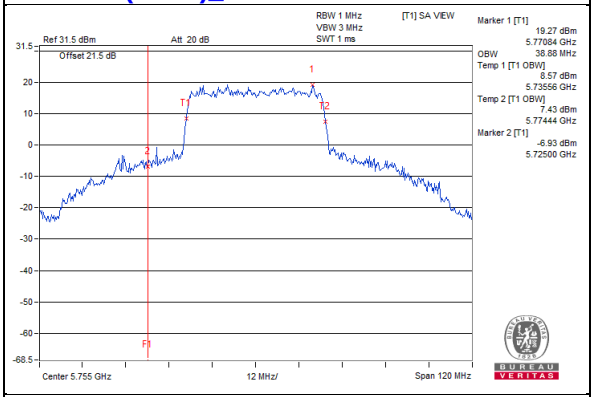


802.11ax (HE20)_Chain 3 / CH149

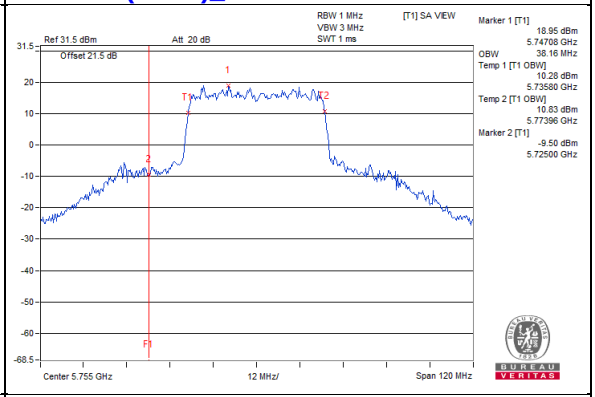


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

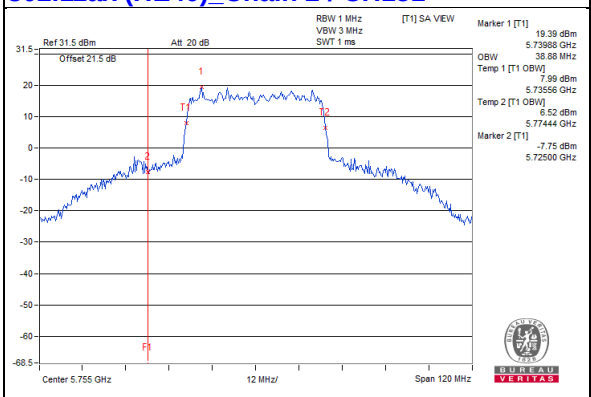
802.11ax (HE40)_Chain 0 / CH151



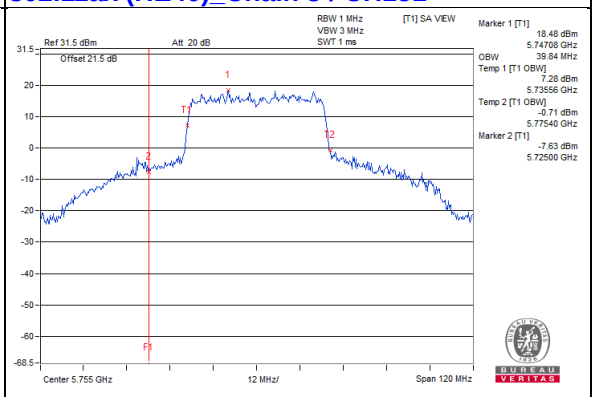
802.11ax (HE40)_Chain 1 / CH151



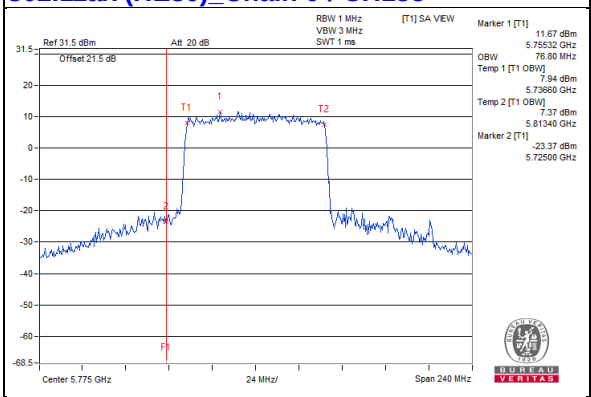
802.11ax (HE40)_Chain 2 / CH151



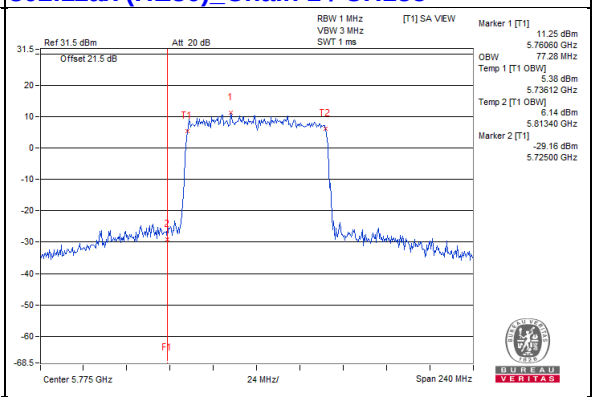
802.11ax (HE40)_Chain 3 / CH151



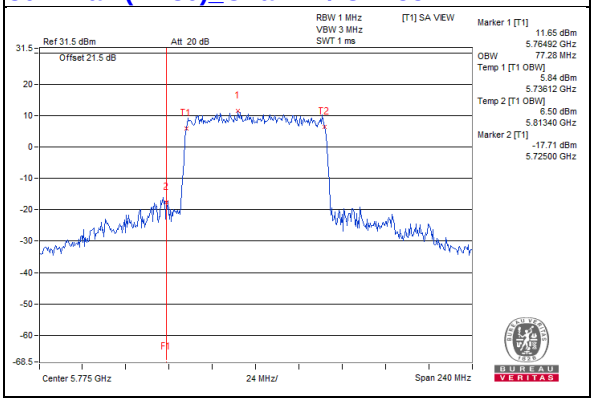
802.11ax (HE80)_Chain 0 / CH155



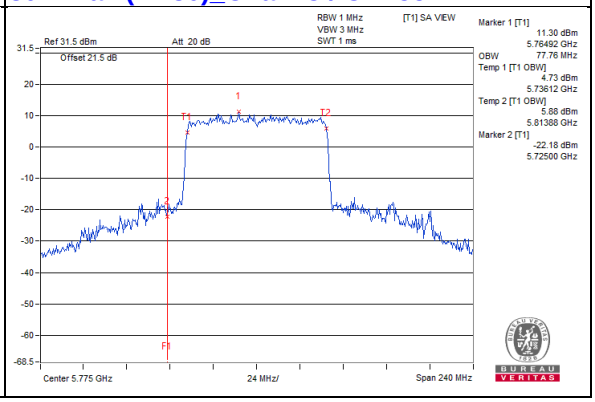
802.11ax (HE80)_Chain 1 / CH155



802.11ax (HE80)_Chain 2 / CH155



802.11ax (HE80)_Chain 3 / CH155



4.4.5 Test Results (Mode 2)

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 2	Chain 3
36	5180	17.04	17.16	17.04
40	5200	17.04	17.16	17.28
48	5240	17.16	17.28	17.52
149	5745	21.24	19.48	24.84
157	5785	19.80	18.96	23.16
165	5825	18.96	18.36	21.60

802.11ax (HE20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 2	Chain 3
36	5180	19.20	19.20	19.20
40	5200	19.20	19.20	19.44
48	5240	19.20	19.20	19.32
149	5745	21.96	19.92	26.40
157	5785	20.76	19.80	24.72
165	5825	19.92	19.56	23.28

802.11ax (HE40)

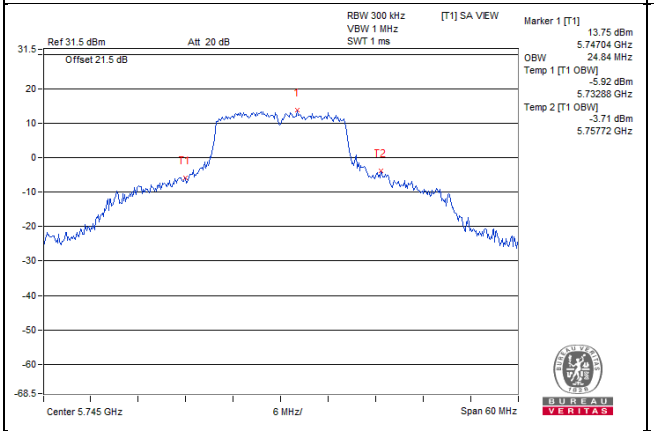
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 2	Chain 3
38	5190	37.68	37.92	37.92
46	5230	37.92	37.92	38.16
151	5755	38.64	38.40	42.96
159	5795	38.64	38.64	44.40

802.11ax (HE80)

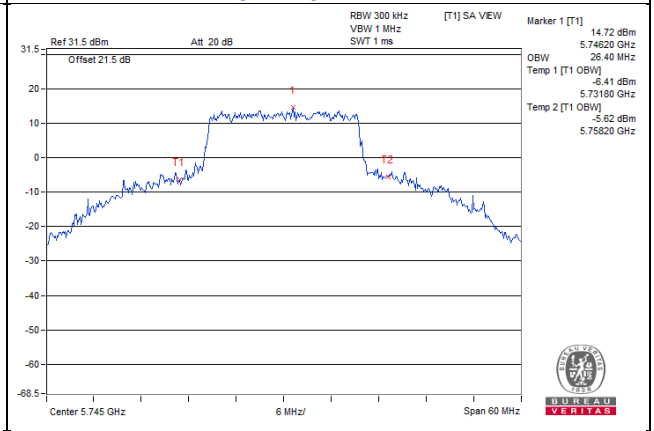
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 2	Chain 3
42	5210	77.28	77.76	77.28
155	5775	77.28	77.28	77.57

Spectrum Plot of Max. Value

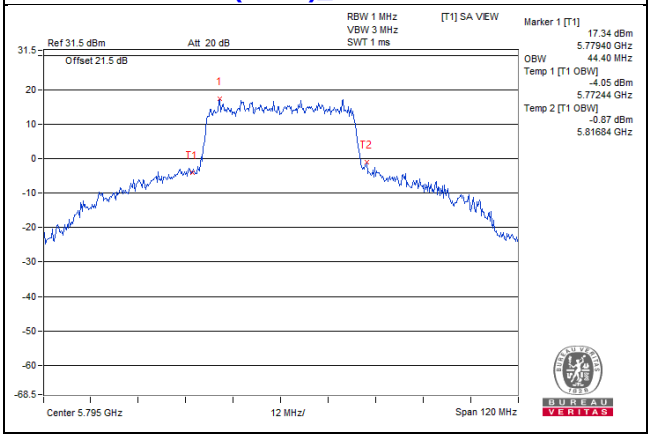
802.11a_Chain 3 / CH149



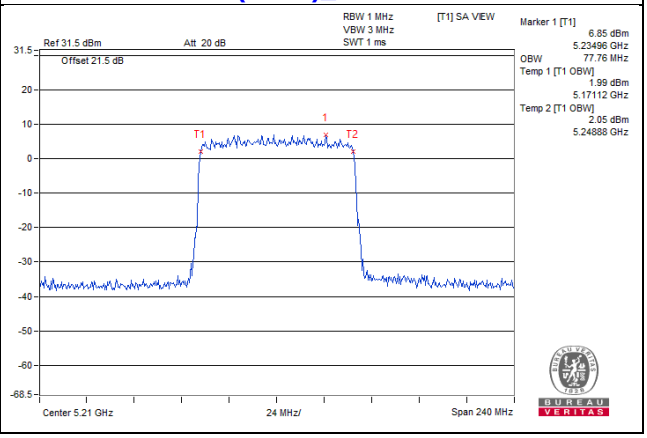
802.11ax (HE20)_Chain 3 / CH149



802.11ax (HE40)_Chain 3 / CH159

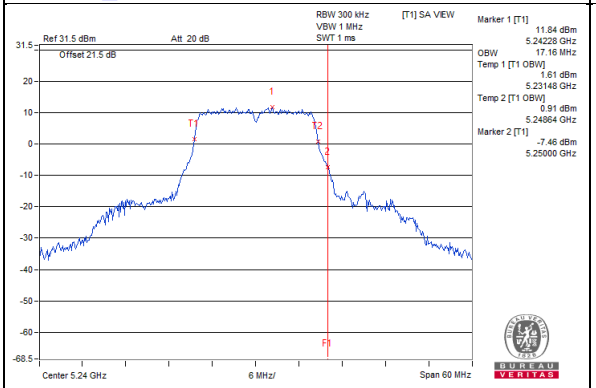


802.11ax (HE80)_Chain 2 / CH42

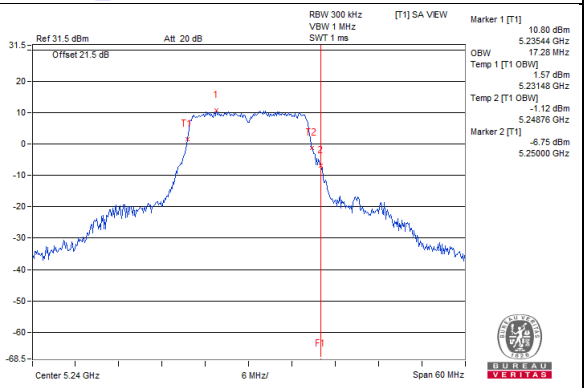


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

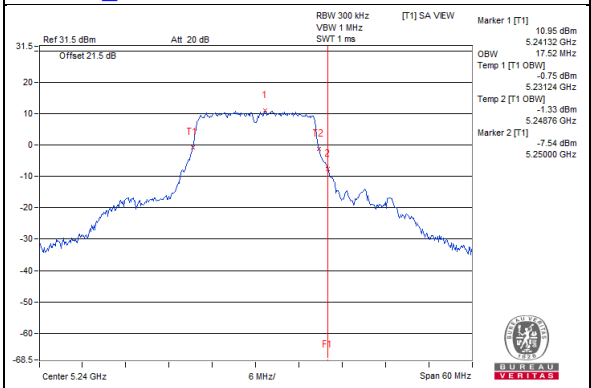
802.11a_Chain 0 / CH48



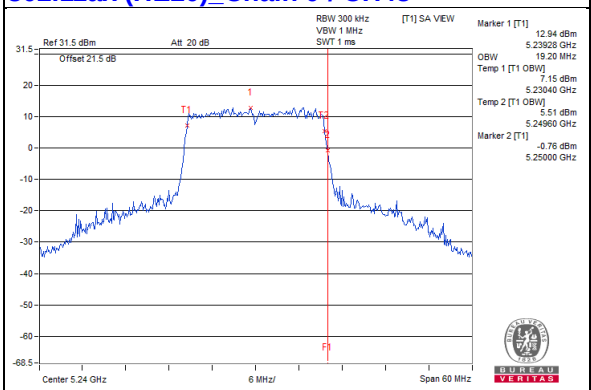
802.11a_Chain 2 / CH48



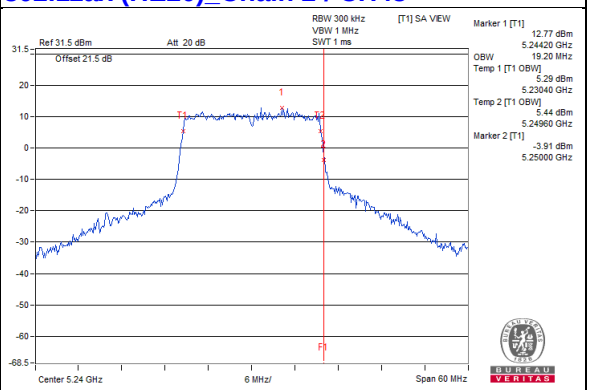
802.11a_Chain 3 / CH48



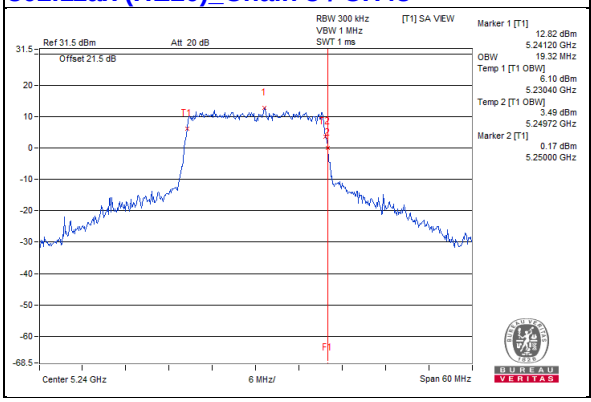
802.11ax (HE20)_Chain 0 / CH48



802.11ax (HE20)_Chain 2 / CH48

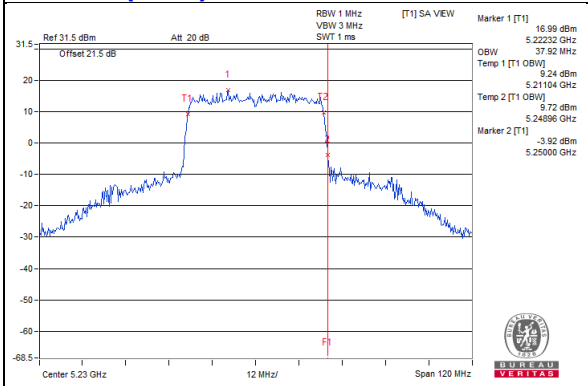


802.11ax (HE20)_Chain 3 / CH48

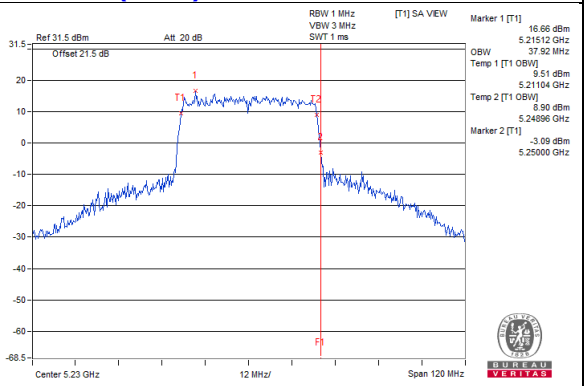


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

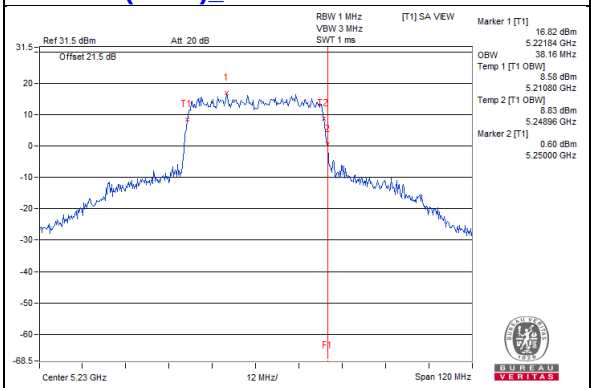
802.11ax (HE40)_Chain 0 / CH46



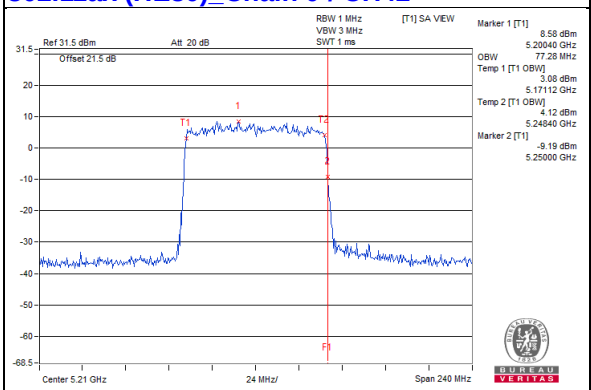
802.11ax (HE40)_Chain 2 / CH46



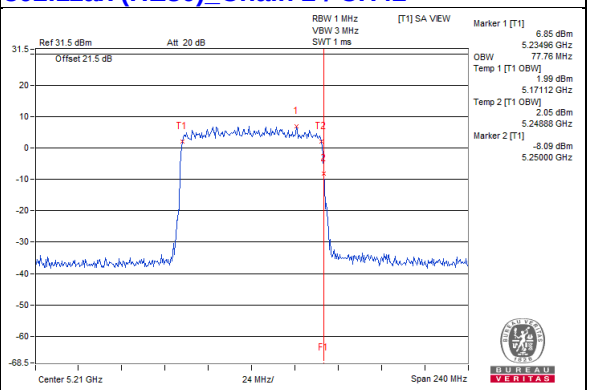
802.11ax (HE40)_Chain 3 / CH46



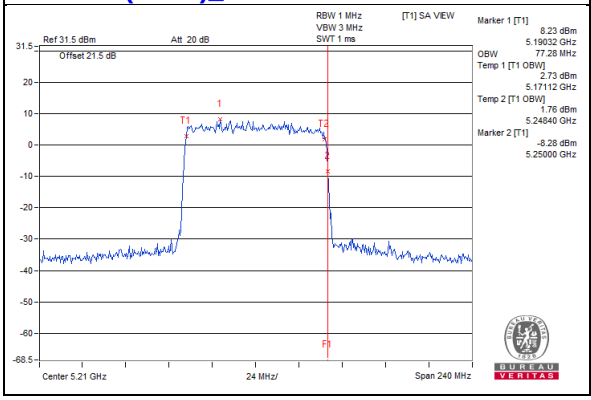
802.11ax (HE80)_Chain 0 / CH42



802.11ax (HE80)_Chain 2 / CH42

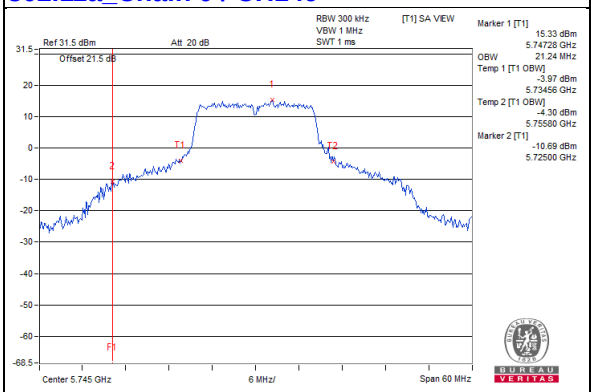


802.11ax (HE80)_Chain 3 / CH42

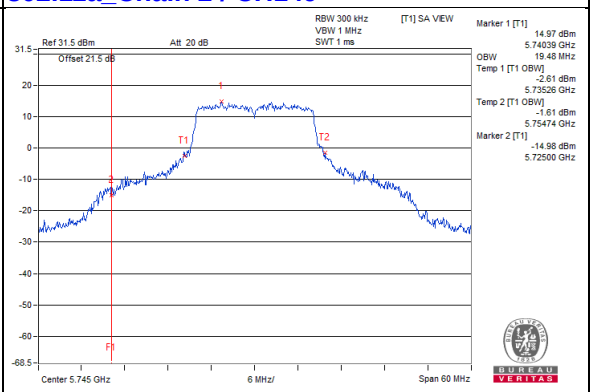


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

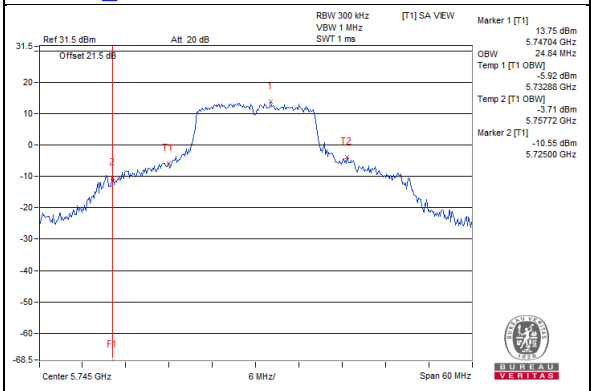
802.11a_Chain 0 / CH149



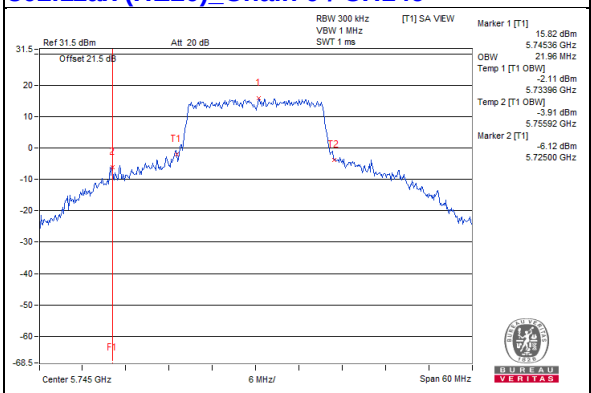
802.11a_Chain 2 / CH149



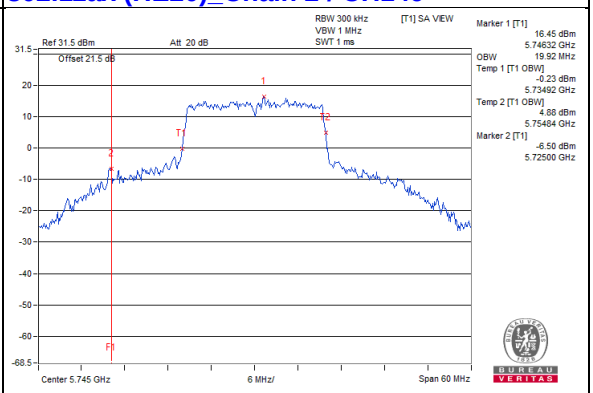
802.11a_Chain 3 / CH149



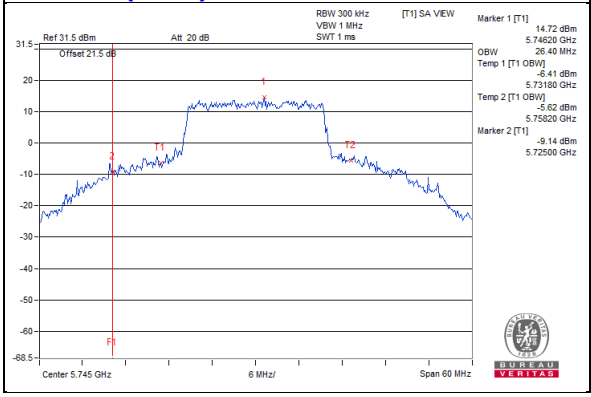
802.11ax (HE20)_Chain 0 / CH149



802.11ax (HE20)_Chain 2 / CH149

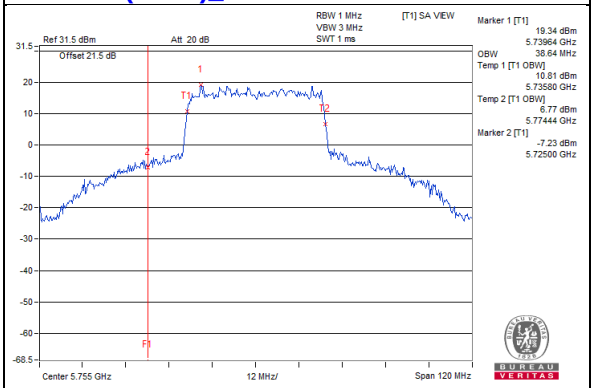


802.11ax (HE20)_Chain 3 / CH149

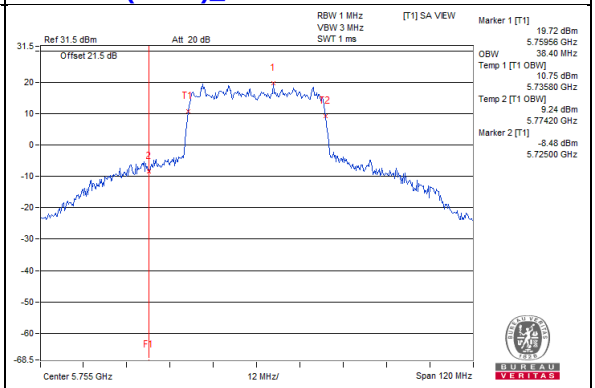


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

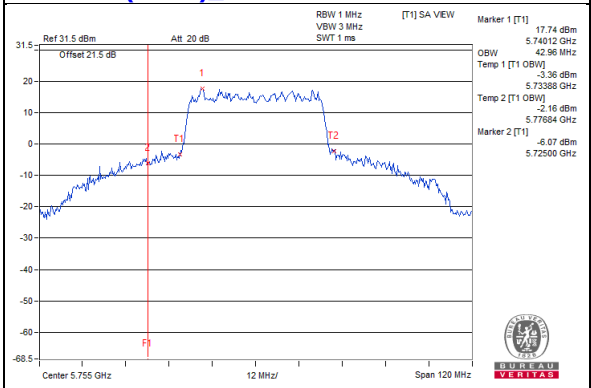
802.11ax (HE40)_Chain 0 / CH151



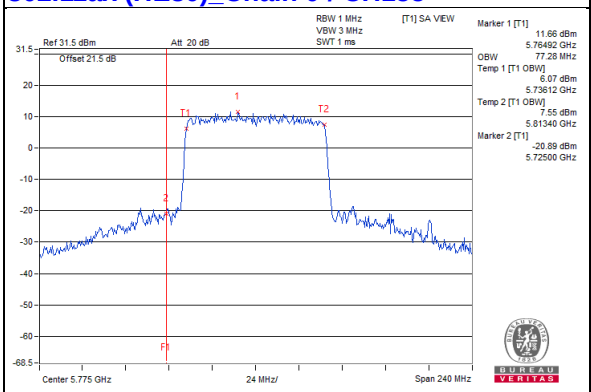
802.11ax (HE40)_Chain 2 / CH151



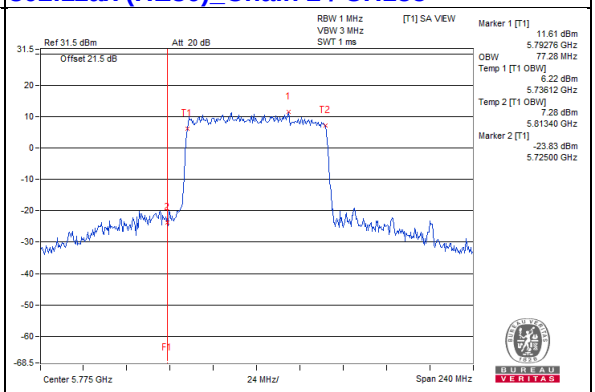
802.11ax (HE40)_Chain 3 / CH151



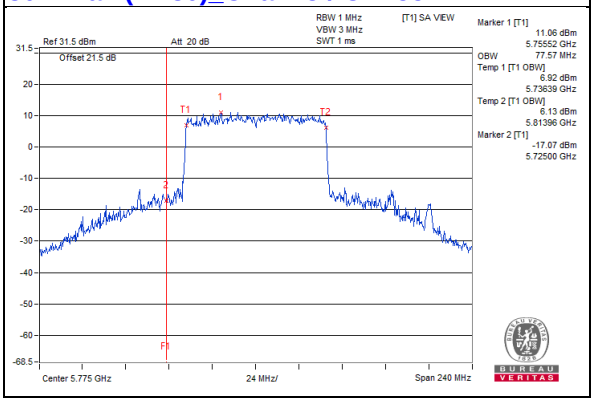
802.11ax (HE80)_Chain 0 / CH155



802.11ax (HE80)_Chain 2 / CH155



802.11ax (HE80)_Chain 3 / CH155



4.4.6 Test Results (Mode 3)

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.04	17.16
40	5200	18.12	18.00
48	5240	17.88	17.76
149	5745	22.20	19.68
157	5785	21.00	19.08
165	5825	19.08	18.48

802.11ax (HE20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	19.20	19.20
40	5200	19.44	19.44
48	5240	19.44	19.44
149	5745	22.92	19.92
157	5785	20.64	19.68
165	5825	19.92	19.56

802.11ax (HE40)

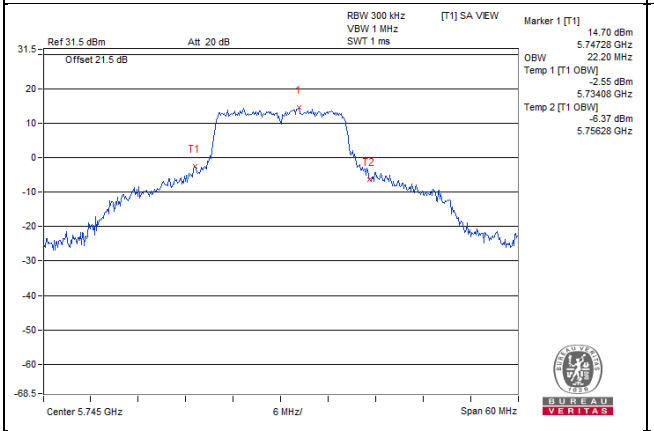
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	37.68	37.74
46	5230	37.92	38.40
151	5755	41.04	40.56
159	5795	38.88	38.88

802.11ax (HE80)

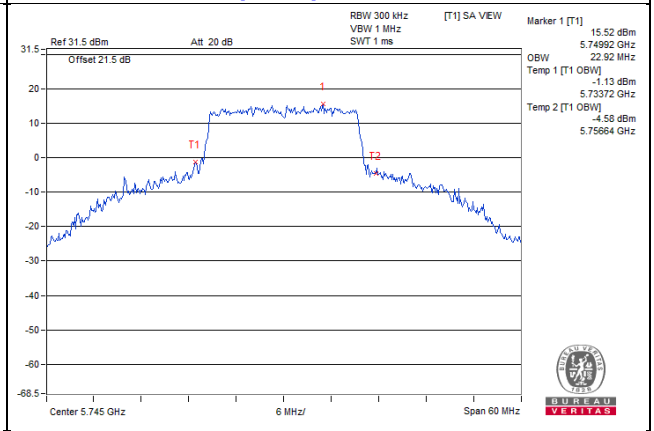
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	77.28	77.28
155	5775	77.76	77.28

Spectrum Plot of Max. Value

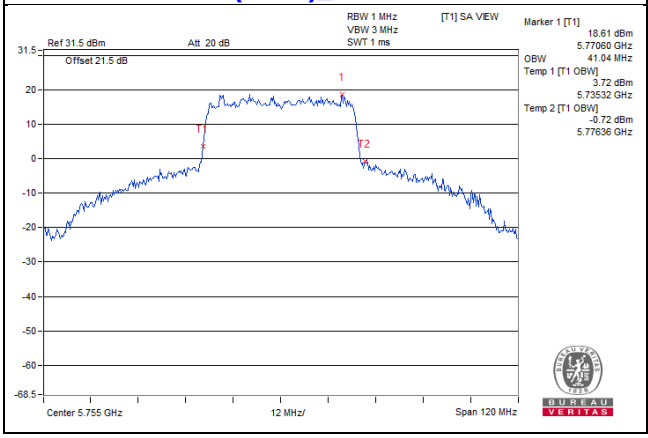
802.11a_Chain 0 / CH149



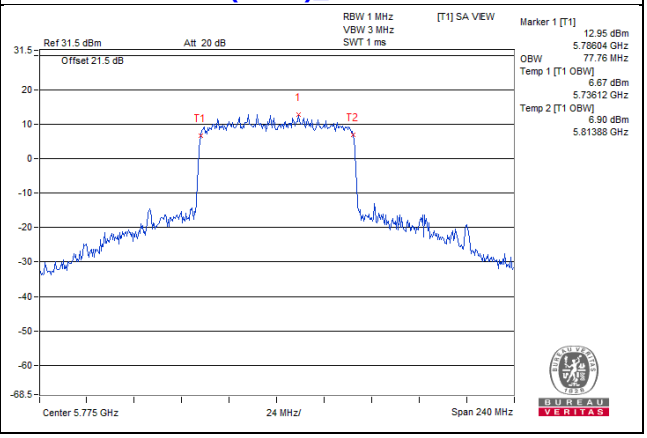
802.11ax (HE20)_Chain 0 / CH149



802.11ax (HE40)_Chain 0 / CH151

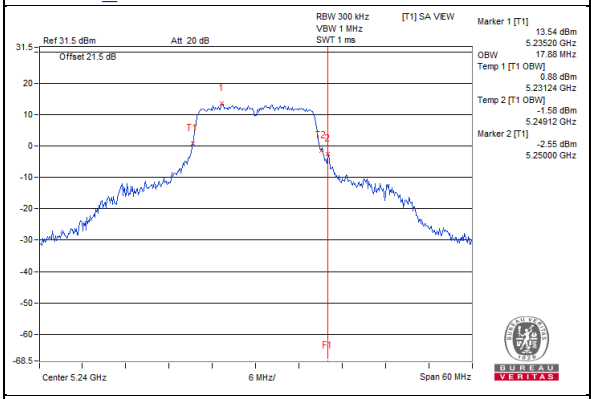


802.11ax (HE80)_Chain 0 / CH155

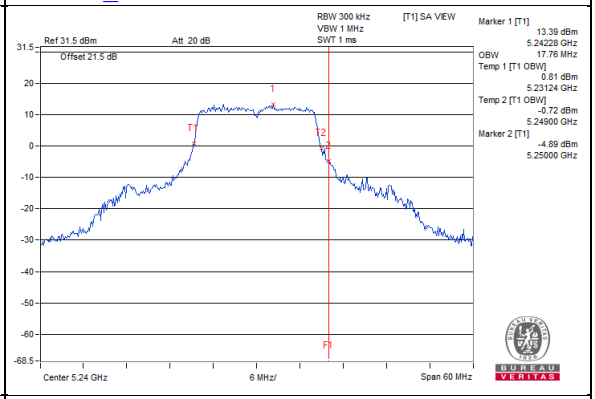


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

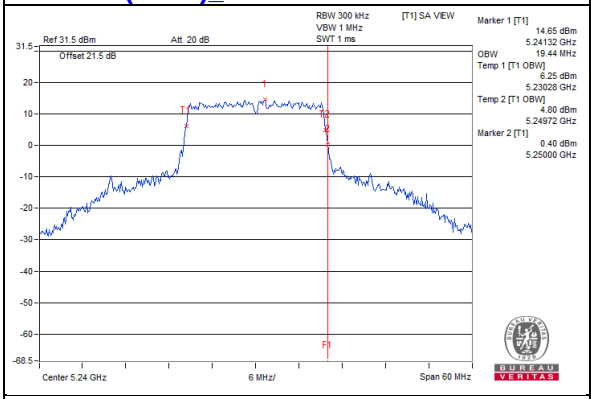
802.11a_Chain 0 / CH48



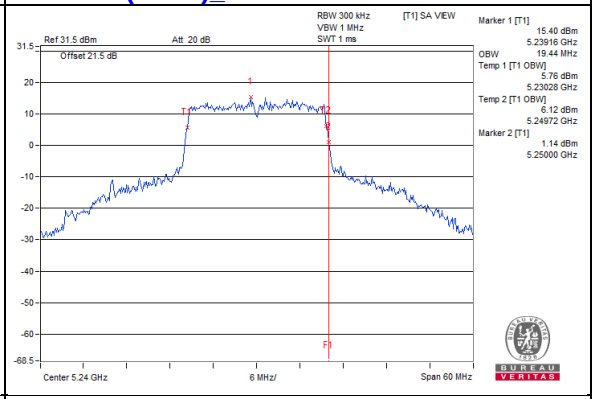
802.11a_Chain 1 / CH48



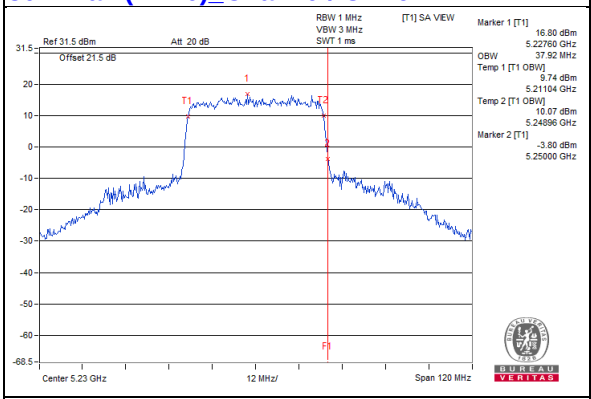
802.11ax (HE20)_Chain 0 / CH48



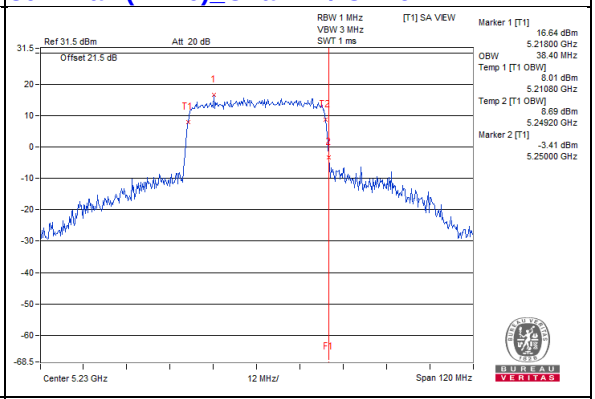
802.11ax (HE20)_Chain 1 / CH48



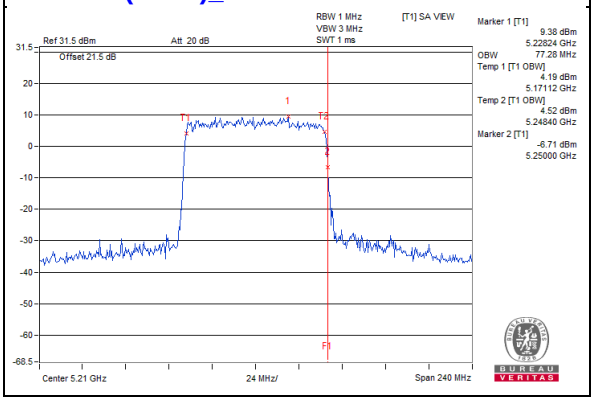
802.11ax (HE40)_Chain 0 / CH46



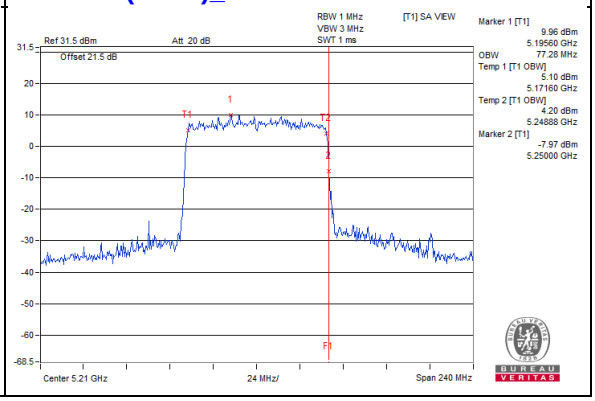
802.11ax (HE40)_Chain 1 / CH46



802.11ax (HE80)_Chain 0 / CH42

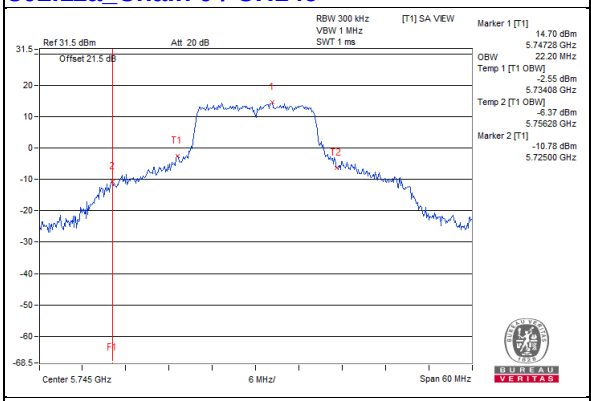


802.11ax (HE80)_Chain 1 / CH42

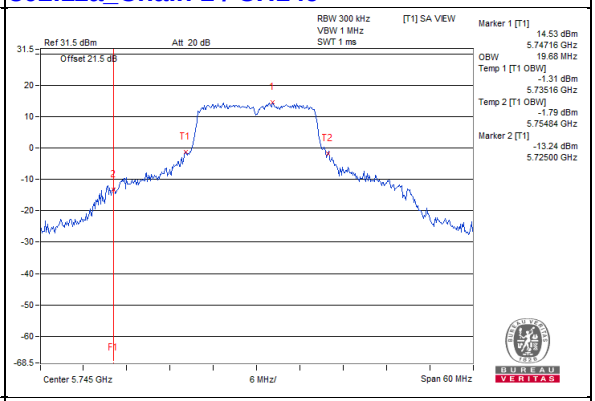


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

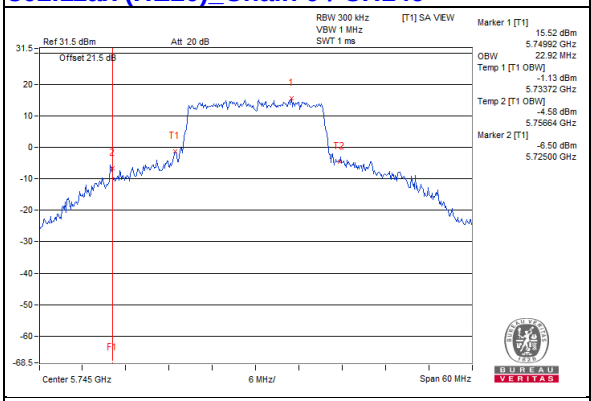
802.11a_Chain 0 / CH149



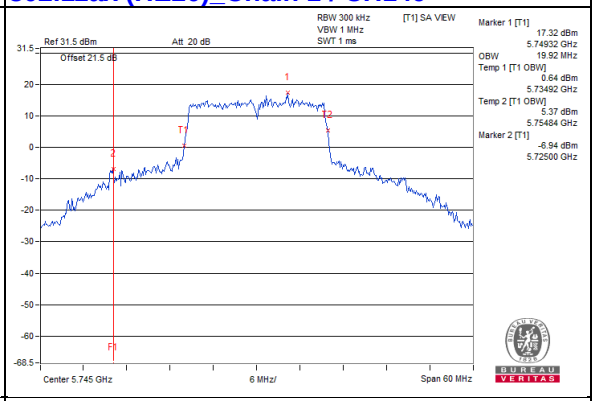
802.11a_Chain 1 / CH149



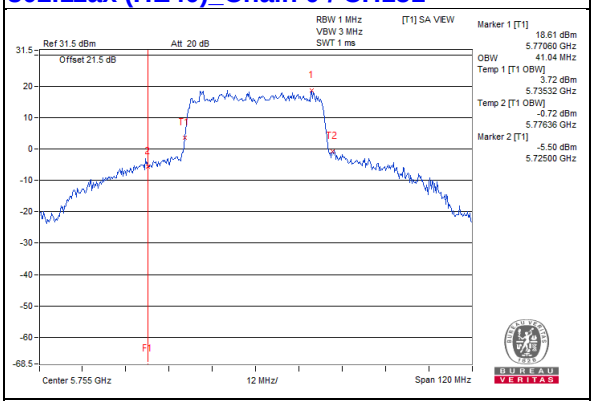
802.11ax (HE20)_Chain 0 / CH149



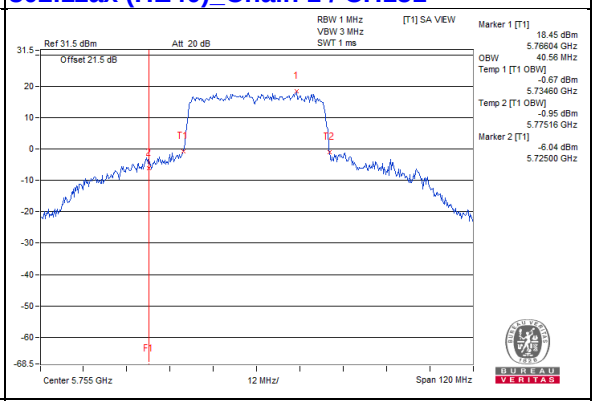
802.11ax (HE20)_Chain 1 / CH149



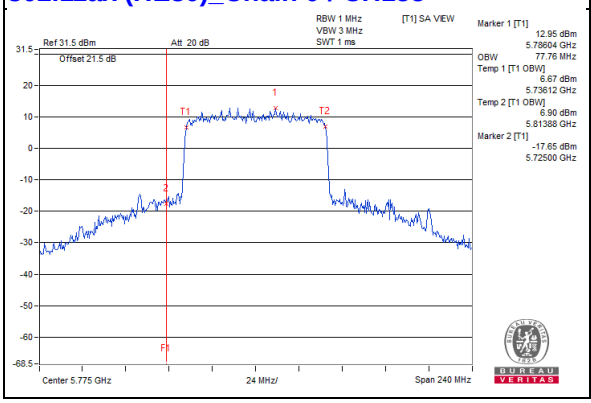
802.11ax (HE40)_Chain 0 / CH151



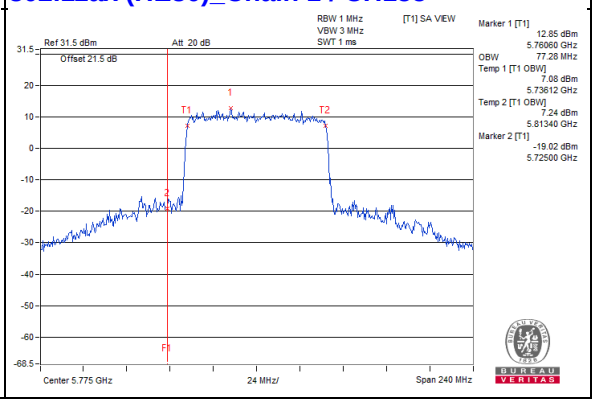
802.11ax (HE40)_Chain 1 / CH151



802.11ax (HE80)_Chain 0 / CH155



802.11ax (HE80)_Chain 1 / CH155



4.4.7 Test Results (Mode 4)

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.16
40	5200	18.12
48	5240	18.12
149	5745	22.68
157	5785	21.96
165	5825	18.78

802.11ax (HE20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	19.20
40	5200	19.44
48	5240	19.20
149	5745	23.40
157	5785	20.52
165	5825	21.72

802.11ax (HE40)

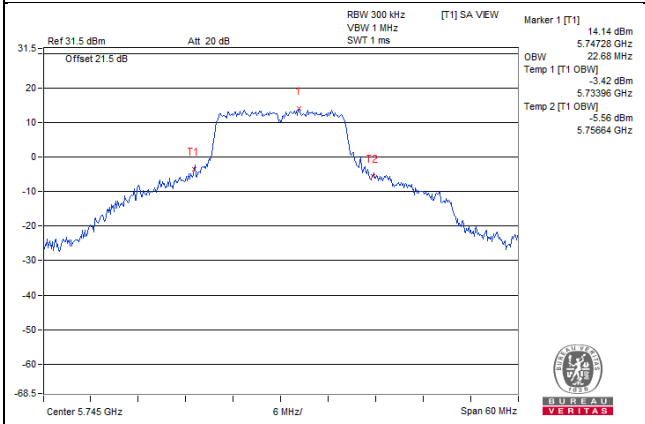
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	37.92
46	5230	38.40
151	5755	42.72
159	5795	39.84

802.11ax (HE80)

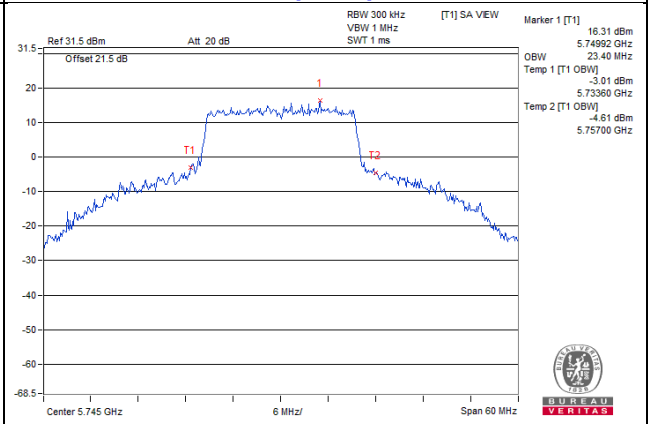
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	77.76
155	5775	77.76

Spectrum Plot of Max. Value

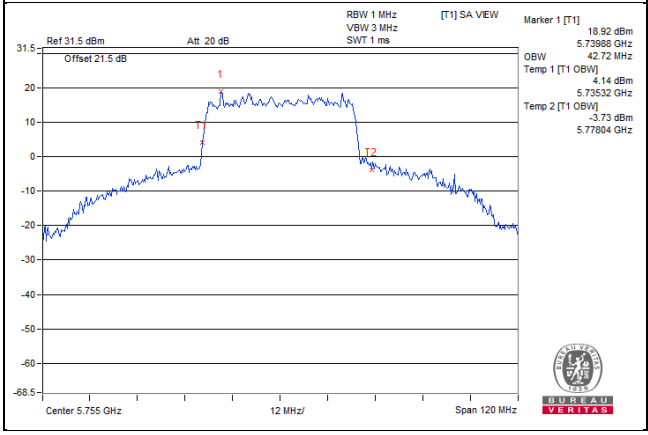
802.11a: CH149



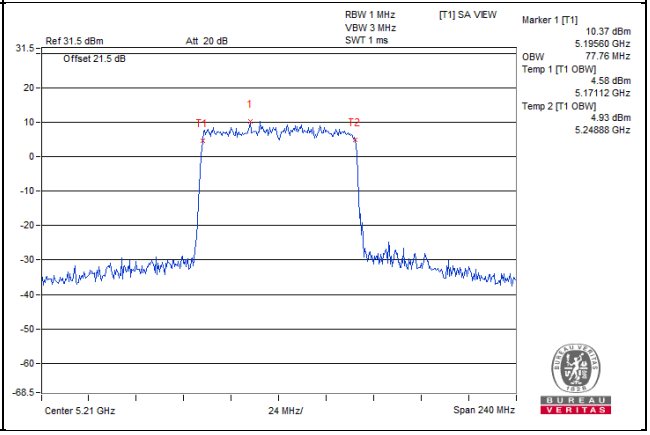
802.11ax (HE20): CH149



802.11ax (HE40): CH151

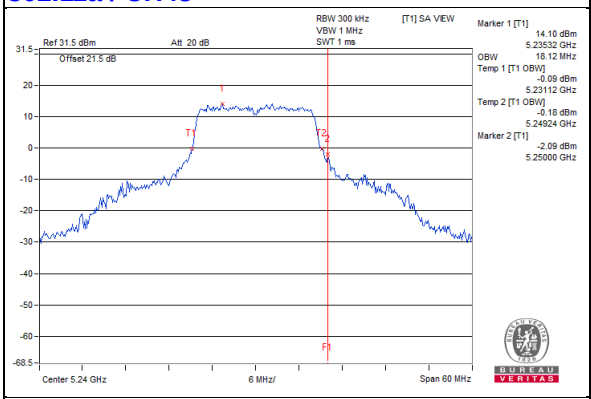


802.11ax (HE80): CH42

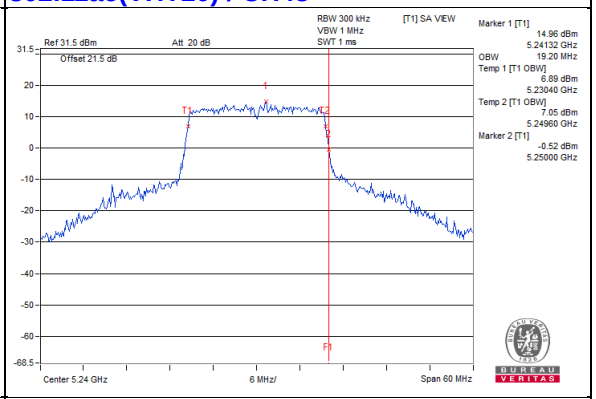


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

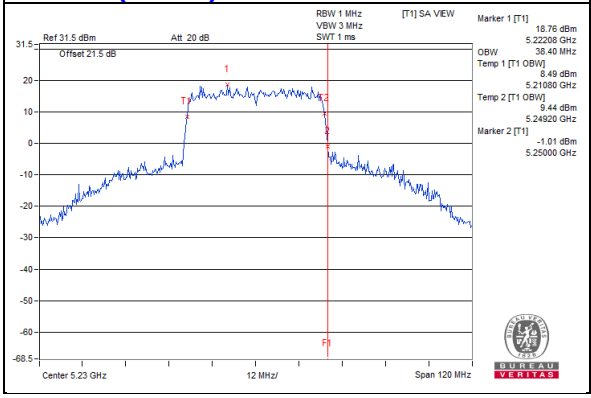
802.11a / CH48



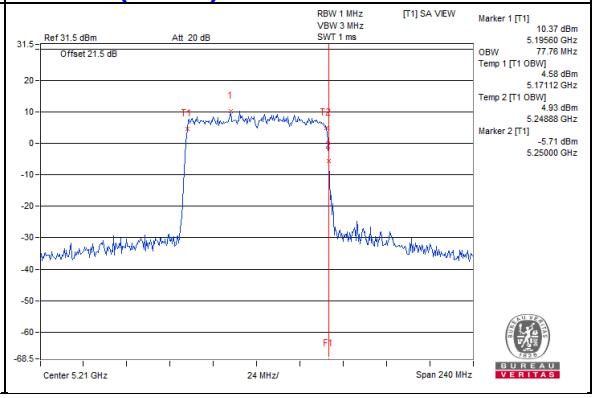
802.11ac(VHT20) / CH48



802.11ac(VHT40) / CH46

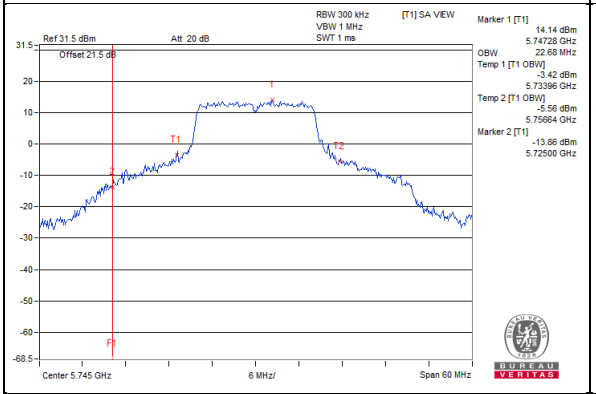


802.11ac(VHT80) / CH42

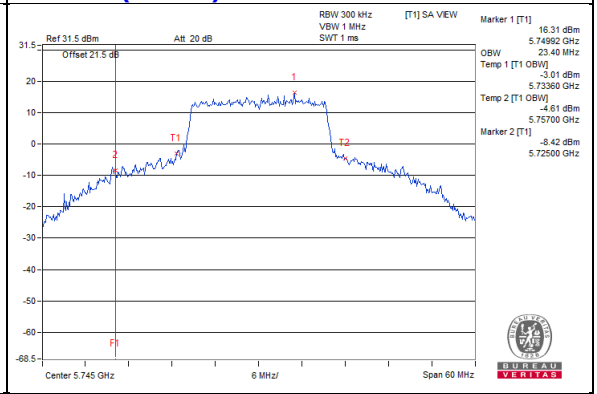


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

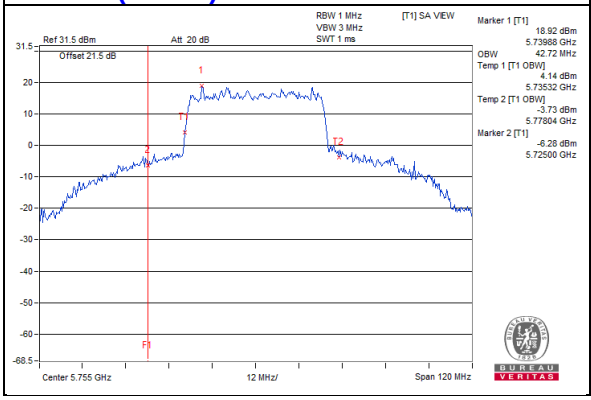
802.11a / CH149



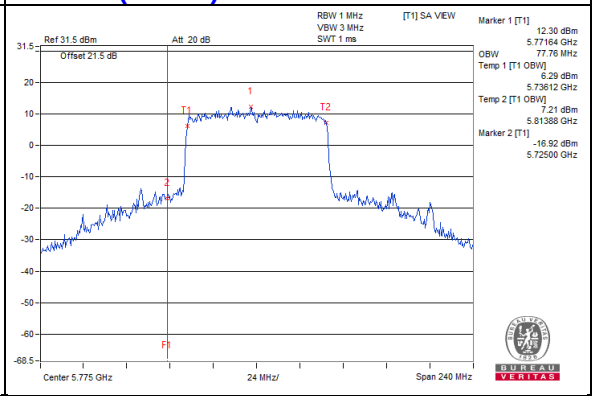
802.11ac(VHT20) / CH149



802.11ac(VHT40) / CH151



802.11ac(VHT80) / CH155



4.4.8 Test Results (Mode 5)

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	18.00
40	5200	24.60
48	5240	17.64
149	5745	25.04
157	5785	25.20
165	5825	24.12

802.11ax (HE20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	19.56
40	5200	26.76
48	5240	19.32
149	5745	26.64
157	5785	26.52
165	5825	26.28

802.11ax (HE40)

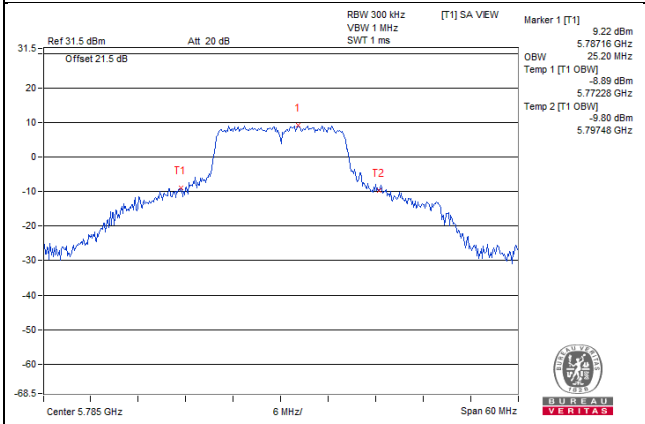
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	37.92
46	5230	38.40
151	5755	46.56
159	5795	67.44

802.11ax (HE80)

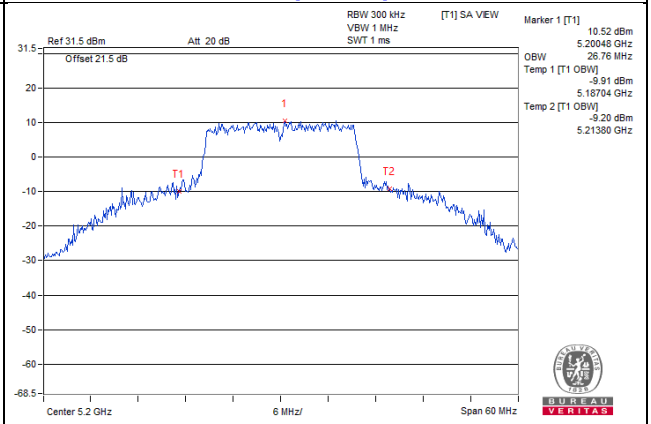
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	77.76
155	5775	78.24

Spectrum Plot of Max. Value

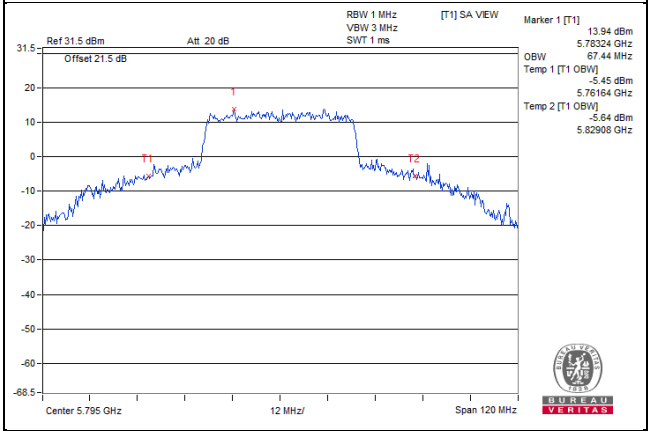
802.11a: CH157



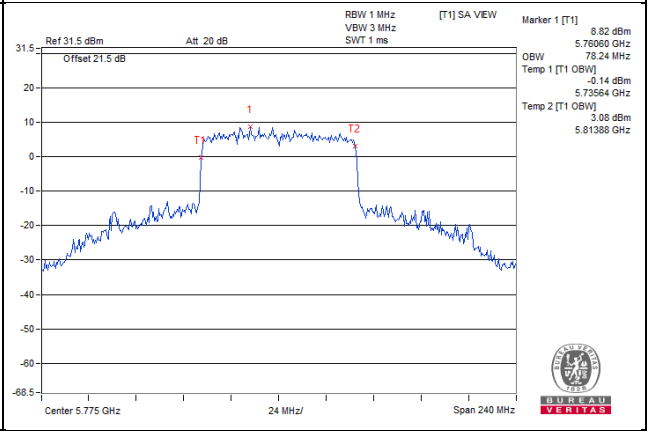
802.11ac (VHT20): CH40



802.11ac (VHT40): CH159

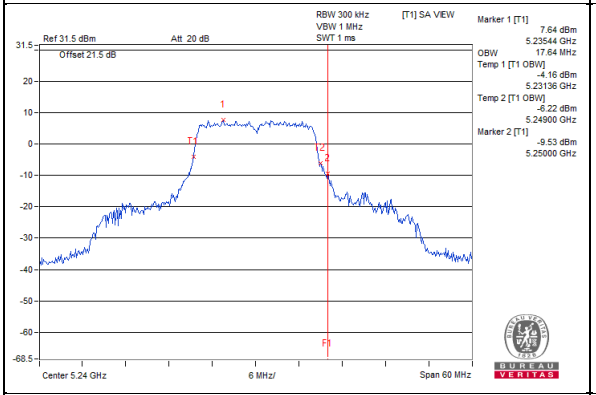


802.11ac (VHT80): CH155

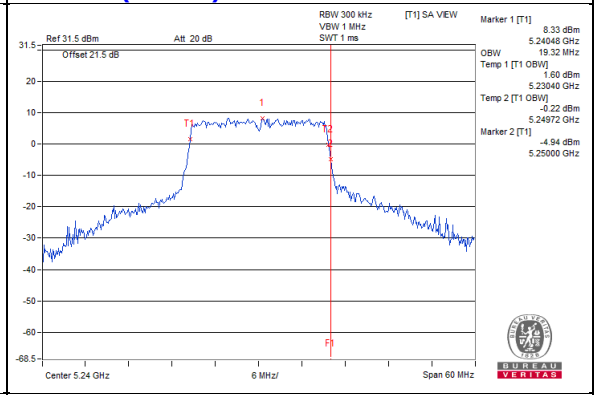


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

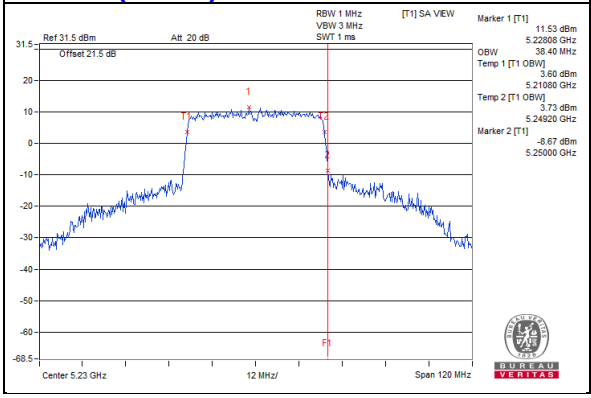
802.11a / CH48



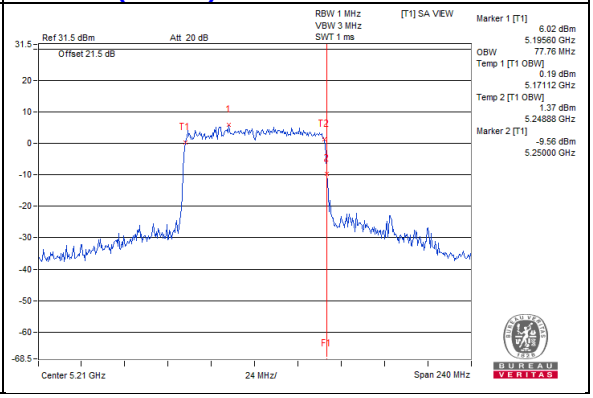
802.11ac(VHT20) / CH48



802.11ac(VHT40) / CH46

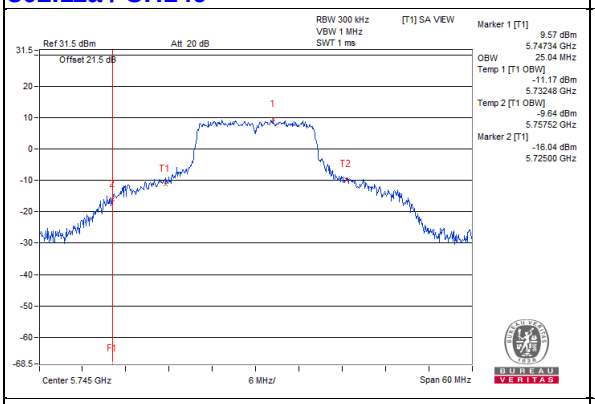


802.11ac(VHT80) / CH42

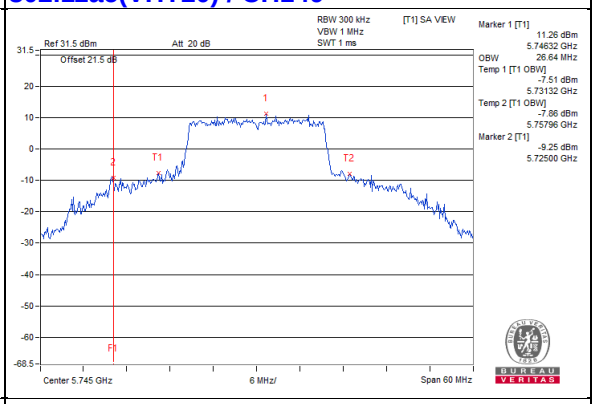


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

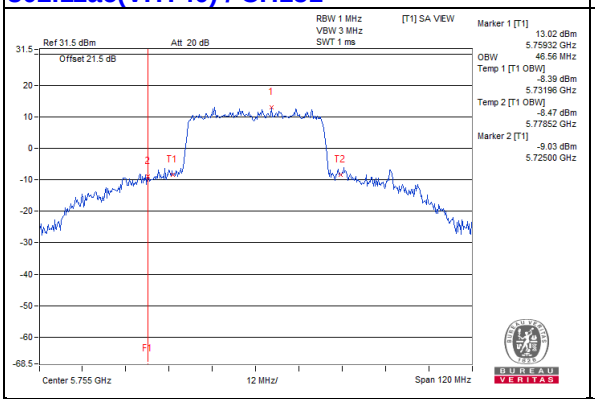
802.11a / CH149



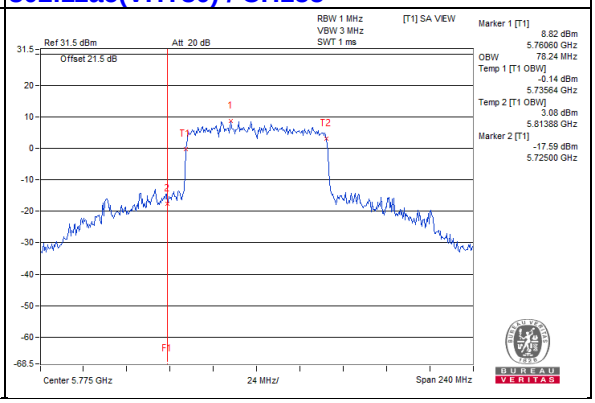
802.11ac(VHT20) / CH149



802.11ac(VHT40) / CH151



802.11ac(VHT80) / CH155

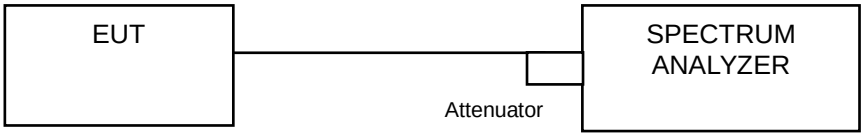


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
	√	Indoor Access Point	
		Client device	11dBm/ MHz
U-NII-2A			11dBm/ MHz
U-NII-2C			11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For 802.11a:
For U-NII-1:
Using method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value

For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300kHz)
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value

For other modulation:

For U-NII-1:

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and add 10 log (1/duty cycle)

For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300kHz)
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6.

4.5.7 Test Results (Mode 1)

For U-NII-1:

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)				Total Power Density (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
36	5180	4.80	4.59	3.79	3.91	10.31	10.98	Pass
40	5200	4.63	4.78	3.71	3.80	10.28	10.98	Pass
48	5240	5.03	4.75	3.92	3.77	10.42	10.98	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the Power Density limit shall be reduced to 17-(12.02-6) = 10.98dBm

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	4.40	4.35	3.79	3.51	0.1	10.15	10.98	Pass
40	5200	4.49	4.39	3.38	3.41	0.1	10.07	10.98	Pass
48	5240	4.56	4.56	3.38	3.31	0.1	10.12	10.98	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the Power Density limit shall be reduced to 17-(12.02-6) = 10.98dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	-0.20	-0.07	-1.23	-1.32	0.22	5.57	10.98	Pass
46	5230	4.34	4.45	4.23	3.64	0.22	10.42	10.98	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the Power Density limit shall be reduced to 17-(12.02-6) = 10.98dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

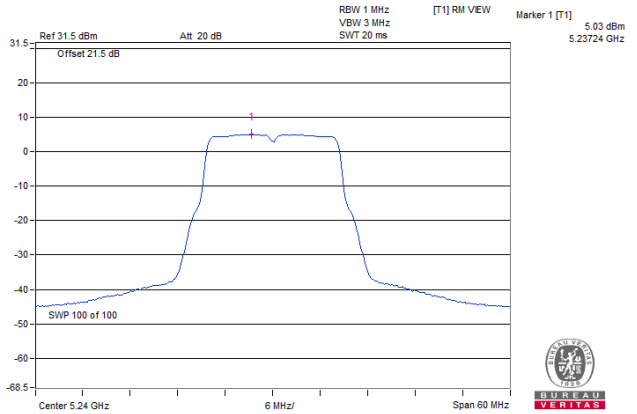
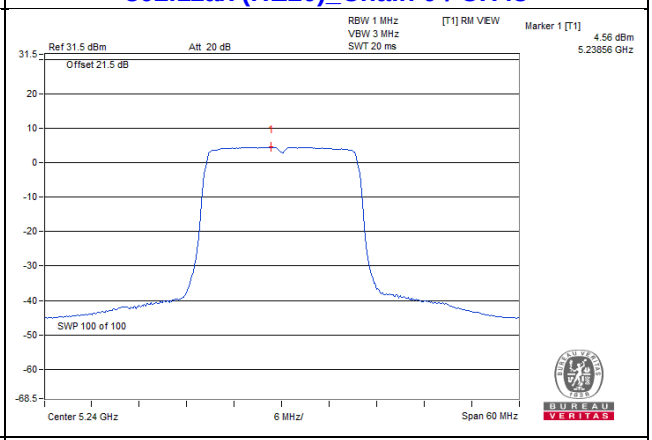
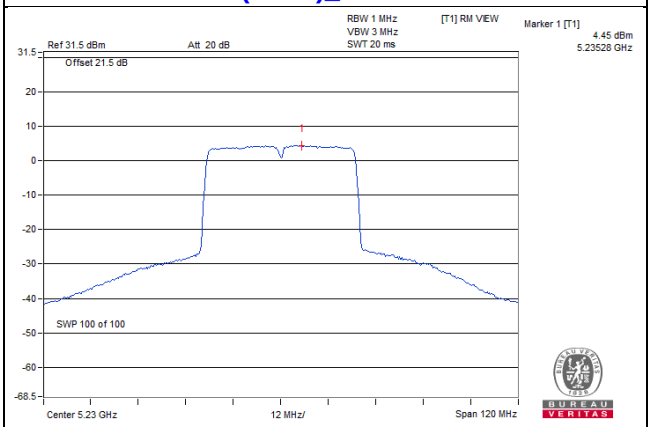
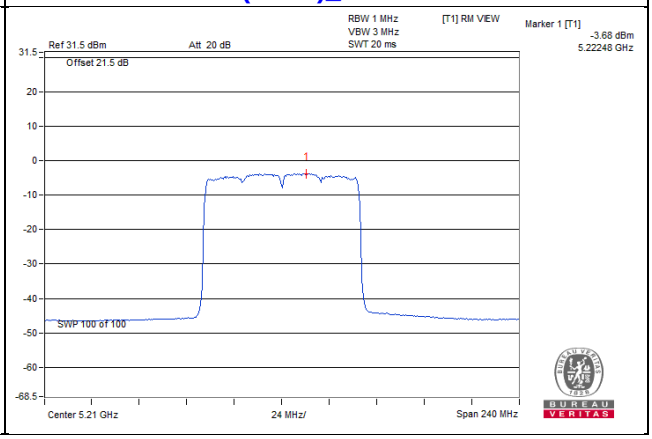
802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	-3.94	-3.78	-4.75	-5.23	0.36	2.00	10.98	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. Directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the Power Density limit shall be reduced to 17-(12.02-6) = 10.98dBm

3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH48	**802.11ax (HE20)_Chain 0 / CH48**
	
802.11ax (HE40)_Chain 1 / CH46	**802.11ax (HE80)_Chain 1 / CH42**
	

For U-NII-3:

802.11a

Chan.	Freq. (MHz)	PSD (dBm/300kHz)				Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz			
149	5745	0.61	-0.92	-0.11	-0.57	3.8119	5.81	8.03	23.98	Pass
157	5785	0.42	-0.89	-0.39	-0.09	3.8098	5.81	8.03	23.98	Pass
165	5825	-0.02	-1.39	-0.83	-0.18	3.5069	5.45	7.67	23.98	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the Power Density limit shall be reduced to 30-(12.02-6) = 23.98dBm

802.11ax (HE20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD With Duty Factor		Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3		mW/300 kHz	dBm/300kHz			
149	5745	0.03	-0.81	-0.03	-0.41	0.1	3.8228	5.82	8.04	23.98	Pass
157	5785	0.01	-0.89	-0.20	-0.32	0.1	3.783	5.78	8.00	23.98	Pass
165	5825	0.01	-1.07	-0.86	-0.18	0.1	3.6427	5.61	7.83	23.98	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the Power Density limit shall be reduced to 30-(12.02-6) = 23.98dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD With Duty Factor		Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3		mW/300 kHz	dBm/300kHz			
151	5755	-2.11	-2.89	-2.77	-3.26	0.22	2.2402	3.50	5.72	23.98	Pass
159	5795	-1.96	-3.10	-2.55	-2.79	0.22	2.3231	3.66	5.88	23.98	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the Power Density limit shall be reduced to 30-(12.02-6) = 23.98dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD With Duty Factor		Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3		mW/300 kHz	dBm/300kHz			
155	5775	-8.79	-9.59	-9.20	-9.38	0.36	0.5183	-2.85	-0.63	23.98	Pass

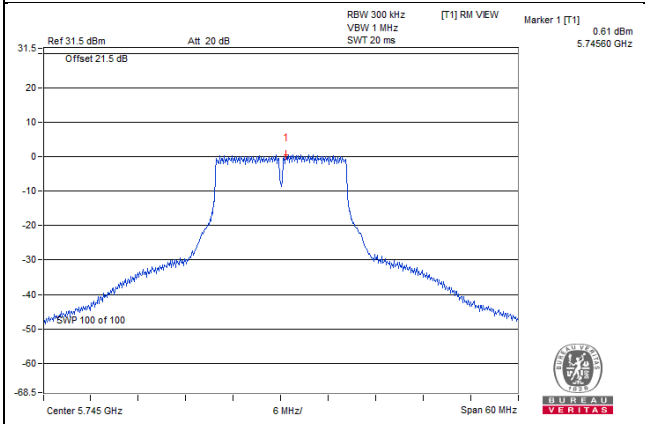
Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. Directional gain = 6dBi + 10log(4) = 12.02dBi > 6dBi, so the Power Density limit shall be reduced to 30-(12.02-6) = 23.98dBm

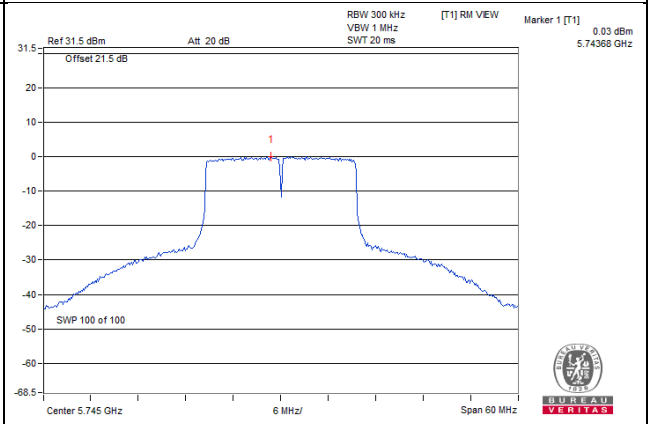
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

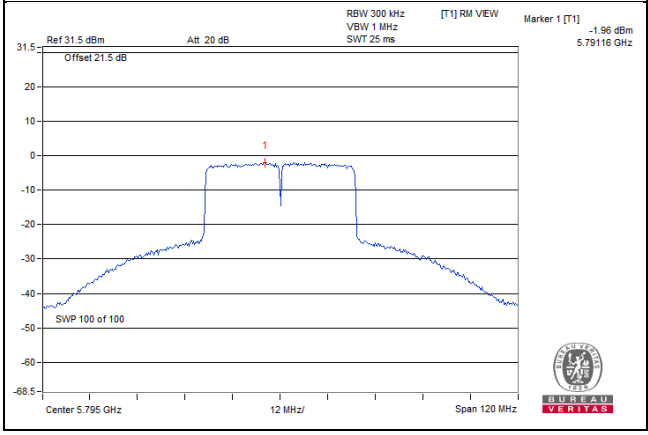
802.11a_Chain 0 / CH149



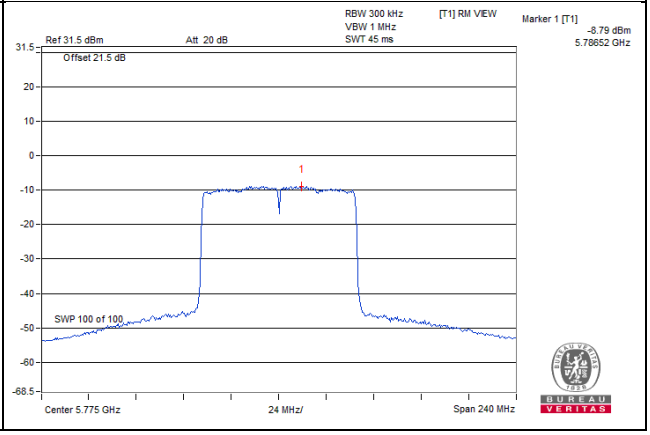
802.11ax (HE20)_Chain 0 / CH149



802.11ax (HE40)_Chain 0 / CH159



802.11ax (HE80)_Chain 0 / CH155



4.5.8 Test Results (Mode 2)

For U-NII-1:

802.11a

Chan.	Freq. (MHz)	PSD (dBm/MHz)			Total Power Density (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 2	Chain 3			
36	5180	6.70	6.03	6.10	11.06	12.23	Pass
40	5200	7.19	6.48	6.77	11.59	12.23	Pass
48	5240	7.21	6.58	6.78	11.64	12.23	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain =6dBi + 10log(3) = 10.77dBi > 6dBi so the Power Density limit shall be reduced to 17-(10.77-6) = 12.23dBm

802.11ax (HE20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)			Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 2	Chain 3				
36	5180	4.93	3.98	3.15	0.1	8.95	12.23	Pass
40	5200	6.84	6.28	6.80	0.1	11.52	12.23	Pass
48	5240	6.61	5.98	6.98	0.1	11.41	12.23	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain =6dBi + 10log(3) = 10.77dBi > 6dBi so the Power Density limit shall be reduced to 17-(10.77-6) = 12.23dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)			Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 2	Chain 3				
38	5190	1.10	0.05	0.42	0.22	5.54	12.23	Pass
46	5230	5.02	4.38	4.72	0.22	9.71	12.23	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain =6dBi + 10log(3) = 10.77dBi > 6dBi so the Power Density limit shall be reduced to 17-(10.77-6) = 12.23dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

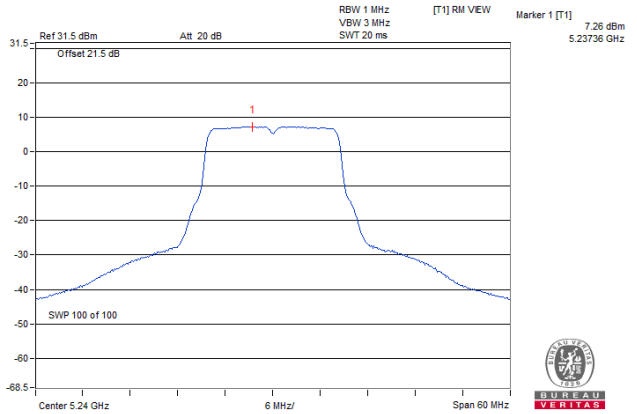
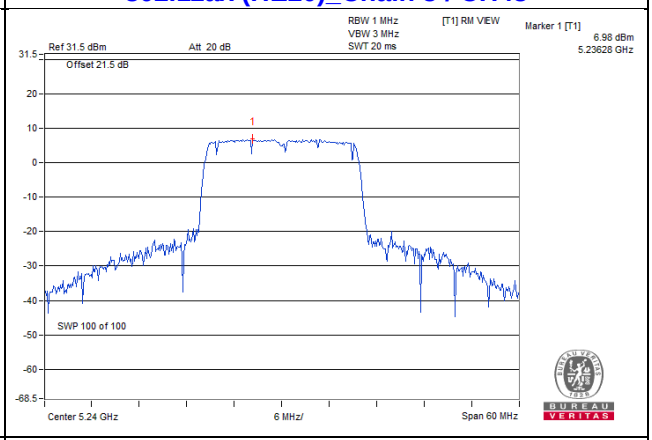
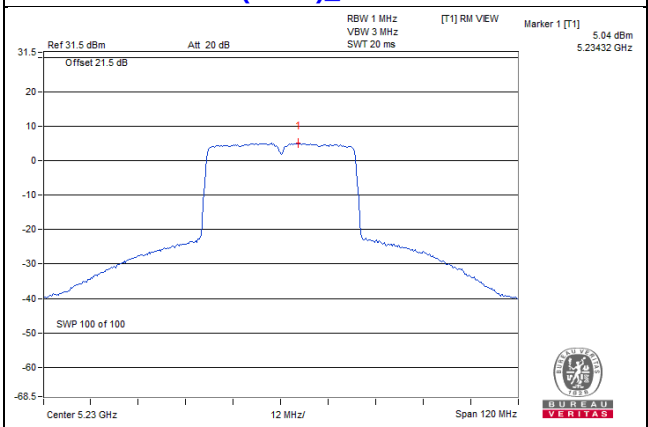
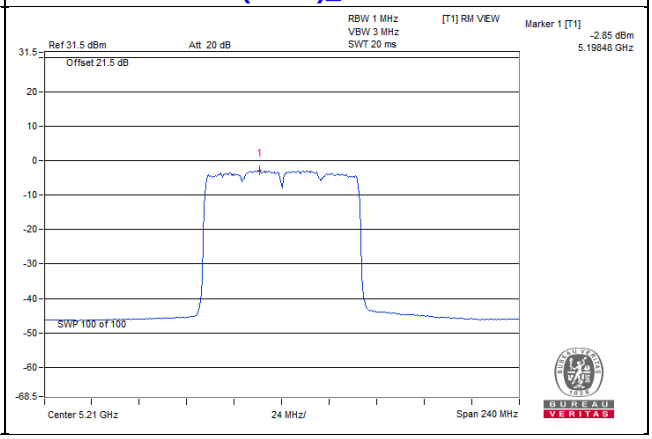
802.11ax (HE80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)			Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 2	Chain 3				
42	5210	-2.85	-4.25	-3.33	0.36	1.69	12.23	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. The directional gain =6dBi + 10log(3) = 10.77dBi > 6dBi so the Power Density limit shall be reduced to 17-(10.77-6) = 12.23dBm

3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH48	**802.11ax (HE20)_Chain 3 / CH48**
	
802.11ax (HE40)_Chain 0 / CH46	**802.11ax (HE80)_Chain 0 / CH42**
	

For U-NII-3:

802.11a

Chan.	Freq. (MHz)	PSD (dBm/300kHz)			Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz			
149	5745	2.15	1.44	0.86	4.2527	6.29	8.51	25.23	Pass
157	5785	2.00	1.52	0.72	4.1843	6.22	8.44	25.23	Pass
165	5825	1.75	1.24	0.24	3.8835	5.89	8.11	25.23	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain =6dBi + 10log(3) = 10.77dBi > 6dBi so the Power Density limit shall be reduced to 30-(10.77-6) = 25.23dBm

802.11ax (HE20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)			Total PSD With Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz				
149	5745	1.26	0.54	-0.63	3.4079	5.32	0.1	7.54	25.23	Pass
157	5785	1.02	0.51	-0.76	3.3004	5.19	0.1	7.41	25.23	Pass
165	5825	0.88	0.14	-1.06	3.1082	4.93	0.1	7.15	25.23	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain =6dBi + 10log(3) = 10.77dBi > 6dBi so the Power Density limit shall be reduced to 30-(10.77-6) = 25.23dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)			Total PSD With Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz				
151	5755	-2.40	-2.93	-3.98	1.5617	1.94	0.22	4.16	25.23	Pass
159	5795	-2.10	-2.51	-3.89	1.6682	2.22	0.22	4.44	25.23	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain =6dBi + 10log(3) = 10.77dBi > 6dBi so the Power Density limit shall be reduced to 30-(10.77-6) = 25.23dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

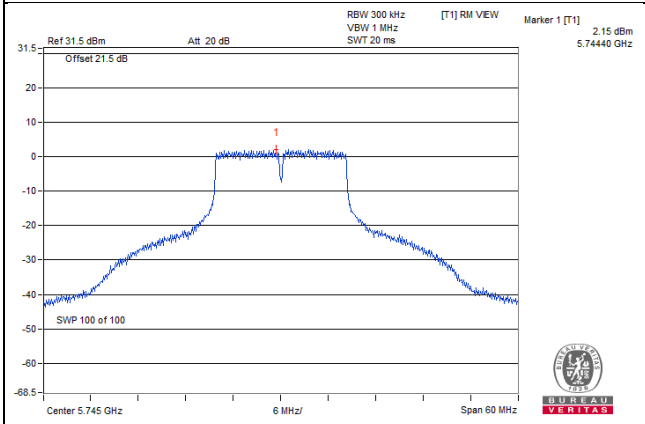
802.11ax (HE80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)			Total PSD With Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz				
155	5775	-8.77	-9.08	-8.91	0.4177	-3.79	0.36	-1.57	25.23	Pass

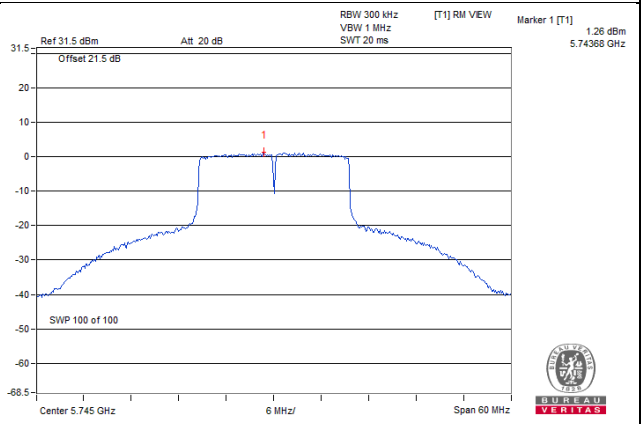
Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain =6dBi + 10log(3) = 10.77dBi > 6dBi so the Power Density limit shall be reduced to 30-(10.77-6) = 25.23dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

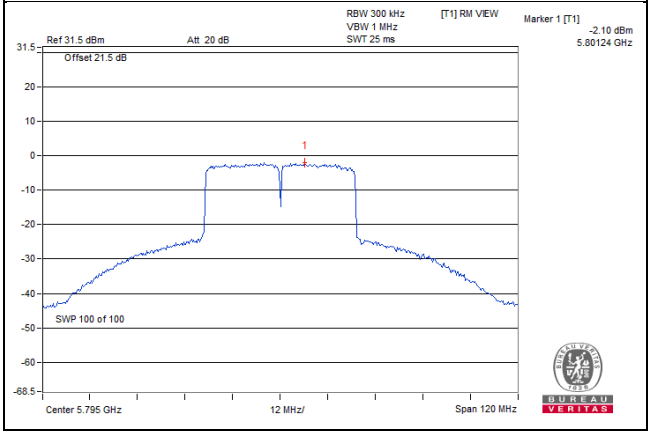
802.11a_Chain 0 / CH149



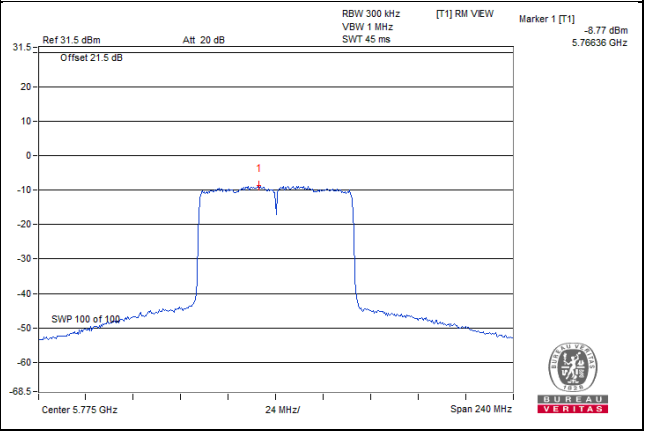
802.11ax (HE20)_Chain 0 / CH149



802.11ax (HE40)_Chain 0 / CH159



802.11ax (HE80)_Chain 0 / CH155



4.5.9 Test Results (Mode 3)

For U-NII-1:

802.11a

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	6.82	6.58	9.71	13.99	Pass
40	5200	9.91	9.45	12.70	13.99	Pass
48	5240	9.29	8.99	12.15	13.99	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain =6dBi + 10log(2) = 9.01dBi > 6dBi so the Power Density limit shall be reduced to 17-(9.01-6) = 13.99dBm

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	5.65	5.24	0.1	8.56	13.99	Pass
40	5200	9.28	8.59	0.1	12.06	13.99	Pass
48	5240	9.04	8.32	0.1	11.81	13.99	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain =6dBi + 10log(2) = 9.01dBi > 6dBi so the Power Density limit shall be reduced to 17-(9.01-6) = 13.99dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	1.51	1.34	0.22	4.66	13.99	Pass
46	5230	5.15	4.89	0.22	8.25	13.99	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain =6dBi + 10log(2) = 9.01dBi > 6dBi so the Power Density limit shall be reduced to 17-(9.01-6) = 13.99dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-1.67	-1.73	0.36	1.67	13.99	Pass

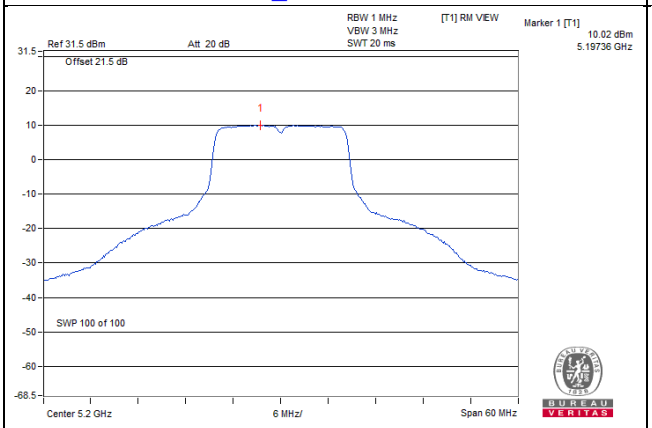
Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. The directional gain =6dBi + 10log(2) = 9.01dBi > 6dBi so the Power Density limit shall be reduced to 17-(9.01-6) = 13.99dBm

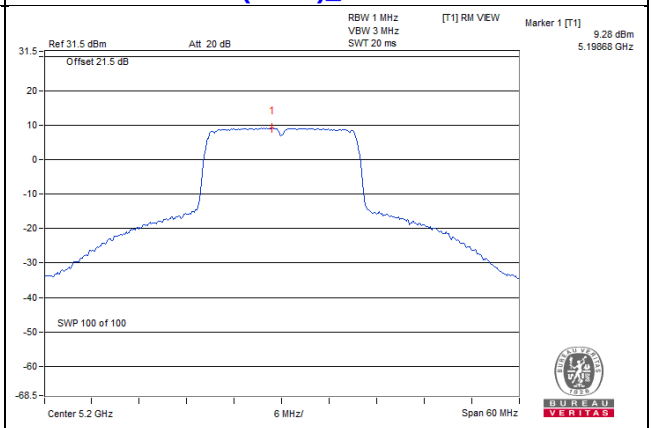
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

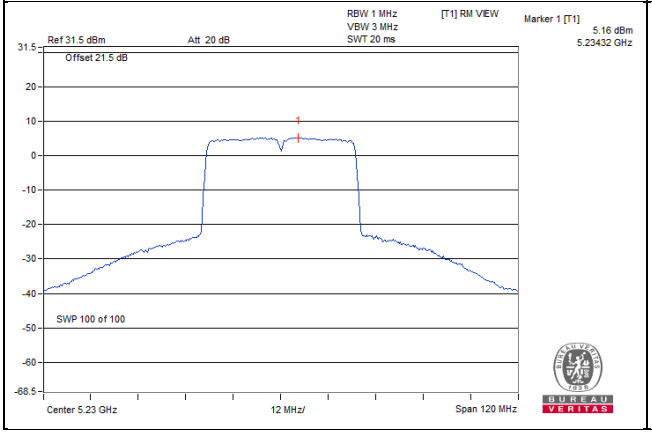
802.11a_Chain 0 / CH40



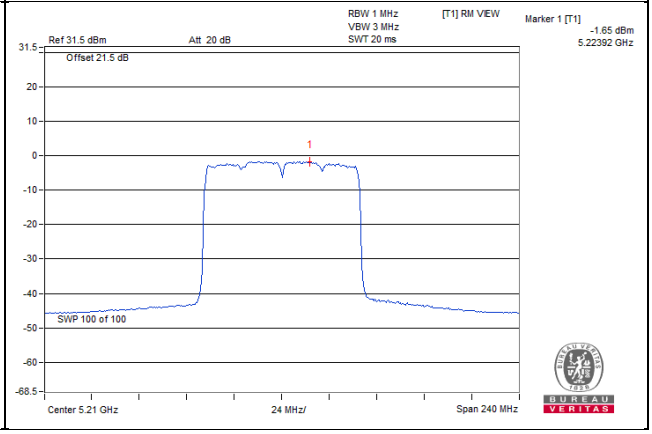
802.11ax (HE20)_Chain 0 / CH40



802.11ax (HE40)_Chain 0 / CH46



802.11ax (HE80)_Chain 0 / CH42



For U-NII-3:

802.11a

Chan.	Freq. (MHz)	PSD (dBm/300kHz)		Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1	mW/300kHz	dBm/300kHz			
149	5745	1.66	1.93	3.0251	4.81	7.03	26.99	Pass
157	5785	1.51	1.75	2.912	4.64	6.86	26.99	Pass
165	5825	1.99	1.29	2.9271	4.66	6.88	26.99	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain =6dBi + 10log(2) = 9.01dBi > 6dBi so the Power Density limit shall be reduced to 30-(9.01-6) = 26.99dBm

802.11ax (HE20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)		Total PSD With Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		Chain 0	Chain 1	mW/300kHz	dBm/300kHz				
149	5745	1.09	0.69	2.512	4.00	0.1	6.22	26.99	Pass
157	5785	0.51	0.29	2.2423	3.51	0.1	5.73	26.99	Pass
165	5825	0.64	0.33	2.2874	3.59	0.1	5.81	26.99	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain =6dBi + 10log(2) = 9.01dBi > 6dBi so the Power Density limit shall be reduced to 30-(9.01-6) = 26.99dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)		Total PSD With Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		Chain 0	Chain 1	mW/300kHz	dBm/300kHz				
151	5755	-2.58	-2.35	1.193	0.77	0.22	2.99	26.99	Pass
159	5795	-2.74	-2.41	1.1636	0.66	0.22	2.88	26.99	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain =6dBi + 10log(2) = 9.01dBi > 6dBi so the Power Density limit shall be reduced to 30-(9.01-6) = 26.99dBm
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)		Total PSD With Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		Chain 0	Chain 1	mW/300kHz	dBm/300kHz				
155	5775	-8.13	-8.17	0.3323	-4.78	0.36	-2.56	26.99	Pass

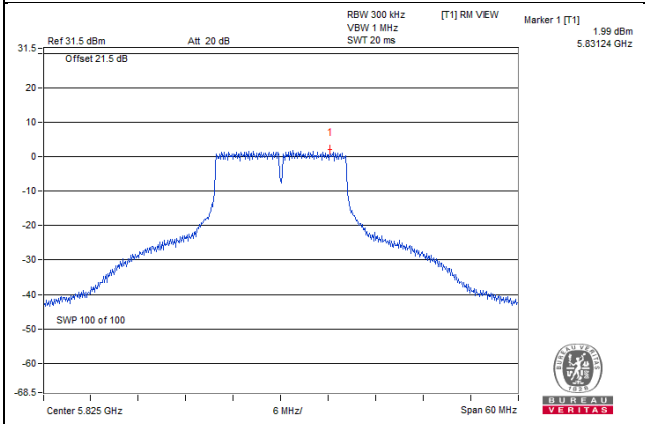
Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. The directional gain =6dBi + 10log(2) = 9.01dBi > 6dBi so the Power Density limit shall be reduced to 30-(9.01-6) = 26.99dBm

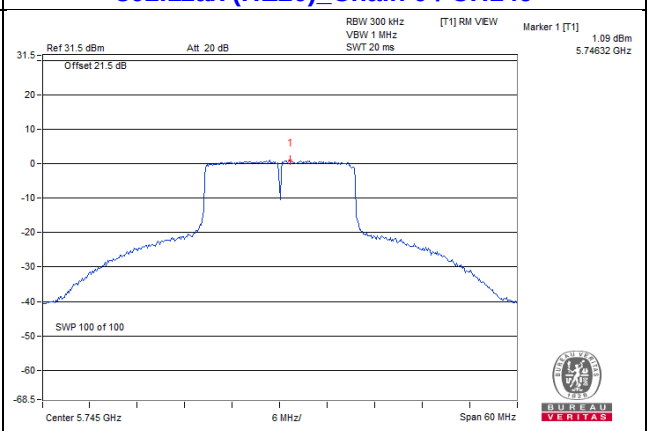
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

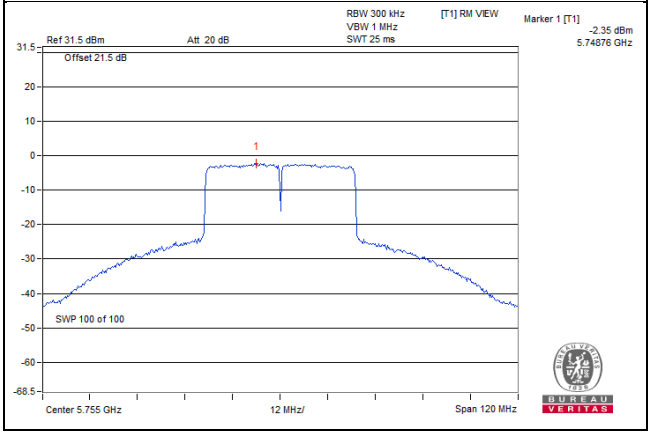
802.11a_Chain 0 / CH165



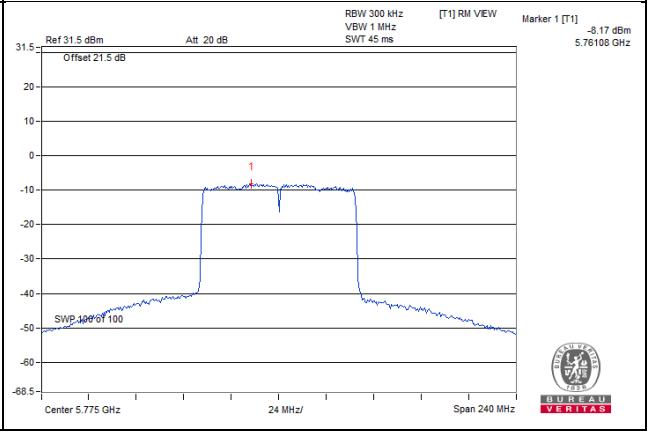
802.11ax (HE20)_Chain 0 / CH149



802.11ax (HE40)_Chain 1 / CH151



802.11ax (HE80)_Chain 0 / CH155



4.5.10 Test Results (Mode 4)

For U-NII-1:

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
36	5180	8.05	17.00	Pass
40	5200	9.81	17.00	Pass
48	5240	9.76	17.00	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
36	5180	6.48	0.1	6.58	17.00	Pass
40	5200	9.49	0.1	9.59	17.00	Pass
48	5240	8.41	0.1	8.51	17.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

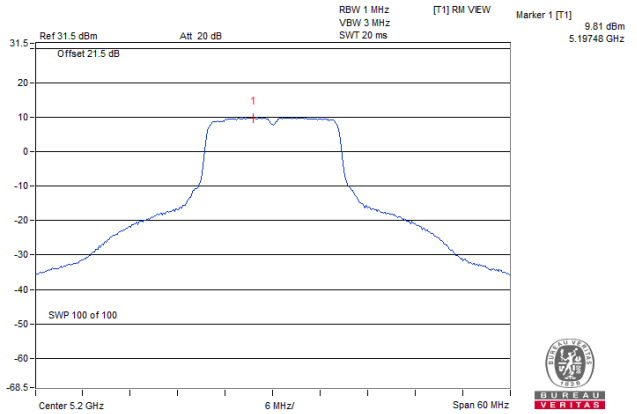
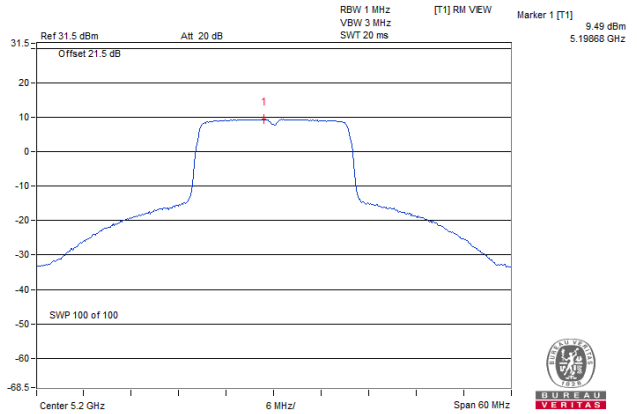
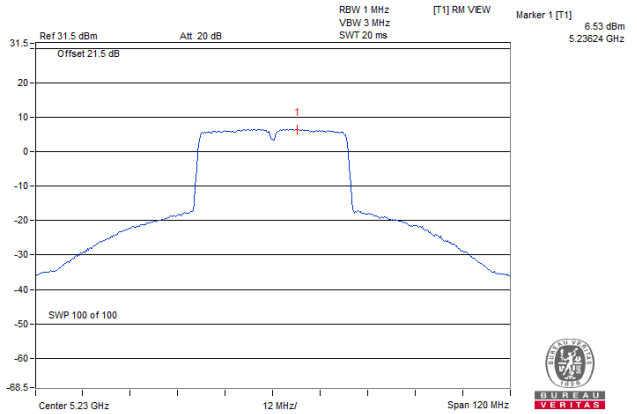
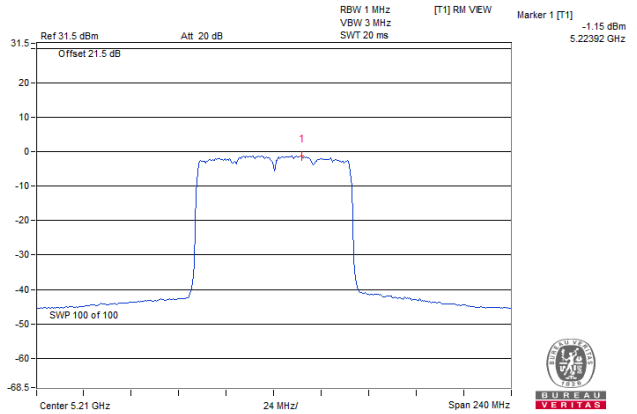
Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
38	5190	2.43	0.22	2.65	17.00	Pass
46	5230	6.53	0.22	6.75	17.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
42	5210	-1.15	0.36	-0.79	17.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / CH40	**802.11ax (HE20) / CH40**
	
802.11ax (HE40) / CH46	**802.11ax (HE80) / CH42**
	

For U-NII-3:

802.11a

Chan.	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
149	5745	0.98	3.20	30.00	Pass
157	5785	1.07	3.29	30.00	Pass
165	5825	2.14	4.36	30.00	Pass

802.11ax (HE20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
149	5745	0.12	0.1	0.22	2.44	30.00	Pass
157	5785	1.33	0.1	1.43	3.65	30.00	Pass
165	5825	0.08	0.1	0.18	2.40	30.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
151	5755	-3.13	0.22	-2.91	-0.69	30.00	Pass
159	5795	-2.93	0.22	-2.71	-0.49	30.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

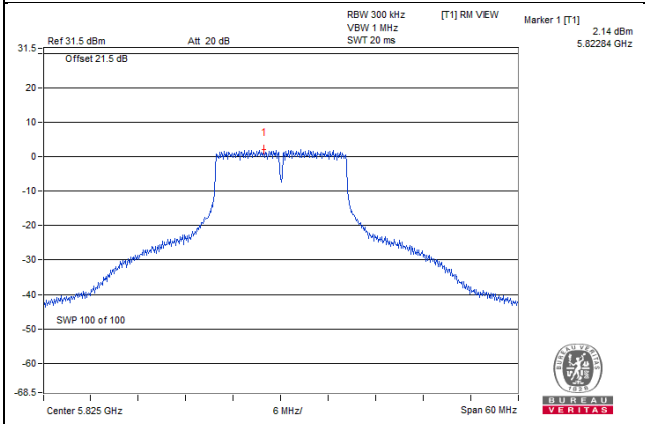
802.11ax (HE80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
155	5775	-8.34	0.36	-7.99	-5.77	30.00	Pass

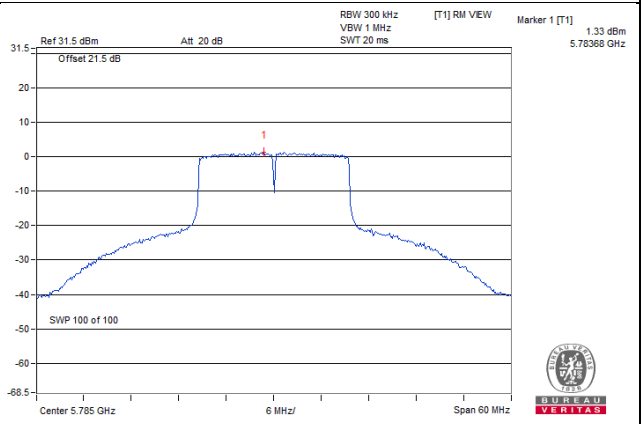
Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

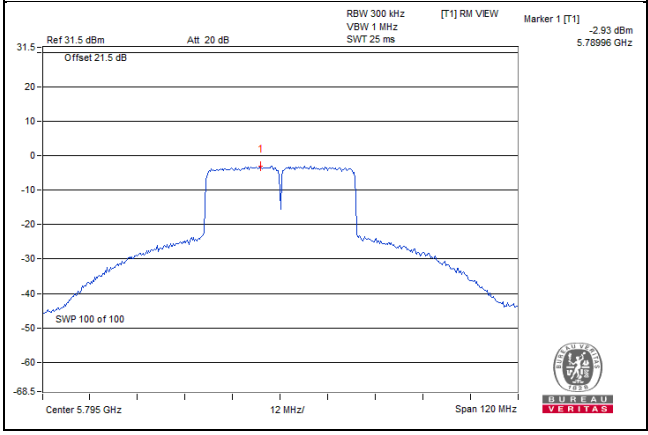
802.11a: CH165



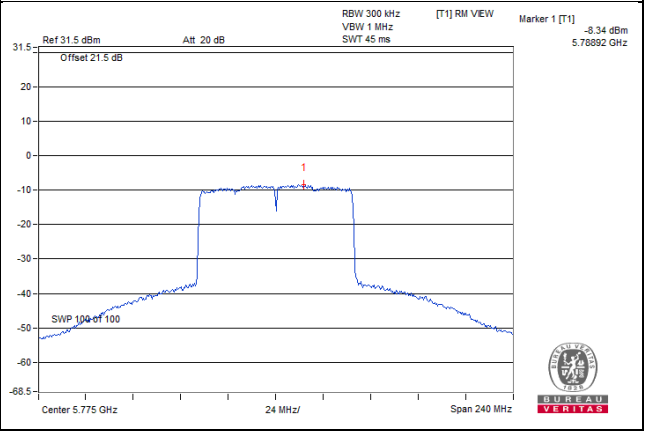
802.11ac (VHT20): CH157



802.11ac (VHT40): CH159



802.11ac (VHT80): CH155



4.5.11 Test Results (Mode 5)

For U-NII-1:

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
36	5180	3.45	17.00	Pass
40	5200	5.44	17.00	Pass
48	5240	3.40	17.00	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
36	5180	2.91	0.1	3.01	17.00	Pass
40	5200	5.05	0.1	5.15	17.00	Pass
48	5240	2.79	0.1	2.89	17.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

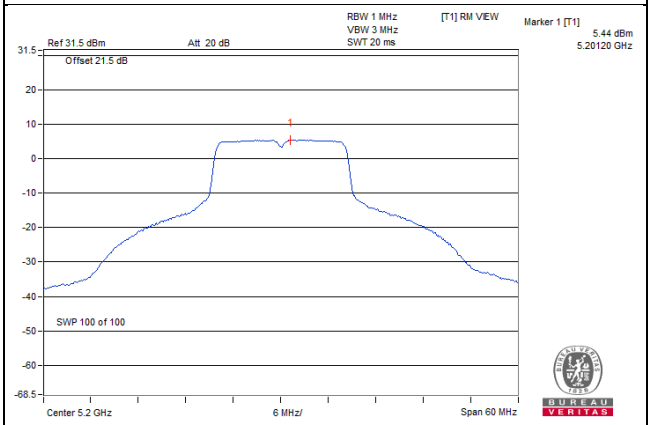
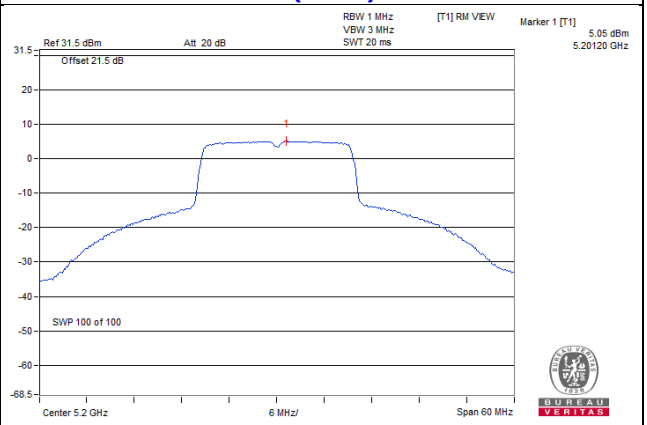
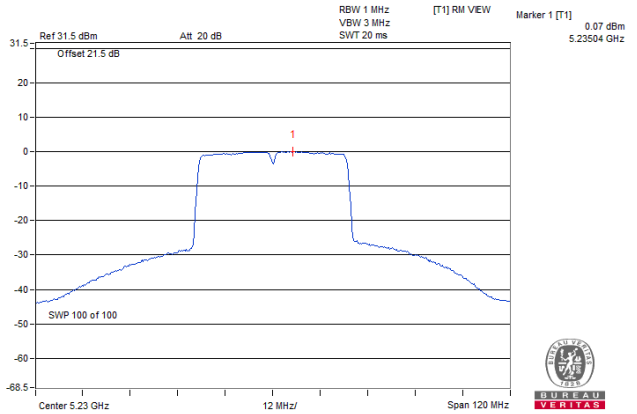
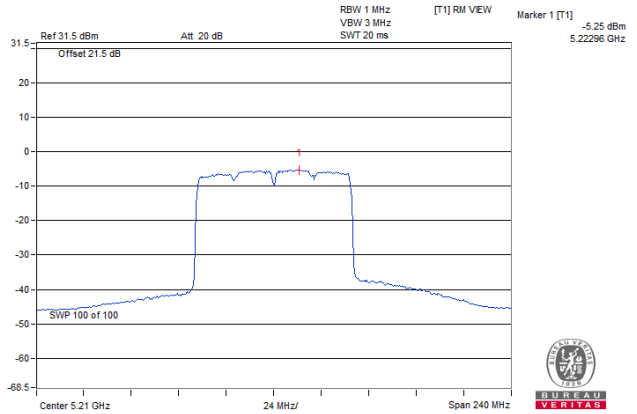
Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
38	5190	-2.05	0.12	-1.93	17.00	Pass
46	5230	0.07	0.12	0.19	17.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
42	5210	-5.25	0.37	-4.88	17.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / CH40	**802.11ax (HE20) / CH40**
	
802.11ax (HE40) / CH46	**802.11ax (HE80) / CH42**
	

For U-NII-3:

802.11a

Chan.	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
149	5745	-3.44	-1.22	30.00	Pass
157	5785	-3.19	-0.97	30.00	Pass
165	5825	-3.60	-1.38	30.00	Pass

802.11ax (HE20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
149	5745	-4.40	0.1	-4.30	-2.08	30.00	Pass
157	5785	-4.41	0.1	-4.31	-2.09	30.00	Pass
165	5825	-4.49	0.1	-4.39	-2.17	30.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
151	5755	-8.17	0.12	-8.05	-5.83	30.00	Pass
159	5795	-6.60	0.12	-6.48	-4.26	30.00	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

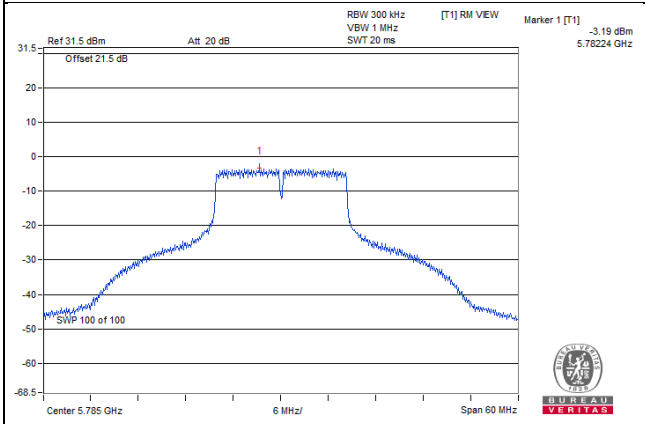
802.11ax (HE80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
155	5775	-12.01	0.37	-11.64	-9.42	30.00	Pass

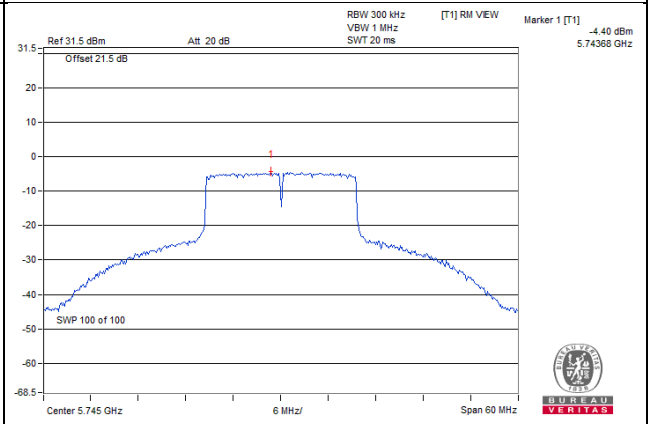
Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

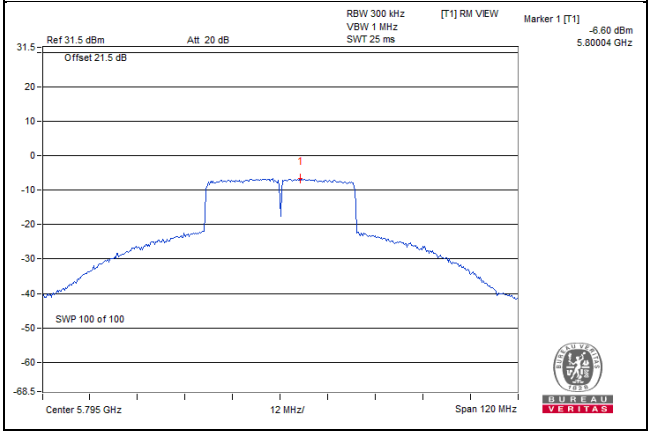
802.11a: CH157



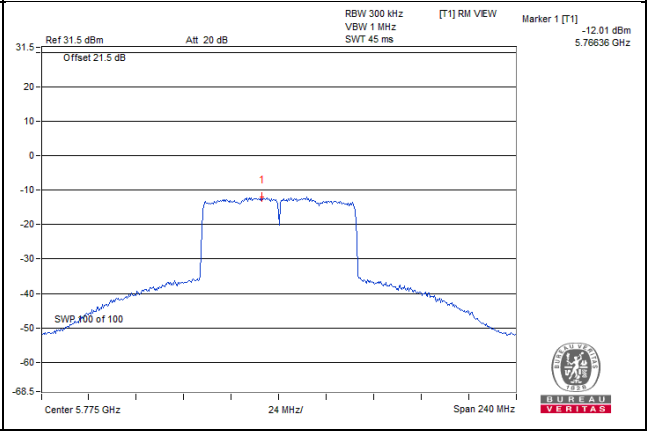
802.11ac (VHT20): CH149



802.11ac (VHT40): CH159



802.11ac (VHT80): CH155

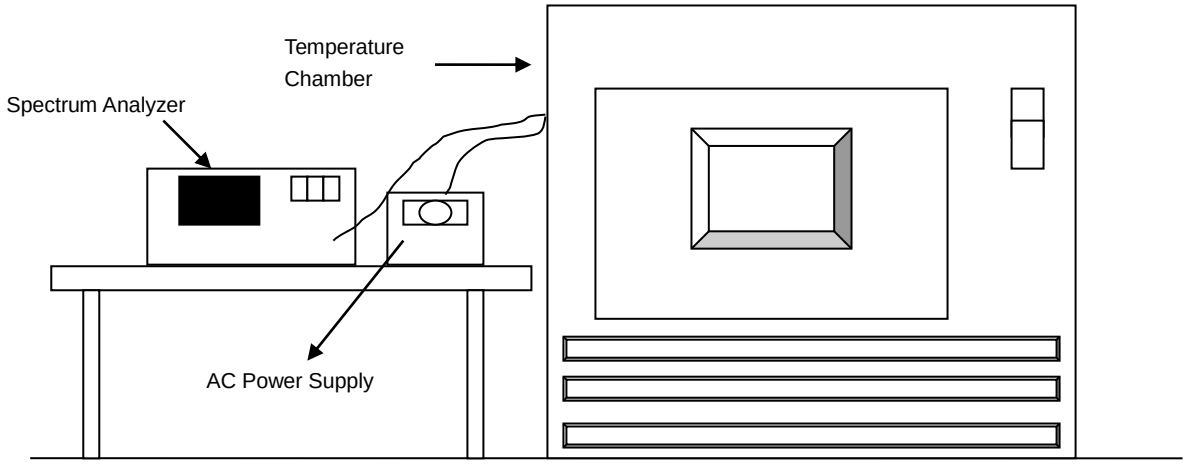


4.6 Frequency Stability Measurement

4.6.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
e. Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 Test Results (Mode 4)

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
40	120	5180.0059	PASS	5180.0026	PASS	5180.0049	PASS	5180.0037	PASS
30	120	5180.0138	PASS	5180.0108	PASS	5180.0107	PASS	5180.0125	PASS
20	120	5180.0165	PASS	5180.0162	PASS	5180.0144	PASS	5180.0136	PASS
10	120	5180.0053	PASS	5180.0035	PASS	5180.003	PASS	5180.0035	PASS
0	120	5179.9953	PASS	5179.997	PASS	5179.9975	PASS	5179.9982	PASS

Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5180.0063	PASS	5180.0032	PASS	5180.004	PASS	5180.004	PASS
	120	5180.0053	PASS	5180.0035	PASS	5180.003	PASS	5180.0035	PASS
	102	5180.0053	PASS	5180.003	PASS	5180.0037	PASS	5180.0027	PASS

4.6.8 Test Results (Mode 5)

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
40	120	5179.976	PASS	5179.9773	PASS	5179.976	PASS	5179.9762	PASS
30	120	5180.0019	PASS	5180.002	PASS	5180.0038	PASS	5180.002	PASS
20	120	5180	PASS	5179.9969	PASS	5180.0004	PASS	5179.9978	PASS
10	120	5180.0206	PASS	5180.0215	PASS	5180.0217	PASS	5180.0197	PASS
0	120	5180.0181	PASS	5180.0197	PASS	5180.0203	PASS	5180.0218	PASS

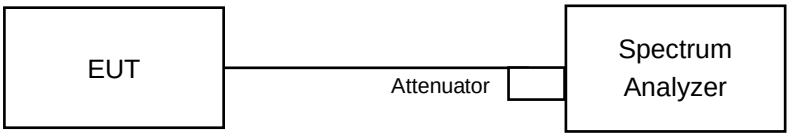
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5179.999	PASS	5179.9961	PASS	5180.0012	PASS	5179.9969	PASS
	120	5180	PASS	5179.9969	PASS	5180.0004	PASS	5179.9978	PASS
	102	5179.9999	PASS	5179.9966	PASS	5179.9995	PASS	5179.9975	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.7.7 Test Results (Mode 1)

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	16.38	16.39	16.39	16.43	0.5	Pass
157	5785	16.42	16.43	16.43	16.43	0.5	Pass
165	5825	16.42	16.44	16.44	16.42	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	18.99	19.04	18.81	18.93	0.5	Pass
157	5785	19.03	19.05	18.95	18.89	0.5	Pass
165	5825	19.03	19.05	18.96	18.85	0.5	Pass

802.11ax (HE40)

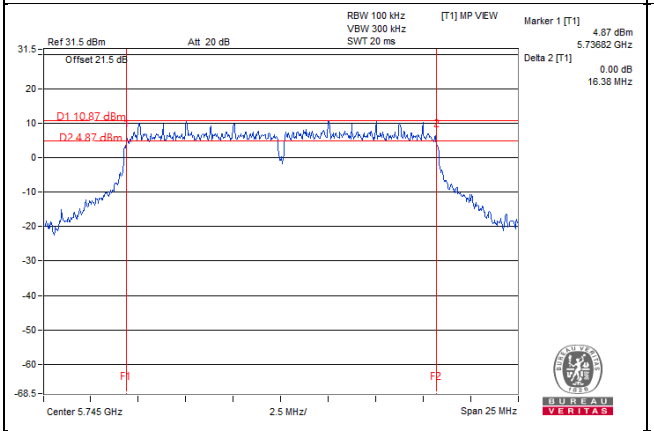
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
151	5755	37.43	37.08	37.44	37.24	0.5	Pass
159	5795	37.47	37.13	37.43	36.95	0.5	Pass

802.11ax (HE80)

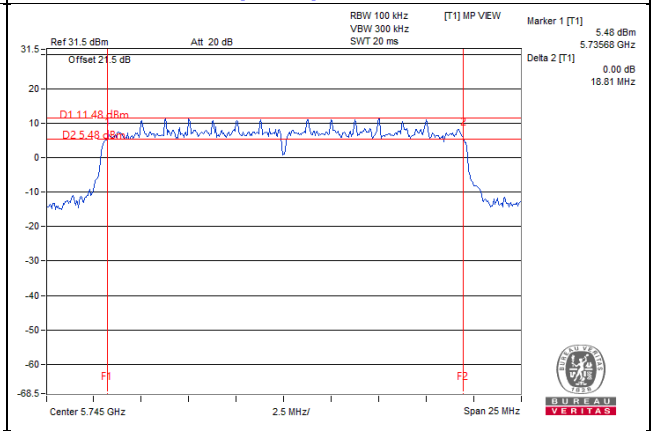
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
155	5775	76.95	76.88	77.27	76.17	0.5	Pass

Spectrum Plot of Worst Value

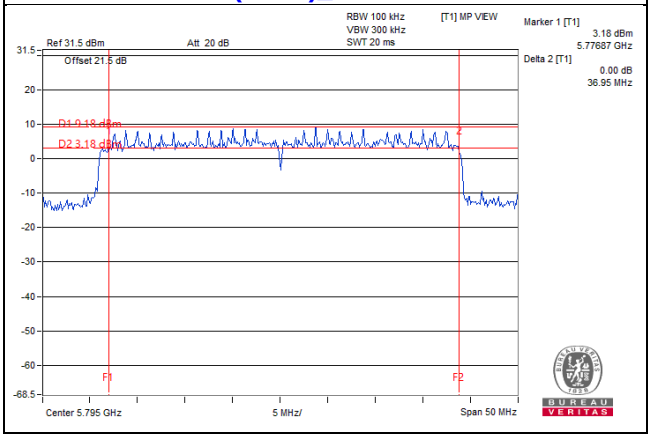
802.11a_Chain 0 / CH149



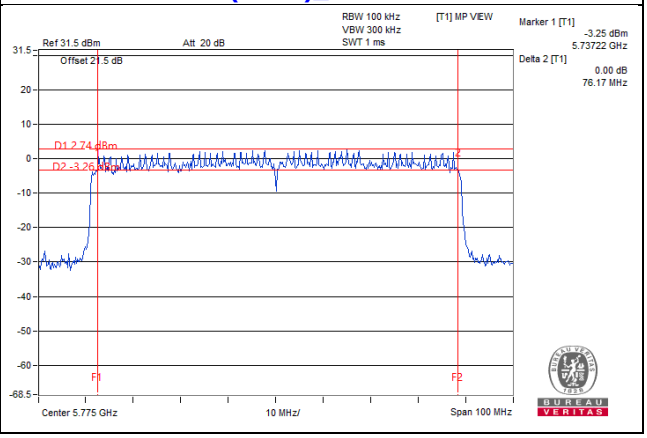
802.11ax (HE20)_Chain 2 / CH149



802.11ax (HE40)_Chain 3 / CH159



802.11ax (HE80)_Chain 3 / CH155



4.7.8 Test Results (Mode 2)

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 2	Chain 3		
149	5745	16.41	16.38	16.37	0.5	PASS
157	5785	16.41	16.41	16.37	0.5	PASS
165	5825	16.41	16.41	16.38	0.5	PASS

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 2	Chain 3		
149	5745	18.96	18.97	18.82	0.5	PASS
157	5785	18.97	18.99	18.81	0.5	PASS
165	5825	18.98	18.98	18.81	0.5	PASS

802.11ax (HE40)

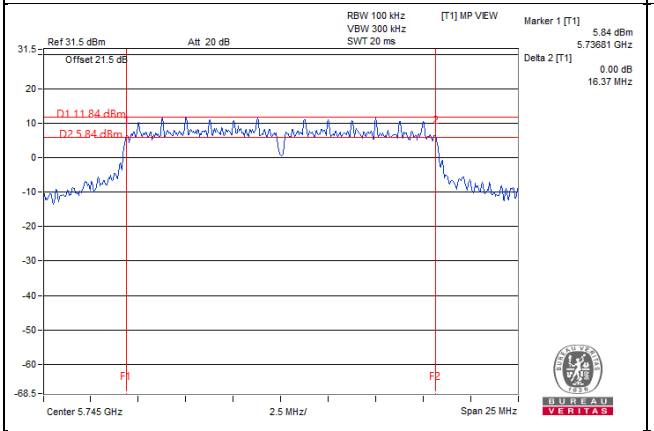
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 2	Chain 3		
151	5755	37.44	37.13	37.43	0.5	PASS
159	5795	37.43	37.11	37.42	0.5	PASS

802.11ax (HE80)

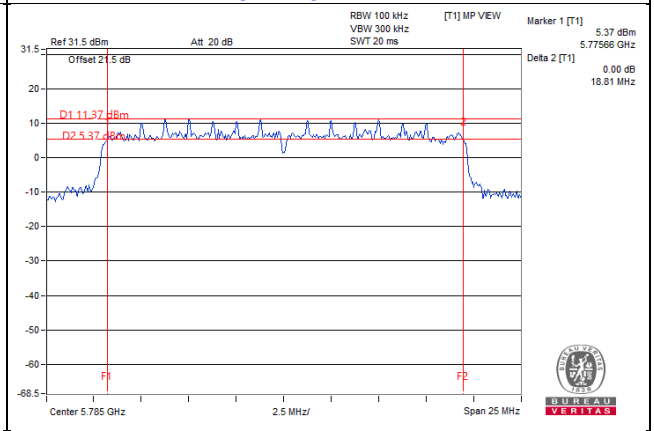
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 2	Chain 3		
155	5775	77.44	77.46	75.92	0.5	PASS

Spectrum Plot of Worst Value

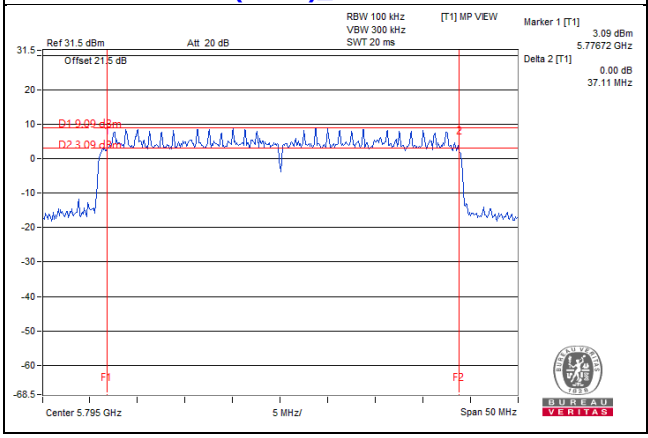
802.11a_Chain 3 / CH149



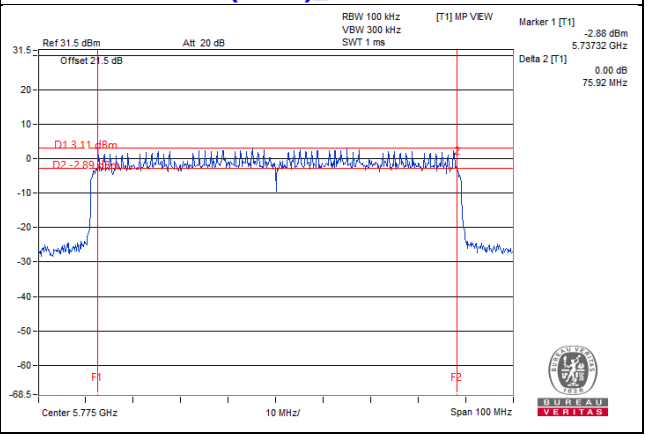
802.11ax (HE20)_Chain 3 / CH157



802.11ax (HE40)_Chain 2 / CH159



802.11ax (HE80)_Chain 3 / CH155



4.7.9 Test Results (Mode 3)

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.39	16.41	0.5	PASS
157	5785	16.41	16.40	0.5	PASS
165	5825	16.42	16.42	0.5	PASS

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	18.93	18.92	0.5	PASS
157	5785	18.94	19.03	0.5	PASS
165	5825	19.02	18.98	0.5	PASS

802.11ax (HE40)

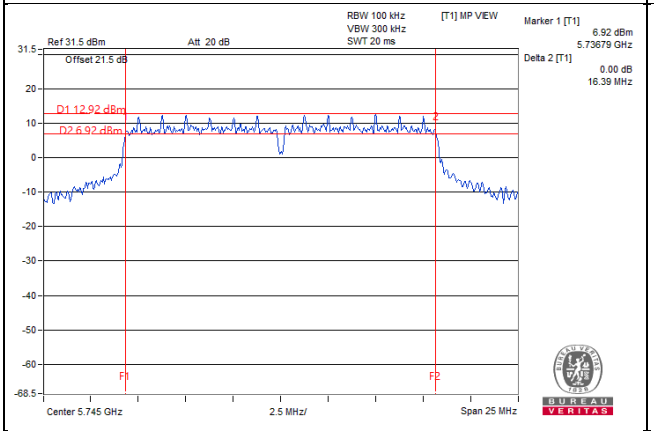
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	37.44	37.47	0.5	PASS
159	5795	37.63	37.64	0.5	PASS

802.11ax (HE80)

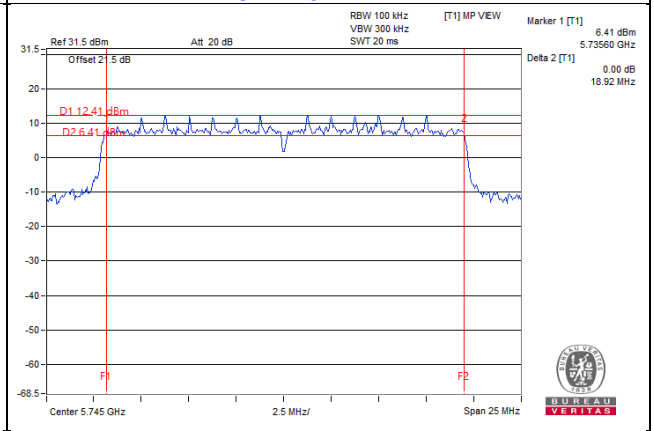
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	76.90	76.78	0.5	PASS

Spectrum Plot of Worst Value

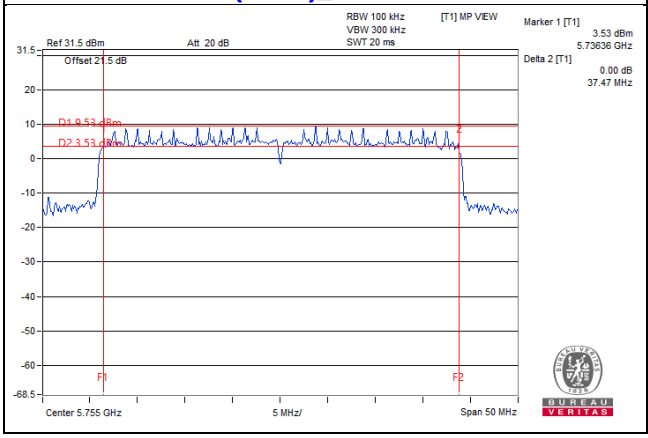
802.11a_Chain 0 / CH149



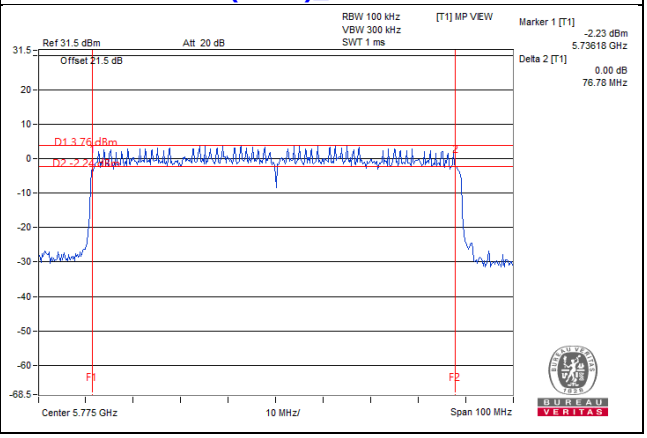
802.11ax (HE20)_Chain 1 / CH149



802.11ax (HE40)_Chain 0 / CH151



802.11ax (HE80)_Chain 1 / CH155



4.7.10 Test Results (Mode 4)

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.39	0.5	PASS
157	5785	16.39	0.5	PASS
165	5825	16.37	0.5	PASS

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	18.89	0.5	PASS
157	5785	18.92	0.5	PASS
165	5825	18.95	0.5	PASS

802.11ax (HE40)

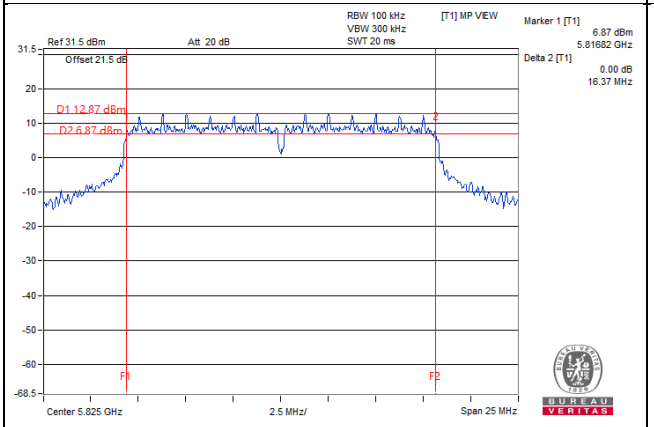
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	37.44	0.5	PASS
159	5795	37.42	0.5	PASS

802.11ax (HE80)

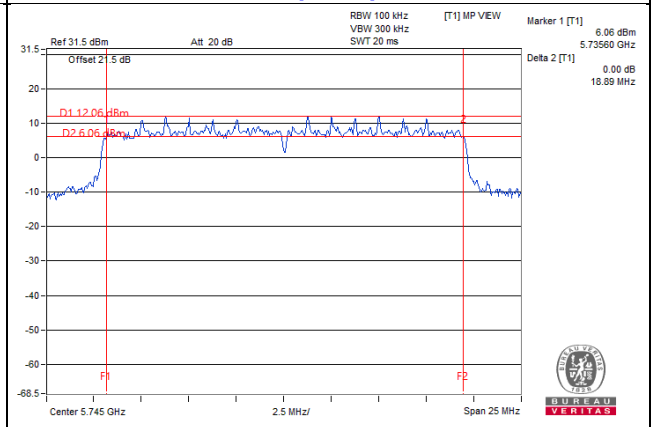
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	77.08	0.5	PASS

Spectrum Plot of Worst Value

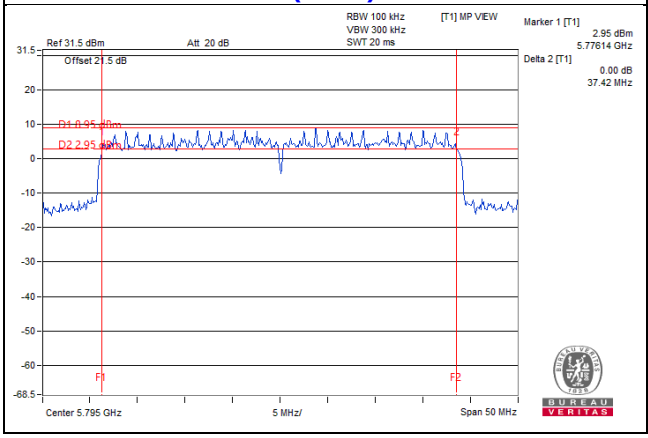
802.11a: CH165



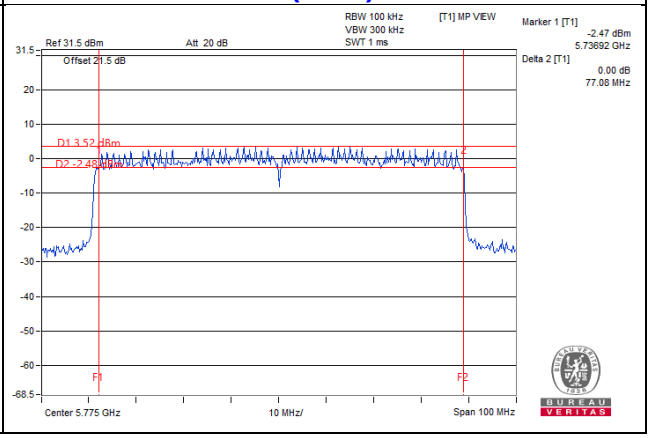
802.11ax (HE20): CH149



802.11ax (HE40): CH159



802.11ax (HE80): CH155



4.7.11 Test Results (Mode 5)

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.37	0.5	PASS
157	5785	16.40	0.5	PASS
165	5825	16.39	0.5	PASS

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	18.94	0.5	PASS
157	5785	18.93	0.5	PASS
165	5825	19.01	0.5	PASS

802.11ax (HE40)

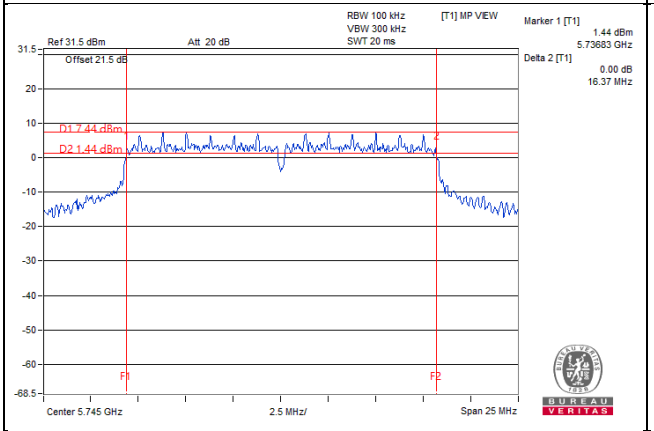
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	37.87	0.5	PASS
159	5795	37.87	0.5	PASS

802.11ax (HE80)

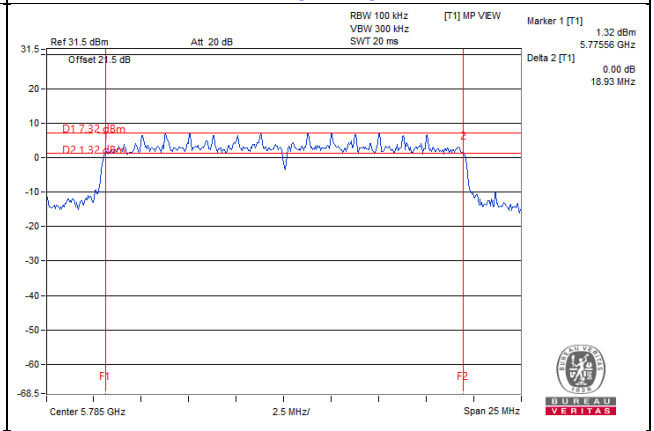
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	76.58	0.5	PASS

Spectrum Plot of Worst Value

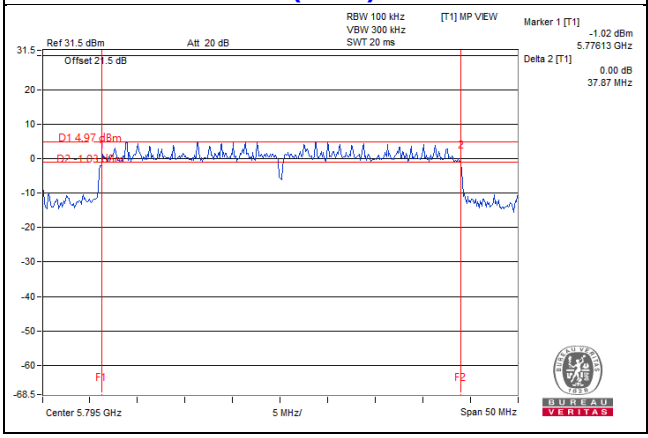
802.11a: CH149



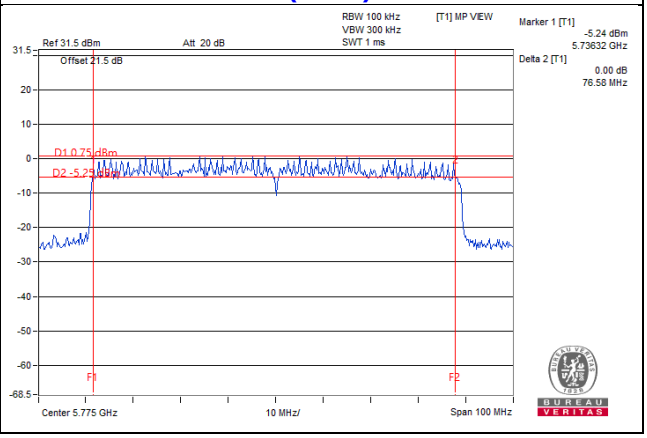
802.11ax (HE20): CH157



802.11ax (HE40): CH159



802.11ax (HE80): CH155



5 Pictures of Test Arrangements

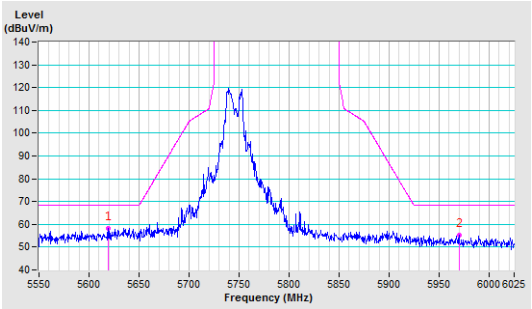
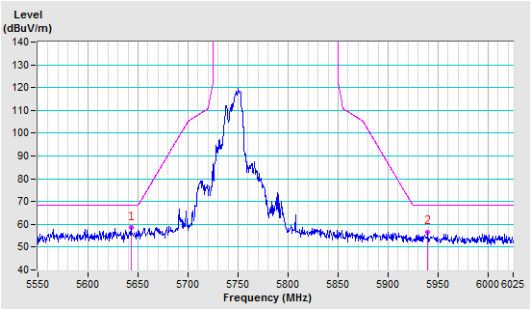
Please refer to the attached file (Test Setup Photo).

Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

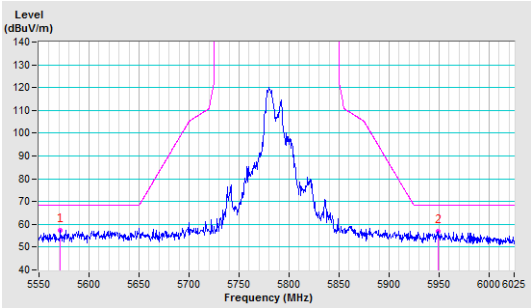
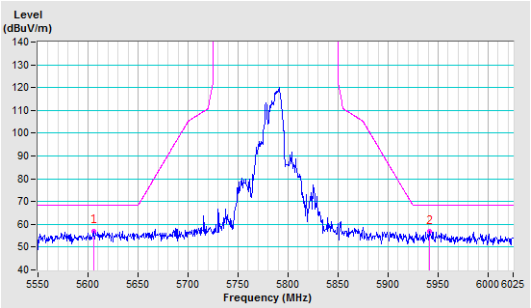
Mode 1

802.11a

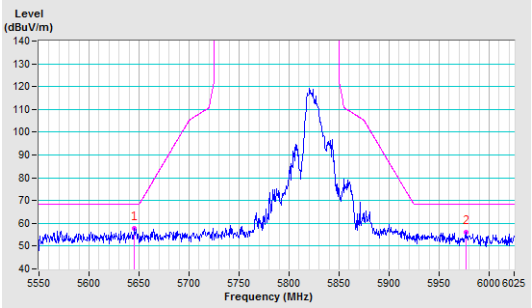
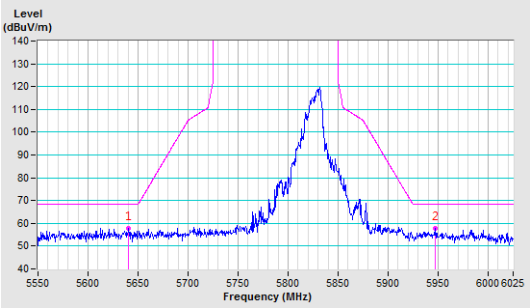
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

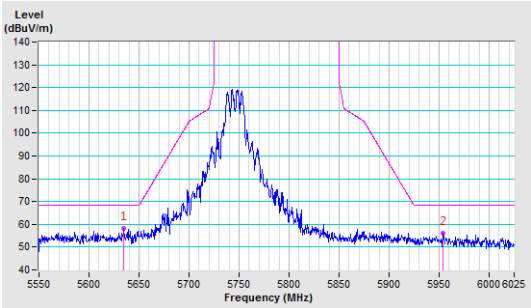
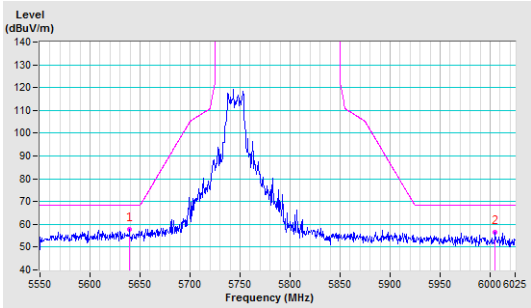
Horizontal	Vertical
	

CH 165 5825 MHz

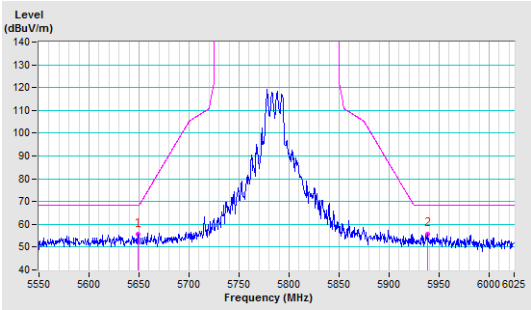
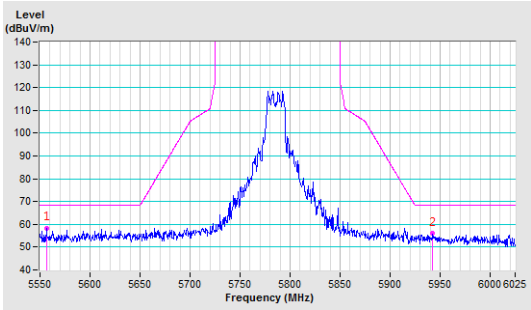
Horizontal	Vertical
	

802.11ax (HE20)

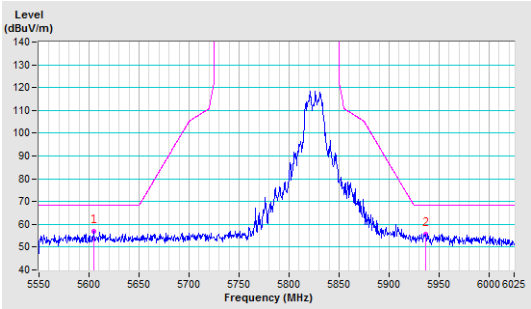
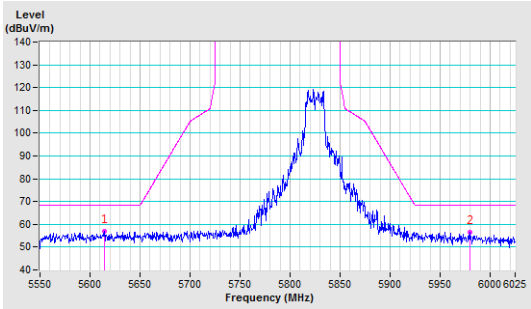
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

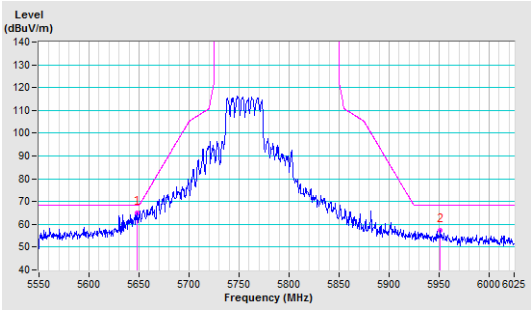
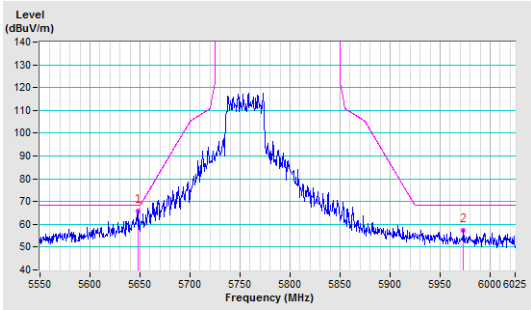
Horizontal	Vertical
	

CH 165 5825 MHz

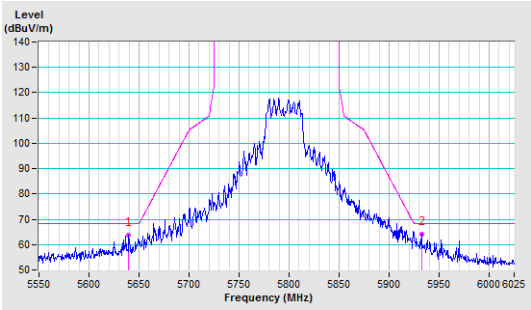
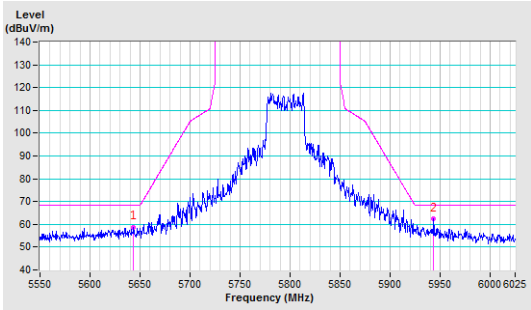
Horizontal	Vertical
	

802.11ax (HE40)

CH 151 5755 MHz

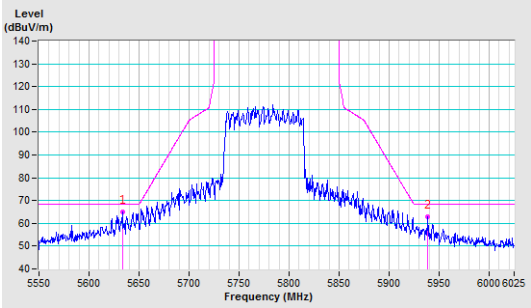
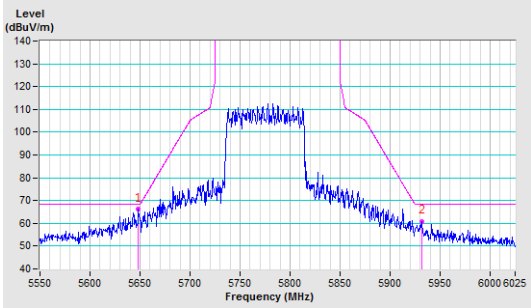
Horizontal	Vertical
	

CH 159 5795 MHz

Horizontal	Vertical
	

802.11ax (HE80)

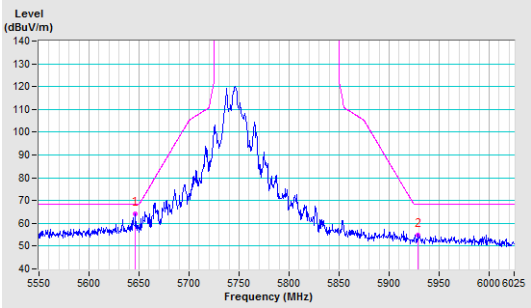
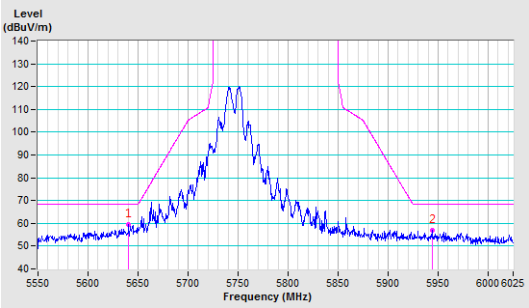
CH 155 5775 MHz

Horizontal	Vertical
	

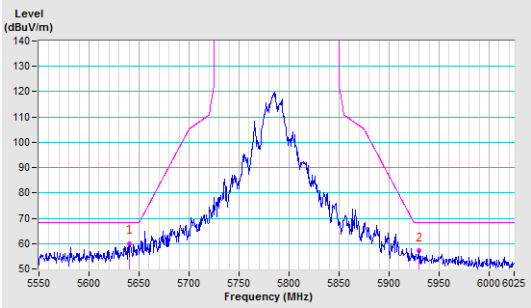
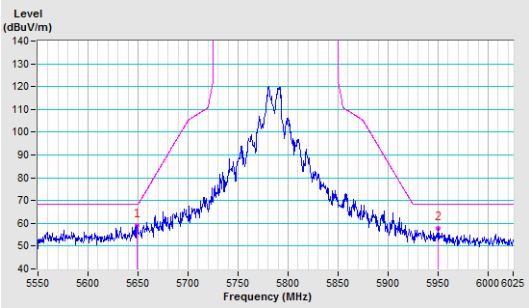
Mode 2

802.11a

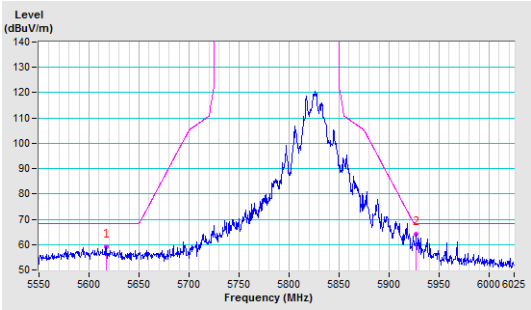
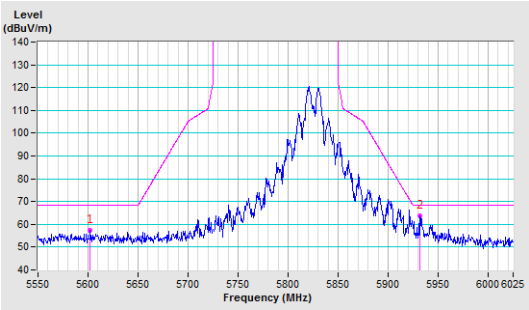
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

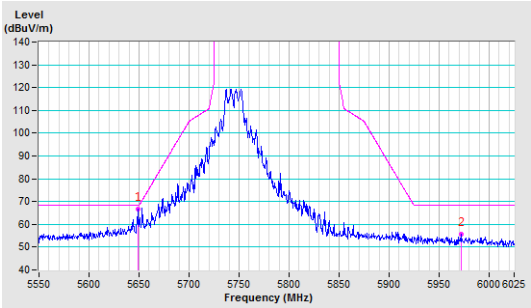
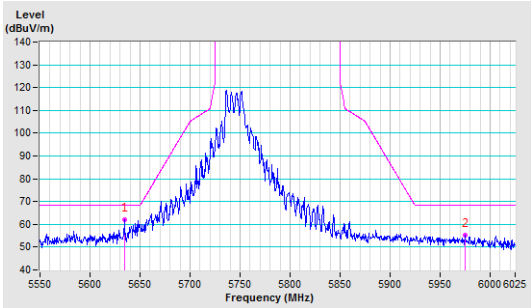
Horizontal	Vertical
	

CH 165 5825 MHz

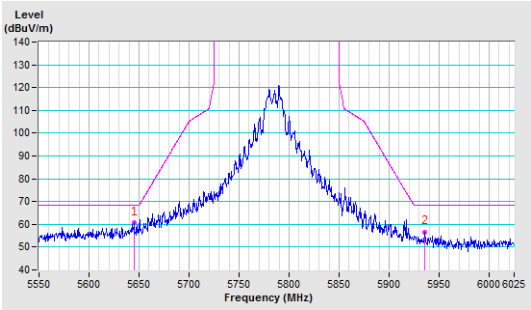
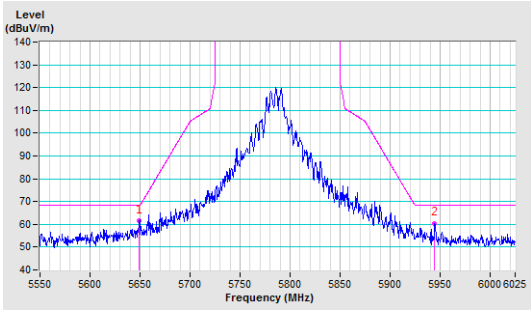
Horizontal	Vertical
	

802.11ax (HE20)

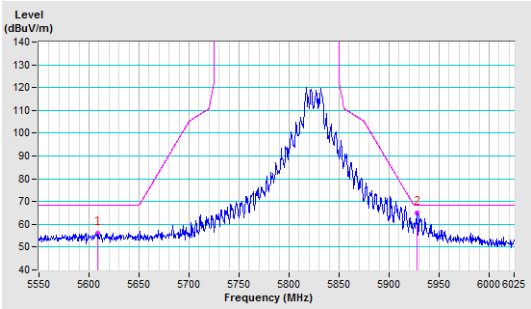
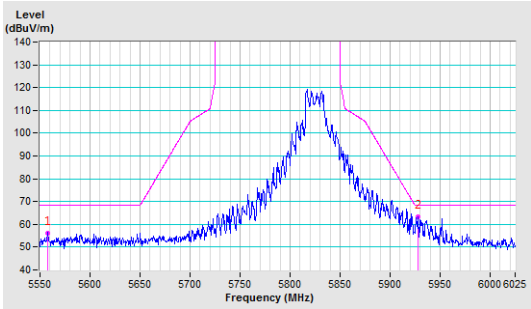
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

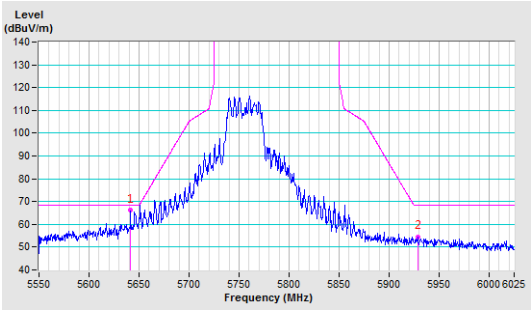
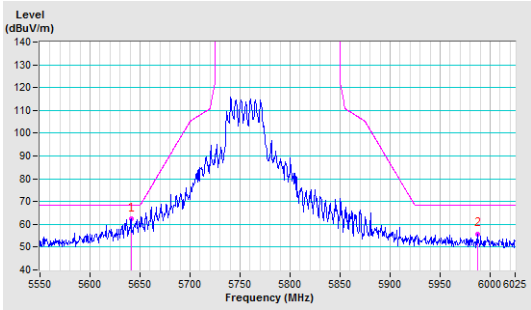
Horizontal	Vertical
	

CH 165 5825 MHz

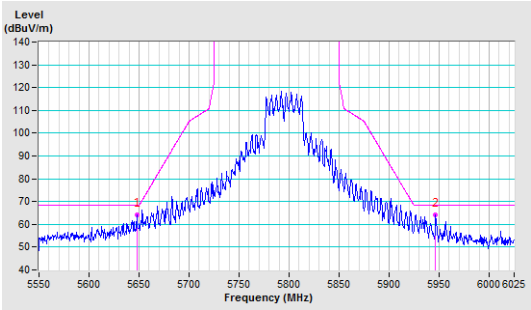
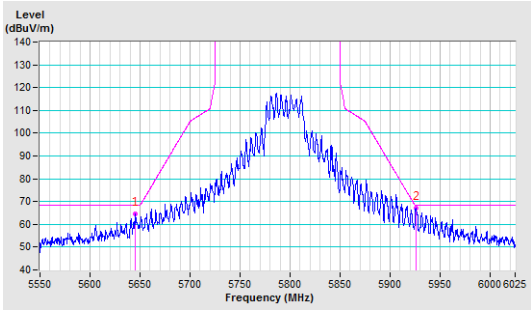
Horizontal	Vertical
	

802.11ax (HE40)

CH 151 5755 MHz

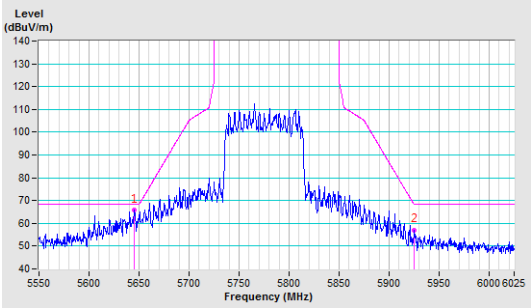
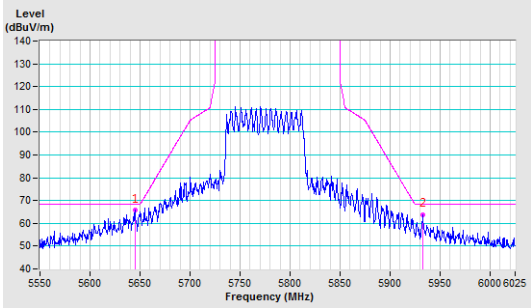
Horizontal	Vertical
	

CH 159 5795 MHz

Horizontal	Vertical
	

802.11ax (HE80)

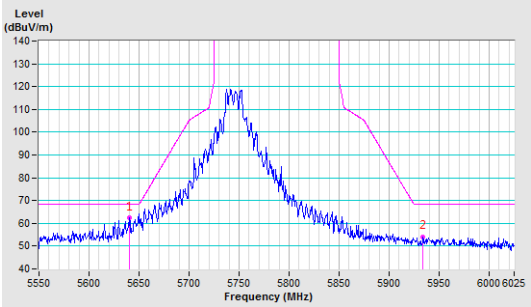
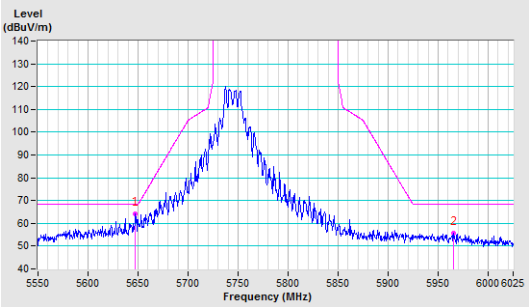
CH 155 5775 MHz

Horizontal	Vertical
	

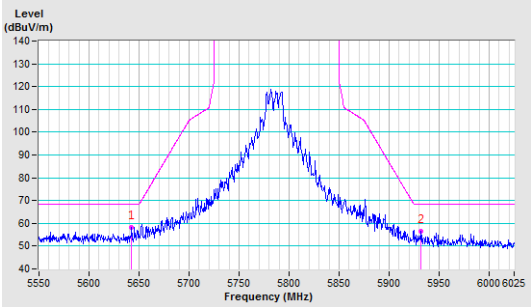
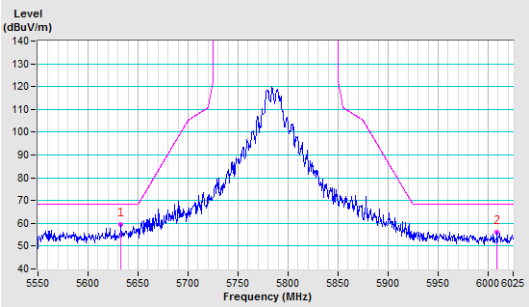
Mode 3

802.11a

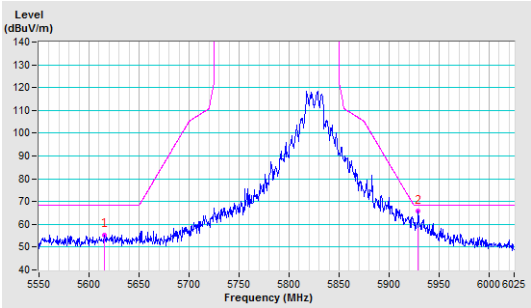
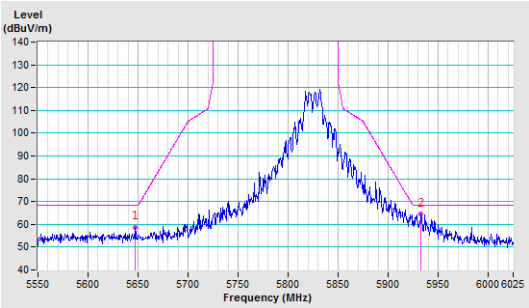
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

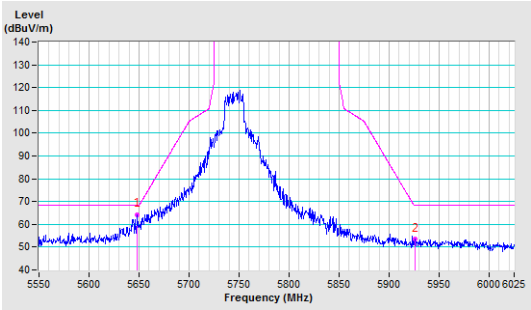
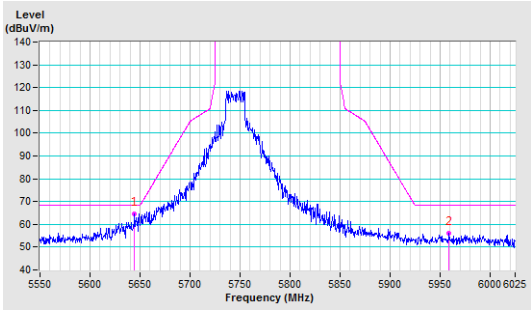
Horizontal	Vertical
	

CH 165 5825 MHz

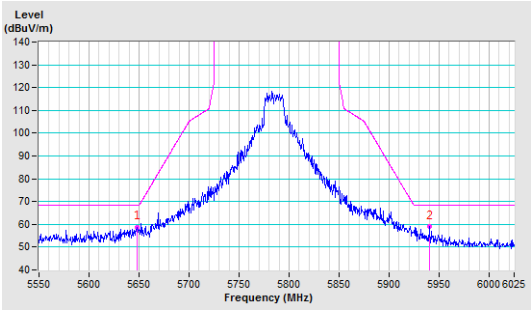
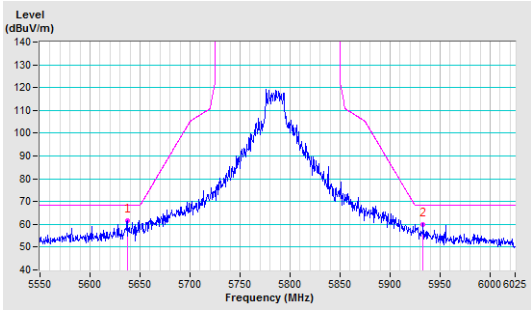
Horizontal	Vertical
	

802.11ax (HE20)

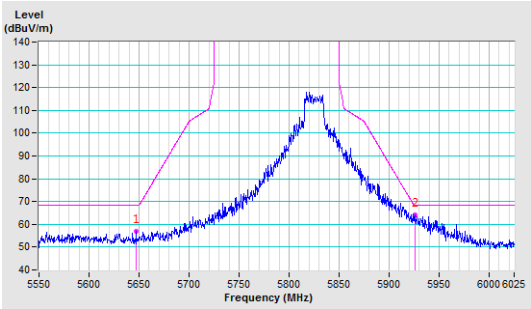
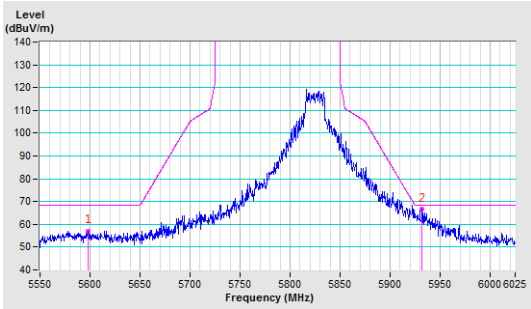
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

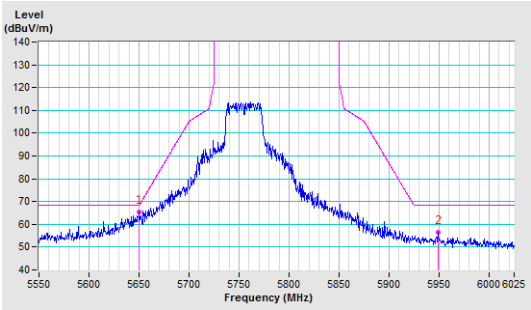
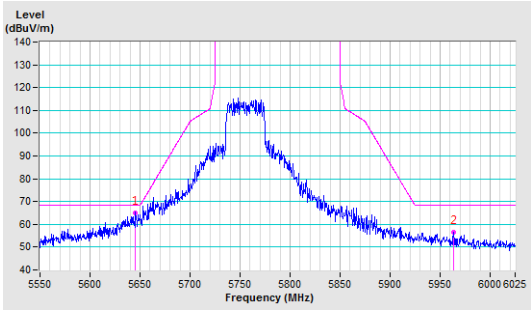
Horizontal	Vertical
	

CH 165 5825 MHz

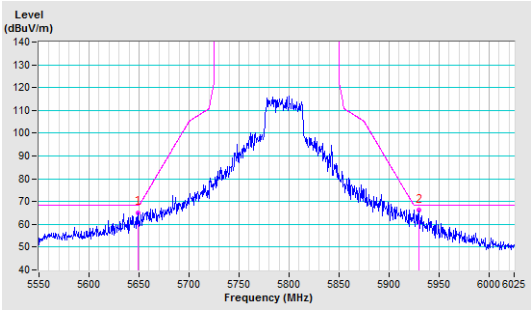
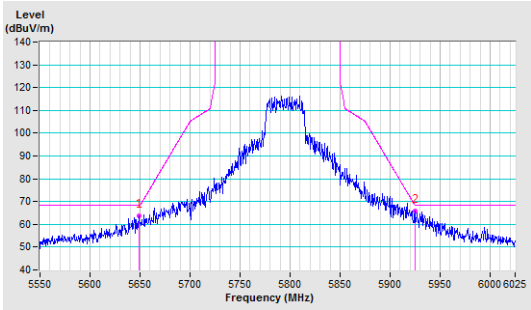
Horizontal	Vertical
	

802.11ax (HE40)

CH 151 5755 MHz

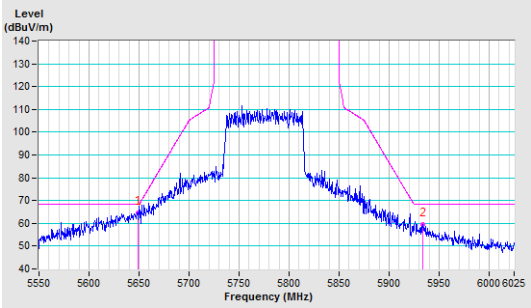
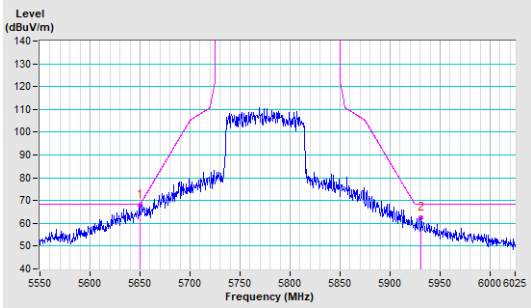
Horizontal	Vertical
	

CH 159 5795 MHz

Horizontal	Vertical
	

802.11ax (HE80)

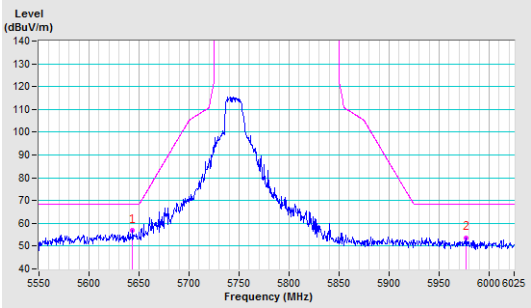
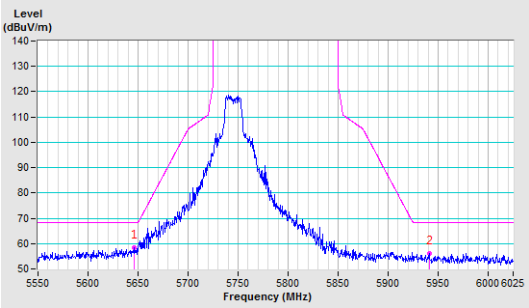
CH 155 5775 MHz

Horizontal	Vertical
	

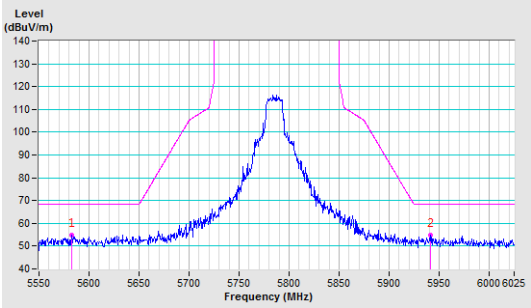
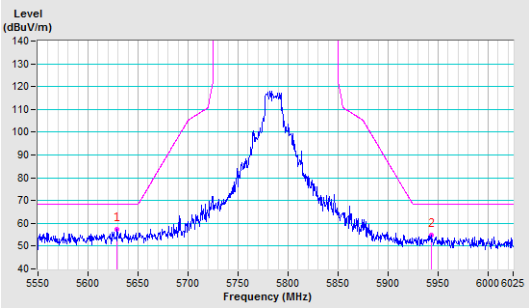
Mode 4

802.11a

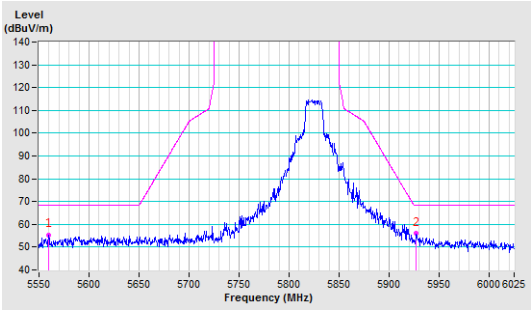
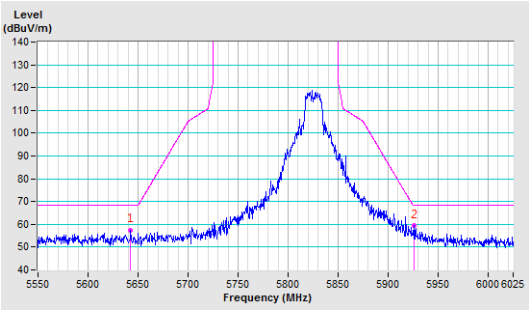
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

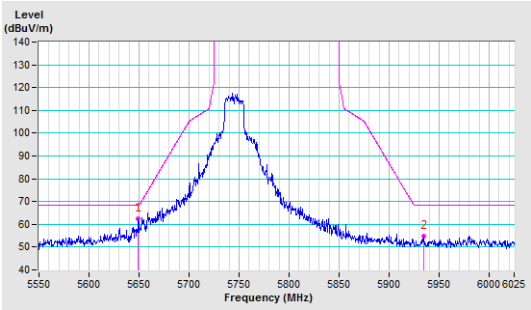
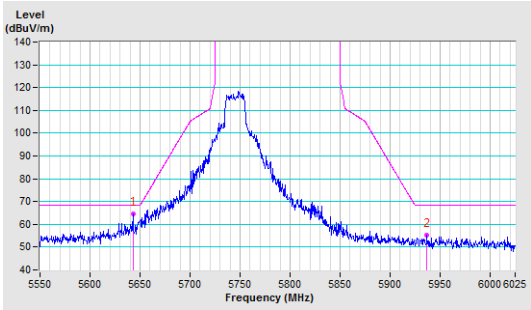
Horizontal	Vertical
	

CH 165 5825 MHz

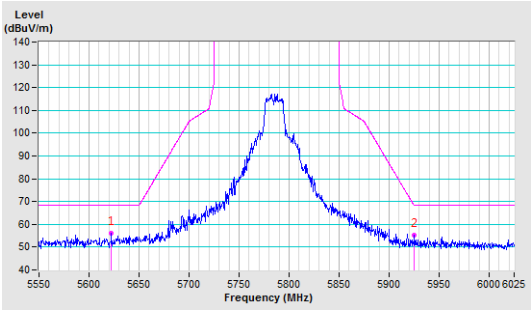
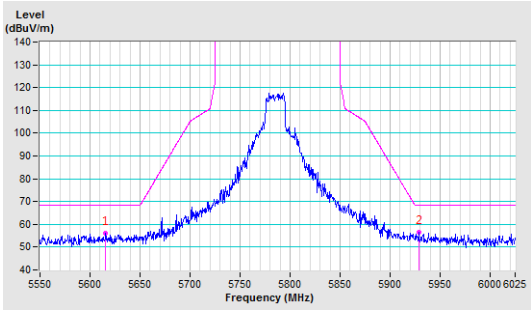
Horizontal	Vertical
	

802.11ax (HE20)

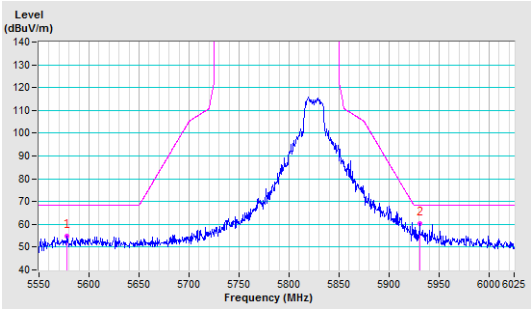
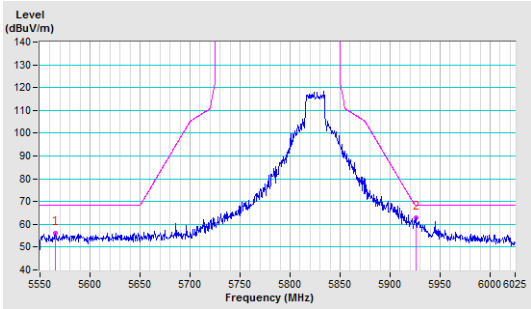
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

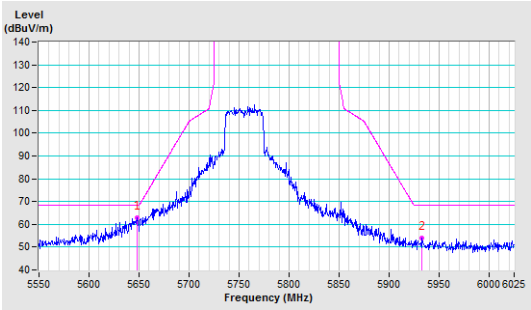
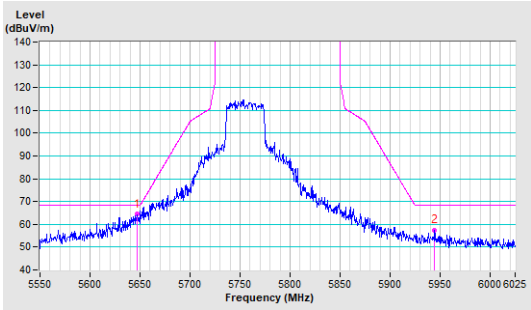
Horizontal	Vertical
	

CH 165 5825 MHz

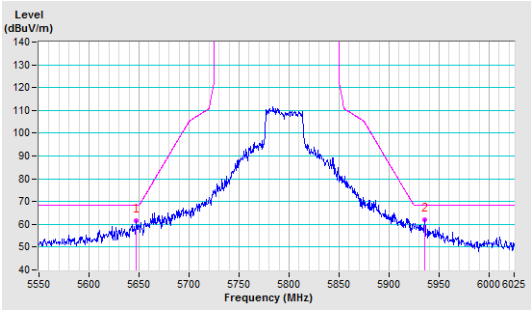
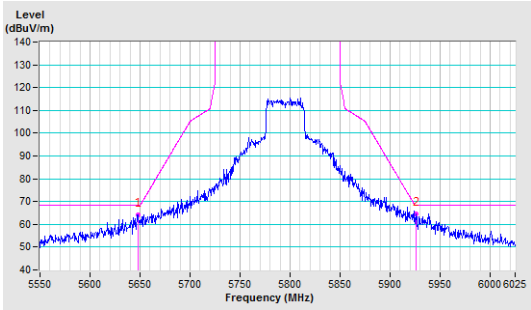
Horizontal	Vertical
	

802.11ax (HE40)

CH 151 5755 MHz

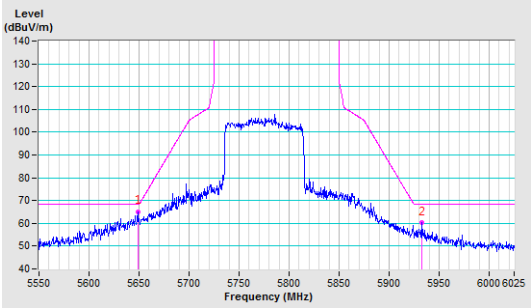
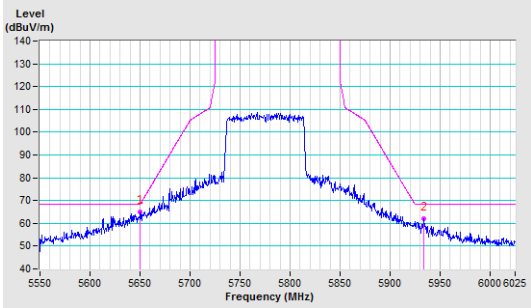
Horizontal	Vertical
	

CH 159 5795 MHz

Horizontal	Vertical
	

802.11ax (HE80)

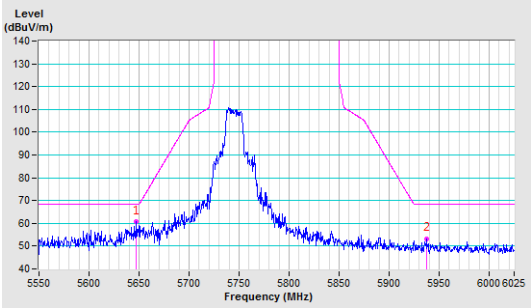
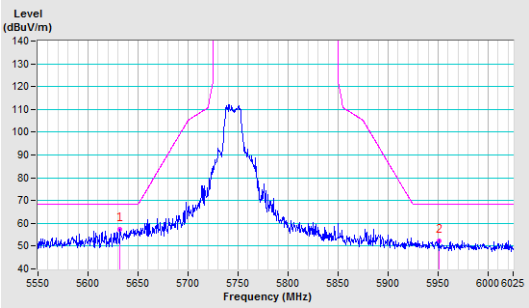
CH 155 5775 MHz

Horizontal	Vertical
	

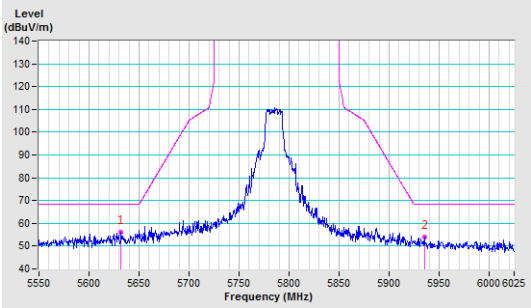
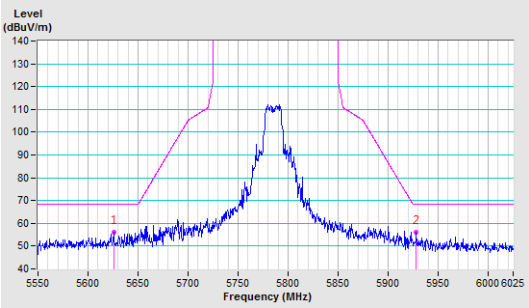
Mode 5

802.11a

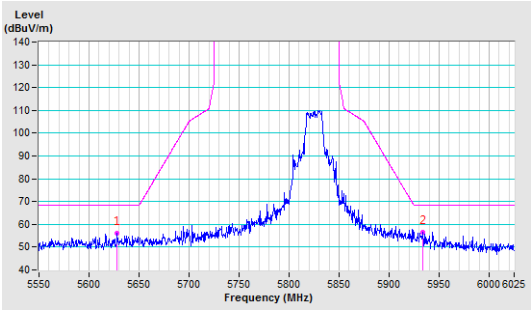
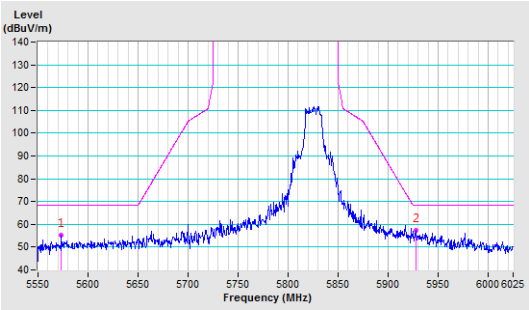
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

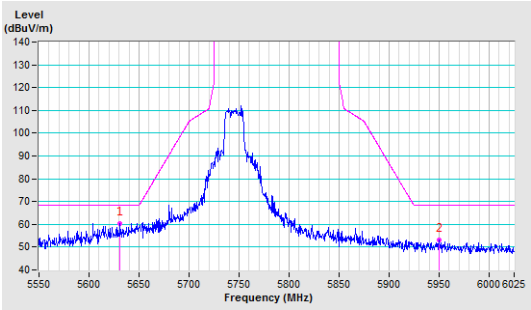
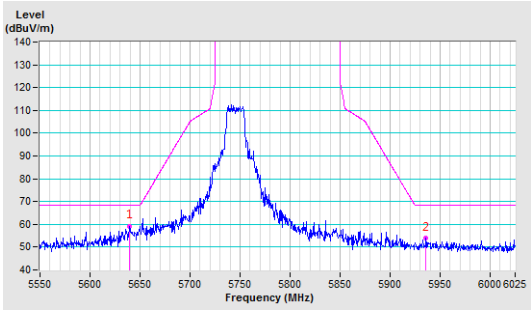
Horizontal	Vertical
	

CH 165 5825 MHz

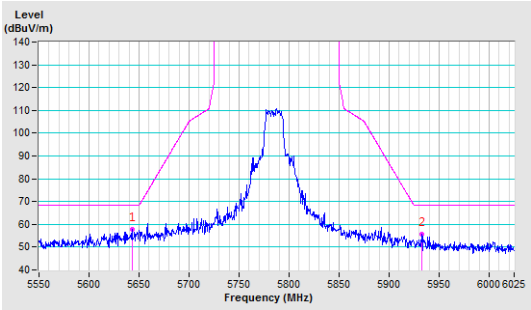
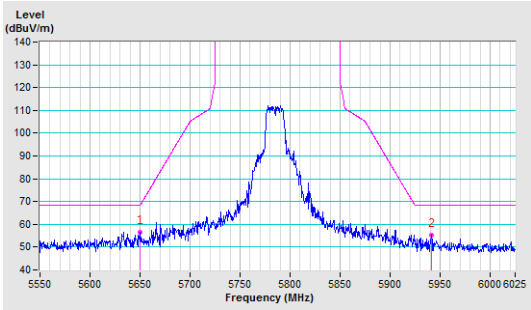
Horizontal	Vertical
	

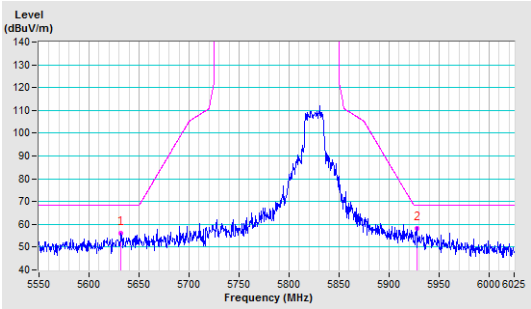
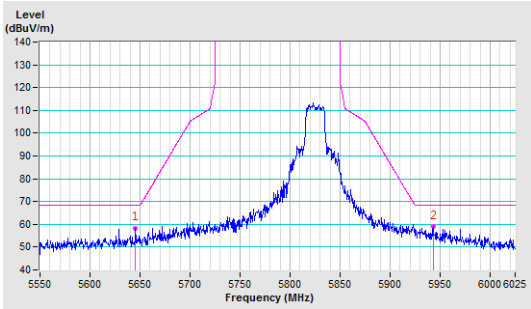
802.11ax (HE20)

CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

Horizontal	Vertical
	

CH 165 5825 MHz

Horizontal	Vertical